To locate events in the air/ground transcript, refer to the event timeline in the postmission report (on shelves) for GET (Ground Elapsed Time) of event. Transcript has GET/GMT at top of each page.

TABLE 2-I.- SEQUENCE OF EVENTS

Event	Time, hr:min:sec		
	Planned <sup>a</sup>	Actual	
Launch Phase			
Range zero (15:02:45 G.m.t.)			
Lift-off (15:02:45.36 G.m.t.)	00:00:00.2	00:00:00.4	
Maximum dynamic pressure	00:01:15.6	00:01:18.5	
S-IB inboard engine cutoff	00:02:20.3	00:02:20.7	
S-IB outboard engine cutoff	00:02:23.3	00:02:24.3	
S-IB/S-IVB separation	00:02:24.6	00:02:25.6	
S-IVB engine ignition	00:02:26.0	00:02:27.0	
Escape tower jettison -	00:02:43.3	00:02:46.5	
S-IVB engine cutoff	00:10:14.8	00:10:16.8	
Orbital Phase			
Orbital insertion	00:10:24.8	00:10:26.8	
S-IVB safing start S-IVB safing terminate	01:34:27.0 01:46:28.0	01:34:29.0 01:46:30.0	
S-IVB takeover	02:29:55	02:30:49.1	
Spacecraft/S-IVB separation	02:54:55.2	02:55:02	
First phasing maneuver start First phasing maneuver cutoff	03:20:00 03:20:16.3	03:20:09.9 03:20:26.7	
Second phasing maneuver start Second phasing maneuver cutoff	15:52:00 15:52:18.5	15:52:00.9 15:52:18.5	
First service propulsion ignition First service propulsion cutoff	26:24:55.2 26:25:04.7	26:24:55.7 26:25:05.7	
Second service propulsion ignition Second service propulsion cutoff	28:00:56.0 28:01:03.8	28:00:56.5 28:01:04.3	
Terminal phase initiate start	29:18:34.0	29:16:33	

<sup>&</sup>lt;sup>a</sup>Planned times for the launch phase are those calculated prior to the mission; planned times after orbital insertion are the last updated time prior to the event.

APOLLO 7

TABLE 2-I.- SEQUENCE OF EVENTS - Concluded

Event	Time, hr:min:sec		
	Planned	Actual	
Orbital Phase - Concluded			
Begin braking End braking, begin station-keeping	29:43:34 29:53:34	29:43:55 29:55:43	
Separation maneuver start Separation maneuver cutoff	30:20:00 30:20:05.4	30:20:00 30:20:05.4	
Third service propulsion ignition Third service propulsion cutoff	75:47:58.6 75:48:07.8	75:48:00.3 75:48:09.3	
Fourth service propulsion ignition Fourth service propulsion cutoff	120:43:00 120:43:00.4	120:43:00.5 120:43:00.9	
Fifth service propulsion ignition Fifth service propulsion cutoff	165:00:00 165:01:05.9	165:00:00.5 165:01:07.6	
Sixth service propulsion ignition Sixth service propulsion cutoff	210:08:00 210:08:00.4	210:08:00.5 210:08:01.0	
Seventh service propulsion ignition Seventh service propulsion cutoff	239:06:11 239:06:18.8	239:06:12.0 239:06:19.7	
Eighth service propulsion ignition Eighth service propulsion cutoff	259:39:15.9 259:39:27.9	259:39:16.3 259:39:28.2	
Entry Phase			
Command module/service module separation	259:43:33.8	259:43:33.8	
Entry interface (400 000 feet)	259:53:26	259:53:27	
Enter blackout Leave blackout	259:56:17 259:59:14	259:54:58 259:59:46	
Drogue deployment	260:03:17	260:03:23	
Main parachute deployment	260:04:14	260:04:13	
Landing	260:08:58	260:09:03	

<sup>&</sup>lt;sup>a</sup>Planned times for the launch phase are those calculated prior to the mission; planned times after orbital insertion are the last updated time prior to the event.

Mader lagg

## NEWS CENTER DO NOT REMOVE

APOLLO NEWS CENTER HOUSTON, TEXAS

APOLLO 7 MISSION COMMENTARY October 11, 1968

This is Apollo/Saturn launch control at T-2 hours and counting, T-2 hours countdown proceeding satisfactorily. The Apollo 7 prime crew aboard the spacecraft, going through some checks, primarily of their suit loop, the environmental control system that they have been tied into now aboard the Apollo 7. The spacecraft hatch remains open. It is due to be closed according to countdown about 10 minutes from this time. A short while after the hatch is closed and the cabin itself pressurized with a combination of 60 percent oxygen and 40 percent nitrogen, used for on the ground, we will go through some leak checks and then the commander will proceed into the support advisory system check. In the meantime, we are in the block house, although the elements of the mission are going as well as the crew is doing aboard the spacecraft at this time. We spent some 2 and 1/2 hours bringing the propellants aboard the Saturn IB launch vehicle earlier this morning, starting at 5 am when we resumed our countdown at T-6 hours. We brought the liquid oxygen aboard both stages and then the liquid hydrogen, some 67,000 gallons of liquid hydrogen will go out of the second stage a little later in the count. Following the propellant loading, the closeout crew attend that into the spacecraft area and command module pilot, backup command module pilot John Young, still aboard the spacecraft to perform some final checks. prime crew arrived on time and are now aboard. checks of the mission still going well and no further reports on our wind conditions, they remain the same as forecast earlier and we will continue to take a hard look at the wind situation, the one questionable factor in the countdown at this time. T - 1 hour 58 minutes and counting, this is launch control.

KING This is Apollo Saturn Launch Control T minus 1 hours 49 minutes 58 seconds and counting. We are continuing at this time. the three pilots are in the Apollo 7 spacecraft now checking out some major systems of the spacecraft with the spacecraft test conductor. Now that they are aboard and restrained into their seats we have brought some final checks of the suit loop into play. We have been checking the flow of the oxygen to the space suits on the three pilots and they appear to be satisfactory at this In addition to this, the command module pilot Donn Eisele made some preliminary checks with the spacecraft test conductor and his team are concerned with the guidance and navigation system, and just a matter of seconds ago the commander, Wally Schirra, began a series of checks of the abort advisory system. These are the cues that he receives in the spacecraft, a series of lights on panels indicating malfunctions. He will make a judgement based on these readouts plus cues he receives from the ground to make a decision on whether an abort would be required, and he would take the action if necessary. AT this time, the launch operation manager, Paul Donnelly, here in the block house, is sending a series of cues to the spacecraft in a test of the system. The commander, Walter Schirra, is responding to these abort cues by confirming lights going ON and OFF in the console to his left front. Our checkout continuing, in the meantime with the launch vehicle, the propellants are still relatively stable. We are running a few computer program runs with the instrument unit above the two stages of the launch vehicle. These computer tests, using the automation system we have at the pad, continue throughout most of the countdown. All proceeding satisfactorily at this time, weather conditions are still the same with the forcast of surface winds 11 to 16 knots in the launch area at launch time, which is planned for 11:00 a.m. Eastern Daylight Time. The winds appear to be marginal. We'll be keeping a close eye on them as we continue down in the count. The launch director is receiving reports on wind profiles from Houston Flight at the Manned Spacecraft Center, the Control Center in Houston. So we'll be keeping a close eye on this. Other aspects of weather appear to be great. The checkout continuing at T minus 1 hours 47 minutes 25 seconds and counting. This is Launch Control.

This is Apollo Saturn launch control at T minus 1 hour, 44 minutes in counting. Just about a minute ago the hatch was closed on the Apollo 7 spacecraft. We have it logged at 15 minutes and 30 seconds after the hour; the hatch was closed and secured on the Apollo 7 spacecraft. The support crew is still in the White Room at the 220 foot level. They'll be standing by as we pressurize the spacecraft to keep an eye on the progress of pressurization using that 60-40 atmosphere, that is 60 percent oxygen and 40 percent nitrogen in the spacecraft cabin on the ground. The astronauts of course in their suit loop are checking oxygen directly into their pressurized suits. The countdown is continuing to go satisfactorily at T minus 1 hour, 43 minutes, 8 seconds and counting.

This is Apollo Saturn Launch Control at That hour, 39 minutes and counting. One hour, 39 minutes and counting and we are continuing with the Apollo Saturn count at this time. The astronauts are aboard the Spacecraft, with the hatch closed and we're starting the pressurization of the cabin with the 60/40 combination atmosphere, that is 60 percent oxygen and 40 percent nitrogen. The astronauts in their spacesuits receiving oxygen directly through the suit circuit at this time with the helmets down. Our weather conditions remain the same as earlier forecast. The forecast for the Cape Kennedy area at launch time, 1100 am EDT here at the Cape calls for partly cloudy to occasionally cloudy in showers, these are the conditions. The winds are forecast as surface winds, east northeast some 8 to 16 knots. This gets close to our parameters and we are going to keep a close eye on wind conditions throughout the remainder of the count. Temperatures expected to be 82 degrees and we will have several cloud layers in the area, some scattered middle clouds 10 to 14,000 feet and some high cirrus clouds 30,000 feet. If any rain comes in, of course, we will get some low clouds in the area of 2800 feet. Around the rest of the world track, the weather conditions are satisfactory for launch, particularly in the main contingency recovery areas. the add Pacific, we expect partly cloudy conditions, winds of 15 knots, sea state of 4 feet. Western Pacific, partly cloudy, winds from the east at 12 knots, sea state of Conditions are about the same in the Western and 4 feet. Rearmen Atlantic. The one weather condition the Astronauts might be able to observe on their first pass, following a successful launch, would be as they approach the United States coast on the first pass as they go over Baja, Califormid off the west coast. They might be able to observe a small tropical storm, tropical storm Rebecca, which is a small storm sitting over the Pacific, just off Central Maerica; otherwise, the weather is generally good, cloudy conditions in the three major oceans, but that is the one major weather condition that they would be able to netice. The check out continuing in the Spacecraft, as well as with the crew here in the Blockhouse and all aspects of the mission are still going well at T-lhour, 36 minutes, 15 seconds and counting. This is Launch Control.

This is Apollo Saturn Launch Control at 30 minutes past the hour and T minus 1 hour, 30 minutes and counting. The crew aboard the Apollo 7 spacecraft is still making the various checkouts of their consoles as we purge the cabin with an atmosphere of 60 percent oxygen and 40 percent nitrogen. Once the cabin is purged and pressurized, the standby crew, the support crew, will be ready to depart However, we expect they will be in there for at least another hour standing by as required. The standby crew must depart from the area by the T minus 40 minute mark in the count when we're in our terminal countdown. stand by in the White Room for quite awhile yet to rechecks of the spacecraft and to assure that everything is GO as far as Apollo 7 is concerned from the 220 foot level. Here in the blockhouse the crew continuing to monitor the status of the various propellants aboard the Saturn 1B launch vehicle, liquid oxygen and the RP1 fuel in the first stage and the liquid oxygen and hydrogen fuel in the second stage of the 1B. We get continuing status reports here from the propellant monitors and all indications are that the propellants are in a very stable condition and are GO at this time. Of course throughout the whole remainder of the countdown we will be replenishing the supply of the liquid oxygen and liquid hydrogen since they are cryogenic propellants, and must be maintained at an extremely low temperature as a result the supply does boil off and we need to replenish it to assure that we have a hundred percent load on when we're ready to fly and those engines ignite at the 3 second mark in the countdown. The next major milestone coming up in about 10 minutes will be some checks of the emergency detection sys-These are checks between the crew here in the blockhouse, the spacecraft crew in the manned spacecraft operation building back at the Kennedy Space Center, and the Apollo 7 spacecraft. The spacecraft commander Walter Schirra will be conducting most of the operations as far as EDS or the Emergency Detection System, is concerned from the spacecraft end of the test. We're now at T minus 1 hour, 27 minutes, 33 seconds and counting. This is Launch Control.

This is Apollo Saturn Launch Control at T minus 1 hour 20 minutes and counting, and we are proceeding still aiming toward our planned liftoff time of 11:00 a.m. Eastern Daylight Time here at the Cape. Launch vehicle here at Pad 34 still going very well at the time as the crew continues to monitor its over all status using two large computers, one here in the block house and one beneath the launch vehicle on the pad to keep checks on the thousands of parameters and feedbacks that we get from the vehicle over these last several hours of the count. At the 220 foot level atop the pad, the prime crew for the mission, Astronauts Walter Schirra, Donn Eisele and Walter Cunningham, aboard their Apollo 7 spacecraft with the hatch closed, and we have just completed a purge of the cabin. That is, bringing in the 60 percent oxygen and 40 percent nitrogen atmosphere into the cabin. In the meantime, however, the crew members themselves are on the suit circuits, that is, taking in 100 percent oxygen through their space suits. We've completed the purge and the crew will now make a sample of the atmosphere inside the cabin and report back on the aspects of the sampling. The count down continuing, weather conditions still the same, still keeping a close eye on the surface winds in the area, which are forcast to be some 11 to 16 knots from the East Northeast at launch time. Now at T minus 1 hour 18 minutes 27 seconds and counting, this is Launch Control.

This is Apollo Saturn Launch Control, T minus 1 hour, 9 minutes and counting and we are proceeding with the Apollo 7 mission count. At this time in the count Astronaut Wally Schirra is still working on several trats with the ground control people both here in the blockbouse and at the control center back at the main spaceciatt operations building at KSC. The commander gave us another report a short time ago as he looked out, he reported, "from what I can see, it's blue as a bluebird out there." The checkout is continuing; we have completed the cabin purge of the Apollo 7 spacecraft and Schirra also completed about 5 minutes ago a series of rather extensive final checks of the Emergency Detection System. This is the system that would send cues to the spacecraft atop the launch vehicle in the event of any type of malfunction. We ran through a series of tests lasting some 15 to 20 minutes with the commander in the spacecraft participating with the crew here in the blockhouse and at the spacecraft control center. We are now in the process of calibrating the cue ball which is a small device atop the launch escape tower, right at the top of the bird iuself. The cue ball is an angle of attack meter that reads pressures and can give inputs as far as the attitude of the entire space vehicle is concerned during the early portions of flight. This calibration is going on at this time, we're also getting some readouts and checks of the tracking beacons ir the instrument unit of the Saturn 18 Launch vehicle. The target bond rader here at the cape has been sending signals to these beacons in the instrument unit and verifying that they are operating satisfactorily. We are still GO at this cias, still keeping an eye on the surface wind conditions, but the countdown is continuing. I minus I hour, 6 minutes, by accounts and counting; this is Launch Control.

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KING This is Apollo/Saturn launch control, T-60 minutes and counting, T-60 and we are still proceeding with the Apollo 7 count at this time. The spacecraft test conductor, Skip Chilton, still making checks with spacecraft commander Walter Schirra in the Apollo 7 spacecraft at a 220 foot level here at launch complex 34. Our countdown still progressing satisfactorily. We will be starting the terminal count in about 9 and 1/2 minutes from this time. A short while ago Houston Flight made final status check to see if all elements were ready to pick up the terminal count and all reported go. We will make our checks here shortly at the Cape, both spacecraft and launch vehicle-wise to assure all is in readiness for the terminal countdown, which we will start at 50. We are now starting to break up the White Room at the 220-foot level. We have actually pulled some of the openings, although the White Room is still attacked to the hatch, some of the openings are now being pulled away in preparation for removing the Apollo access arm which will come about 20 minutes from this time. Checkout is going quite well. Wally Schirra just informed the spacecraft test conductor that we are a little bit ahead on the count in the spacecraft checkout at this time. All aspects still looking good, the one question still remains, surface winds in the Cape Kennedy They are close to our marginal limits and we will be keeping a close eye on them as we go further down. Once again, the reported weather conditions, the forecast was for surface winds 11 to 16 knots from the east northeast in the Cape Kennedy area. We are now T-58 minutes 19 seconds in counting, this is launch control.

This is Apollo Saturn Launch Control at KING T-50 minutes and counting. Fifty minutes and counting, we have started our terminal countdown here at the 50 minute mark and the countdown is a GO for the Apollo 7 mission. At this point in the count, the Capsule Communicator here in the Blockhouse, Astronaut Stu Roosa going through some communications, checks with the crew aboard Apollo 7 located some 220 feet above the pad here at complex 34. In the meantime checks with the launch vehicle still continuing to go satisfactorily. As we come into our terminal countdown, we will have some major events coming up in some 10 or 15 minutes or so. As the support crew clears away from the White Room, we will be ready to pull back that Apollo Access Arm to a standby position some 3 feet away from the Spacecraft. Countdown still proceeding satisfactorily at 49 minutes, 4 seconds and counting. This is Launch Control.

This is Apollo Saturn Launch Control at T minus 45 minutes and counting, T minus 45, the count down proceeding satisfactorily. We've been in our final count down for Apollo 7 now for some 19 hours since it picked up yesterday afternoon, and all aspects of the mission are still GO. We're still keeping a close look on weather conditions, particularly the surface winds in the Cape Kennedy area. Following is a recount of the activities since we picked up the count down early this morning. came out of a built in HOLD at 5:00 a.m. Eastern Daylight Time with the count down at T minus 6 hours. We then proceeded to load the cryogenic propellants, the liquid oxygen and liquid nitrogen, aboard the two stages of the Saturn IB launch vehicle. In total, we loaded close to 100 thousand gallons of liquid oxygen in total between the two stages, and then proceeded to load some 64 thousand gallons of hydrogen aboard the second stage. Following that operation, we were able to bring our close out crew back in to prepare for the astronaut's arrival. prime crew, Astronauts Wally Schirra, Donn Eisele, and Walter Cunningham, were awakened per the astronaut count down at 6:00 a.m. Eastern Daylight Time this morning. were awakened at their quarters at the Manned Spacecraft Operations Building at the Kennedy Space Center, some 7 miles from the launch pad. They then went down the hall to a medical examining room where they took a brief physical examination, given by Doctors Jerry Joyner and John Teegan. Following the physical, Dr. Joyner said the astronaut's physical exams were within normal limits, and that they are ready to go. The crew then sat down for breakfast. The menu was steak and eggs, orange juice, toast and coffee. They had a number of guests at breakfast this morning, and these guests included Mr. James Webb, the former administrator of the National Aeronautics and Space Administration, Mr. John Healy from North American Rockwell, Mr. Fred Peters, who has been NASA representative at North American on the west coast, Mr. Ken Kleinknecht, who is deputy at the Manned Spacecraft Center in Houston, deputy for command service module operations under the Apollo Program Office. the support crew astronauts who have been working so close with the Apollo 7 crew for these many months also were at breakfast with the prime crew. These were Astronauts Ron Evans and Bill Pogue. Deke Slayton, Director of Flight Crew Operations, also joining the crew for breakfast. Following breakfast the crew put on their space suits and were called to the pad at the key time in the count down. Just as the count down called for Astronaut Walter Schirra came aboard the Apollo Spacecraft at the 2 hour and 25 minute mark in the count. At 10 minute intervals thereafter he was

KING followed in by first the Lunar Module Pilot Cunningham, and finally by Donn Eisele, the man who has the middle seat in the spacecraft who came aboard 10 minutes later. The hatch on the spacecraft was closed at 9:15 a.m. this morning and the count has been continuing satisfactorily since that time. The latest weather report we have for the Cape Kennedy area at this time calls for scattered clouds at launch time, winds from the east 15 to 18 knots with gusts to 22 knots. The temperature in the launch area expected at 82 degrees. For a status report we now switch you to the Mission Control Center in Houston.

This is Apollo Control in Houston. It's HANEY a typically beautiful Texas day out here, blue skies and almost no wind. I know you people in Florida will appreciate that. Around the world it's pretty much the same. There is some weather out in the Pacific, a typhoon out near Japan, which we won't see for a few revs, and a new tropical storm kicking up off Baja, California. Our world range of stations is in excellent condition, only the most minor problems being reported from the 17 high speed data stations around the world. The Launch Control - Flight Control team that will manage the early revolutions of the flight has been on duty here in Houston now about 2 hours, and all in all we look pretty good. Wally Schirra, while Jack King was talking, I heard him observe as we evacuated the flight room, he is still Wally Schirra. He noted the departure of Gunter Wendt, the pad room - the white room pad leader, by reporting to the crew that Gunter went. And he also suggested that Gunter have a good trip down on the elevator. All in all at 39 minutes before launch we look good here in Houston.

This is Apollo Launch Control at T minus T minus 39 and we are proceeding. 39 minutes and counting. Coming up in a few minutes will be another milestone in the countdown as we retrack the Apollo access arm from the spacecraft. Up to this time the access arm has been attached even though the spacecraft hatch has been closed. The countdown in the blockhouse calls for the access arm to be pulled back at the 33 minute mark in the count. However, when this does occur, we will pull the access arm some 3 feet away from the spacecraft, 12 degrees to be exact, and this will be a standby position in the event it was necessary to bring it back to the spacecraft rapidly. The access arm will not be fully retracted to its fall back position on the umbilical tower until the 5 minute mark in the count. Countdown still proceeding and weather conditions still the same, and we are still keeping a close eye on the surface winds as we come up on 38 minutes and counting. This is Launch Control.

This is Apollo/Saturn launch control KING at T-33 minutes 30 seconds and counting. However, we appear to have encountered difficulty, perhaps the first difficulty in our countdown today. It is concerned with the elevator at the launch pad. This is the high speed elevator that travels from the base of the pad to the 220 foot level and of course, carries the crew and other support people up and down from the spacecraft location. elevator appears to have malfunctioned at this time. We plan to hold 3 minutes from now, the 30 minute mark in the count and send several technicians in to take a look. the meantime, the access arm remains attached to the Apollo and of course, directed toward the hatch. In the event of an emergency condition, we have the slide wire available right there on the umbilical tower for escape if necessary. We are going to hold at the 30 minute mark in the count and take a look at the elevator. We are now at T-32 minutes 26 seconds in counting, this is launch control.

This is Launch Control, T minus 30 minutes however we are counting. T minus 30 minutes and counting. We have discussed the problem; it appears the difficulty with the elevator now is okay and the countdown is continuing. In the meantime we have completed Apollo transfer with the Saturn 1B launch vehicle, that is going from an external power source to the flight batteries aboard the vehicle and then returning to the external power. We will not go to internal power finally until the 28 second mark in the count. The elevator appears to be okay at this time and the countdown is continuing. We are standing by at T minus 29 minutes, 20 seconds and counting. This is Launch Control.

KING This is Apollo/Saturn launch control. T-28 minutes 14 seconds and counting and we are proceeding. Just a matter of seconds ago, the Apollo access arm, which had been connected to the spacecraft at the 220 foot level was retracted to a standby position. This is a location some 3 feet away from the spacecraft. Later on in the count, actually at T-5 minute mark, the access arm will be fully retracted. The removal of the access arm at this time, the launch escape tower, about 155,000 pound thrust, launch escape tower atop the command module now has been It is now activated and can be used if required. Our status with the elevator is as follows: we understand that the elevator is at the bottom level of the pad. Discussions during the period indicated that this would not be a hazardous condition, since we have the escape system operating on the spacecraft itself and in the event of bringing the access arm back for any difficulty we would have the slide wire and all probability, a capability of bringing the elevator up to the 220 foot level. So we are proceeding and that is our status as we come up on 27 minutes and counting. Mark T-27 minutes and counting. is launch control.

This is Apollo Saturn Launch Control at T minus 25 minutes and counting. T minus 25. We are standing by for another milestone event here at the pad at this time. Coming up shortly will be a check of the reaction control system thrusters on the Apollo 7 spacecraft. The spacecraft commander Wally Schirra in a few minutes will in fact static fire some of these modules in order to assure that they will be operating properly. The crew aboard the spacecraft now pressurizing the reaction control system in readiness before the test of the thrusters that will be coming up shortly. All, still all aspects going well with the launch vehicle; we completed a key power transfer test and the count is still going well on the launch vehicle side. Now at T minus 24 minutes, 12 seconds and counting, this is Launch Control.

This is Apollo Saturn Launch Control at T-21 minutes and counting. T-21, at this time the commander of the Apollo 7 Spacecraft, Wally Schirra, has gone through a series of checks with the reaction control system on the Apollo 7 Spacecraft. We have a total of some 16 reaction control system engines on the service module of the Apollo 7. They're located in four quardrants around the service module and each of the engines is capable of generating some 100 lbs. of thrust. Astronaut Schirra fired these thrusters and the report from the Spacecraft Test Conductor is the static firing went very well. We actually did fire several of the thrusters during this test and the report was that the test went well. In the meantime we completed some final checks of the range safety destruct system aboard the Saturn 1B launch vehicle. These are checks between the launch crew and the Air Force Eastern Test Range. Those checks also went very well, and the count is continuing. We have just passed the 20 minute mark. We are now at T-19 minutes, 54 seconds and counting. This is Launch Control.

This is Apollo Saturn Launch Control at T minus 16 minutes and counting. T minus 16. We are GO for launch at this time. Our latest check on weather conditions and particularly surface winds in the area indicate the winds are GO at this time, at the 16 minute mark in the count; to repeat, the winds are GO for launch. Coming up shortly the Apollo 7 spacecraft will go on full internal power; this will come at the 15 minute mark; this means we will go on the full power of the three fuel cells aboard the Apollo 7. Up to this time the fuel cells have been sharing the load with an external power source. When we go internal we remove the external power source from the spacecraft. This will be coming up shortly; in the meantime we are going through final calibrations of the overall telemetry systems, concerned with the Saturn 1B launch vehicle. We are now coming up in a matter of seconds on the 15 minute mark in the count; mark T minus 15 minutes and counting. T minus 15. This is Launch Control.

This is Apollo/Saturn launch control KING at T-12 minutes and counting. T-12 and we are go for the Apollo 7 mission at this time. At the final 11 minutes or so of the count. we will have a number of major highlights. we will have a status report that will come in about the 5 minute mark and a check of all aspects of the mission to assure that we are still go at that time. The complete launch vehicle will go on a automatic sequence at the 2 minute and 43 second mark in the countdown. From that time down, all aspects of the count will be automatic, run by the computer system manager here in the Block House and also managed spacecraft-wise at the Control Center at the Manned Spacecraft Operations building at Kennedy Space Countdown continuing at this time, we are now T-11 minutes 6 seconds and counting. As this automatic sequencer continues down, we will have a transfer to internal power with the launch vehicle at the 28 second mark and the eight engines in the first stage of the Saturn IB due to ignite at the 3 second mark in the count. engines will ignite in tandem and will be up within 3/10 of a second. During those remaining 3 seconds we basically will check the thrust of the eight engines to assure we have that 1.6 million pounds of thrust desired for the launch. At that time, when we close the vents on the Saturn IB launch vehicle, we will have a vehicle on the pad weighing some 1.3 millions pounds. Now approaching the 10 minute mark in the count, we are T-10 minutes 18 seconds and counting. This is launch control.

We're at T-8 minutes, 25 seconds, and counting and we are still GO for the Apollo 7 launch at this time. Spacecraft Test Conductor Skip Chilton going through a final status check with his spacecraft crew here at the Kennedy Space Center. In the Blockhouse, the crew still monitoring the performance of the Saturn 1B vehicle and all is GO for the mission at this time. He's completing up the status report as we complete the 8 minute mark. T-8 minutes and counting, T-8 and we are GO for launch at this time. This is Launch Control.

KING This is Apollo Saturn Launch Control at 6 minutes 38 seconds and counting, we are still GO for launch at this time. Astronaut Wally Schirra just got a report that he was GO for 164 laps, he said he was ready to go without a tire change. The count still proceeding at this time. T minus 6 minutes 20 seconds and counting, however, we just heard a report over the circuit we are asking for a HOLD. We are standing by for further reports. We are now at T minus 6 minutes 15 seconds and holding, T minus 6 15 and holding. This is Launch Control 6 minutes 15 seconds and holding, the test supervisor advises he expects this to be a very brief HOLD. The reason is concerned with a chill down of the engine of the second stage of the Saturn IB launch vehicle. From the 20 minute mark down we introduced gaseous helium into the engine chamber of the second stage to condition it for those propellants that will come into the engine chamber during flight. Of course, the liquid oxygen is at minus 297 and the liquid hydrogen at 423 degrees below zero. The request for the HOLD came to give an additional several minutes for the chill down. To repeat, we are holding at 6 minutes 15 seconds expecting to resume the count shortly. This is Launch Control standing by.

This is Launch Control. We are holding at 6 minutes 15 seconds. Launch Vehicle Test Conductor has advised we expect to resume the count about 35 seconds from this time. To repeat, the reason for the HOLD concerned with additional time for the chill down of the second stage engine of the Saturn IB launch vehicle. We are standing by to resume the count.

This is Launch Control. We have just resumed the count down now at T minus 6 minutes and 8 seconds and counting we resume the count at 56 minutes past the hour. Now coming up on the 6 minute mark, mark T minus 6 minutes and counting. T minus 6, we are proceeding. All reports are that we are GO for a launch at this time. At this point in the count down now we will be coming up on the 5 minute mark, we will be ready to retract that Apollo access arm to its full retract position. It has been on a standby position some 3 feet from the command module up to this time. We have now armed the ignition system of the Saturn IB launch vehicle. This means that it can now receive the signals to ignite those engines at the proper time in the count down, which will come at the 3 second mark. be coming up on some final status reports at this time. T minus 5 minutes 15 seconds and counting. The mission director, Bill Snyder, has given a GO for the launch. Coming up on the 5 minute mark, mark 5 minutes and counting, says Supervisor Don Phillips, giving a final call of GO/NO-GO KING to the various elements of the mission. We are standing by as the reports come back in.

AT This is Apollo Launch Control now at T minus 4 minutes 7 seconds and counting. Spacecraft Test Conductor Skip Chilton has told Commander Wally Schirra "You are GO for the launch." Schirra reported that all looks good. We have now armed the destruct system of the two stages of the Saturn IB launch vehicle, and will be coming up about a minute from this time on the automatic sequencer. From that time down we will be completely automatic in the launch vehicle. We are now at 3 minutes 40 seconds and counting, this is Launch Control.

This is Apollo Saturn Launch Control coming up on the 3 minute mark on the count, several seconds from this time. Mark 3 minutes and counting, T minus 3, we are continuing. The astronauts in the spacecraft having just completed some final checks on the guidance and navigation system. We are now at 2 minutes 50 seconds, coming up shortly on the automatic sequencer. The astronaut abort advisory system is in effect at this time, the key people here at the launch complex ready to advise. Now at T minus 2 minutes 35 seconds and counting, it appears that the automatic sequencer is in at this time. T minus 2 minutes and 30 seconds. At this point the various tanks in the two stages of the Saturn IB vehicle are starting to pressurize. We pressurize these tanks with helium. are pressurized, of course, to force the various propellants into the engine chambers for the proper ignition. The S1B first stage fuel tank is pressurized and the second stage liquid oxygen tank pressurizing at this time. Now coming up on the 2 minute mark, T minus 2 minutes and counting, T minus 2. Not as much reports now on the communication circuits as everybody

Not as much reports now on the communications circuits as everybody stands by monitoring the various consoles and watching the various parameters to assure everything is okay. T minus 1 minute, 43 seconds and counting. We are still proceeding. Astronauts standing by in the spacecraft as we come up on the 92 mark in our countdown. T minus 90 seconds and counting. T minus 90. We have conditioned the liquid oxygen in the first stage of the Saturn Launch Vehicle, all tanks in the two stages now pressurizing. Most of the work over these final several minutes concern with the launch vehicle directed by the test conductor, Don Carlson. One minute, 10 seconds and counting. We are still GO at this time. Coming up on 1 minute; mark T minus 60 seconds and counting. We are GO for Apollo 7 at this time. T minus 50 seconds; the vehicle now pressurized and the vehicle is GO as is the spacecraft at this time. Coming up on the 40 second mark; T minus 40 seconds and counting. T minus 40. All reports look good from here in the blockhouse at this time. All aspects of the mission GO; T minus 30 seconds and counting. get ignition of those 8 engines in the first stage at the 3 second mark in the countdown. Now at T minus 21 seconds and counting. We have completed our power transfer. The Saturn 1B launch vehicle, which now weighs 1.3 million pounds is ready to go; coming up on the 10 second mark. 10, 9, 8, 7, 6, 5, 4, 3, 2, we have ignition. Commit liftoff; we have liftoff. This is Launch Control; we have cleared the tower.

Roger; tower clear. 12 seconds out and HANEY the roll program has commenced. 24 seconds out and Schirra reports the pitch program has commenced. 40 seconds, the roll program is complete. 55 seconds, the cabin is relieving; Schirra reported a little noise. One minute. One minute 20 seconds into the flight; all systems GO on the ground and in the air. One minute 40 seconds. Flight director asked the flight dynamics officer if he likes it, and he says, "Yes sir; it looks good." Coming up on 2 minutes; mark 2 minutes. We're having a status check; Apollo 7 has been given a GO for staging. Two minutes, 15 seconds. engines have shut down; outboard engines have shut down; Schirra called both events. He's got ignition and he says we are up to thrust on the second stage. The thrust is okay at 2 minutes 40 seconds into the flight.

SCHIRRA Oh, beautiful. Tower has really jettisoned.

HANEY Wally says all beautiful, that tower has really jettisoned; it went way out. We are near the 50 mile altitude now and about 60 miles downrange. Three minutes 5 seconds into the flight.

FLIGHT Wally, you're looking good.

But the second of the second of the

HANEY Schirra has just tagged up with the COM here in Houston; a very clean voice communication today. Three minutes, 25 seconds into the flight. (garble) checks now Wally. FLIGHT It looks okay now flight. We're looking SCHIRRA at it closely. Trajectory and guidance are GO. Apollo. FLIGHT Trajectory and guidance give another GO HANEY here. (garble) little bumpy here, but -SCHIRRA Wally says, "A little bumpy on the second HANEY stage; a little bumpy, but we can't hear any complaints. Seventy miles altitude; and about a 120 miles downrange. Mark; Apollo 7 systems are GO. SCHIRRA Looking real fine here Wally. FLIGHT SCHIRRA Gimbals are tight. Four minutes, 10 seconds into the flight. HANEY Gimbal checks looks very good. SCHIRRA Schirra says, "The gimbal check looks HANEY very good." SCHIRRA This 1G stuff is great. His observation is the 1G stuff is great. HANEY Apparently the G loads were quite low. We've been monitoring Schirra's heart rate because that's the only physical parameter we have coming through and it, at launch, and through the early stages, ran about 90 and 92 beats. Four minutes. 50 seconds into the flight. Good here, flight. SCHIRRA Flight director's polling all his stations HANEY here and is getting enthusiastic GO's at every console. Five minutes into the flight. EISELE Spacecraft guidance is GO. FLIGHT Roger; you're looking real good. And we've heard from Don Eisele; reported HANEY the spacecraft guidance GO. 90 miles altitude now. Nearly 250 miles downrange at 5 minutes and 25 seconds into the flight. The guidance tracks are exactly overlays here in the Control Center. That is the plan versus the actual. Looking good flight. SC All systems still looking very good at FLIGHT Houston. You're looking real fine Apollo 7. FLIGHT Roger; she's riding like a dream. SCHIRRA

HANEY Wally says she's riding like a dream at 5 minutes, 58 seconds into the flight.

FLIGHT ...on Wally.

SCHIRRA Six minutes and we're really GO.
haney Mark 6 minutes.

```
SC
                     The window view is sensational.
     FLIGHT
                    We finally got to look at the BBC.
     SC
                     Yeah, that was a real -
     FLIGHT
                    Okay, everything looks good here -
     HANEY
                     Six minutes, 20 seconds.
     SC
                     Flight reports everything is right on
track.
     HANEY
                    Mark 6 minutes, 30 seconds; where the
trajectory now is beginning to level out at nearly 110 miles
altitude and we are coming up nearly 400 miles out over the
Atlantic Ocean.
     FLIGHT
                    You're right on the old button.
     HANEY
                    Cap Com Jack Swigert here in Houston
reassures the crew that, "You're right on the old button."
and the communications are so clear it sounds like the crew
is working from the simulator. Seven minute, 3 seconds into
the flight.
     CUNNINGHAM
                     - cut out there -
                    And we just had our first report from
Walt Cunningham in the right seat reporting on the antennas.
                    Walt's a little garbled.
     FLIGHT
     HANEY
                    His communication was not quite as clean
as that from Eisele and Schirra but quite readable. Seven
minutes, 30 seconds into the flight.
     CUNNINGHAM
                    7 downclear; LV.
     FLIGHT
                    You're coming in very garbled.
     EISELE
                    Roger. Okay -
     FLIGHT
                    You're also garbled Don; I can read out -
     HANEY
                    Seven minutes, 45 seconds into the flight.
     SC
                    (garble) fuel -
     FLIGHT
                    Let's see what you can do with it.
     HANEY
                    Mark, 8 minutes into the flight.
     EISELE
                    Give it to them at ... 8 minutes to go.
     FLIGHT
                    Okay, copy -
     HANEY
                    And the crew reports the guidance - Don
Eisele reports the guidance is GO at 8 minutes. We are 8 min-
utes, 15 seconds.
                    - bumpy road, very, very (garble)
     SC
     HANEY
                    We are predicting a cut off time at 10
minutes plus 16 seconds, plus 16 seconds I believe. Eight
minutes, 40 seconds now; the trajectory has flattened out
at about 125 nautical miles and we're 800 miles downrange.
     SC
                    Flight, this is (garble)
     HANEY
                    The communication in the last minute has
gotten somewhat graveley, not nearly as clean as it was in the
early part.
     SCHIRRA
                    Roger; we're GO for orbit at 9 minutes.
     HANEY
                   'And Schirra at 9 minutes reports we're
```

GO for orbit.

HANEY Control Center here is considering shifting the - com loop to the Vanguard Ship which is parked out south of Bermuda somewhere mid-Atlantic. The communications are still quite good. They were just extraordinary through the first 6 minutes of flight. At 9 minutes, 30 seconds into the flight, all systems are in excellent shape. We are now predicting shut down at 10 minutes and 20 seconds, 10 minutes 20 seconds into the flight. We are now coming up on our mark 10 minutes into the flight, mark 10 minutes.

SC RP Delta, please Cap Com.

FLIGHT RP Delta Apollo 7.

HANEY 10 minutes, 10 seconds. FLIGHT (garble) to Apollo LOS.

SCHIRRA Roger; understand.

HANEY And - we got a cut off that sounded to me like at about 10 minutes, 19 seconds, Schirra confirmed it. And Eisele noted that it felt a little different than when they were on the booster; when that cut off came through. They will remain attached to the S4B that second stage and they will be given a GO to stay in the planned configuration, attached to the second stage for perhaps - nearly 3 hours.

FLIGHT (garble) we have you GO for orbit.

Go for orbit.

HANEY And the control center has relayed word here, "We show you GO for orbit."

here, we show you go for orbit. For the first six revolutions around the earth, it will be a revolution by revolution consideration, but these cutoff parameters were just nearly as perfect as they could be from the looks of our plot boards. 11 minutes 30 seconds and the crew has been advised that the S-IVB systems have been safed. The electrical circuits are shut down and the booster is considered in a - a quite safe configuration. Some residual liquid hydrogen and liquid oxygen remaining aboard, that will be vented as we move through this first revolution.

HANEY This is Apollo Control in Houston at 13 minutes into the flight. We are still getting excellent communications from Apollo 7 which is now in the middle of the Atlantic Ocean. The quality of the voice com is not that what it was in the first few seconds, but it - the first few minutes - but it is still quite readable. We have reracked the entire voice communications from liftoff through staging. We are prepared to play it for you now and it begins at T-30 seconds. Roll the tape, please.

ROOSA And Apollo 7, stand by for the 10 second

count.

Understood. 10, 9, 8, 7, 6, 5, 4, ignition. ROOSA (garble) liftoff. CAPE Clear of the tower. CAPE Roll commence. CAPE Pitch is tracking good. SC CAPE Roger. At a thousand five degrees. SC Roll complete. CAPE Roger, she running - it's getting a SCHIRRA

little noisy now.

CAPE DDS manual.
SC Roger one Charlie.
CAPE Roger, we're go here, Jack.

minutes into the flight. The ground and the crew finally got to the right antenna with the spacecraft over the Canary Islands and until that point, the com, from approximately mid-Atlantic on into the Canary area was pretty rocky - pretty rough and they went to one of the antennas which apparently was pointed in the proper direction and the com cleared up markedly as you will be able to observe as we play this voice tape. I've checked with the flight director, he tells me that Schirra heart rate at liftoff was 87 beats per minute - 87 beats per minute at liftoff. And at stag-

HANEY ing when the first stage burned out and the second stage ignited it hit it's high point -

```
... stage burned out and the second
     HANEY
staging ignited it, it hit its high point during the entire
mission of 100 beats per minute. One hundred beats at
staging, 87 at lift-off; which is, I can never recall a
lift-off heart rate in the 80's, I can recall some in the
90's and I think they were Wally's. Here is some tape as
we came into the Canary zone and the crew have talks about
looking out the window and observing the Canary Islands.
                    5, 4, 3, 2, 1, mark, 17 minutes GET.
     FLIGHT
     SCHIRRA
                    (Garble)
     FLIGHT
                    Right, you won't need a CMC lift-off
        You're okay then.
     SCHIRRA
                     (Garble)
                    Apollo 7 say again.
     FLIGHT
     SCHIRRA
                    (Garble)
     FLIGHT
                    Okay, we're reading you about 2 by,
we're really trying to do some reconfiguring here to get
good com. with you.
     SCHIRRA
                    (Garble)
     FLIGHT
                    I can't make it out Wally, standby.
     SCHIRRA
                    (Garble)
     FLIGHT
                    Apollo 7, Houston, how are you reading
now?
     SCHIRRA
                    (Garble)
     FLIGHT
                    Okay, you're loud, but very garble,
Wally.
     SCHIRRA
                    (Garble)
                  · All your systems look real good down
     FLIGHT
here.
                    (Garble)
     SCHIRRA
                    I couldn't make it out.
                                              Do you want
     FLIGHT
slip simplex A?
     SCHIRRA
                    That's land out there. Little island
down there, can you see it. Walt can, I guess.
                    Apollo 7, Houston. How do you read
     FLIGHT
now?
     SCHIRRA
                    Houston, Apollo 7. How do you read on
simplex A.
                    You're real fine now, real fine Wally,
     FLIGHT
     we've got you coming through an intercom.
and
                    That's clever.
     SCHIRRA
     FLIGHT
                    Okay.
     SCHIRRA
                    No, we're broadcasting to you.
     FLIGHT
                    Oh, okay, I was just wondering.
couldn't see what you were describing there.
                    We're looking at the Canary Islands.
     SCHIRRA
```

FLIGHT Oh, you're making me jealous.

SCHIRRA We've completed the first check list,
with the exception of the four circuit breakers of panels
277 and 278.

FLIGHT Roger, we copy.

SCHIRRA He hasn't posted this yet. It's loud and clear over here, Jack; good weather report.

FLIGHT Roger, you're 5 by also.

S/C This test deserts.

This is Apollo Control in Houston with HANEY 25 minutes into the flight. The crew after a very brief 20 minute flight across the Atlantic Ocean is now going across the African Continent. We've lost touch with them The official launch time was as they move across Africa. 15:02:45 zulu time or Greenwich mean time, 15:02:45. present orbital parameters are 122 by 151, 122 nautical miles by 151 nautical miles; and we now begin to settle down to look at the business of the flight plan and one of the first events after leaving the Canary zone is to close the liquid hydrogen vent and it should be closed very shortly. At Tananarive, the Spacecraft will go into it's first sunset. We will be talking to them through Tananarive. The Tananarive station should acquire along about 36 minutes into the flight. We're presently 26 minutes into the flight. This is Apollo Control Houston.

This is Apollo Control in Houston at 36 minutes into the flight. In the last minute or two we have reviewed the g data recorded on this flight and the curve is a very gentle one on the first stage, and it peaked right at about 4 g's, and of course it falls back to zero g for a short time and then it begins a gentle climb again and at the second stage shut down, some 10 minutes and 20 seconds into the flight, it was peaked out on the second stage at about 2 and a half g's. We heard the crew remark at least once, perhaps several times, about what a gentle ride it was. Glenn Lunney, our flight director, has gone around the room console by console. He opened that session with these words. "Okay, everybody, lets - we've got a long way to go. Let's sit down and look at what we've got." He then went through each system and questioned each man about his particular specialty area during the launch phase and he got no surprises. We have tagged up with the crew now over Tananarive. We've put in a call, and at this point we've not heard from them, but Schirra should be installing an alignment site in his window. This will help him - it is something like a bore sight - it will help him do a number of tasks and he will use it to look at all sorts of objects during the flight. Very shortly we should open the liquid hydrogen vent valve and thin out some of the residual fuel in there in the liquid hydrogen tank, and over - that will take place over Carnarvon some 54 minutes into the flight. They say the call went in by the Tananarive station about two minutes ago. We've not heard from the crew. We are getting a rather steady carrier noise on the line. We'll standby and come up with that communication as it develops.

HANEY Apollo Control here at 42 minutes into the flight. Tom Stafford, one of our capsule communicators, has been running a HF voice communication check. We heard from Apollo 7 loud and clear, but they apparently can not hear us, and we're going to continue this voice check by HF, which is the hard way, of course, and let's listen now

as Stafford tries to contact the spacecraft.

HANEY Apollo Control here again. We're still attempting to establish HF communications. We want to emphasize that there is nothing wrong at all with our UHF channel via the other means of communication, but we are exploring just how good the HF system is at this extraordinarily long range. Apparently the communicator at the Tananarive station may be hearing something from the spacecraft we are not. It is just a shake down test of the total communications capability that we have, and we'll leave the carrier up, although it looks like they are moving out of the range of Tananarive. We'll leave it up another

HANEY minute or two. At 44 minutes into the flight, the crew getting its first look at the Indian Ocean after departing the african continent. This is Apollo Control Houston.

HANEY And this is Apollo Control Houston at 52 minutes into the flight. In a very few seconds, we will put in a call to the crew by the Carnarvon station on the west coast of Australia. I just got a call that Carnarvon had acquired - the acquisition aid had locked up. The discussion over the Australian pass is always an interesting one and here comes the com now. Tom Stafford from here.

SC This is firm, we are having a ball.

CAP COM Roger. We read you loud and clear over Tananarive Wally, but evidently you could not read us.

SC Affirmative.

CAP COM Okay, we have a new time for your LOX dump. The -

SC Wait a minute. Okay, go ahead, Tom.
CAP COM Roger. The S IVB dump will occur at
1 + 34 + 27. Estimated DELTA V of 32 feet per second.
Did you get that, Walt?

SC Roger. 1 + 34 + 27, 32 feet per sec-

ond.

CAP COM Roger.

SC Do you read?

CAP COM Roger, we got them.

SC Okay, we've completed about the first checklist down to where the CMP has to get out of the couch, standing by for your GO/NO-GO.

CAP COM Roger.

SC I'll give you a little fast report on

what we want here.

SC The windows appear to be almost crystal clear, which is good news for all of us. And we have very good visibility out of all five windows and that center hatch one, there is a drain for monitoring boost.

CAP COM Roger.

SC We've noted the airglow here and made some dirt on it. It looks like it's about 3 degrees thick as we approached Carnarvon at night of course, we measured that with a ...

SC (garble) at 12 o'clock, guess ... arrived at 12 o'clock this trip.

CAP COM You've seen me before.

SC (Laughter) Roger, came into view 3 degrees before the top of the airglow, where that was the surface of the earth.

CAP COM Okay.

SC I'll see if Donn and Walt have anything to say, affirm.

CAP COM Okay. Standby, they want to get you a nav load right now for the GO/NO-GO. Stand by.

SC Roger.

CAP COM Apollo 7, Houston.

SC Go ahead.

CAP COM Roger. Have a go, and guidance would like to send you an update.

SC Roger, stand by.

SC Roger. We're in block, will go to

accept on your call.

CAP COM All right. Go to accept.

SC We are in accept. Understand we'll go

for 2 up.

CAP COM Affirmative. Roger, Jack, I'm observing your rewinded tape dump. We would like to get a good reading on GO/NO-GO on the DFC as soon as you can.

SC Okay. Total of LOX dump was 1.34.27,

32 feet per second.

CAPCOM Roger. We copy. Okay, it's coming

up.

CAPCOM Apollo 7, Houston. The load is in, has been verified, the computer is yours.

SC Very good.

HANEY This is Apollo Control Houston. The platform in the guidance component of the spacecraft checked out very nicely. It's within less than a half of a degree in all respects, precisely where it should be. The angles have all been taken into consideration now. As we move across Australia, we would anticipate from the crew that they had begun to remove things, like gloves and their lifevests, and probably their helmets. The lunar module pilot Walt Cunningham, should be finishing up his insertion checklist, his extensive list. Let's go back to the crew.

SC He is taking off his suit now, Walt and mine still on. We get an O2 flow high when Donn opens up the suit and we analyze that as the suit rate

trying to catch up to the cabin, so we are go.

CAPCOM Okay, we copy.

SC Okay Jack. We've got the suit flow valve off and the O2 flow is dropping down.

CAPCOM Okay, we copy.

SC No problem, it's just that we haven't

seemed to be able to stop at the right thing.

CAPCOM Hey Jack, do you think they will be able to get the tape recorder rewound before we deliver that?

CAPCOM Stand by.

CAPCOM Apollo 7 Houston. We've got the tape recorder rewound over Canaries. We will do a dump over Mila.

SC Roger.

CAPCOM We would like to have a reading of just what you have on that tape, because we were talking on it continuously.

SC OK. Will do. We'll do that over the stateside pass Walt.

Apollo 7 Houston, Apollo 7 Houston CAPCOM This is Apollo Control Houston. We HANEY have lost signal via the Honeysuckle Creek outside of Canberra, Australia. It is a new station to join our network, and we should not hear from the crew again until the ship Huntsville parked half way between Hawaii and the coast of California picks them up at 1 hour and 24 minutes into the flight. We are 1 hour and 7 minutes into the flight right now and that was not a particularly communicative pass. We had a little calm in the early part. Apparently the crew going through their initial stowage of such things as the helmet the gloves. They're getting out pieces of equipment and getting squared away for the early revs of the flight. The stowage list called for the command pilot to stow various temperature devices, flight date files, install a urine filter, and adjust the couch position. They will be also unstowing and assembling some cameras, and loading them with film as they fly in a northerly direction up across the Atlantic, excuse me, the Pacific. A reminder, we are flying at 32 degrees north and south of the equator on this flight as opposed to the 28 degrees we flew throughout the Gemini program. We flew 32 degrees in Mercury and we are back at that altitude, at that longitude. At 1 hour and 8 minutes into the flight, this is Apollo Control in Houston.

This is Apollo Control Houston at 1 hour 21 minutes into the flight. We've just had a little thrill here in the Apollo Control Center in Building 30 in Houston. We had a rather complete power outage in the building, the first one I can recall in the history of this particular control center. We didn't lose all power, of course. Certain critical elements like the computers continued to run on emergency power lines, and emergency power circuits left certain lights, exit lights and that sort of thing lighted in the halls. But all of our consoles went dead, lost power. Our lights were out here in the control center except for certain emergency red lights. would clock the outage as occurring about 20 minutes after the hour and lasting perhaps 60 to 90 seconds, about a minute - minute and a half duration. We have verified that all the computers, the critical computers running on line with this mission, continue to run. They are located on the first floor of this building. We were not in contact, of course, with the spacecraft at the time, and had we been we would have continued to be able to go out of the building. All of our Com circuits continued to work, we were simply without lights, and we didn't know, in other words these Com circuits are set up in such a way that we know whether we are radiating by a flashing white light or we are monitoring when we simply have a steady yellow light. On each console you have such an array of buttons to various back rooms and to points outside of this building, to the Cape, to other places. We lost power on all those kinds of circuits, we lost all of our video capability to monitor the various slides and we do not yet have an explanation of just how or why this occurred. But at 1 hour and 23 minutes into the mission we are back up in good shape with full power. This is Apollo Control in Houston.

```
This is Apollo Control Houston 1 hour
     HANEY
25 minutes into the flight. Capsule Communicator Tom
Stafford is putting in a call to the communicator on the
ship Huntsville half way between Hawaii and California.
Let's cut in on that conversation now.
                            Are we transmitting simultane-
     CAPCOM
                    Roger.
ously and receiving VHF?
                    Affirmative.
     HTV
     CAPCOM
                    Roger. Are you going to contact - have
you heard Apollo 7?
     CAPCOM
                    Apollo 7, Houston
     HTV
                    Houston COMTECH Huntsville.
     CAPCOM
                    Go ahead Huntsville.
                    Apollo 7 copied you loud and clear.
     HTV
Apollo 7 copied you loud and clear. Go ahead and we'll
relay.
     CAPCOM
                    Roger Apollo 7 this is Houston CAPCOM.
understand you are reading. Go ahead and relay through
the Huntsville the S4B tank pressures. And again just
to remind you to call Program 47 prior to the lock stop
                    Huntsville M and O Houston CAPCOM.
     CAPCOM
     HTV
                    Go ahead, Huntsville M and O.
     CAPCOM
                    Roger. Did Apollo 7 get the message?
     HTV
                    Negative. We can only copy him when
we are dead band logged. We are presently experiencing
trouble with logging two way VHF Band.
     CAPCOM
                    Roger, you can't read any VHF?
     HTV
                    Negative at this time.
     SC
                    Houston, Apollo 7. Do you read?
     CAPCOM
                    Roger Apollo 7, read you loud and clear.
How else?
     SC
                    Okay, the readings are 24241313.
     CAPCOM
                    Roger 24 and 13 Wally, now reading you
loud and clear.
                    Now we are turning them on both A and B
and I have that logged.
     CAPCOM
                    Roger
     SC
                    (Garbled)
     CAPCOM
                    Roger.
                            Did you get me transmitting in
the line over the Huntsville, Wally?
                    I don't think so, what was that, Tom?
     CAPCOM
                    Well, I just - to read the tank pressures
and to call program 47 prior to lock stop.
                    Roger. We have that data. I have tank
pressures at 1 (garble) 6 plus 15 1 (garble) plus 5 0 if you are
ready to copy.
     CAPCOM
                    Roger, we got it.
     SC
                    23 23 8 then 8. That's 1 plus 06
                    Apollo 7 Houston, You faded out completely.
     CAPCOM
We'll contact you over California in a couple of seconds
```

Roger data plot.

SC

This is Apollo Control Houston 1 hour HANEY 31 minutes into the flight. We should establish contact through Guaymas momentarily. To recap a bit on that power outage that we experienced about 10 minutes ago, I clocked it at 20 minutes after the hour, the duration was something on the order of 1 to 2 minutes, and initially it was a rather complete power outage. We still had communications on the circuits, but we did not have the light showing us on which circuits we had communications. We were not in touch with the spacecraft at the time, and the computers, the critical computers, the on line computers continued to run through a separate and a secure emergency power source. Since that time, for about the past 5 minutes, we have been without our TV data displays until such time as additional power could be brought over on that circuit. Now we have the spacecraft in touch, and lets listen to Tom Stafford and Wally Schirra discuss the situation.

that data on the SYV now?

Apollo 7 Houston CAPCOM

Go ahead. SC

You might tell Walt, what they did CAPCOM they rewound the tape recorder over Canary and if he has any additional voice that he wants to place on he can place it on there now. They'll dump it again over Mila.

Yes, thank you. SCOkay, they didn't get your remarks on CAPCOM booth because they rewound it over Canary, Walt, per the

flight plan.

Okay, well all needle readouts were SC normal, and I didn't list them individually on the insertion text, and it's on the tape and that's about the best we can do.

Okay, and we're standing by for the CAPCOM dump shortly.

It's a fantastic rev up here. SC

This is Apollo Control Houston at 1 hour HANEY 34 minutes into the flight. Apparently there is some discrepancy in our earlier report on the power outage. I want to absolutely emphasize that there was no affect at all on the computers in Building 30. I repeat. No affect. They have an emergency power source which cut in and handled that load just perfectly. We did lose light in the building in the halls, and we lost lights on our console. continued to have communications, however, we continued to have phone service. For a period of about 1 to 2 minutes we were without most of the lights in the building, and we were able to see through an emergency over head system a faint red light which illuminates regardless of - in case of complete power outage. But again I want to

HANEY emphasize there was no power outage at all on the computers tracking this mission. We'll go back now and listen to the events as we move across the states.

S/C (Garble)

CAPCOM Okay, Houston, the dump appears to be proceeding normally.

S/C Egress.

This is Apollo Control Houston with the HANEY Spacecraft just east of New Orleans and proceeding toward Elean Pass, it will take it almost directly over Savannah, Georgia. We are 1 hour, 40 minutes into the flight and we have completed at least the initial part of the oxygen dump, and we have now opened the liquid hydrogen vent valves. They will shortly be closed at the completion of that exercise. The liquid hydrogen valve is to be closed in 1 hour, 45 minutes into the flight, just east of Florida. a minute later, we'll stop the - stop dumping the residual Earlier, the booster console operator told me there should be a - on the order of 1 percent residual liquid oxygen in the S4B, which remains attached, of course, to the Spacecraft; and 1 percent with in terms of weight would be 1000 to 1500 lbs. Very little conversation from the crew as they came across the States in this pass, but we did get a good look at the systems, we got a cabin that stabilized at about 5.3 psi. We know the temperature is running a steady 66 degrees inside. Earlier by the Australia stations, Schirra reported that they're having a ball and he was enthusiastic over the fact that the windows have not clouded at all, this was a recurring problem in Gemini. He also commented as they moved across Australia, what an advantage it was to watch the booster operation through the center hatch window, one of five windows available. We are now starting our Helium dump from the S4B, and again no conversation at all on this eastern portion of the State swing. Here is a call.

CAPCOM The dump is initiated.

S/C Roger.

S/C Houston, Apollo 7, I have a PP02 for you. I'm reading 165.

CAPCOM Roger, a PP02 at 165.

S/C Roger.

S/C Houston, Apollo 7, our cabin press now is being - very ragged, it seems to be down to about 5.5.

CAPCOM Roger, 5.5 on the cabin.

SC This is Apollo 7.
CAP COM Houston to Apollo 7.

SC Apollo 7, GO.

CAP COM Roger; could you verify that the S5B pass position is complete?

CAP COM Okay, stand by Wally.

CAP COM I can stop program for you, 7.

SC Roger, the preservation is complete and

you can terminate 47.

CAP COM Roger, you have a read out of DSKY. We got it. We're waiting for an update on (garble) for program 52.

Roger.

CAP COM We're working on it right now.

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APOLLO 7 MISSION COMMENTARY, 10/11/68, GET: 2:15:20
                    This is Apollo Control Houston, 2 hours,
     HANEY
15 minutes into the flight. We have established contact
with the crew via the Tananarive station and here's how the
conversation is going.
                    Houston through Tananarive, how do you
     CAP COM
read?
                    Loud and clear, Tom.
     SC
                    Roger, we're getting a lot of background
     CAP COM
noise on the HF coming in here, but you're coming in loud
and clear.
                    Roger, you were putting through a lot of
echo but you were quite readable. We just ran through an
Arian constellation so we're very pretty.
                    Roger, how do the stars look through
     CAP COM
both the telescope and sextant compared to the simulator?
                    A little bit better.
     SC
     CAP COM
                     Roger.
                    We're entering the constellation (garble)
     SC
                    Real good. Okay, we're going to give
     CAP COM
you a time hack at 40 minutes to go till separation in about
2 minutes.
                     Roger, I'll reset my dial.
     SC
                     And we have a GET for the pitch down
     CAP COM
maneuver and the inertial maneuver. Do you want to copy it?
                     Wait a minute. Roger, Tom, we have the
     SC
clock for dead ahead and we have a blank for GET.
                     Okay, GET of pitch down is 2 + 42 + 55;
     CAP COM
GET of inertial attitude, 2 + 51 + 10.
                     Data repeat. GET pitch down at 2 +
      SC
 (interrupted)
                     30 seconds to go.
      CAP COM
                     Roger.
      SC
                     5, 4, 3, 2, 1, Mark. 40 minutes counting
      CAP COM
 down for SEP.
                     Roger.
      SC
                     Roger.
      CAP COM
                     We re going to try talking to you and
      SC
 we want you to copy.
                     Go ahead.
      CAP COM
                     Roger, (garble) I'll quickly read off
      SC
 all (garble) 0693 (garble) turbo 12, turbo 23, 00186.
 (garble).
                     Roger
      CAPCOM
                     (garble).
```

angle difference, that's the only one in question.

Apollo 7, Houston. What was your star

SC

CAP COM

SC 4 + 2CAP COM Not bad. SC (garble) go on to another (garble). CAP COM Roger. SC We've got a real nice clean cabin here, very few particles floating around. That's good. CAP COM SC There are two very small particles, (garble). CAP COM Okay. SC (garble)

This is Apollo Control Houston. HANEY have loss of signal by Tananarive. The Spacecraft moving across the Indian Ocean. During the pass across Australia, Canarvon should acquire about 10 minutes - about 8 minutes from now, 2 hours, 28 minutes into the flight. We will be set up to decide on whether we will proceed with the crew takeover, the crew flying of the S4B. I understand this configuration we are in right now, we essentially have a spacecraft about 100 feet long. Consider the Command Module, the Service Module, the slaugh panels and the nearly 60 foot long second stage S4B, still hooked up together and the second stage is to be unhooked and jettisoned at 2 hours, 55 minutes into the flight. That would occur after the crew has gone through an exercise whereby they will get the feel of what the control problems are and just how does it feel to fly such a big kluge from the advantage point of the command module. The - Donn Eisele, the center the command module pilot, will return to his couch. been down in the lower equipment bay looking over some of his gear and going through some stowage and unstowing activities. He'll return to his couch for these up coming activities with the S4B leading up to the separation. When we acquire at Carnarvon, we'll come back to you. This is Apollo Control Houston.

```
HANEY
                    The ship Huntsville parked half way be-
tween Hawaii and the coast of California picks them up at 1
hour and 24 minutes into the flight. And that was not a
particularly communicative pass; we got a little COM in the
early part, apparently the crew going through their -
This is Apollo Control Houston, 2 hours, 28 minutes into
the flight. We have established contact with Apollo 7 by
Carnarvon, and the crew has been given a GO. We are getting
some conversation with the crew now; let's check in on it.
                    Way up there.
     CAP COM
                    Okay, we copy.
     HANEY
                    Well, we've got a dead period here.
want to clarify. Perhaps earlier we had given an indication
that the control thrusters during this S4B takeover would
be thrusters on the service module; that's not correct.
are the thrusters, the small pitch control thrusters on the
second stage, the S4B itself. The crew will be operating
those from the cabin through logic circuits down through
the instrument unit which is the principal electronic ele-
ment joining the booster and the spacecraft. That event
of course is presently programmed for 2 hours and 55 minutes;
we are at 2 hours and 30 minutes right now. We should get
some reports on the attitudes as we move across Australia
and we'll just leave the line open.
     CAP COM
                    Apollo 7, Houston.
     SC
                    Roger Houston, go ahead.
     CAP COM
                   Wait Wally. I'm sorry; we'll wait till
you get through with this before we take over here.
     SC
                    Roger; we're right in it.
     CAP COM
                    I'm sorry.
     HANEY
                    The Apollo 7 crew is controlling the
total spacecraft and booster combination at this time through
the thrusters on the S4B. Here is Schirra.
     SCHIRRA
                    Pitching up.
     CAP COM
                    Stop.
     SC
                    Did you get that?
     CAP COM
                    Roger; we copy.
     SC
                    3, 2, 1 mark.
     CAP COM
                    Minus roll..
     SC
                    Isn't enough to grab.
     SC
                    90 degrees.
     CAP COM
                    Up for 5 degrees.
     SC
                    3, 2, 1 mark.
                    Next will be thrust roll for 5 degrees.
    CAP COM
3, 2, 1 mark.
     SC
                    Roger, coming back in.
    CAP COM
                    It's standing very well.
```

3, 2, 1 mark. Very good. Minus yaw

CAP COM

3, 2, 1 mark.

for 3 degrees.

```
SC
                    Thank you. (garble)
     CAP COM
                    3, 2, 1 mark.
                    Right on it.
     SC
     CAP COM
                    Touch off at 3 degrees. 3, 2, 1 mark.
     SC
                    Roger, coming into it.
     SC
                    There's is much (garble) with this thing.
     CAP COM
                    3, 2, 1 mark. S4B test complete. Beauti-
      Real fine; outstanding. You want to hit your logic down
so we can look at that?
                    Second logic on. Logic on.
     SC
     CAP COM
                    Okay, we copy. And after Carnarvon air
which we'll lose you here in about 2 minutes, we are going
to do some remoting through AIRA to get, complete this DTO.
     SC
                    Very good. (garble) S4B (garble).
     CAP COM
                    Okay.
     SC
                    Interesting side line - when the power
(garble) failed.
     CAP COM
                    Okay Apollo 7, you're GO for PR.
     SC
                    There you are.
     CAP COM
                    RVR
     SC
                    We can see on the night side, the aps
thrusting on the S4B.
     CAP COM
                    How so?
                    As a rule, flight's just like Gemini?
     CAP COM
                    It's - pretty good blob of light; it's
sort of a yellow orange light. .
     CAP COM
                    Roger..
     SC
                    Okay, pick up that tape.
     CAP COM
                    Apollo 7, when you are dumping some of
our tapes, we'll be going live on some of these things to
make sure we have complete coverage.
     SC
                    Okay.
     SC
                    Direct RCS on.
                                    That's on.
                                                 Control SCS.
D make made modes all for 82. SCS channels; 4 of them on.
(garble) at the rate command.
                               Think command on 3. Tape
recorder record. That's the (garble) stand by for their
(garble) on that.. (garble) TDP circuit power, AC1 (garble).
Circuit breakers EDS, three of them closed. (garble) test
loging verified. ES power on. That would be Delta V counted
as zeroed.
                    AIRA 2, go remote.
     COMM
                    We call for EDT to be sent here.
     CAP COM
     COMM
                    AIRA 2; there is 2 way lock; AIRA 2, there
is 2 way lock.
     CAP COM
                    Apollo 7 through AIRA; how do you read?
     SC
                    Damn good Jack; how are you?
     CAP COM
                    (garble) fly by.
                    Okay, Wally, AIRA 2 had this for about
     CAP COM
```

10 minutes here and then we'll pick up AIRA 3 for about another

10 minutes.

CAP COM Very nice (garble).

Do you think you'll like those REA's there?

SC Jack, can you verify that the tape recorder here and we'll go to high pitch rate for the S4B maneuver?

CAP COM Okay, stand by.

SC We're running through them.

CAP COM You going to want me to (garble) high pitch rate?

CAP COM Okay, Apollo 7 - E COM tells me they

will control it for depth.

SC (garble) 34 depth.

This is Apollo Control, Houston. HANEY crew has completed the maneuvers using the S4B thrusters; you heard Walt Cunningham going through the countdowns and giving Wally Schirra each of the angles and in essence, amounted to going to 5 degrees in every attitude visual and yaw in these twice. Wally seemed impressed with the handling characteristics of this nearly 100 foot combination of booster and spacecraft. We are now remoting through a series of aircraft which are strung out across the, or flying in large square patterns in the southwest Atlantic, southwest Pacific. We should have continuous comm with the spacecraft up through Hawaii. Hawaii is to acquire; stand by one here. Hawaii is to acquire at 2 hours, 53 minutes into the flight. It'll be then within the Hawaii area of acquisition that we will seperate from the S4B. If this were the lunar mission, that is approximately the point where we might very well ignite the S4B over the long burn out to the moon to put us on a lunar trajectory. At 2 hours, 39 minutes into the flight, this is Apollo Control standing by for any additional comm.

APOLLO 7 MISSION COMMENTARY, 10/11/68, GET: 023856

33/1

Calling ARIA 3 aircraft. COMM

Apollo 7, this is Houston through CAPCOM

ARIA 3, over.

SC (Garble)

CAPCOM We can read you about 1 by, Wally. Apollo 7, Houston through ARIA 3. How do you read now? (Garble)

CAPCOM Roger, you're now coming in about 3 by 3.

This is Apollo Control Houston, 2 hours, HANEY 45 minutes into the flight and it's unlikely that we will have any additional com. during this period, so we will take the circuit down now.

```
This is Apollo Control Houston 2 hours
55 minutes into the flight, and just 30 seconds ago, pre-
cisely at 2 hours and 55 minutes, the crew reported they
had separated from the S4B. We are in contact over Hawaii,
and lets listen for conversation.
                    I can see a thruster firing action in
daylight.
                    Roger, copy.
     CAPCOM
                    This is Apollo Houston, From the
ground we know that the spacecraft is pitching over, turning
around, and having a good long look.
                   · (Garble) way down looks like pieces of chaff.
     SC
I would assume that came from the separation of the S4B.
                    Roger, I understand.
     CAPCOM
                    I assume that she is still there then.
     SC
Tom, we've got same old (garble) we pitched out.
                    Okay. Looks like you are going straight
in.
                    It's absolutely beautiful here and
     SC
we got a lot of loose particle chaff sitting at about -
                    Look at it's
     SC
                    Chaff seems to be oriented mostly
     SC
between 3 o'clock and 5 o'clock from my report of view in
the right seat and between 9 o'clock and 12 o'clock. The
other two quadrants are relatively clean and the SLA panel
at the top, left, and bottom are opened at I would guess
to be about a 45 degree angle and the SLA panel on the
right is just opened maybe 30 degrees at the very best.
                    Roger. Looks like you are looking at
     CAPCOM
a four jawed angry alligator.
                    Apollo Control Houston here.
                                                   That is
Walt Cunningham giving that report on the position of the
SLA panels. He is in conversation with Tom Stafford who
is an expert on angry alligators from the Gemini days.
The crew is simulating a docking approach at this time in
to the SLA area. They won't go in so close as to touch it,
but they will operate in the area. They are taking pic-
tures and in general, they will fly a formation with the
S-IVB for the next 10 or 15 minutes. Let's continue the
monitor.
                     Apollo 7, Houston. Go ahead and get
     CAPCOM
 the EDS power switch off if you want to.
                     Apollo 7, Houston.
      CAPCOM
                     Hello, Apollo 7, this is Houston, over.
      CAPCOM
                     Huntsville M&O, this Houston CAPCOM.
      CAPCOM
```

Houston, Huntsville M&O, go.

Roger. Are we getting through to

We cannot acquire the spacecraft pres-

HTV

HTV

Apollo 7?

CAPCOM

ently with S-bands, standby. HTV

Roger. CAPCOM

Houston, Huntsville. We have AOS HTV apparently with S-band, experience a drop of signal from

Handover, Hawaii, to Huntsville.

This is Apollo Control Houston 3 hours HANEY and 2 minutes into the flight. The ship Huntsville, which is parked between Hawaii and the coast of California, is experiencing some difficulty apparently with patching us through, so our - we do have a voice communication drop out with the spacecraft. The combination of the California station and/or Guaymas, Mexico station should acquire just any second and we would look for considerable improvement in the communication. The crew had turned around, they were taking a close look at the large SLA panels, which are - the four of them are opened up. They are photographing them, and Cunningham reported some chaff. As yet we haven't been able to identify the source of the chaff in the area. No problem, but he did report it. He also reported seeing thruster action in the daylight. We are now, I believe, attempting to go through Guaymas, lets go back to the report.

CAPCOM Roger.

Apollo 7, Houston. Over. CAPCOM Roger Houston Go, Apollo 7. SCRoger. Everything going okay?

CAPCOM

Yes, just fine. We've got a (garbled) out there about a couple of 300 feet.

Okay. You might check your EBS power CAPCOM

switch off, if you want to. It is off. Have you got an update for us for the maneuvers?

Roger, we sure do. Are you ready to CAPCOM

copy it?

No - about 10 seconds. SC

Roger, give me a call when you are CAPCOM

ready.

Apollo 7, go ahead with your update. SC Roger. It's a phasing maneuver, 003 CAPCOM 20 all balls noun 82 NA 1641 plus 12224 00057 32538 noun 48 NA 0 plus 16 and roll pitch in yaw are 183

CAPCOM - yaw of 183, 299, 002, remark FPS, heads down, retrograde -X structures. You should be in your retroattitude by 3 + 16 + 30.

SC Roger. Understand update for sep maneuver 0032000, 1641 check 12340005732538, line 38 (garble)002, FPS heads down, retro and use -X structures.

CAPCOM Roger. I din't get your pitch, but I want to give it to you again. That is 299 for the pitch.

SC Roger.

CAPCOM Apollo 7, Houston.

CAPCOM Hello Apollo 7, Houston.

SC Houston, go.

CAPCOM Okay. We expect some nonpropulsive venting up near the front end of the S-IVB between 3 + 08 and 3 + 09. The booster will make a retrograde maneuver at 3 + 16 + 55.

SC Roger. Understand nonpropulsive venting between 08 and 09 and the booster will be retroventing at 31655.

CAPCOM Roger. That when the maneuver will be commanded. You should be able to see it maneuver around.

CAPCOM Apollo 7, Houston. Confirm that your TVC servo power number 1 is off.

SC It is off.

CAPCOM Roger.

SC There is quite a small type debris still inside the S-IVB. Is that gone?

CAPCOM (Garble) after that.

SC Seems to be coming out. What part is it in?

CAPCOM Okay.

SC Paul, the internal structure looks just fine. There is one set of cords that running around one set of cords running around that seems to be going to a panel that isn't open too far.

CAPCOM Okay. Get some pictures.

the spacecraft almost over the central United States. We are getting a pretty descriptive view of what the S-IVB looks like, primarily from Walt Cunningham. He has reported among other things, that one of the four SLA panels is not open completely. They should be back to nearly 90 degree position, I think one of them is open only a third or a half the way. I heard a figure earlier of 30 degrees that will have to be confirmed later. In several times, Cunningham has commented on the venting, the LOX venting from the S-IVB. Apparently it's a pretty spectacular show. We will continue to monitor as they move across the states.

SC We have got a (garble) in the backout of the S-IVB. It should have breezed right across it. We could have a - unfortunately, it's too cloudy for us to look at, Tom, but New Orleans looks good. Roger. Understand you can see New CAPCOM

Orleans.

Roger. We got a shot of the booster

across the lake cutting about. CAPCOM

Roger, good show.
Looks like the entire US is cloud cov-SC

ered until you get over here.

We copy. CAPCOM

Looking right down at the Cape. SC

can get a picture of it in the background.

Understand you can get a picture of CAPCOM

the Cape in the background.

Cape is not clear. SĈ

CAPCOM Roger.

(garble) count down. SC Did you get a picture of them over CAP COM the Cape in the background. The cape (garble) SC CAP COM Roger. Got them loud and clear. SC Roger, you on top of the booster at this CAP COM time Wally? Say again. SC You on top of the booster? CAP COM The right propella; we got some real SC good stuff here. Good show. Okay, in about a minute, the CAP COM booster should start it's retrograde maneuver. The booster is - engine is set up facing the Atlantic Ocean, we're - we're pointing straight down. CAP COM Got a very slow rate going - on the SC booster. CAP COM Okay. Except for that - one panel - everything looks like just as you'd expect it to be on that S4B plot; it's on it. Okay, sounds real good. cap com CAP COM Okay, we've got about 3 mintues to go to the phasing maneuver and are you all set up to roll, pitch and yaw? We've got it all running well and we SC have (garble) smoothly. CAP COM All right. CAP COM Apollo 7, Houston. Yes. SC Roger. I - our (garble) just confirmed CAP COM that our commercial pitch out per feet is 299 degrees. I'll give you a mark at 60 seconds. 2, 1, mark. T minus 60 seconds. Minus 30 seconds. 10 seconds. Very complete. SCRoger. Apollo 7, Houston. CAP COM SC Roger. Roger; you can go ahead and terminate CAP COM program 47, if you want to. Roger; we have terminated. We are trying to get a few more pictures after we set; we have made the burn one tenth of a second already. Roger; that's real good; thank you. CAP COM John, we are B47 running there a couple SC of minutes early and we picked up about a foot and a half per second and registered 2 - I guess you can pick that up on your down rate command except I didn't consider whether

you would want to re-do the state breaker or not.

CAP COM Okay, good. Look, we're gonna have you at (garble) in just a couple of minutes and we'd like to get a PPOP reading.

SC Okay. Stand by.

CAPCOM And also - what was your closest point of approach Wally to the 4B?

SC For about 4 or 5 feet.

CAPCOM That's 4 or 5 feet.

SC (Garble) We're (garble) docked channel.

To drop things off.

CAPCOM Roger.

This is Apollo Control, Houston 3 hours, 25 minutes into the flight and we have moved out of the acquisition zone of the Antigua station. We should acquire Ascension in a very few minutes. You heard Schirra say that he had pulled up within 4 to 5 feet of the S4B and had done a very close inspection of the SLA Panels. The - 3 of the panels appear to have opened fully which in the fully deployed position is a 45 degree angle; one of the panels stopped apparently at about 30 degrees. On later missions we have or the present thinking is to simply jettison the panels all together so this is sort of a one-time consideration. We - the reason for the jettisoning of the panels in future missions is a point which has brought the thinking to that conclusion. It has to do with the exhausting pingement on the panels as the spacecraft looks directly into the hole, or prepares to make the docking maneuver with the Lunar Module. We will assume that the crew has concluded it's first phasing maneuver of 6.8 foot per second burn which will have a phasing or a shaping affect on the orbit, a very moderate one, and it will move it some distance, I don't just yet know how much distance, away from the S4B. At 3 hours, 27 minutes into the flight, this is Apollo Control in Houston.

## APOLLO 7 MISSION COMMENTARY 10/11/68 CST 1536 MC38/1

CAPCOM Apollo 7, Houston through Ascension SC Go ahead, Houston CAPCOM All right, Roger, we're standing by

clear of PPO2 reading.

SC Roger, our PPO2 is reading 18 over 182

180, I guess.

CAPCOM Roger, copy 182. Apollo 7 Houston, could you read us out your reading for cabin pressure?

SC Roger, cabin pressure is down to 5.2 and steady, something like that.

CAP COM Okay, copy, thank you.

HANEY We have been trying capsule communicator Jack Swigert has been trying to reach Apollo 7 remoting through Tananarive without success, we apparently have some problem as yet not resolved through that Tananarive Station and we've had some other communications problems on the the circuit, these are not unusual and we feel very confident in a rev or two we'll figure out the right combinations of antennas and switches and be up to speed in all stations The crew during this period as they move around the earth. across the Indian Ocean will let us check the flight plan here. They're coming in to a sunset - or their in the night they are in darkness. Donn Eisele is down in the lower equipment bay at his G and N station and they'll be checking electrical voltages very carefully and reporting to them on those checks over Australia and that looks like about the extent of the activity for now. We should hear from them when they come in to range of Carnarvon at 4 hours and 5 minutes into the mission. This is Apollo Control Houston.

HANEY This is Apollo Control, Houston 4 hours, 4 minutes into the flight. We are in touch with Apollo via Carnarvon and Walt Cunningham is going through the circuit breaker check with us to the pyrotechnic lines. We will tune in on the conversation now

CAPCOM Apollo 7, Houston through Carnarvon.

SC You are loud and clear.

CAPCOM You are loud and clear, also.

SC Houston, This is Apollo 7. I checked the burner 3 on Main B in AC bust 2 all phases normal. I checked Converter 3 on Main A, AC 1, all phases normal. This commence the ACS redundant component check, we need your cooperation for manifold pressure readout.

CAPCOM Roger, We copy.

SC If you are ready on the ground, we are going to start checking our (garbled)

CAPCOM Okay, Apollo 7, Houston, we are ready to

copy.

SC Main Brake, D valve closed. Emergency cabin pressure valve to 1. Emergency cabin push to test push button push. 02 flow went high, can you give us a reading on the amountable pressure?

CAPCOM Roger, 105.

SC Thank you. Main Brake D valve open.

Main Brake A valve closed. Emergency cabin pressure valve to

2. Emergency cabin push to test push button push. Okay,
it is working now that we have missed them.

CAPCOM 104

SC 104. Main Brake A valve open now. (garbled) valve closed. We intend to flow our secondary radiators when we get that far on this list.

CAPCOM Roger, copy

SC We went a long period of time here with tape voice and data phone. I think it would be good if we go over the horizon and you don't get that thing back into a operating mode, let us know if you can.

CAPCOM Roger.

SC We're absolutely counting on being able to

record the data on the tape.

CAPCOM Okay. Okay, Apollo 7, Houston. We're not going to be able to finish the dump here over Carnarvon so you'll still be barber pole to Hawaii. We'll finish the dump at Hawaii then.

SC Roger, understand in some cases it would seen that it would be desirable for us to go ahead and hit command reset and get that tape moving forward. So in order

SC to avoid any confusion in dumping or in writing over stuff you haven't dumped, please let us know.

CAPCOM Okay, will do.

SC Pyro B, 37 and pyro A (garbled) circuit

breakers are out.

CAPCOM Okay, Batt C voltage. SC Batt C's reading 37

CAPCOM All right change in verter phase voltages.

SC All verter phase voltages are nominal.

I will call nominal at a hundred

CAPCOM Apollo 7, Houston, 1 minute LOS Carnarvon and we have ARIA coverage here for another 10 minutes.

SC Roger, we are here, go ahead.

CAPCOM ARÍA 3 go remote. Apollo 7, Houston through ARIA 3. Apollo 7 through Houston, through ARIA. Apollo 7, Houston through ARIA standing by

ARIA 3 (garble)

CAPCOM Apollo 7, Houston through ARIA 3.

Haney This is Apollo control at Houston.

Apparently not much luck through the ARIA aircraft North of Australia so we will take a line down at this time. The crew we should next hear from the crew when they reach Hawaii at 4 hours and 30 minutes into the flight and at that time they will conduct a bias check on something called the PIPA, the PIPA stands for the Pulsed Integrating Pendulous

Accelerometer. I hope everybody copied that. It is a part of the guidance system and related to platform kinds of drift in past space flights. At least the check they will perform is that sort of check over Hawaii and on across the States. At 4 hours and 15 minutes into the flight, this is Apollo Control, Houston

HANEY This is Apollo Control Houston 5 hours 11 minutes into the flight. We have some tape backed up from the last stateside pass beginning out in Hawaii. was a fairly quiet pass as the crew was eating its first meal in space, but in the course of the pass, Schirra commented that he had had the - that he had chalked up the had his first cup of coffee in space. In this particular spacecraft we have water available which is as warm as 150 degrees and Wally insistedon taking some coffee along on the flight, and of course he had to squeeze it into a bag and I am sure it wasn't the easiest thing to drink but he indicated that it was very enjoyable. The crew completed their first meal in the course of the pass and the current orbital numbers read like this: 165 nautical miles by That is as a result of the initial 124 nautical miles. maneuver by the command module and the command module presently is leading is slightly below the S-IVB. It is about 15 miles separation distance between the two and that is growing - that is growing at a small rate - but over a period of perhaps 8 to 10 12 hours the two will be separated by about 100 miles. Again the orbital numbers are 165 miles by 124. Both nautical readings. Schirra did report that their IVA maneuvers - that is, their moving about - the crew movements within the spacecraft changing couches, Donn Eisele moving down to his station in the lower equipment bay did not seem to be generating any change - Delta V kinds of changes within the spacecraft. In other words it wasn't accounting for any great bias or accelerations or deviations from their plotted flight path. As I said, we have got about 10 minutes of tape backed up and we will play it for you now.

CAPCOM Apollo 7, Houston. 40 seconds to LOS. We will have a - about a 3 minute loss of comm here since Hunstville lost the voice. We will pick you up over California about 38.

SC Roger.

HTV Houston CAPCOM, Huntsville.

CAPCOM Go ahead.

HTV ... we believe we have voice back.

CAPCOM Try remoting VHF? I don't - I don't -- HTV Would you try contacting the capsule VHF?

CAPCOM Okay. Well I transmit simultaneously.

Apollo 7. Hou CAPCOM crew to Huntsville. How do you read? Okay, bye bye Walt. We just wanted to make a voice check through Huntsville.

SC Okay, Jack. If we have made all of these good voice checks, I would like to catch up up here a little bit on our food.

APOLLO 7 MISSION COMMENTARY, 10/11/68, GET: 5:11:00 41/2

CAPCOM

Sure.

(Pause)

CAPCOM Apollo 7, Houston. If you will go to up link to accept, we will give you - we will send you the state vector target load and resume

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APOLLO 7 MISSION COMMENTARY, 10/11/68, GET: 5:15:00, MC42/1
                    to uplink accept will give you - send
     CAPCOM
you state vector target load and rest match.
                    speed check
                    All right, we've got it. Coming up.
     CAPCOM
                    Ready to copy the (garble) if you've
     SC
got it.
                    I don't have it yet Wall, stand by.
     CAPCOM
                    Jack, you can tell Chuck Arthur, we've
     SC
got a washer for him.
                    Sav again.
     CAPCOM
                    Okay, I understand you have a washer for
     CAPCOM
him.
                    That's correct got (garble).
     SC
     CAPCOM
                    Okay.
                    We'll try to give you some more (garble).
     SC
     CAPCOM
                    Okav.
     SC
                    You understand they did the tumble
test in the plan.
     CAPCOM
                    Roger.
                    5044432 via shot frame 50 on S0368
     SC
magazine M.
     CAPCOM
                    As I pointed out to you in real time we
     SC
cann't record right now.
     CAPCOM
                    All right.
     SC
                    Houston for the VMS bias turn at 146
feet per second in 5 minutes. Over.
     CAPCOM
                    Roger, how many feet per second in
five minutes, Wally.
     SC
     CAPCOM
                    Roger, I understand, .6.
     SC
                    The negative is unity .6.
                    Roger, got it.
     CAPCOM
                    That's on the Delta V time.
     SC
                    Roger, Wally
     CAPCOM
                    Apollo 7, Houston, all three loads are in
     CAPCOM
and varified, we are ready to pass up here - maneuver pass.
                    Do you copy, Bill.
     SC
                    Okay, 6-4008590843 minus 03194 plus all
     CAPCOM
balls plus 039531530 minus 03700497032460 minus 086 minus
0300 plus 2445359033200817 paul ball minus 2687 minus 00376
1631180180000.
                    Do you still read, Houston.
     CAPCOM
                    I read you fine
     SC
                    Okay, read that (garble) 6-4008590843
     CAPCOM
minus 03194 plus five balls plus 039531530 minus 037004970
32460 minus 086 minus 03002445390332008170000 minus 6207
minus 037761631180180000. Over.
```

```
APOLLO 7 MISSION COMMENTARY, 10/11/68, GET: 5:15:68, MC42/2
                    Roger, there's a correction on your
     CAPCOM
Noun 43 longitude, it should be minus 03376.
                    minus 03376. Roger.
     SC -
                    Okay, and I'm ready on your manual
     CAPCOM
retro attitude update.
                    Do what?
     SC
                    And remarks walled on - for your fixed
     CAPCOM
edge update there, star check is not visible after 08 plus
40 plus 00.
                    084000 before then.
     SC
     CAPCOM
                    Roger. Let me know when you're ready
to copy that S 20.9 manual retro update.
                    Ready to copy, go ahead.
     SC
                    Okay. Read the - from top to bottom
     CAPCOM
6 plus 106 plus 50 roll 979180 pitch 138241 yaw 360359.
first one is a day, second one is a night.
                    Okay, now I'll read back right across the
top line 6 plus 10 roll 179 pitch 138 yaw 360 day, second
one is 6 plus 50 roll 180 pitch 241 yaw 359 night. Over.
                    All right, that's got it. Apollo 7 the
     CAPCOM
phasing maneuver that we did that will put us 82 miles in
front tomorrow for the rendezvous.
                    Roger, I understand, 80 miles in front
     SC
tomorrow.
                    82.
     CAPCOM
                    82 miles.
     SC
                    Go ahead.
     CAPCOM
                    You've had a report on our constellation
     SC 1
(garble) already have you not?
                    No, I've had no affirmative report.
     CAPCOM
                    (garble) went very well.
     SC
                    Okay, real fine
     CAPCOM
                    These in still.
     SC
     CAPCOM
                    Roger.
                    Apollo 7, Houston.
     CAPCOM
                    Go ahead.
     SC
                    Roger, G and N says we are getting close
     CAPCOM
to (garble).
                    (garble) We don't seem to be generating
     SC
any IVA maneuvers that the spacecraft was planning to.
                    Roger, Wally, what they were interested
     CAPCOM
in is how Donn, doing down in the LAB with respect to work-
ing the NAV, you any trouble for a position.
                    At about 2 GBI's that's all.
     SC
     CAPCOM
                    understand, 13
                    The floor doesn't seem to hold me down
     SC
very well and it may be because of the strip that's in the
```

hose that keeps carrying me toward the other end so I'll

```
APOLLO 7 MISSION COMMENTARY, 10/11/68, GET: 5:15:00, MC42/3
                    find out a little better I think after
I get the suit off later, if I could do that.
                    Okay.
     CAPCOM
                    And the PPI 2, I gave that to you at
     SC
4:40 and it was 165.
                    Roger, we copied that. What about the
     CAPCOM
PPA bias check.
                    We stopped that when we took your
     SC
update, we'll start another one shortly.
                    Okay, real fine.
     CAPCOM
                    (garble) we have finished one meal.
     SC
                    Copy, one meal.
     CAPCOM
                    Apollo 7, Houston, (garble). Apollo 7
     CAPCOM
Houston we are through with the computer you can go to
block on the uptail switch in you'd like.
                    Roger, block.
     SC
                    We're doing our secondary corp group
     CAPCOM
check now.
                    Okay.
     CAPCOM
                    At about 30 seconds from LOS.
                                                    We will
     CAPCOM
pick you up off Ascension in about 6 minutes.
                    Apollo 7, Houston, through Ascension
     CAPCOM
standing by.
                    A little fogging on the hatch window.
     SC
                    Roger, copy.
     CAPCOM
                    And we've taken a couple of pictures of
     SC
     (Garble)
it.
                     Okay, copy that.
     CAPCOM
                    We've flown the secondary radiators and
     SC
temperature came down right smartly. We've turned on the
secondary cool lift pump it's off and the (garble) outlet
temperature came right on down overshot to about 35 and
(garble) around 40, there was depressure .12.
                     Sounds real good, Wall.
     CAPCOM
                     Fogging on the center hatch windows
      sc
(garble) temperature is staying about, oh, call it 55 make
it 65 and the dry pole (garble) temperature climbed right
on up to oh, 58 something like that. Makes me wonder about
the (garble) working.
                     All right.
      CAPCOM
                     Apollo 7, Houston, about 40 seconds to
      CAPCOM
```

LOS Ascension.

## APOLLO 7 MISSION COMMENTARY 10/11/68 CST 1725 MC43/1

CAPCOM This is Apollo Control Houston, 5 hours 6 minutes into the flight. The flight director suspects the crew is involved with other matters and has decided we will not attempt to contact them by voice communications which have not been the best through Tananarive today at this point. We are on the fourth revolution around the Earth and all events proceeding very well at this time. This is Apollo Control Houston.

HANEY This is Apollo Control Houston, 5 hours, 49 minutes into the flight. Spacecraft is nearing the Guam zone of acquisition, the Guam Station to contact Apollo 7 for the first time today. Before we reach Guam let's unload about two to three minutes of tape which we collected during a swing over - a swing which took the spacecraft several hundred miles northwest of Australia. This from Carnarvon.

CAPCOM Apollo 7 Houston through Carnarvon.

SC Roger, loud and clear

CAPCOM Roger, loud and clear, also. Seven when you went over the hill we found your secondary cooling loop was working working satisfactory and everything looked good on the primary loop also.

SC Roger, we concur.

CAPCOM Okay

SC (garbled) the secondary radiator again we should not have to pull it again for the rest of the flight. The egress began to come when the check was completed satisfactorly - I still feel like its part of the anomalous behaviour there on the boosting valve possibly on the primary loop. The back-off (garbled) temperature was running at 58 when I turned off the evaporator.

CAPCOM Roger, copy, Wall. COM here is shaking

his head.

Rog, we did check the back-off aft temp end valve, the cooling control panel and it was at mid heat so there's not much more that can be done there.

CRO Roger, Apollo 7 Houston.

CAPCOM Walt, we just want to talk over on that primary loop. Was the primary loop running when you read the 58 degrees, was it in operation when you read an EVAP out of 58 degrees?

SC When I first read it, it was not pumping but then it was still within 58 till I turned the evaporator on. There was a great deal of time there between when I turned the pumps back on on the primary loop and when to evap so maybe its just didn't get a chance to settle down.

CAPCOM That might be. Okay. Your primary

loop is working okay now Wall?

SC At the present its working very fine since lift-off I would - I estimate we've been boiling to some extent most of the time.

CAPCOM Okay

SC We ran through urine dump operations twice and seems to be dumping fine so far.

CAPCOM Okay, real fine.

## APOLLO 7 MISSION COMMENTARY 10/11/68 5:49:00 GET MC44/2

SC Jack, this is Donn, I completed that alignment at the beginning of this pass I used Navi and Alpheratz and we had five balls on the star difference and I went through the define line just to be sure. On the course of a line we had about half a degree and two and a half degrees on the gyro torque and angle.

CAPCOM Okay, copy, Doc.

SC Do you want to go ahead with the hydrogen perch, Chuck, heat is coming out at five fifty.

CAPCOM Rog.

HANEY And now we're talking to Apollo 7

through Guam and here's how that's going.

CAPCOM Apollo 7 Houston through Guam.

SC Roger (garbled)
CAPCOM You're 5 by

HANEY This is Apollo Control Houston apparently there will be no further calm by Guam so we'll take the circuit down at this time.

HANEY This is Apollo Control, Houston, 6 hours, 5 minutes into the flight of Apollo 7. We are talking to Apollo 7 through Hawaii and here is how it's going.

SC Roger at 6 hours, 7 minutes into the mission took from measuring LM frames 53 to 54 of a tropical storm.

HAW Roger, we copy.
CAPCOM Apollo 7, Houston.
SC Houston, Apollo 7.

CAPCOM Right, Walt, we'll can turn about that 024 high, have you still got it, and if so are you turning it through the malfunction procedure.

SC That's affirmative and on page 52, box 32 here. The camera seems to be fairly high, holding fine it's normal. I have switched to redundant, set the continuator with no effect and I have cycled several times each water accumulator ON and OFF.

CAPCOM Roger, will copy.

SC This is Apollo mission.

CAPCOM Cap Com, Houston, are you calling?

HAW Apollo, are you calling?

SC Yes, I am.

CAPCOM Houston, Apollo 7, go ahead.

SC Roger, Houston. Can you hear it good?

CAPCOM Stand by.

SC 34.70 degrees and that was 22 seconds

late. That was 06 hours, 10 minutes, 22 seconds.

CAPCOM Okay at the Houston Apollo. Apollo 7, this is Houston. Your rolling over the Huntsville now, Wally do you read? And the voice - the voice data is coming at very normal. We'll fix you up loud and clear over California in just about a minute.

HANEY This is Apollo Control, Houston, we're obviously we and the crew are looking at the O2 flow. It's in a high mode. And as Walt Cunningham said he can't explain it just yet. We expect to have new contact with the spacecraft via California momentarily. We'll come back to you when we get that. At 6 hours and 13 minutes into the flight this is Apollo Control, Houston.

This is Apollo Control Houston. HANEY 22 minutes into the flight. We still don't have a good explanation for the fact that we are using oxygen in the high-flow rate position in the cabin. Walt Cunningham that sort of system falls in purvue of Walt Cunningham over in the right couch. He is working the problem, looking over his checklist and we are working it down here on the ground. There is some belief that it might be a sensor or a faulty sensor and I guess really that is the only possible thing I have heard rumored about. Again, we have no explanation for it at this time. We are watching it. We have some tape from the start of the pass as we move down and across the California - Baja California and down through Mexico. Here is that tape now. Roger, Apollo 7. We show it holding CAPCOM

also. Not increasing.

Thank you. SC

Apollo 7, Houston. CAPCOM Go ahead, Houston. SC

Roger. You were kind of garbled over CAPCOM Hunstville, Wally and you were trying to read down to bay retro check. Did ... go okay.

Negative. SC

Roger. CAPCOM

Wrong call outs on time. SC

Okay. CAPCOM

That is 6 hours 10 minutes and 22 seconds. SC Was the bottom of the lines on the earth's rim. And with the call outs instead of 31.7 also. Matched up perfectly.

Said 134.7 degrees in pitch.

Okay. CAPCOM Like to re-validate that time. SC

Okay. We got that data. CAPCOM

Roger. It is flush from 3 degrees, but SC

we should do better.

Instead of 138. CAPCOM

Say again. SC

I am sorry, Wally. That was my error. CAPCOM

Roger. What's with the end of 8? SC

Well, we read you up 138. We are just going through it now, trying to find out what the difference is.

3.3 degrees. SC

Houston, Apollo 7. Any ideas on the 02 SCflow high? We are still bleeding the cabin out. It doesn't seem like that could possibly account for that much, but that is the only leak we can account for.

Walt, we are still going through it. CAPCOM

CAPCOM Right now, we are kind of thinking it is a sensor failure. We will take a look at it a little bit further as we go along and let you know.

SC (Garble)

HANEY And this is Apollo Control Houston.

We are looking at the overall oxygen quantities here naturally, and looking at this oxygen flow, and we show something like 97 percent -- Here is Jack Swigert talking to the crew.

SWIGERT (garble) manual retro attitude, the one you

are going to do at 6 plus 50.

SC Roger. Go ahead.

Okay, it is pitch attitude. SWIGERT attitude should be 339 and yaw attitude should be 000.5. This is apollo Control Houston at 6 hours 27 minutes into the flight. The spacecraft just starting its 5th revolution around the earth. It is now crossing the 80th parallel just north of the Panama Isthmus. And in case you missed that last transmission from Swigert, we have considered the oxygen high flow question that has come up since - oh - been looking at it for about the last 10 or 15 minutes since just before the spacecraft was acquired by Hawaii. And we have looked at total usage. We have looked at the cabin pressure and the fact that it is holding at a very steady 5 - 5 pounds to 5.1 pounds per square inch and we are looking at the total quantity and at least at this time we are satisfied that it is simply a sensor error. It is an invalid reading and of course we will continue to look at it, but over that period of time we could see something that would explain a leak or something else. And the data does not show that. The crew, I believe has - we have loss of signal and so that will conclude this message at 6 hours and 29 minutes into the flight.

HANEY This is Apollo Control, Houston, 6 hours, 49 minutes into the flight. We had a little, very small audible communication through Ascension a few minutes ago. Here is how that went.

CAPCOM Apollo 7, Houston through Ascension. Apollo 7, Houston.

CC , Modston.

SC Go ahead, Houston.

CAPCOM Roger, Wally, we're still showing a good cabin, and everything seems to be holding fine on the ECS then.

SC Looking good.

CAPCOM Your about 1 minute LOS - a minute LOS,

Ascension. will pick you up at Tananarive.

SC Roger.

SC Houston, Apollo 7, over.

CAPCOM Apollo 7, go ahead.

SC (garbled)

CAPCOM Apollo, would you repeat, you're garbled.

SC Requesting portable amp update first

chance you get, please, over.

CAPCOM Roger, will do.

this point Flight Director Glynn Lunney is talking with his various flight directors and asking them to consider very well the performance in their areas of speciality up to this point. Within about 30 minutes when the spacecraft reaches the tracking ship, Mercury, which is parked off the China coast. At that point the flight plan calls for Lunney to give the crew a GO for 18 dash 1. And before he does that, in the act of consideration, he wants to carefully weigh all of the up rating situations up to this point which of course have been quite favorable. But at the same time they'll get a very careful screening before that GO is given. The Mercury station should - the Mercury ship is to acquire at 7 hours, 22 minutes into the flight. We are presently 6 hours and 51 minutes. This is Apollo Control, Houston.

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APOLLO 7 MISSION COMMENTARY, 10/11/68, GET: 7:03:40, MC48/1
                    And this Apollo control, Houston, 7
     HANEY
hours 03 minutes into the flight. Via Tananerive we've
been talking to the crew and here's how that goes.
                    Apollo 7, Houston, through Tananeriva.
     CAPCOM
                    Houston, do you read, Apollo 7.
     SC
                    I read you (gargle).
     CAPCOM
                    (garble) check we are right on -
     SC
earth limb - low as 2.8 degrees (garble) during that check
(garble).
                    Apollo 7, Houston, you faded on that
     CAPCOM
last one as - after the comment about the COS.
                     Tantanerive, iminole this is Houston
     CAPCOM
Cap Com are we getting through to them.
                     Apollo 7, Houston, - Apollo 7 Houston.
     CAPCOM
                     Tantamerivo, iminole this is Houston
     CAPCOM
Cap Com. How do you read?
                     Houston, Apollo 7.
Apollo 7, we read you fine by now.
     CAPCOM
                     Roger, it's through the momentary
     SC
(garole).
                     Roger, E understand you're making a
     CAPCOM
fuel fill first.
                     (garble).
     SC
                     I didn't get it Walt, say again.
     CAPCOM
                     Driving (garble) a fuel cell carriage
(garble) one and hydrogen (garble) two and fuel cell three
to follow.
                     Roger, copy. I can give you an updata
     CAPCOM
on your orbital map here.
                     Roger, standing by, go ahead.
                     Okay, for rev 5, the node - the time of
      CAPCOM
the node will be 07 plus 17 plus 38. Go on to two to the
node will be 106.5 degrees east.
                     Roger, 106.5 east and 17 plus 38.
      SC
                     Ros, and the right ascension will be
      CAPCOM
 06 blus 49.
                     Say again.
      SC
                     The right ascension will be 06 plus 49.
      CAPCOM
                     06 plus 49.
      SC
                     Okay and 7 - Wally you faded out on
      CAPCOM
 when you were describing the night retro check, we didn't
 get your comments on the COAX.
                     Roger, I set the COAX for 31.7 degrees.
 There was more readily usable than the window line during
                     Okay, Roger, Okay, real good. Was the
      CAPCOM
 basic data correlated pretty well for the night retro,
```

Wally.

APOLLO 7 MISSION COMMENTARY, 10/11/68, GET: 7:03:40, MC48/2

(garble), real good on the earth SC

horizon.

Okay, that's what we're shooting for, CAPCOM we'll talk to you over Guam about the day retro check and the descrepancy there.

Roger. SC

And Apollo 7, we plan to do that duplex CAPCOM V check just as we start Guam there.

Roger. SC

CAPCOM Apollo 7, your one minute to LOS Tantanarive. Pick you up in Mercury in about 18 minutes. Roger. SC

HANEY This is Apollo Control, Houston, 7 hours, 22 minutes into the flight. In a very few seconds the ship, Mercury, parked off the coast of China should acquire the spacecraft now. The acquisition is planned for right now. As a matter of fact, and when it comes we'll cut into it. There will be discussion with the crew over how or what their status is and discussion of the events over the next few hours. Here is that discussion now.

CAPCOM
SC
Oh, we are in pretty good shape. We detected a continual yaw which we suspected before we started to fly. I'll give you some data on that. The control mode is SCS attitude hold backstead bend high rate limit shackle is ON. At 7 hours, 17 minutes, and 3 seconds your hours plus 007.10. At 17 hours, 18 minutes, and 5/6th seconds your hours plus 007.82 and it shackles back and forth between those kind of numbers at that rate.

CAPCOM Okay, we copy.

SC We are knocking (garble) on the flush yaw side of the deadband.

CAPCOM All right.

SC The other systems are better with the exception of the. (Garble) Well we seem to have the 02 line come off the peg. Must have a stuck valve.

CAPCOM Bid you use the BARDOL procedure?

SC We used BARDOL procedures but that was
like an hour ago. (garble) auto 1 the flow meter looks
sluggish and it is reading about .75 about .8. The light is
out. It is decreasing it must be a winner.

CAPCOM Do you have any other systems problems?
SC Donn solved his urine dump system problem.

CAPCOM All right, copy. That sounds like a

personal problem.

SC (garble)

CAPCOM Does the spacecraft look good for about

18 revs?

SC 18 revs a day

CAPCOM Okay

SC We're ready to move to fast time right now. How about going back to MSL and starting over tomorrow.

CAPCOM Apollo 7, Houston you are GO for 18-1.

SC that suits us.

CAPCOM Real fine. Tom has a question here for you. Okay, here Wally just want to act out here real fast on that one retro check. The night retro check came out real good and the retro guy wants to ask you one question

CAPCOM here. On a daylight check when you came up to 6 hours and 10 minutes, you read 134.7 at that time? That is affirmative. We were 27 seconds late with the check because we were so far off and I was trying to bring it in.

Okay, we'll produce and have that because CAPCOM they can account for a 1.4 difference and it looks like what they would like to do down the road some time is run another one.

SC Okay, we will do a little more homework on it and use the fuel.

CAPCOM Okay SC (garble)

CAPCOM Say again, Wally.

SC Those are kind of expensive to use as fuel. CAPCOM Yes, We agree completely and since the night check came out good, we can account for half of that difference due to a vector.

SC

Apollo 7 (garble) Apollo 7, Houston. We would like to CAPCOM shift over to duplex B for a radio check. Okay opposite on me on (garble) first.

HANEY This is Apollo Control in Houston, 7 hours 27 minutes into the flight and to repeat. Flight Director, Glenn Luney has given Apollo 7 a GO for 18-1, a GO for 18-1 and we will go back and try for any additional commentary coming to us by Guam.

GWM 5 by 5. Do you read me 2 plus B.

CAPCOM 5 by. Stand by 1

Okay, Apollo 7 you can go back simplex A. The voice check was real good.

SC Apollo 7, simplex A. How do you read me? CAPCOM You're 5 by. SC 5 by here.

HANEY ...18-1. That was a sign that the crew could proceed to remove their space suits. We have had no positive confirmation that they have started that step yet. But it was - it is an understanding and it is written into their flight plan and ours that the suits would start coming off at this point. This is Apollo Control in Houston.

## APOLLO 7 MISSION COMMENTARY 10/11/68 7:39:45 GET MC51/1

RILEY This is Apollo Control, 7 hours and 39 minutes into the mission. We're just about ready to acquire Apollo 7 at Hawaii Station. We'll stand by for that pass and Seven will go on down through the Huntsville's acquisition area. Here's the call now

CAPCOM ... You had a restart, do you have your restart lights on your computer?

SC (garbled)

CAPCOM Okay, you're kinda garbled, I understand you did have one to reach that other thing. Looks like all the (garble) is real fine.

SC (garbled)

RILEY Apollo Control, 7 hours and 45 minutes we have LOS at Hawaii and we'll continue the monitor through to Huntsville. Hello Apollo 7 Houston.

SC Roger, Tom, go ahead.

RILEY Okay, got good comm with you now, Wally, just wanted to recheck on the computer. Now when you did - did you get the alarm light at the same time that the restart - that the program alarm at the same time that the restart came on?

SC Yes sir, we've wrote that off as no problem sir.

RILEY Okay, but you did get a restart and a program alarm at about the same time?

SC That's confirmed, that was due to the zero optics, they slow up too fast.

RILEY Okay. I don't want to - we starting to track the S-IVB and it's not separating as fast as they anticipated. It will still take a while to track it out and then we'll have plenty of time on it.

SC Okay

RILEY This is Apollo Control Houston at 7 hours, 54 minutes into the flight. Apparently, we will have no more comm through Guaymas. The spacecraft will be proceeding down the Eastern Pacific.

This is Apollo Control, Houston, 7 hours, RILEY 54 minutes into the flight. Apparently we will have no more come through Guaymas. The spacecraft will be proceeding down Eastern Pacific running parallel to the Mexican, Central American area without any further contact. I want to emphasize in that last message the statement that the separation distance between the Command Module and the S-IVB is not running exactly according to the earlier prediction. You recall about an hour, an hour and a half ago, we told you that the two were about 15 miles apart. The Command Module in front and slightly below the S-IVB. And the prediction the Flight Dynamics Officer gave us then was that they would continue to separate at the rate of 4 or 5 miles per hour for a period of 7 or 8 hours, and perhaps reach a maximum separation point of about 100 miles before they would slowly come back together. Now that separation rate is not preceeding according to the reference prediction. We have no new numbers on just how it is proceeding, but they think we can get some together before the news conference which will follow this shift. This is Apollo Control, Houston at 7 hours, 56 minutes into flight.

APOLLO 7 MISSION COMMENTARY, 10/11/68, GET: 8:10:03, MC53/1

minutes. The second shift of flight controllers is now active in the mission control center, headed by flight director Gene Kranz. The Cap Com on this ship is astronaut - well Tom Stafford is still here, but astronaut Ron Evans has just come in to and will fill out the rest of this shift. We are estimating the new conference now with flight director Gene - with flight director Glynn Lunney of the first shift for 6:30 pm Central Daylight Time.

Apollo control 8 hours 10 minutes.

APOLLO 7 MISSION COMMENTARY, 10/11/68, GET: 8:31:40, MC54/1

minutes. We're coming up on the Tananarive station now, but we do not intend to initiate any communication with the spacecraft at Tananarive. We will stand by in case the flight crew wannts to talk, but the control center will initiate communication during the pass. We're over the Pretoria, South African station, but there's no voice capability at Pretoria. If there is any communication at Tananarive we will bring it to you. Apollo control.

9 hours and 31 minutes into the mission. Apollo 7 is on it's sixth revolution down over the Eastern Pacific. We did have a brief bit of communication earlier in this revolution at Tananarive, and at the tracking ship Mercury Walt Cunningham reported that the Command Module Pilot, Donn Eisele was settling down for his sleep period. And then over the Hawaii station which we just passed, the Flight Surgeons were successful in passing up some corrective measures for Cunningham to take to fix his EKG instrumentation. We'll bring you the tapes from those passes now. Apollo 7, this is Houston through CAPCOM Tananarive. Go ahead. SC Roger, we'll be standing by here (garble) CAPCOM predicted the next flight being that will be required some time after 40 hours. Roger, we'll stand by for ref C, and SC since confession is good for the soul, we got our curfews ran a little bit of  $\tilde{3}$  minutes last time. No problem. CAPCOM Apollo 7, we want to log (garbled) 3 hours CAPCOM and 35 minutes into the flight. Apollo 7, Houston. CAPCOM We're using you through Malagasy whenever SC we have our CSD out of commission as temporary. CAPCOM Okay. Houston, this is Apollo 7, have you got SC the good team on yet. Apollo 7, say again. CAPCOM Sounds like you've got the good team SC working there. Yeh, at the press. CAPCOM Hope you had a nice trip back to Houston. SC We had a beautiful trip. I tried to CAPCOM contact you but no go. Understand that. SC Apollo 7, Houston, we have 1 minute til CAPCOM LOS at Tananarive. Roger. SC Apollo 7, Houston, through Mercury, how CAPCOM do you read? - Apollo 7, Houston, through Mercury. Roger Houston, go ahead. SC Roger, you're coming in loud and clear. CAPCOM Just wanted to check, do you got all the basic stowage

Seems like we have. We're up to that

cleared away Walt.

SC

stage in the flight plan here where we kind of collect our (garbled). Donn is attempting to settle down for a long winter's night.

CAPCOM Okay, thank you.

CAPCOM
SC
Roger, out of (garbled), but I shot a better lock up on - on the area which I had before. It's backup now. I still have the 02 flow high light. We'll occasionally add the flow meter come on down to around .8, but it's a very sluggish movement. I would appreciate it if as soon as you get any kind of trend data on the option quiry you'll let know and it'll really confirm the transfusion problem. - Houston, this is 7, over.

CAPCOM Houston, go.

SC We have locked the onboard through REV 8, and we'll be standing for further update on block data and (garbled)

CAPCOM Houston, roger. Apollo 7, this is

Houston, let's try opposite on again.

SC This one looks a little better to me, but not too good. I'm going to try inbetween if it lie back and kind of tell here on the distinguish tape meter. It's negative. An IVA seems to be best from here.

CAPCOM Roger, 30 seconds to LOS and okay on

the IVA.

CAPCOM Apollo 7, Houston from Hawaii, over.

SC Roger, reading you fine.

CAPCOM Roger, good news tonight. No EKG on

a CMP or LMP.

SC (garbled) I'll tell the CMP you asked. CAPCOM Since the CMP is asleep don't bother

him, but we've got some check we want the LMP to do.

SC This is the LMP go on the checks.

CAPCOM Roger. Check that that sensor goes into the lower end of your breast bone there right in your chest is plugged in the line. Check that the sensor, the external sensor is plugged into the box and is tight. And then when your done with all that, if it doesn't make up check that the sensor is strapped to the body. And

SC I found one that was loose, it was the

upper one, the upper strap.

CAPCOM Roger.

SC How are you reading me now?

CAPCOM Loud and clear.

SC How's the EKG on me?

```
Nothing yet.
     CAPCOM
                    That's it.
     CAPCOM
                    That fixed it LMP.
     CAPCOM
     SC
                    (garbled)
                    (garbled)
     CAPCOM
                    Apollo 7, Houston, I have a block data
     CAPCOM
on number 2 to give you. Apollo 7, Houston.
                    Go.
     SC
                    Roger, both last two stations confirm
     CAPCOM
that you have been transmitting on both complex A and B.
Do you concur?
                    (garbled) we're now on complex A.
     SC
     CAPCOM
                    Roger. We're about 1 minute to LOS. I'll
have your block data for your over Tananarive if the voice
is good, otherwise it'll run.
     SC
                    Roger, we'll be standing by.
     SC
                    Apollo 7 to Houston.
                    Huntsville (garbled) Houston Cap Com.
     CAPCOM
                    Apollo 7, Houston.
     CAPCOM
                    Huntsville (garbled) Houston to contact.
     CAPCOM
                    Houston to contact GO.
     CAP COM
                    Roger, are you reading Apollo 7.
     CAPCOM
                    We presently have two in S-band, we're
     CAPCOM
reading you going up. No signal coming back.
                    Apollo 7, Houston, 1 minute to LOS in
     CAPCOM
flight up telemetry command switch to reset in release.
                    Roger, are you reading the S-band as
     SC
real low, and say again after LOS?
     CAPCOM
                    Roger. Up telemetry command switch to
reset. Apollo 7, Houston, return the up telemetry command
switch to normal.
     SC
                    You're coming in way down in the mud.
Do you want the up telemetry?
                    Apollo Control, Houston, 9 hours, 42 min-
       That's the end of the tape, the Cap Com you heard
talking to flight crew through Hawaii was Astronaut John
Young who a member of the backup crew who has joined the
Astronaut Ron Evans at the Cap Com console here in the
Mission Control Center. Apollo 7's next station contact
will be Tananarive at 10 hours, 7 minutes, 30 seconds elapse
```

time. Apollo Control.

RILEY This is Apollo Control at 10 hours and 7 minutes elapsed time, we coming in to acquisition at Tananarive now. We'll stand by live through this pass.

CAPCOM Apollo 7 Houston - Apollo 7 Houston.

SC Go ahead, Houston

CAPCOM Roger, you sound pretty good this time.
SC Roger, we're (garbled) the cannister at

this time.

CAPCOM Roger

SC Houston, this is Apollo 7 again, well about 25 minutes ago, I guess we noticed the glycol and the temperature was climbing up to about 50 and the steam pressure was tagged low and the best we can find out, above 60 we went to manual and increased for 45 seconds and we started to activate the secondary loop, before we got the secondary loop completely activated, in about 10 or 12 minutes the temperature started down again and there was no activity for a couple of minutes, but it looks like the water boiler couch just might have frozen and now it seems to be controlling fine and back in order.

CAPCOM Apollo 7 Houston, we copy.

SC Roger, I am in the midst of changing the lithium hydroxide cannister, would you verify it for me from the EPS people how long this button shaft has to be depressed preventing the cannister we've prepared from opening. It seems to be on a continual basis.

CAPCOM Roger, stand by - you don't even need to depress a button there, Wall - Apollo 7 Houston, just

a momentary depress on that cannister.

SC Roger, understood, but I think it must be for one calibration, it works all right now.

CAPCOM Wall, we would like to verify that you reset your telemetry command switch and it went back to normal.

SC Roger

CAPCOM Apollo 7 Houston requests a partial pressure 02 reading.

SC Advise. - This is Apollo 7, we took and changed the cannister out of the a side (garble) on the ground they inadvertantly placed cannister two, I switched cannister two down beside B and moved cannister one and cannister two is now ...

APOLLO 7 MISSION COMMENTARY, 10/11/68, GET: 10:14:30 57/1

and canister 2 now... SC

Apollo 7, Houston. That is Roger. CAPCOM This is Apollo Control. We have had RILEY loss of signal at Tananarive now. As you heard, this is the first change of lythium hydroxide canister. There are two canisters in the system that they are using to remove the carbon dioxide from the re-circulated oxygen. One canister is changed every 12 hours. This was the first change right on schedule according to the flight plan. The next station to acquire will be the tracking ship MERCURY down off the coast of Japan, down between Japan and the Phillipines. Acquisition time there at 10 hours 30 minutes 40 seconds. This is Apollo Control at 10 hours 16 minutes.

RILEY This is Apollo Control 10 hours, 30 minutes into the mission. Apollo 7 is coming up on the tracking ship, Mercury. Should acquire within a few seconds. It is in its seventh revolution. We'll monitor communications through this pass.

CAPCOM Apollo 7, Houston through Mercury. This

is Apollo 7, Houston.

SC Go ahead

CAPCOM Roger, we need your partial pressure 02 reading (garble) in now so your status of the waste management overboard drain valve.

SC Have you got the (garble) reading as 190 when you requested it at 10:15

CAPCOM Say again the reading, I missed it.

SC One niner zero.

CAPCOM Roger, go ahead and close the waste management overboard drain valve. (garble). The one you already closed at 10:15

SC (garble)

CAPCOM Apollo 7, Houston, I've got some block data to give you

SC (garble)

CAPCOM Roger, Block data number 2 009-3 Bravo plus 254 plus 1367 a 013 plus 2 niner plus 36. 5150, 010 alpha Charlie minus 054 minus 0162, 014 plus 1 niner plus 12 4314, 011 Alpha Charlie plus 060 minus 0220, 015 plus 54 plus 48, 4131, 012 Alpha Charlie plus 134 minus 0330, 017 plus 28 plus 48, 4098, 013 2 Alpha plus 262 minus 0282 019 plus 08 plus 06, 4258, 0141 Bravo plus 220 minus 0620, 020 plus 34 plus 03, 4163. Houston, over.

SC Partial readback. 0093 Bravo plus 254 plus 1367, 013 plus 2936, 5150,010 alpha Charlie minus 054 minus 0162, 014 plus 19 plus 12, 4314, 024, 011 Alpha Charlie plus 060 minus 0220, 0155448, 4131, 012 Alpha Charlie plus 134 minus 0330, 01728484098, 0132 Alpha plus 262 minus 0282 0190806, 4258, 0241 Bravo plus 220 minus 0

SC 0190806, 4258, 0141 Bravo plus 220 minus 062002034034163 over.

CAPCOM Roger, Wally. Readback is correct. Break when we get over Hawaii we are going to want to make a E memory dump by burp 74. In transmit you start out with a clear disk, burp 74 enter and then wait one minute.

SC Houston, Apollo 7, I would like to log 10 plus 35. I had 11 squirts on this water pistol and I would like to log that the beef stew might tend to be very crumbly and a lot of crumbs when you open the package even. Pretty crumby food. Top of the crumbly (garble)

RILEY This is Mission Control we have had LOS at the Mercury now. You heard Wally Schirra report the partial pressure of oxygen in the cabin as now 190 milimeters of mercury and that is the magic number they have been looking for. That is the sea level equivalent. When they reached that number, they closed the waste management vent valve which is the valve which has been venting the atmosphere introduced to the cabin on the pad the 60 40 oxygen nitrogen combination. So that valve is closed now. They are not venting and they do have a sea level in the cabin as far as partial pressure of oxygen. At 10 hours, we'll acquire again in Hawaii in about 8 minutes specifically 10 hours, 48 minutes and this is Mission Control at 10 hours, 39 minutes

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APOLLO 7 MISSION COMMENTARY, 10/11/68, GET: 10:48:00, MC60/1
                    This is Apollo control, 10 hours 48
     RILEY
minutes into the mission. Apollo 7 coming up on aquisition
of Hawaii tracking station now. We'll stand by through this
pass.
                    Apollo 7, Houston.
     CAPCOM
                    Go ahead.
     SC
                    Rog, Wally at this time we would like
     CAPCOM
to try duplex A and notify when switching to a duplex A.
                    Garble.
                    Roger, duplex A, now.
     CAPCOM
                    Houston, Apollo 7, how do you read
     SC
(garble).
                    Apollo 7, Houston. A little more
     CAPCOM
garble than the other, but still about 4 by 5.
                     Roger, (garble).
     SC
                    Roger, let me check and make sure we're
     CAPCOM
receiving down link and we can proceed with our blurb 74.
                    Roger, do you want me to remain
     SC
(garble).
                    Affirmative, we will stay duplex A
     CAPCOM
until we get close to LOS and if we haven't the method
return to simplex A at LOS.
                     Wilco and (garble).
     SC
                     It's a negative, you want to make sure
     CAPCOM
the deck is clear and it looks like it is. It (garble) 74
and inner and then we will wait one minute.
                     Standing by on your mark.
      SC
                     Apollo 7, Houston, proceed, blurb 74.
      CAPCOM
                     (garble)
      SC
                     Roger, the inner phase. Wally you can
      CAPCOM
 go ahead and make the entry from on board we're not going
 to send it to you.
                     Apollo 7, Houston, request you to enter
      CAPCOM
 blurb 74.
                     Apollo 7, Houston.
      CAPCOM
                     Go ahead.
      SC
                     Request you enter a verb 74.
      CAPCOM
                     Yes.
      SC
                     Apollo 7, Houston.
      CAPCOM
                     Yes.
      SC
                     It looks like the E memory dump is good.
      CAPCOM
 We would like to verify the position of the water flow
 now that panel two is in the auto position. That's the
 glycol evaporator water flow.
                      (garble)
      SC
```

SC Houston, the set is affirmative. The engine is auto; the G-pressure is auto, the water pump is auto.

CAPCOM Houston, roger.

SC We just go the same thing again. Pressure

normal (garbled).

CAPCOM Apollo 7, Houston. Return to complex A and about 1 minute to analyze it.

SC Roger, (garbled)

RILEY This is Mission Control, 10 hours, 56 minutes. We've had LOS since Hawaii. The next station acquires tracking ship Redstone, be a very low elevation pass there. We think we will be able to have voice communications. But the elevation is just slightly over 3 degrees and it'll be a short pass. This operation with the computer during the Hawaii pas was to check the memory after the restart that the computer saw several hours ago. Flight controllers here wanted to double check to make sure that the memory had not been effected, and it appears to be very good at this time. At 10 hours, 57 minutes this is Apollo Control.

APOLLO 7 MISSION COMMENTARY, 10/11/68, GET: 11:06:00, MC62/1

RILEY This is Apollo control, 11 hours 5 minutes - we're coming up on the Redstone now. We'll stand by through that pass.

CAPCOM Apollo 7, Houston. CAPCOM Apollo 7, Houston.

SC Houston, Apollo 7, do you read. CAPCOM Houston, affirmative, read you.

Roger, I'm reading you very weak, it seems we've been running into a lot of passes here where between passes we're left without a tape recorder running and we don't quite know the status of it when we are left that way, we would like to be using it to record some of these problems. I assume you're observing the anomaly we've got steep pressure now I'm going to reservice the water boiler.

CAPCOM Roger, I understand, you're servicing

the water boiler.

RILEY This is Apollo control, 11 hours 10 minutes, we've had LOS with the Redstone. We're along way from the next aquistion we're in the revolutions that go down over the southern hemisphere and the next station to aquire will be the tracking ship Mercury at 12 hours 5 minutes 58 seconds. This is Apollo control at 11 hours 11 minutes 20 seconds.

This is Apollo Control, 11 hours, RILEY 43 minutes into the mission. At the last pass of Apollo 7 over a tracking station in this case the Redstone, a tracking ship, Walt Cunningham mentioned a steam pressure anomaly. Flight Director Gene Kranz and some of his flight controllers have been working this problem. They think that we're seeing a freeze up of the water boiler on the primary coolant loop of the spacecraft. The spacecraft is powered down considerably and on the night side of the pass the water boiler does not have to work. But as we come into daylight and heat up, water then does flow to the boilers so that it can get rid of heat by evaporating water, that's what the water boiler does, and then when we go back into the night side in a low power configuration, it is the belief we may be getting a freeze up. There's water still in the boiler and may be freezing up. We're going to get a data dump at the next pass over the Redstone. We have a pass over the Mercury coming up at 12 hours 5 minutes elapsed time, but the Mercury has a problem with their unified S-band antenna which won't allow us to get a data dump there so we'll wait until the Redstone, get a data dump which will give us a better understanding of this problem. At the present time, it appears though to be a freeze up of the water boiler as it goes into the night side. At 11 hours 45 minutes, this is Apollo Control.

APOLLO 7 MISSION COMMENTARY, 10/11/68, GET: 12:05:30, MC64/1

RILEY This is Apollo control at 12 hours 5 minutes into the mission. Apollo 7 is coming up in to range of the tracking ship Mercury on its eighth revolution. we'll monitor communications through this pass.

CAPCOM Apollo 7, Houston, AOS Mercury.

Roger. This is Apollo 7, we temporarily had our primary loop back working on the line. It is begining to look like near the primary water flow valve, for a while we thought it was flux shutdown. I'm wondering if we start playing with it, we will eventually get it to come back up with the steam pressure reading normal for a while and it was controlling around a temperature of about 40 c's. Right now we are pegged low again. It looks like it is possibly the water control section or the 240 controller.

CAPCOM Walt, say again your last sentence there.

It looks like what?

SC I believe it is probably getting down to the water control section or the 240 controller. Also, we have a (garble) accomplish here. The cryo stratification for hydrogen. It is - both tanks are within 90 plus or minus 5 percent of my hydrogen and the procedure calls to let the pressure rise to about 260 to 265 and I believe that is the spec number and I would like the ECOM to tell me how high these pressures have been rising before they - the heaters shut off so I will know where to start doing the DT over.

CAPCOM Roger. Standby. We will get it for

you.

SC More specifically, I need the deadband that the hydrogen pressure tank 1 and tank 2 have been running back and forth between.

CAPCOM Roger.

SC Tell Wally we just took a couple more pictures of his mountains to update them.

CAPCOM Roger.

SC And we have been showing data on that tape and I hope we can get something worked out on that the tape dumps because we're terribly handicapped if we don't have the tape available for log run.

CAPCOM Roger. We concur and I think we're back

in cycle now.

SC Okay, understand. It would be nice if you know that we are going to be going over the horizon without the tape in a record mode for us, let us know.

CAPCOM Roger. What it amounts to on these night passes are night time here, if it were down just to about 1 site per rev to dump it and the Mercury had a band of down right now.

SC Roger.

APOLLO 7 MISSION COMMENTARY, 10/11/68, GET: 12:05:30 MC64/2

SC We only have two stars available for

the 252 alignment.

CAPCOM Roger. We will have it shortly.
SC Air frame six and magazine Bravo.

Correction magazine Peter. ..

CAPCOM I missed that, Wally. Say again.

SC Roger. (Garble) I would estimate that

he is a coolie.

CAPCOM Ah so.

SC Ron, do you have someone working with

two stars?

CAPCOM Wait one. I think... what to do, don't we just pick a pair out of the CMP?

SC Roger. We will go ahead like that.

CAPCOM Roger.

SC Anyone come up with any suggestions on our ECS problem? The malfunction procedures call for activating the secondary loop whenever the primary radiator outlet temperature gets above 48. I have been resisting doing that and kind of going by the glycol evap temp. Right now I am reading almost - radiator outlet temperature now - my glycol evap outlet temp is on about 52.

...in fact, I'm reading over the radiator outlet temperature now but like my glycol evap temp is on about 52. I would like to hold to not activating the secondary loop until the primary glycol evaporator outlet temp rates 60.

Apollo 7, Houston. We concur on that CAPCOM we kind of believe that we're really, not really hot enough and then we're starting to cool down when it starts evaporating - maybe over Houston going too cold on that

thing. We're working on that right now.

During the night pass, the glycol evaporator outlet temperature got down as low as about 45 something like that before we got the evaporator working again.

Roger. CAPCOM

Do we have anybody who can (garble) SC

data (garble).

7, Houston, LOS. CAPCOM

This is Mission Control, 12 hours 13 Riley minutes. We've had LOS at the Mercury. A very low elevation pass scheduled at Hawaii this rev nine-tenths of a degree which would give us - perhaps 2 minutes acquisition there and we're going to try. Apparently, we'll come back at that time. Acquisition at Hawaii scheduled at 12 hours 25 minutes 12 seconds. This is Apollo Control.

RILEY This is Apollo Control, 12 hours 25 minutes into the mission. We'll stand by through this short low elevation pass at Hawaii.

CAP COM Apollo 7, Houston. I have your dead

man for H1 and H2 tanks.

SC Roger, go.

CAP COM Roger. Tank 1, H2 tank 1, 228 to 246 H2 tank 2, 237 and 255.

SC Roger. 228 to 246 and 237 to 255 and I see that the pressures go slightly back and forth, ... (garble) little overheating.

CAP COM That's affirmative and the R/O auto reader and you can tell Wally that it looks like Stars 11

and 12 would be pretty good stars to try for.

SC Roger, 11 and 12, thank you. And Wally kind of wished the (garble) test after the alignment, we're still showing about 87 percent.

RILEY We've had LOS now at Hawaii. The Apollo 7 will be acquired by the Redstone at 12 hours 37 minutes 56 seconds. This is Apollo Mission Control at 12 hours 28 minutes.

Roger.

Apollo Control, 12 hours 37 minutes Riley Apollo 7 coming up on the Redstone now. We'll monitor this pass. Apollo 7. Apollo 7, Houston, Outfit on me. CAPCOM Apollo 7, Houston. Let's try the CAPCOM original (garble). Apollo 7, Houston. We got (garble) dope CAPCOM on the IVB. Apollo 7, Houston. Apollo 7, Houston. CAPCOM CAPCOM -Apollo 7, Houston. Go ahead and try and CAPCOM (garble) and you're reading us weak. We don't read you. We're monitoring the relative motion of the S-IVB and the spacecraft. It looks like it may require another phasing burn at 16 to 16 and 1/2 hours. The Delta-V will probably be 6 to 6 and 1/2 feet per second. Over. Apollo 7, I read your message but very weak. Oh, Roger. CAPCOM It's lunch time at 16 hours, is that SC correct?

That's affirmative - about.

END OF TAPE

SC

CAPCOM

CAP COM Apollo 7, Houston. 30 seconds LOS.

SC Roger, Houston, we got your message.

...07 I've got 4 balls, one on the star data check and use
Star no. one Alpheratz, Star no. 7 Menkar and we're going
to go ahead and take the gyro torquing angle. Is that
intentionally?

CAP COM Apollo 7, Houston, we'll take our angle-RILEY This is Mission Control. We've had LOS at the Redstone. During the first half of that pass we had very low signal strength, could not raise the spacecraft, finally got word through the network controller that the spacecraft had reported to the ship that they could read us very weak, so Cap Com Ron Evans started in the blind with that information but by that time the signal strength came up and we were able to get a little bit of conversation. The Ascension Island tracking station will acquire Apollo 7 at 13 hours 4 minutes 41 seconds. At 12 hours 47 minutes this is Mission Control.

RILEY Apollo Control at 13 hours 4 minutes into the mission. The Ascension tracking station is about to acquire Apollo 7. We'll stand by through this pass.

CAP COM Apollo 7, Houston. We'd like for you

to switch to simplex B on my mark.

SC Simplex.

CAP COM Apollo 7, switch to simplex B Mark.

SC Houston, Apollo 7, simplex B.

CAP COM Apollo 7, Houston, Roger. You got a

lot more graph at this time on simplex B than on A.

SC Houston, you're coming in clear

SC Houston, you're coming in clear but you're way down. I'd say on level two compared to the other.

CAP COM Roger, and Walt we'd like to verify that the primary evaporator water control valve on panel 382 is in the AUTO position.

SC Roger. Did you read (garble) that I did for the rest of that realignment?

CAP COM I missed that say again.

SC Roger (garble) when I did the (garble) for the rest of that realignment?

CAP COM Affirmative, 3 balls one and Stars 1 7 and secondly we'd like to know what portion of the malfunction procedures that you have accomplised on the primary glycol of that ALT TEMP high?

SC Roger, I've come down to box 18 or box 21 depending on how long you (garble) or whether you take the intermediate characteristics or not. That thing stayed down for a long period of time, then it came up fairly spontaneously to extreme pressure.

CAP COM Roger, we understand.

SC and one time ended up over with the primary lever water control valve (garble) there was a possibility the evaporator was froze. I'm going to check the water control valve now.

CAP COM Roger. Can you do that without disturbing our sleeping CMP?

SC Yeah, we're doing it. I also would like to get the same pressures that the oxygen tank is controlling to the actual pressures.

CAP COM Roger. I have them if you're ready to copy.

SC Ready to copy. Go.

CAP COM 02 tank one deadband 880 to 926. 02 tank 2 870 912.

SC Rog, thank you and now if I can just collate between what these meters are reading, we'll be on that 5.8 cryogenic test.

CAP COM Roger.

69/2

APOLLO 7 MISSION COMMENTARY, 10/11/68, GET: 23:07:00

SC CAP COM Tandi hydrogen test is in work now. Roger.

CAPCOM Apollo 7, Houston.1 minute til LOS. Simplex A on LOS.

SC Roger.

CAPCOM And that was a good try on the evaporator water control. The evaporator water control primer is in AUTO and for your information, I'm also running with the evaporator water control secondary in auto in case I do get into a situation where I have to activate the secondary loop.

CAPCOM Roger. Understand.

SC Hey, Ron, it's not a good situation but I don't consider it any kind of real problems with that primary (garble) right now.

CAPCOM (Garble) We concur with that.

CAPCOM 7, Houston. We're just now taking a look at the dump data we picked up at Redstone.

SC · (Garble)

Riley This is Mission Control. Ascension has had LOS. We'll be out of touch with Apollo 7 now until it comes within range of the Mercury tracking ship over in the Western Pacific. Over this pass over Ascension, we got a little bit more information for the environmental control officer here to work (garble) the evaporator or the water boiler problem. As you heard Walt Cunningham does not consider it a major problem at this time and the Control Center here concurs with that. They are continuing to work on the problem and are evaluating the telemtry information received in the dump over the Redstone during the last pass. We'll acquire at the Mercury at 13 hours 40 minutes 43 seconds. At 13 hours 13 minutes, this Mission Control.

RILEY Apollo control at 13 hours, 40 minutes, Apollo 7, its ninth revolution coming up on the tracking ship Mercury in the western Pacific. Guam has overlapping coverage with the Mercury on this revolution. We will stand by through both of those passes.

CAPCOM Apollo 7, Houston, thermal Mercury.

S/C Roger, loud and clear.

CAPCOM Roger. We would like to get a bird 069.1 - read out the six accounts. We would like to get your onboard readout.

SC White took the count down here. It has always been 0 for a long time. It goes about 6-X, T-1. Around 5.8 for the hydrogen, with 90 percent and it doesn't look to me like we have any clarification. The pressure slows down to a drop a little bit. I am not sure just what anoid mission is yet.

CAPCOM Walt, you are coming through HF this time, the clock there and I can't read you very well. Could you talk a little slower?

SC All right, you understand I just completed the hydrogen at 90 percent portion of the completion test and welcome there, it was my own estimation that we really didn't have any justification there.

CAP COM

Apollo 7, Houston.

SC

Go ahead.

CAP COM Roger. Current tracking indicates that the service module, the command service module will trail the S-IVB at NCC1 by about 30 miles so if we go ahead and do this upcoming maneuver, we will yield about nominal displacement at NCC1. The S-IVB orbit on 3rd day, however, yields a displacement between 63 and 87 miles, if we go ahead and make the burn and this is all based on that beacon tracking so it's pretty good.

SC Oh. (garble) registers 2000 (garble) let's get

to it.

CAP COM Roger. We're working on the update and we'll probably give you over Redstone.

SC Okay.

CAP COM Looks like the GETI is about 15.50.

SC Okay.

RILEY Mission Control at 13 hours 54 minutes Guaymas had LOS. The tracking ship Redstone in the South Pacific will acquire Apollo 7 at 14 hours 12 minutes 38 seconds. We'll be back at that time.

Apollo Control at 14 hours 12 minutes RILEY The tracking ship Redstone is about to into the mission. We'll stand by through this pass. acquire Apollo 7.

Apollo 7, Houston. I have your (garble) CAP COM Apollo 7, Houston. Apollo 7, Houston pad to give you. Ápollo 7, Houston. Apollo 7, Houston. opposite (garble) Apollo 7, Houston through Redstone.

Roger, we read you. SC

Roger, I have a (garble) pad to give you. CAP COM You're very weak but we think we can SC

Go ahead. take it. Roger. Phasing no. two. 015 52 0000 CAP COM NA NA NA, 1647 + 1202 00065 32445 NA NA 019 skip to roll pitch yaw roll 181 pitch 276 yaw 001 comment RCS/SCS BEF ... up + X thrusters. Monitor burn with E47. Read that? Apollo 7, Houston, opposite ...

Apollo 7, Houston. Did you copy? CAPCOM Apollo 7, 1 minute LOS. Ascension CAPCOM

fourteen plus three nine.

Roger, we read your old message. Did SC

you copy back?

Negative on the readback. CAPCOM This is Mission Control. We have LOS Riley at the Redstone now. During the initial part of this pass, we again had a weak signal strength problem. Didn't get communications with the spacecraft until several minutes into the pass. We passed up the information the crew will need to perform this little extra phasing maneuver that's planned at 15 hours 52 minutes into the mission. It's required because the drag conditions of the S-IVB, the second stage of the launch vehicle are not as predicted premission and without this burn at the time of the first SPS burn tommorow and that's scheduled for 26 hours and 20 minutes. That's the first burn to - in the rendezvous sequence. Without this (Garble) with it's coming up at the time that burn takes place, the S-IVB stage would trail. Correction - the command and service module would trail the S-IVB by about 30 miles. When what is needed is for the command and service module to be out ahead of the S-IVB. The nominal number is 73 miles and this second phasing maneuver coming up will place the CSM out ahead between 63 and 87 miles of the S-IVB which is still in good position for the MCC-1 or the first SPS burn at 26 hours 20 minutes tommorrow.

Apollo 7 will be acquired by the Ascension station at 14 hours 39 minutes. This is Mission Control at 14 hours

END OF TAPE

24 minutes.

RILEY This is Mission Control at 14 hours 26 minutes. This upcoming phasing maneuver will be a burn of 6 and a half feet per second. Propellant cost will be about 27 pounds it is estimated. But even though this is a nonplanned burn and the flight plan, there is enough RCS pad in the propellant budget to handle this burn and it will not affect the mission. This is Mission Control.

This is Mission Control at 14 hours, RILEY 39 minutes. Ascension has acquired at the Apollo 7 spacecraft. We will stand by.

Apollo 7, Houston through in a second. CAPCOM Roger, Houston. This is Apollo 7. SC do you read this current?

Roger, will occur this time, Walt. CAPCOM plan to reservice the evaporator and then shut it down. SC 520000NA1647 + 120200065324445NA0189

181276001, and I copied all waiting line.

CAPCOM Apollo 7, Houston, say again at GTI. SC Roger. GTI is 015520000.

CAPCOM I reckon you read that correct. All right, seven, Houston - the steps on reservicing the shutdown are real good reform. Make sure you have them. Block all the bad steam. Steam practically auto to manual. It will practically increase for 45 seconds. Block all of that. Eighth fuel flow on for a few minutes and then turn.

Roger. You know I have only done that twice in the past. And if you notice now that D pressure is unhooked and come backup. It seems to come up whenever the glide call, the evaporator outlet temperature gets down pretty cool like during the night. Do you want me to continue? We are going to manual, increase 45 seconds and reservice the water evaporator?

Affirmative. We just want to reservice CAPCOM it now and then shut it down.

SC Roger.

The idea Walt is that the radiators CAPCOM will carry a load without the primary evaporator on the line.

I don't think we have any manual control over the steam pressure. I am going to service the water flowing now.

CAPCOM Roger.

SC Wally seems to have a pretty bad head cold. He took two aspirins about 15 minutes ago and he has been blowing his nose.

CAPCOM Walt, say again. I missed that.

SC Wally has a pretty stuffed up head here. He took two aspirins about 15 minutes ago and has been blowing his nose pretty much all day long.

CAPCOM Roger. We understand.

SC We would like to check on (garbled)
CAPCOM About 1 minute until LOS there, Walt.
We just want to make sure that you realize we are trying to shut down evaporator and we think (garbled) will carry the load.

Riley This is Mission Control. We have had LOS at Ascension. Next station to acquire will be the Mercury at 15 hours 15 minutes. The Apollo 7 at the time of this phasing maneuver at 15 hours 52 minutes will be in contact with the Redstone. At 14 hours 48 minutes, this is Mission Control.

RILEY This Apollo Control at 15 hours and 15 minutes into the mission. Apollo 7 is coming up within range of the Mercury tracking ship now. Guam again has overlapping coverage here so we'll stand by through both of these stations for any communications.

CAP COM Apollo 7, Houston. I can give you timehack at 35 minutes prior to burn. Four, three, two, one,

MARK 35 minutes.

SC That's 35 wasn't it? CAP COM Affirmative. 35.

SC (cutting out) around (cut out) here at the evaporator and we have the steam pressure in MANUAL and the water flow OFF but that last bit of servicing I did, ah did a good bit of increase in steam pressure.

CAP COM Roger. Understand the last bit of

servicing increased the steam pressure?

SC Yeah. That last two minutes brought the steam pressure up right handedly. Right now I'm reading about .20 on the steam pressure.

CAP COM Roger. Walt, we can go with that.

That's okay.

SC That's good news. Yeah. Right. Is an MD there or do you still have those experimental doctors there?

CAP COM They're right here waiting.

SC You know I asked about taking a decongestion or antibiotic. (cutting out)

CAP COM Roger. Stand by. What's the word on

it Wally, I'll get the word on it.

SC Didn't you get the word that Walt passed back earlier? I've taken two aspirins.

CAP COM Say again. I think that was in the garble part. Couldn't make it out. Say again the problem.

SC I have a nose cold. I've already gone through about 8 or 9 Kleenex with some pretty good blows. I've taken two aspirin and I was wondering if there was anything else I could take?

CAP COM Roger.

SC I'd like to find out your D ruthers on the water boiler after that last servicing but putting it off for a while because you know we don't really need it. I'd still sometime in the future like to try it again. I'm not sure but what it's not working right now.

CAP COM Walt, this is kind of what we expected in this condition while not running and what we'd like to do is try to rev, at least a rev anyhow, with the evap off the

line.

Whatever you think.

Wally, Houston, here. The doctors are CAPCOM recommending that you take one Actofed or the code echo.

That has to do with a decongestant, is SC

that it?

That's affirmative. That's what it is. CAPCOM

SC Garble.

Apollo 7, Houston. We want to take a CAPCOM look at the (Garble). We'd like you to remain in P 47 for awhile after the burn on the Redstone pass.

Okay. SC

Apollo 7, Houston. CAPCOM

Go ahead. SC

Roger, it looks like we're going to have CAPCOM one final request after the burn here. Our calculations show that our wast water is going to be 85 percent at about 19 hours and we're not sure that Donn can hook up all this good deal stuff in the middle of your guys' sleep there so it's kinda at your discretion. Do you want to dump it prior to going to bed or let Donn dump it sometime around 19 hours?

It's all but hooked up now. We have that urine dump hose hooked up at one end all the time. a simple job for one fellow without disturbing us but I had mentioned we could think about putting that waste water tank on up to more like 95 percent so you don't have to have quite as high an activity dumping it all the time.

We're kinda agreeing with you in a way, CAPCOM and yet we would kinda like to let it run up to the full point a little later on in the mission than in the early part of the mission.

Okay, we do have a gauge (garble) at 5 percent (garble) up about 90 - (garble)

CAPCOM Walt, I think we can give you a proper and actual number a little later on in the mission here. When we figure out how much fuel cell they are dumping the water in and (garbled).

SC (garbled)

Riley This is Mission Control. Guam as LOS. The tracking ship Redstone in the South Pacific will acquire Apollo 7 at 15 hours 47 minutes 58 seconds. That RCS phasing maneuver is due to take place 15 hours 52 minutes. At 15 hours 30 minutes, this is Mission Control.

JAMES This is Mission Control at 15 hours, 47 minutes in the mission. We are coming within range of the Redstone now. We are 4 minutes away from the burn. We will standby through this pass.

CAPCOM Apollo 7, Houston, through the red Stone. Apollo -. Apollo 7, Houston request Amene A.

SC Roger, Amene A.

CAPCOM Roger.

SC Frantically -

CAPCOM Roger.

SC We flipped it in that vent during that launch. It is 0 and the double egress. You can see the difference.

CAPCOM Are you far?

CAPCOM Apollo 7, Houston. One minute LOS. I believe that we got our money's worth today. How about getting a good night's sleep.

SC Roger. Ron. Thanks for your help and

Donn is on watch.

CAPCOM Roger.

JAMES This is Mission Control, 15 hours 56 minutes. Redstone has had LOS. The Guidance Officer here in the Control Center affirms that that burn looked good here. And as you heard Wally Schirra and Walt Cunningham are preparing for their sleep period now. We will have a very low elevation pass at the Canary station at 16 hours 21 minutes 39 seconds. This is Mission Control.

This Apollo Control 16 hours 20 minutes into the mission of Apollo 7. We are coming up on acquisition point with Canary Islands in about a minute and a half from now. We will listen in although it is possible that we won't hear anything at that time. The sleep period for the spacecraft commander Schirra and LM pilot Cunningham has begun now. Only about 10 minutes off their schedule. that was due to the phasing RCS burn of the service module. The result of that burn is 83 to 98 nautical miles - it will be 83 to 98 miles ahead of the S-IVB at the time of the first SPS burn tomorrow. The next thing to do with the ECS water tank dump schedule is 19 hours into the mission. It will be scheduled for 28 minutes to dump an appropriate amount of water overboard from the spacecraft from the ECS water tank and that can be managed by the one pilot who will be awake at that time. The command module pilot, Eisele. We are coming up in acquisition with Canary Islands. will stand by for whatever may come up from that.

CAPCOM Apollo 7, Houston.

SC Houston, Apollo 7. Go ahead.

CAPCOM Roger. Two items we would like a check on the CMP biomed harness when it is convenient. We are not doing anything and we would like to check the pin connectors, the signal conditioners connectors and at last resort press down on the sensor. Second item, information, it will probably take about 28 minutes for draining the H20.

SC Roger, I have been fighting this harness. It doen't make up properly. I don't know how we are going to get it

CAPCOM Roger.

SC Running water.

CAPCOM I am sorry Apollo, I cut you out. Say

again please.

SC I say my biomed harness is not making up properly. I don't know whether it is going to work.

CAPCOM Roger.

JAMES This is Apollo Control 16 hours 23 minutes going on 24 minutes into the mission of Apollo 7. We have passed away from acquistion with Canary Islands. The next contact will be with the tracking ship Mercury and that will be at 16 hours 51 minutes 49 seconds. This is Apollo Control.

James This is Apollo Control. There will be a change of shift press briefing here in Houston at the press center at 10 minutes to the hour. That's approximately 18 or 19 minutes from this time. This is Apollo Control.

JAMES This is Apollo Control 17 hours 19 minutes into the flight of Apollo 7. We had contact at 16 hours 51 minutes with the Mercury tracking ship and Apollo 7. We will roll that tape now and after that we should have a light pass coming up with Redstone tracking ship.

CAPCOM Apollo 7, Houston.

SC Houston, Apollo 7. Go.

CAPCOM Roger. I have a couple of items here that we would like verification if you have it that the water chlorination was performed at 11 hours and 20 minutes. Second item, I mentioned it before, but I couldn't understand the answer. We want to advise it will take 28 minutes to drain the water.

SC Roger. Understand. 28 minutes to drain the water. You are referring to the waste tank dump.

CAPCOM I am sorry, waste tank dump. Affirmative.

SC Roger. We are only up to 40 percent on

waste water so we got a ways to go.

CAPCOM Thank you. Apollo 7, Houston. Did you

read me on the water chlorination?

SC Yes sir. That was - we did the chlorination at 11 hours 20 minutes.

CAPCOM Thank you.

SC Houston, Apollo 7. Command module pilot has got about 6 hours of sack time and at least 4 hours of pretty decent sleep. I would have slept a little better but I am not used to going to bed at 6 o'clock local time for me. I think in a day or two I will adjust to the cycle.

CAPCOM Apollo 7, Houston. Roger.

JAMES This is Apollo Control. We are now 17 hours 21 minutes into the Mission. At 17 hours 22 55 we will have contact with the Redstone tracking ship. At that time we will go live and stand by for any communication that we may have.

CAPCOM Apollo 7, Houston.

SC Houston, Apollo 7. Go.

CAPCOM Roger. We have a procedure that we would like for you to go through for some ground analysis. We monitor that you are in POO. We would like for you to follow this procedure: verb 22, noun 21, enter.

SC Roger. You want me to do verb 22,

noun 21, enter.

CAPCOM Affirmative. SC It is done.

CAPCOM Thank you. Roger. Now go plus 11111 enter.

SC Roger. Plus 5 one's enter.

CAPCOM Affirmative. Apollo 7, Houston. They are merely monitoring this from the ground. Also one other point. They would like to confirm the 40 percent reading on the water. On the waste water.

SC Oh, wait a second. Stand by. That is

75.

CAPCOM Roger, understand. 75.

SC Roger, I gave you the wrong number

before.

CAPCOM All right.

CAPCOM Apollo 7, Houston. One minute til LOS. We'll be (garble) back to you.

SC Roger.

This is Apollo Control, 17 hours 32 James minutes into the mission of Apollo 7. We have the next contact coming up and will be with Canary Islands at 17 hours 53 minutes 11 seconds into the mission. During this pass, we heard passed up the words POO that the command module computer was confirmed to be in an idling mode. From that idling mode, then they passed in a verb and a noun which meant to enter digital entry into the computer to test the pulse integrating pendulous accelerometer to see how it was operating. We also had a report that 75 percent now is the readout on the amount of waste tank water instead of 40 percent. It still stands that at 19 hours the command module pilot will dump 28 minutes worth of water from that waste tank. At 17 hours 33 minutes into the mission. This is Apollo Control.

JAMES This is Apollo Control 17 hours 52 minutes into the mission. We are coming up on Canary Islands again. We should have acquisition at 17:53:11. And that will last for some 7 1/2 minutes. We will tie into that live. We now have an apogee of 164.4 nautical miles and perigee of 120.1 nautical miles. The spacecraft commander and the command module pilot are sleeping and lunar - excuse me - the lunar module pilot is sleeping and the command module pilot is awake at this time. There is nothing in the flight plan of activity until 19 hours into the mission when he will dump the excess water from the waste tank for 28 minutes. At this time, let's see if we have any contact with Canary Islands.

CAPCOM Apollo 7, Houston, AOS Canary.

SC Roger, Houston. Apollo 7.

CAPCOM Apollo 7, Houston. Opposite omni please.

SC Roger.

CAPCOM Apollo 7, Houston. Coming up in about 2 minutes LOS at Canary and we have a brief pass at Madrid and it will be about 40 minutes before we pick you up at Honeysuckle and we will need the S-band volume up at that time. That will be Honeysuckle about 18:38.

SC Roger. Understand. Honeysuckle S-band

only 18:38.

CAPCOM Roger.

JAMES That is the end of our pass at Canary Islands. At 18 hours into the mission of Apollo 7, this is Apollo Control.

JAMES This is Apollo Control 18 hours 36 minutes into the mission of Apollo 7. Apollo 7 is coming up on Australia at this time. We will have contact with the spacecraft. However, not necessarily voice contact, but we should be getting it, if any, starting about now. Let's tie into the conversation at that end.

CAPCOM Apollo 7, Houston.
CAPCOM Apollo 7, Houston.
CAPCOM Apollo 7, Houston.

CAPCOM Apollo 7, Houston. One minute until

LOS Honeysuckle. Redstone at 18 plus 57.

JAMES This is Apollo Control 18 hours 44 minutes into the mission of Apollo 7. No contact was made on that pass over Australia. The next possible contact will be with the Redstone tracking ship at 18 hours 57 minutes 30 seconds. At 18:44:52, this is Apollo Control.

This is Apollo Control 18 hours 57 min-JAMES utes into the mission of Apollo 7. We are coming up now on the Redstone tracking ship. Should have acquisition in a matter of about a minute. We will stand by for any possible conversation.

Apollo 7, Houston CAPCOM

All set and go. Roger, Houston. SC

Roger, AOS Redstone. CAPCOM

Roger, I missed you at Honeysuckle. SC

Roger, we couldn't get lock on. CAPCOM

That is what I thought. It sounded SC

like it was trying there a couple of times.

I thought I head you trying to answer CAPCOM

All I heard was keying and side tones.

Yes.

Pogue said in Houston he would like some CAPCOM calrification on the biomed harness. If you can, just briefly, was it the connector wouldn't stay together or what? Well, I got it together now. Are you SC

getting any signal on it?

Negative. Okay, that is all I wanted CAPCOM

Roger, I had trouble getting the plugs to know. to make up. They would stick together, but they wouldn't quite go all the way in and lock. I finally got it to lock. What is your H20 waste water quantity now? Apollo 7, Houston. Opposite omni please? Apollo 7, Houston, opposite omni, please

Roger, Bill. I just switched off. Did SC

you want to go back?

Negative. Stand by one. Apollo 7, Houston. Negative, you have it now. We have comm and we lost you there for about a minute.

Roger. SC

... CAPCOM. Apollo 7, Houston, Opposite CAPCOM omni please. Apollo 7, Houston. One minute LOS Redstone and Antigua at 19 plus one six.

This is Apollo Control 19 hours 7 minutes JAMES into the mission of Apollo 7. We had a little bit of difficulty there. Astronaut Pogue was unsuccessful for a minute or so to make contact because the Redstone ship was having some trouble locking up on the voice signal. However, did make contact and the discussion among other things concerned calrification on the biomedical harness where the readouts during the Control Center on high grade, etc. and as of now it is not functioning. Although the medical people say that the power in the equipment is working

JAMES satisfactorily. So it must be some other problem. Possibly on board. At 19 hours 7 minutes 54 seconds into the mission, this is Apollo Control.

RILEY This is Apollo Control, 19 hours, 17 minutes into the mission of Apollo 7. We have just had CAPCOM contact with Apollo 7. At ANT we will now join the conversation.

SC Okay, these are test meter readings. They are all - they are 5C cycles, 5D is 4.8, 6A was 4.8, 6B and C were all 5. These were taken at about 16 hours.

CAPCOM Roger, undertand. What is Apollo 7

Houston idea of flight update?

SC Roger, go with your flight plan update.

CAPCOM At 23 + 53, TV on. That is at Texas

LOS on state side pass. That is the end of the flight plan update.

SC I understand you want TVR 23 + 53, how does that fit in with our burn and rendezvous sequence?

CAPCOM That should fit in all right.

SC Okay. We have some music coming in the background. Is that you?

CAPCOM You must be picking up the twilight zone there.

SC Evans, is someone trying to plug in a radio program to us or are we just picking that up spiritually?

CAPCOM That must be a spurious signal. No we don't have anything like that.

SC Okay, I am getting a hot tip on some hospital insurance plan from some guy.

CAPCOM Okay. Maybe they are trying to tell you something.

SC Maybe they know something I don't.
CAPCOM Apollo 7, Houston coming up on LOS ANT
AOS Canary at 19 + 27.

SC Roger, understand. Around another

12 ticks on water for me, will you?

JAMES This is Apollo Control, 19 hours, 24 minutes into the mission of Apollo 7. We had astronaut Pogue passing up the flight plan update which indicates the completion of approximately one day, 23 hours, 53 minutes into the mission. We have the good possibility of live television coming from the spacecraft which will be released that will be roughly about 10 a.m. central time tomorrow morning. Correction, this morning would be around the end of the fifteenth revolution. Eisele also reported hearing spurious radio signals. He indicated that it was a radio program and he was getting a hot tip on hospital insurance plans from somebody whereupon astronaut Pogue said maybe they are trying to tell you something and Eisele retorted with maybe they know something I don't. Nineteen hours, 25 minutes into the mission, this is Apollo Control.

JAMES This is Apollo Control 20 hours 02 minutes into the mission of Apollo 7. We're coming up very shortly in about a minute and a half in contact with Carnarvon, Australia. At that time we may get some conversation from Cap Com here at MCC and the spacecraft quoting the flight plan which is not changed to this time. Shortly after the contact, we are scheduled to have an IMU initial measurement unit realignment using a matrix and it will also at that time they will obtain drift data on the initial gyro and the guidance system. We have several seconds, about 30 seconds to go before initial contact with Carnarvon. At this time we'll switch over and join such conversation as there may be.

CAP COM Apollo 7, Houston.

SC This is Apollo 7. Go.

CAP COM Roger, AOS Carnarvon.

SC Roger. Houston, Apollo 7.

CAP COM Apollo 7, Houston.

Roger. I was just doing a little star examination here at sunset with the sun at my back so to speak and you can see stars, quite a few, out the telescope however the minute you move the telescope controls a lot of sandy white particles flutter out and they obscure the field of view. I know what that is. Apparently these particles are some moisture in the optic assembly that flip out when you're moving around in shaft motion and they go out and obscure what you're looking with the sun shining on them.

CAP COM Roger, I understand that you can see stars in the telescope okay with the sun at your back, however when you move, the optics in shaft, their white particles come off and sort of cloud up the view.

SC That's right. Looks like its snowing out there and it would be impossible to do any kind of useful alignment with a situation like that. Also, at times when the sun is more direct on the side where the optics are, it appears to be either a lot of light leak or absolute sun shine reflecting down inside the optic assembly but except at near sundown with the sun at the opposite side from the optics you just don't see anything when you look out there. You just see a big blur of light.

CAP COM I understand that you apparently have something that looks like a light leak when the sun is directly on the side of the, ah, is that the side of the

spacecraft without the colored lens.

SC Oh, I don't know if it's directly on that side or not, I can hardly tell, but at times when the sun is up and we get some ... and drifting attitude here I've looked in to see if I could see anything and it was just near impossible. I think a lot of light in the telescope, it had

the appearance of a light leak around somewhere in the assembly. I don't know if that's true or not or if it's just the reflection coming in but it makes it hard to see anything.

Right. Apollo 7, Houston. Have you CAP COM

been able to go through an alignment?

SC Not in the daytime. I'm going to do a fine align here in just a minute. CAP COM Okay.

92/1

SC Houston, are you getting these gyro torques and angles.

CAPCOM ...stand by. Apollo 7, Houston, Roger, we are receiving yaw and torquing angle.

CAPCOM Apollo 7, Houston. Coming up LOS Honeysuckle at Redstone at 20 plus 33.

JAMES This is Apollo Control 20 hours 19 minutes into the mission of Apollo 7. We have just had our pass over Australia. The next contact will be with the Redstone tracking ship at 20 hours 33 minutes 14 seconds into the mission. During our Australian pass, we had some talk about the telescope, referring to the IMU realignment procedures where the telescope and darkness with the sun behind the astronaut and operated satisfactorily and when he moved the optics in the shaft snowy white particles appeared as he said, like a snow storm. At 20 hours 20 minutes into the mission, this is Apollo Control.

JAMES This is Apollo Control, 20 hours, 33 minutes into the mission of Apollo 7. We are seconds away from contact through the Redstone tracking ship. We will have contact with the spacecraft at this time. We will be passing up possibly a correction in the flight plan which will include a burn of the RCS system to check the Tipa. Here we go. Let's join the conversation.

CAPCOM Apollo 7, Houston. SC Roger, Houston, go.

CAPCOM Roger. It is advised that we monitored you have had a switchover to a secondary loop proportional unit in a primary loop and request that you switch back to the primary or proportional unit.

SC Roger, standby. Tom, we are now back on 1. Do you want me to leave it in 1, or go back to auto?

CAPCOM Go to auto. Paul telling Houston to

go to auto.

SC Okay.

CAPCOM Also, we are now monitoring 85 percent on waste water.

SC Say again.

CAPCOM Ground monitors 85 percent, quantity

on waste water.

SC I can't read you Bill, you're coming in garble, with a lot of static.

CAPCOM Roger. Waste water dump, waste water dump, we're monitoring 85 percent.

CAPCOM Apollo 7, Houston. How do you read now?

SC That's better Houston.

CAPCOM Roger, did you get my call about the

waste water dump?

SC Roger, say again about the water dump.
CAPCOM We are monitoring 85 percent quantity

waste water now.

Roger, you're saying you got 85, I'll have to get Wally up to get under him, to get those pieces. I'd rather wait until he wakes up, which - he'll be awake in another hour or so anyway, could we wait till then?

CAPCOM Roger, standby.
CAPCOM Apollo 7, Houston. Affirmative, you can wait another hour. We're 1 minute LOS Redstone, and AOS Bahamas at 20 + 49.

SC Understand.

HANEY This is Apollo Control at 20 hours, 39 minutes into the flight of Apollo 7. To clarify what he said before, it is possible the Flight Director is considering

which is the pulsed integrating pendulour accelerometers mounted - there are three of them on each of the axis in the initial measuring unit in the Spacecraft and the Y-axis PIPA has been checked over the last many revolutions of the flight and it is possible that in order to check its operation more thoroughly that 1 minute RCS burn would, in an out of plane Y-axis would be utilized and if that were utilized, it would be similar between the 22 and 23 hour of the mission. This was not passed to the crew by Cap Com at this time, it's still under consideration and there's nothing of any alarm, certainly; but we will keep you posted on the progress of that situation. At 20 hours, 41 minutes into the flight of Apollo 7, this is Apollo Control.

HANEY This is Apollo Control 20 hours 50 minutes into the mission of Apollo 7. We are coming up on Mila acquisition in Florida and we should have some con-That position should be 20:50:19 5 seconds ago. versation. So let's join the conversation.

Apollo 7, Houston. CAPCOM

SC

Houston, this is Apollo 7, go. Don, I would like to brief you all on CAPCOM something that has come here and it has to do with the Y pickup. Statement is made that based on telemetry readouts, we feel or suspect that Y pickup counts are not getting into the CMC. We've been monitoring practically zero. Now, this is still sort of in ferment, but it looks like now they would like to have an RCS burn completed to perform a check on the Y pickups. If so, this will be done on the next rev over Texas.

Apollo 7, Houston. This would be sort CAPCOM of a small burn +Y then -Y then total DELTA-V about 5 feet per second.

(garble) you had something for me and then you said something about a small burn. Would you run it by again, please?

CAPCOM Roger, Apollo 7, Houston. How do you

read now.

SC Perfect. It's loud and clear.

Right. Based on telemetry readouts, CAPCOM we suspect that the Y axis pickup counts are not getting into the CMC. In order to check this out, we would like to do a small RCS translation +Y and then -Y, total test will consume about 10 pounds of fuel and it's proposed that this be performed at 22 + 23 and will be over Texas on your next pass.

SC Okay, 22 + 23, you will want a +Y and a -Y. Do you want us to have a program up like 47, then? CAPCOM Okay, I'll go through the procedure that is proposed here now. Step 1, we would like to the test to be done in two, also we would like to have A- Z roll enabled. Then attitude would be roll 180, pitch 326 and yaw 0. With that attitude, we would like a +Y translation of 7 seconds, wait 30 seconds, then translate -Y for 7 seconds, then turn the A-Z roll back off.

SC Wait a second, just hold the phone. You want two, you want A-Z roll enabled, I got 180, 3260 roll, after that I was replying on that but you were talking. Would you say all that again to the attitude?

Right, sorry about that. I will go CAPCOM over it slower. Roger, I'll go back over it. You got

CAPCOM correctly if we do want it in two, and we would like the SCS channel AC roll enabled also for the test. Attitude, roll 180, pitch 326, yaw 0, with that attitude, translate +Y 7 seconds, then wait 30 seconds - 30 seconds, then translate -Y for 7 seconds and the AC roll channel back off.

SC Roger. You have a terrible squeal in there, Bill, I don't know what it is. I understand and you want +Y for 7 seconds, then pause 30 seconds, then -Y 7 seconds. Now at what time again did you want this, 22 + how many?

CAPCOM We would like that at 22 hours and 23 minutes. That will be over Texas.

SC Okay, just out of curiousity, what do you hope to prove by having only two go in there. That won't - certainly won't put into the same vector if you do that.

CAPCOM Well, actually what we want to do is monitor your PIPPAS and see if in fact they are feeding information into the computer.

SC I see.

CAPCOM Also I have a block data update if you will call me when you are ready to copy.

SC All right, stand by.

SC Go ahead with your block update. CAPCOM Roger. Be for 015 dash 1 alpha.

CAPCOM Apollo 7 Houston
SC Roger go ahead Houston. You dropped
out there for three or four minutes.

CAPCOM Roger, Meyer here. How far did we get through on that?

SC Just up to 15.

CAPCOM Roger. Did - okay, I'll go through 015-ALFA briefly again. 015-1 ALFA plus 291 minus 0629 022 10 42 4275. Starting with the next one 016-1 BRAVO plus 312 minus 0630 023 4641 4539 027-1 ALFA plus 298 minus 0629 025 2218 4856 018-1 ALFA plus 252 minus 0685 026 5628 5106 019-4 ALFA plus 314 minus 1624 0294342 4363 0202-4 ALFA plus 310 minus 1623 0311829 4679 021-4 ALFA plus 261 minus 1633 032

JAMES ... 21 - 4 Alpha plus 261 minus 1633. 0325356 4 niner 44. Standing by for a read back.

SC Roger, we (garble) 015-Alpha plus 291 minus 0629 0221042 4275 016-1 Bravo plus 312 minus 0630 02346414539 017-1 Alpha plus 2 niner 8 minus 0629 0252218 4856 018-18 plus 252 minus 0685 02656285106.

CAP COM Apollo 7, Houston. Apollo 7, Houston. Apollo 7, Houston. Apollo 7, Houston. SC Roger, go.

CAP COM Roger, you got only part of the read back, if you would confirm in the third block 017-1 Alpha, second line plus 2 niner 8.

SC Roger, plus 2 niner 8.

CAP COM Okay, if you would pick up and read as far as you can get, starting with 019-4 Alpha.

SC Okay, here goes.

16240294342 4363 020-4 Alpha plus 310 minus 1623031829 4679 021-48 (voice fades out).

JAMES This is Apollo Control, 21 hours, 11 minutes, 42 seconds into the mission of Apollo 7. As you heard on that communication between Cap Com and Apollo 7, the Flight Director, Jerry Griffin has decided that we need an RCS burn to a minimal burn to check the PIPA or the accelerometer, pulsed integrating pendulous accelerometer counts onboard the Spacecraft. This burn will take place at 22 hours, 23 minutes into the mission. The reason that it is based on telemetery readouts, the PIPA or accelerometer counts may not be getting into the Command Module Computer. Now, this particular Y-axis accelerometer, if you can imagine the Astronauts lying on their couch, the Y-axis would go from hip to hip. So this accelerometer would measure velocity changes and translation along the axis, not around the axis. Therefore, an RCS burn would - will take place 22 hours, 23 minutes into the mission and it will be in IMUP, that is the platform, the IMU platform, will be idling, roll 180 degrees, pitch 326 degrees, yaw 0; and they will burn on that Y-axis, along the Y-axis a translation burn for 7 seconds and they will wait for 30 seconds, then they will burn on -Y the other way along the axis for another 7 seconds, and then here in the control center, they will readout whether or not the PIPA counts are getting into the Command Module computer, if it influences the PIPA readouts. At 21 hours, 14 minutes into the mission, this is Apollo Control.

This is Apollo Control 21 hours 37 minutes JAMES into the mission of Apollo 7. We are about 10 seconds away from acquisition at Carnarvon, Australia, so lets join what conversation there may be.

Apollo 7, Houston. CAPCOM

Roger Houston, Apollo 7. Go. SC

Roger. AOS Carnarvon. I also have an CAPCOM advisory. We're monitoring 90 percent, 90 percent on waste water now, and we'd like to get a dump whenever - as soon as it is convenient.

Okay. Wally is still in the sack. SC soon as he is up we'll dump it and meanwhile I'm starting to maneuver around to the attitude for that little test maneuver you want to do.

Roger. Thank you. CAPCOM

Apollo 7, Houston. We're about - a CAPCOM little over 1 minute to LOS Carnarvon. Request S-band volume up please.

Roger. S-band volume going up. SC

Thank you. CAPCOM

This is Apollo Control 21 hours 45 min-JAMES utes into the mission of Apollo 7. Evidently we'll have no more conversation on our Australian pass. On this revolution, 14th revolution, going - well, correct that, the 15th, the beginning of the 15th revolution we will have the service module RCS burn to test the accelerometer and to get a readout hopefully on whether or not the accelerometer counts are getting into the command module computer. This is to be done at 22 hours 23 minutes over Texas. At 21 hours 46 minutes, this is Apollo Control.

JAMES This is Apollo Control 21 hours 54 minutes into the mission of Apollo 7. We had further CAPCOM communication with the crew of Apollo 7 over Australia and it is taped and I would like to bring it to you now.

CAPCOM Apollo 7, Houston.

SC Roger, Houston go, Apollo 7.

CAPCOM Roger. After the RCS test over the states, we will be sending up two nav loads and one target load and we will get to work on them as soon as we can.

SC Okay, fine. Hey Bill?

CAPCOM Right, go.

SC Roger. A couple of hours ago, I neglected to tell you before, I'm sorry, we had an anomaly up here. We had a AC buss 1 drop out and all we did was reset it and it kept on running and we never did see anything anomalous other than that, other than we confirm that the voltage has dropped off and the inverter come off the line apparently.

CAPCOM Okay, you had an AC buss 1 drop out and you reset it and it was okay but you did confirm it was a bona fide malfunction because the voltage did drop.

SC That's right. All three phases were - well, were pegged on the bottom of the meter and all we did was hit reset and punch the warning lights off and it kept right on running.

CAPCOM Okay, thank you very much. That is

copied.

SC Okay, we've had no trouble with it since. Everything is normal.

CAPCOM All right, thank you.

CAPCOM Apollo 7, Houston. Coming up on LOS at Honeysuckle. We will have acquisition Texas at 22 + 19.

SC Roger. You are saying 22 + 19.

CAPCOM Right.

JAMES This is Apollo Control. That concluded our Australian pass. Our next contact will be on our stateside pass coming over Texas and at 22 hours 23 minutes we will have a burn over Texas of the RCS service module engines and that will test the pulse integrating pendulous accelerometer status in the spacecraft. The Flight Director is concerned that possibly this accelerometer, the counts from the accelerometer may not be getting into the command module computer. The command pilot and the LM pilot are due to be awakened in a matter of moments on the hour and we should be in contact with Texas and the spacecraft at 22 hours 19 minutes 52 seconds. At 21 hours 57 minutes this is Apollo Control.

```
JAMES
                     This is Apollo Control at 22 hours.
19 minutes into the mission of Apollo 7. At this time, we
do not have contact, but we will with the Spacecraft at
22 hours, 1952. The Spacecraft Commander and the LM Pilot
should have been awakened on the hour, 19 minutes and
27 seconds ago. There was a lithium hydroxide change
scheduled, the second change scheduled in the flight plan,
which we assumed has taken place. At 22 hours, 23 minutes,
we are coming up on the service module RCS reaction control
system burn to test the accelerometers in the IMU. We now
have contact with the Spacecraft. Lets join the conversation.
     CAPCOM
                     22 hours, 20 minutes, 9, 10, 11, 12.
                     Roger, we're (garble).
     SC
                     And counting down to burn, 2 minutes and
     CAPCOM
38, 7, 6, 5.
     SC
                     Roger, thank you.
     SC
                     Houston, Apollo 7. Do you read?
                     Roger, Apollo 7, Houston. Go.
     CAPCOM
                     Roger, I'm on the right lead head-set.
I commenced dumping the waste water tank about 2 minutes.
I'd like to have you confirm the temperature in that outline,
when ever you get a chance.
     CAPCOM
                     Roger.
                     And I'm going to send down, as I told
you about, the AC Buss 1, temporary glitch there. I can't figure why it came off, I don't think we have the automatic
disconnect disconnect anymore.
     CAPCOM
                     Roger, we copy that one.
                     Apollo 7, Houston, we would like a
     CAPCOM
TLM input to high please, telemetry input high.
     SC
                     Look, if you guys are in the middle of
a dump, I have to go plan the E set to do that.
                                                   If you are
in the middle of a dump, I'm going to stop it.
     CAPCOM
                    We're not dumping.
     \mathsf{sc}
                     You guys can either stop your dump in
command high or I'm going to do it.
     CAPCOM
                     Apollo 7, Houston, we are not dumping.
     SC
                     Okay, thank you.
     SC
                     Ready in high?
                     Right. (garble)
     CAPCOM
     SC
                     Affirmative.
     SC
                     Roger. We're going to do a countdown
to the burn.
     CAPCOM
                     Roger.
     SC
                     4, 3, 2, 1, mark.
     CAPCOM
                    Apollo 7, Houston. That PIPA check
```

```
CAPCOM
                     looked good. Good information and we
will be updating your PIPA bias later.
                     Roger, understand the check looked good.
Thank you.
            Glenn, we checked the PIPA's on here tight and
I've got just about 0 PIPA bias when I did, although there
is someone else loaded it in, I was a little suspicious
on the basis of that.
                     You say you did get outputs from it
and you think we're still okay,
     CAPCOM
                     Roger, it looks so good, it fooled us.
     SC
                     Okay.
                     We were thinking along the same lines
     CAPCOM
as you were.
     SC
                     Alright, I try to get an updated bias
then.
     CAPCOM
                     Roger.
     SC
                     Waste water quantity down to 50 percent.
how are you doing it.
     CAPCOM
                     Standby.
     SC
                     Can you tell me what that dump line
temperature is?
     CAPCOM
                     Apollo 7, Houston. I'm trying to get
that information for you, standby. Your dump temperature
is 66 degrees and the quanity is now reading 47.2.
                     Roger, thank you, we're just about in
agreement with that.
     CAPCOM
                     Apollo 7, Houston. If you are ready
to accept, we'll send up your NAV load.
SC If you have time this pass, why don't you give us an updated readout on our quad RCS quantities.
     CAPCOM
                     Your RCS (garble) quantities?
     SC
                     That's affirmative.
     CAPCOM
                     Roger, standby.
     CAPCOM
                     Apollo 7, Houston, we'll brief you on
that just a little bit later.
                     Understand.
     SC
     CAPCOM
                     Apollo 7, Houston.
                                          Will you go to
accept, please.
     SC
                     Accept telemeter.
```

CAPCOM Apollo 7 Houston, you are go for a 33 dash 1

SC Roger go for 33 dash 1. Did you receive our comment, we had a flight plan update for TV UD and we will be unable to support anything but the scheduled flight plan activity until after the rendezvous.

CAPCOM Roger, understand.

CAPCOM Apollo 7 - Houston. I am still waiting for the exact number, but your RCS propellant quantity does look near nominal

SC Standing by

SC Hey, you notice any difference in the first part quality, I'm on the lightweight headset now.

CAPCOM I was reading Donn much more clearly.

SC Understand

CAPCOM Apollo 7 - Houston Both Nav loads and target loads in the computer are yours, also I have the, a list of the RCS usable propellants, Quad A, 285, B 299, C 281 D 297

SC Roger You say 285, 299, 281 and 297 Right?

CAPCOM Apollo 7 - Houston Affirmative. I am trying to get that converted to percent.

SC We would like a total percentage readout on that.

HANEY This is Apollo Control, 22 hours 34 minutes into the mission of Apollo 7. In that pass over the United States, we completed the service propulsion system RCS burn. We gave them an update on the amount of propellant left in the RCS system and we confirmed that the waste water percentage is down to 47.2 percent in quantity, where it had been 85 percent. So the dump was satisfactory and the burn was satisfactory for the PIPA check. To repeat, the purpose of the burn that was not originally scheduled in the flight plan was based on the fact that the flight director was concerned because the PIPA which is the pulse integerating pendulous accelerometer in the instrument measuring unit and the guidance and navigation system on the spacecraft. They were concerned that the accelerometer counts may not be getting into the command module computer. This is an integral part of the guidance and navigation system. There are three such accelerometers mounted in the instrument measuring unit and they measure along all three axes, X, Y, and Z. particular accelerometer that was in question was the Y axis accelerometer and that accelerometer has now proven from

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ground readouts to be operational. The HANEY next contact we will have is with Canary Islands, 22 hours 37 minutes into the mission. It is now shortly a little less than one minute from this time so we will switch over for any further communication from the spacecraft.
CAPCOM Apollo 7 - Houston

APOLLO 7 - Houston

Houston - Apollo 7 - Go SC

CAPCOM Roger, regarding the.....

CAPCOM Apollo 7, Houston. SC Roger, Houston, Apollo 7. Go. CAPCOM Regarding the flight plan, now, Roger. problem here, we would just ask if he considered it, and it is in there at this particular time because of the passage over the site. SC Roger, Bill, I understand. We're going to be pretty busy along about then, and I think we are going to continue with what we had planned for normal activities. CAPCOM Roger. Let me go over my update again, That time was at 23 plus 53 plus 00 and I might have set that time up wrong. Looks like at that particular time it could possibly be worked in. SC Roger, it's the right time. No TV till after rendezvous. CAPCOM Apollo 7 Houston. I have the RCS propellant usable in terms of percentage. Do you want me to read them or not? SC Roger, go ahead. CAPCOM RCS usable remaining quad A-Roger. Alpha 86.7 percent, B-BRAVO 91 percent, C-CHARLIE 85 percent, D-DELTA 90 percent. SC Roger. Understand, Usable remaining 86, 91, 85 and 90, CAPCOM Roger CAPCOM Apollo 7, Houston. I have PIPPA-5 update. SC Roger, standby. SC Go ahead, Bill. CAPCOM Roger, for the verb 21 noun 1 niner 1720 niner, the PIPPA-5 is 0 niner. Roger, understand 0 niner. CAPCOM Right. CAPCOM Apollo 7, Houston, 1 minutes LOS CYI, TAN at 22 plus 59. SC Roger. JAMES This is Apollo Control 22 hours 45 minutes into the mission of Apollo 7. That concludes our pass. next contact will be Tananarive 22 hours 59 minutes 39 seconds some 14 minutes from now. We have a GO for 33 revolutions. Things look good on the spacecraft right now. This is

END OF TAPE

Apollo Control.

This is Apollo Control 22 hours 59 minutes in the mission of Apollo 7. At this time I believe we will give a rundown of the activities since roughly 8 hours ago. At 15 hours 23 minutes, Astronaut Schirra requested permission to take one decongestant tablet. He had taken two aspirin earlier. The problem seemed to be that his nose was stopped up and he had gone, as he had said, through several Kleenexes, and at that time he was told to take a decongestant tablet. We then had an unscheduled, up to that - shortly before that time, an RCS service module burn. Then the commander and the LM pilot entered a sleep period at 15 hours 52 minutes into the mission. The reason for the RCS burn was to position the command and service module some 26 hours into the mission, or 3 hours from now, roughly, well ahead of the S-IVB stage of the booster, which it will rendezvous with at that period in the flight. We will turn out to be, after that burn, 83 to 98 nautical miles ahead of the S-IVB at the time of the first service propulsion system burn, so it was a highly successful burn. Then we had a situation where excess water from the environmental control system, primary system waste tank was looked at closely and it turned out that it had to be dumped. Several minutes ago it was accomplished and it went from 85 percent down to some 45 - 47 percent, which is a most acceptable level in the waste tank. We have had some problem with the biomedical harness, which didn't seem to operate and 18 hours 58 minutes into the mission, it came up and it was indicated by the command module pilot Eisele that he had checked the harness but still on the ground no signal was coming into the Control Center on biomedical readout. the doctor, Dr. Beers here in the Control Center, indicated that the equipment was working okay and he had to assume that the trouble was somewhere in the spacecraft. At that time, the water tank quantity was building up and had reached 78 percent and it stayed right around that quantity until, as I say, a short while ago it was dumped. It took some 28 minutes to dump it down to around 47 per-We had flight plan update 19 hours 17 minutes into the mission. We then had it confirmed that the television was scheduled for the Texas pass at some 23 hours 53 minutes into the mission. At that time, Eisele reported receiving spurious signals - it was a radio program. As he said a hot tip on hospital insurance plans from somebody. Eisele reported 20 hours 8 minutes into the mission that the telescope when he was in darkness with the sun behind he could see the stars fine, but when the object was moved snowy white particles appeared as he

said like a snow storm. He also noticed some sun shining down the barrel of their telescope at certain times. He did not know the exact position of the sun when that happened. We're in a situation 20 hours 29 minutes into flight when the Flight Director Griffin came to the conclusion that the accelerometer in the inertial measuring unit that on the Y-axis possibly was not functioning properly and that the counts possibly were not getting into the command module computer. He then determined that we should have an out-of-plane burn, an RCS reaction control system on the service module burn in the Y-axis that's laterally of - and that the burn would be 7 seconds plus Y and 7 seconds minus Y with a 30 second space in between. Would be a total of about, as it turned out, a 5-foot per second burn. That was passed to the crew and that burn did take place and it did prove that the accelerometer in the inertial measuring unit was not malfunctioning and was checked out here on the ground as working properly. It was then concluded and confirmed that the waste water tank dump was completed, confirmed on the ground - the exact quantity remaining as of now is, or a short while ago, 47.2 percent quantity in the waste water tank in the environmental control system. We then got a go a very short while ago 22 hours 30 minutes into the mission, a go for 33 revolutions. We then had service module reaction control system readout on quantities. Quad A we have 86.7 percent left; Quad B we have 91 percent of the propellant left; Quad C 85 percent left; and Quad D 90 percent left. That's the status as of now at 23 hours 5 minutes into the mission of Apollo 7. This is Apollo Control.

Apollo 7, Houston CAPCOM. Apollo 7, CAPCOM Apollo 7 Houston. Houston CAPCOM. Houston, Apollo 7. Are you reading SC me? I read you five by how me? CAPCOM Roger. Reading you fine. Over. SC Okay, Wall I've got a T align time for CAPCOM you I'd like to pass up. We've got a short pass here. Roger. T align 23 plus 24 plus 08 00. Roger. CAPCOM 23 plus 24 plus 08 00. Roger. Over. SC Roger. That's correct. Now concerning the CAPCOM matter of the television, there's been considerable discussion The flight Director - want's you to here in the center. turn on the television at the appropriate time. Walt will be on the air shortly. SC Okay, Wall after this I've got NCC one CAPCOM pad I'd like to give you and if I can't give here I will give it over Carnarvon . Roger. Go with it. SC Go with your maneuver pad. SC Let's wait first and get Wally's comments CAPCOM on the television. Okay Walt, we'll go ahead with the NCC CAPCOM pad here. Ready to copy. SC Okay, 026 24 5510 plus 00617 minus CAPCOM 00010 plus 01985 1960 plus 1243 01978 32398 minus 0 niner 0

minus 030 010 35 1981 151 025 41 - we've lost him. 5500

JAMES This is Apollo Control Houston 23 hours 33 minutes into the flight of Apollo 7 with the spacecraft just pulling northeast of Australia. During the Australian pass, it was concluded that there would be no television transmission, I repeat no television transmission across the states in the next rev. A number of reasons are cited in the communication from Captain Schirra and here is the tape of the entire Australian pass now.

CAPCOM Apollo 7, Houston. Roger, Wally, I would like to finish the NCC 1 pad and could you tell me how far you copied before we got LOS at Tananarive?

SC Roger, Jack. I got 25 hours 41 minutes of the nav check, I didn't get the seconds. Continue after that.

CAPCOM Okay. Starting at the seconds. 5500 + 2766 - 05376, 1126359284359. You have the T align of 23 + 24 + 0800.

SC Roger. The T align was 23 + 24 + 0800, NCC 1 26245510 + 00617 - 00010 + 019851960 + 12430197832398 - 090 - 030010351981151025415500 - 2766 - 053761226359284359 over.

CAPCOM Roger, it is correct except the - in noun 43 the latitude, the sign should be + 2766.

SC Roger, I have the plots here.

CAPCOM Okay, you got it. Go ahead Wally.

SC Roger. You have added two burns to this flight schedule, you have added a urine water dump, and we have new vehicle up here and I tell you this flight TV will be delayed without further discussion until after the rendezvous.

CAPCOM Roger, copy.

SC Roger.

CAPCOM Apollo 7, this is CAPCOM number 1.

SC Roger.

CAPCOM All we have agreed to do on this is flip it. Apollo 7, all we have agreed to on this particular pass is to flip flip the switch on. No other activity associated with TV, I think we are still obligated to do that.

SC We do not have the equipment out, we have not had an opportunity to follow setting, we have not eaten at this point, I still have a cold, I refuse to foul up our time lines this way.

CACOM Apollo 7, Houston. Could we have

opposite omni please and your PMP power to OX.

SC PMP going to OX now. Hey Jack, they left us without that tape recorder running again in after the last pass. The problem we have here is I am

SC hesitant to stop and command reset and start tape going because you might be in the middle of a dump that you want to continue later. So we really are left without nothing between passes at the - tape motions left barber pole like that.

CAPCOM Okay, we copy.
CAPCOM 7, Houston.
SC Go ahead.

CAPCOM Walter, the reason the - you lost the tape recorder at barber pole when you left Canaries we had a power loss at Canaries just before LOS and we didn't get the command to you. It shouldn't happen again, everybody has been briefed on the proper operation there.

SC Okay Jack, I understand. I guess, I am going to assume if it's barbar poled after we have left contact with you, then it's running in a forward direction and ready to record. Jack, can you verify that?

CAPCOM Stand by. Let me get the word from EECOM.

CAPCOM Okay, Walt, EECOM says that assumption of yours is correct.

SC Thank you, and for your information down there, I have yet to activate the SPS line heaters. They have been off ever since liftoff. The temperature seems to be holding very, very constant at 70 and I verified that with the oxidizer feedline temperature off. CAPCOM Okay, real fine.

SC And did you ever get the command module RCS temperatures down there during the night?

CAPCOM Yes we did. Do you want them passed up?

SC Negative. We are going to be doing some from time to time. I will pass them on to you.

CAPCOM Okay.

CAPCOM Apollo 7, Houston. We would like to have your TLM switch pushed to low.

CAPCOM Apollo 7, Houston. CAPCOM Apollo 7, Houston.

PAO This is Apollo Control. Again repeat, there will be no television attempt, use of the television equipment made before the rendezvous attempt coming later in the day. And the revolutions are such that we would not then be able to attempt it until at least tomorrow and perhaps the next day. We are undecided right now whether to attempt a television pass tomorrow or not. In the course of the conversation regarding the use of the camera, you heard someone identifying himself as CAPCOM number 1, come in and

PAO take the microphone. That was Donald Slayton. He, on the basis on his discussion with Wally Schirra - here in the Control Center it was concluded that we should not attempt the TV pass today. Prior to that there had been some feeling that we should go ahead and follow the general time line as closely as possible. This is a matter in which the Control Center decided they should accept the crew commanders judgement and that was that it would overload them to attempt before the rendezvous. The principal of additional work, it may sound simple just to turn on the TV camera, but it does mean a good deal of effort in setting light conditions and setting shades, pulling shades on five different windows and controlling the general level. I think that is the biggest order of difficulty. At 23 hours 42 minutes into the flight, this is Apollo Control Houston.

PAO This is Apollo Control Houston, 23 hours 51 minutes into the flight. The Guaymas station is due to ...we are due to acquire the spacecraft through Guaymas momentarily and this pass will bring the spacecraft across Mexico, across the northern Gulf of Mexico and cut across Florida, should be an active pass....let's listen.

COMM We have some information on your evaporator and ECS procedures for and during the rendezvous here. We would like for you to stay in your present configuration using the primary system with the radiators. If the evaporator, primary evaporator, or evap temperature goes higher than 60 degrees, we would like for you to activate the primary evaporator then. And if it doesn't work, we would like for you to re-service that primary evaporator and shut it down, activate the secondary coolant loop with the radiator bypass.

SC Roger, understand. Additional PR..... One question, did you say glycol evaporator outlet temperature above 60 or the radiator outlet temperature above 60... over.

COMM Walt, the evaporator outlet temperature

greater than 60.

SC Roger, understand, evaporator outlet above 60 and activate the primary water boiler if it doesn't work again, I will re-service it, shut it down and activate secondary cool loop with the radiator bypass.

COMM Roger.

SC Houston - Apollo 7, I have the PMP back to normal after that last pass.

COMM Roger, copy.

.....is 56 minutes

(garbled)

(garbled) .....7 minutes

Apollo 7 - Houston

Roger, sounds like you're having a ball

SC down there.

COMM Rog. We just want you to know your (garble) line for your rest mats compares favorably with ours down here.

SC Thank you...we're just going by overhead

just skimming the Gulf Coast right over the water.

COMM How does the weather look?

SC Not bad, about .....(garbled)

just across Tallahassee at this point. (garbled)
COMM Roger

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en generalen. Generalen der sollen bestellt in der stelle der sollen bestellt in der stelle der sollen bestellt in der stell

SC Just took a picture of (garbled) wave

That's been the fifth

COMM Did you request Crestview direct to

Orlando?

SC Direct (garbled)

SC It's also over Daytona. It will be just overcast I guess. There's about 3/10 coverage, (garbled)it's a good day for it.

CAPCOM Nothing right now. We'll have you almost continuous coverage here through CYI for another 15 minutes or so.

SC Roger. (Garbled) stay in here and get

this little food down.

CAPCOM Okay, we'll standby.

CAPCOM Apollo 7, Houston, opposite omni. SC 24 hours (garbled) minutes into the

flight 5 clicks on the water gun for the LMP.

CAPCOM Roger. Copy. SC (Garbled)

APOLLO 7 MISSION COMMENTARY, 10/12/68, GET: 241100 106/1

CAPCOM Apollo 7, Houston (garble).
CAPCOM Apollo 7, Houston. One minute LOS
Canary. Will pick you up at Tananarive in about 15 minutes.

```
HANEY
                     This is Apollo Control Houston 24 hours
38 minutes into the flight. We've been in touch with the
crew by Tananarive. We are now, and here's how that con-
versation is going.
     CAPCOM
                     Apollo 7 Houston to Tananarive.
     SC
                     Apollo loud and clear.
     CAPCOM
                     You're five by also. We'll have con-
tinuous coverage here to Carnarvon. ARIA 2 comes up when
we lose Tananarive in about 8 minutes.
     SC
                     (garbled)
     CAPCOM
                    Wally, I didn't quite get it. Are you
saying that the dumps are affecting the system operation
or is that -
                     We sectioned off the particles that
came off the rear deck or water dump.
     CAPCOM
                     Roger, copied.
     SC
                     (garble) this would be a problem when
we don't have the ways to drop out the soot.
     CAPCOM
                    Okay, copy.
     SC
                    I would like to get the rest of the
flight plan for (garble). The recommendation does not
(garble)
     CAPCOM
                    Okay, copy that.
     SC
                    This is Apollo 7.
     CAPCOM
                    Go ahead.
     SC
                    We have a (garble)
     CAPCOM
                    Okay, go ahead.
                    To place the X-axis of the spacecraft
on target, the target must be in the upper right quadrant,
the (garble) has got it, up 1 degree and right 1 degree.
     CAPCOM
                    Roger, copy.
     SC
                    This is Apollo 7.
                                       I have the results
of the command module RCS
                            (garble)
     CAPCOM
                    Say again, 7.
                    I have the results from the command
module RCS temperature check, I've just completed. You
may copy.
     CAPCOM
                    Go ahead.
                    Roger. 5C and D and 6B, C, and D are
     SC
all power volts.
                  6A is at 4.90.
```

Roger, copy.

END OF TAPE

CAPCOM

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APOLLO 7 MISSION COMMENTARY, 10/12/68, GET: 24:58:00 108/1
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This is Apollo control Houston, 24 hours
58 minutes into the flight. We are over Australia and the
pass is progressing in this way.
     COMM
                    (garbled)
                    Houston, through Carnarvon standing by.
     PAO
     COM
                    Walt, we picked up honeysuckle, in about
5 minutes you might want to turn up your S-band at that time.
                    Roger.
                            ....pressure reading of 200 mil
     SC
of mercury
     COMM
                    Say again.
                    0 2 points of pressure, 200 mil of mercury
     SC
     COMM
                    Okay, copy that.
                    .....(garbled) S-band on this pass?
     SC
     COMM
                    We pick up honeysuckle in at 55 here,
you can turn up S-band volume if you want.
                    Roger, by the way how does S-band sound
to you down there today?
     COMM
                    Everything sounds real good.
                                                   It is a
real nice comm.
                    We were surprised you fellows started
     SC
talking over Tananarive this morning
     COMM
                    Roger
     SC
                    (garble) bad yesterday
                    Apollo 7 Houston, we..could we switch
     COMM
your bio med switch to the commander?
                    Yes sir, my pulse is down now.
                    Okay.
     COMM
     SC
                    Houston - Apollo 7
     COMM
                    Go ahead
     SC
                    Did you consolidate the BC....0197.8, is
that correct.
     COMM
                    Standby. Apollo 7 - Houston.
the correct number at this time, we expect another update
though as we progress.
                    Roger
     SC
                    Houston - Apollo 7
     SC
     COMM
                    Go ahead
                    Roger, just before band check, we're GO
     SC
     COMM
                    Roger, copy.
     SC
                    Could you give us an update on our .....
garbled)
                    Roger, you want a chart update, is that
     COMM
                    That's right
     SC
                    Okay, standby
     COMM
```

APOLLO 7 MISSION COMMENTARY, 10/12/68, GET: 24:58:00 108/2

COMM Apollo 7 - Houston, I have the orbital map update.

SC Go ahead

COMM Rog. For rev 16, the GET on the nose will be 25 + 12 + 45, longitude will be 168.5 west, a right ascension 06 + 27.

SC Rog. our ascension 06 and 27 and the crossing on the map as 25 + 12 + 45, 168.5 west.

COMM Roger

SC
As to the cold I have, I took 2 aspirin
before sleep last night and 1 actived that is a total dose
so far. I think I'll take another actived during this period.
COMM
Dr. Berry says yes, take another one

during this period.

SC

Roger. We are currently doing the oxygen part of P528.

COMM (garbled)

This is Apollo Control Houston..25 hours 2 minutes into the flight. The spacecraft is now proceeding northeast of Australia and we will not expect another contact until perhaps Hawaii, the pass shades in right on the line just below the line of acquisition, looks more like a solid acquisition at the Huntsville. The Huntsville is due to acquire at 19 minutes 25 hours 19 minutes into the flight about 16 minutes from now. A word on the visitors in the control center this afternoon, this morning, Mrs. Low Cunningham, the wife of Lunar Module pilot Walt Cunningham was here, arrived about 9:30 with their two children, Bryan and Kimberly and they stayed in the control center for about an hour along with a house guest of the Cunninghams, a Mrs. Lynda Johnson. They left here about 10:30. We discussed Schirras admitted cold with Dr. Berry and all hands agree that Wally sounds a little stuffed up, a little husky and you heard him ask for and it was suggested that he take another Actived which is a decongestant tablet. This is the second Actived, he took two aspirin before he went to sleep last night. At 25 hours 4 minutes into the flight, this is Apollo control Houston.

PAO This is Apollo Control Houston, 25 hours, 23 minutes into the flight. We've been in touch with the crew by Hawaii, they're now in the Huntsville, the ship Huntsville zone of acquisition and here is how their conversation is going.

CAPCOM Last P52 came out.

Roger, the P52 came out fine, but the (garble) started the difference and (garble). No problem with the optics, There will be (garble) and all came out fine.

CAPCOM Okay, that's real good news. We'll expect you to be in (garble) sometime around 2533 for these command uploads here.

SC Fine.

Okay, one other message here this morn-CAPCOM The flight of Apollo 7 dominates the news this morn-We received a number of special messages regarding the flight, including one from President Johnson, who watched the launch on television at the White house. Here is his message to you. "Congratulations on the splendid beginning of the Apollo 7 flight. The nation is proud of you and the many in NASA, the services, and the private companies which have combined to make such a successful man space flight. Everything in the President's office came to a halt as I and the Foreign Minister Debret of France watched with mounting excitment the magnificent launch of the Saturn 1B. You can well imagine the great pleasure which filled the room as word came of your successful insertion into orbit. The path to the moon takes courage, ability, and devotion to our goal. You are making a major stride in this starstudded way." Also, we received another message from Vice-President Humphrey, the Head of the Space Council, which says that the nation is proud of Apollo 7. Also, the Olympic Games start today in Mexico City and we'll keep you posted on the result.

SC Roger, thank you. I just finished the cryo fuel G test for the oxygen tanks at the 90 percent level and it looked like there was very noticeable stratification at 910 psi, when I turned the heaters off and the (garble) on, the surface dropped the left tank down to 860 and the right tank down to 850. All unit fans are back on AUTO now.

CAPCOM Okay, Roger, we copy.

SC Jack, we look very good up here and (garble).

CAPCOM Apollo 7, Houston. SC Go ahead.

CAPCOM Now that you're down, we would like you to key in enter, so we can look and see if there were any additional program alarms.

SC Okay Jack, I did and nothing came up.

CAPCOM Okay, fine.

CAPCOM Apollo 7, Houston. SC Go ahead Houston.

CAPCOM If you will hit the reset button, we can get rid of that program alarm 1105. Apollo 7, Houston.

SC Go ahead, Jack.

CAPCOM If you will go to ACCEPT we will send you up those three updates.

SC Roger, you got it.

CAPCOM Okay.

PAO This is Apollo Control Houston. In this lapse, you will recall in the Morning News Flyer the Cap Com references and the message from Vice-President Humphrey. In the full text of that message is as follows: "Hearty congratulations and all good wishes for this historic Apollo 7 mission. The nation is proud." End of statement. Now we will go back to the pass.

CAPCOM Roger, MCC1 026 24 5520 plus 00635 minus 00013 plus 01 niner 63 1961 plus 1252 01 niner 62 32339 minus 0 niner 0 minus 030 010 35 1 niner, niner 2 162 025 42 all balls plus 2756 minus 05340 1225 358 285 359. Remarks

posigrade, pitch down 70 degrees, heads up.

SC Roger, I read that fine. MCC1 026 24 5520 plus 00635 minus 00013 plus 01 niner 63 1961 plus 1252

```
SC
                    9681961 plus 1252 01962 32339 minus 090
minus 030 410 351992 162 025 42 0000 plus 2756 minus 05340
                 It's a posigrade pitch down 70 degrees
1225 358 35359.
air sep.
                    Roger, that's correct. Thank you.
     CAPCOM
                    This is Apollo 7.
     SC
                    Go ahead.
     CAPCOM
                    Apollo 7 Houston, Go.
     CAPCOM
                    Yes, were you trying to send us some
     SC
piano music then?
                    Yes, we were trying to send you a
     CAPCOM
Nav update for the CSM target. And 7, your sextant star
check will not be visible after 26 plus 18 plus 00.
                     (garbled) 26 plus 18. Say, can you
work up words to the chorus?
                    Roger, standby.
     CAPCOM
                    Apollo 7, there were no co-aft star
     CAPCOM
available at that attitude.
                    Roger.
     SC
                    Apollo 7, Houston.
                                         Our nab loads are
     CAPCOM
in and verified, the computer is yours.
                    Roger, we've got it.
                                          Thank you.
     SC
                    And Jack, we'll be standing by for
     SC
when we go ahead and restow the cabin gap analyzers and
have it out of our way.
     CAPCOM
                    Roger.
     CAPCOM
                    Apollo 7, Houston, you can go ahead
and stow the cabin gap analyzers.
                    Roger, thank you. I'll give you one
     SC
final reading.
                    Okay.
     CAPCOM
                    Do you receive Jack, 210?
     SC
     CAPCOM
                    Say again.
                     210 romeo degrees.
     SC
                    Roger, copy.
     CAPCOM
                    Apollo 7, Houston. Opposite omni.
     CAPCOM
                    Apollo 7, 1 minute to LOS.
     CAPCOM
```

PAO This is Apollo Control Houston 26 hours 1 minute into the flight. A few minutes ago over the Canary we had a very brief conversation which went like this.

CAPCOM Apollo 7 Houston to Canary. Standing

by.

SC Roger, we'll try to give the altitude

now.

CAPCOM Roger. Could we get you to switch the biomed switch to the LMP?

SC Did you say to the LMP? You've got it.

CAPCOM Roger, thank you.

SC We're still in 8 hours of our prime

time.

CAPCOM Roger.

PAO Over ascension the crew simply was advised that we were standing by here. There was no conversation. They are now nearing Tananarive and shortly will be coming up on the first major use - the first use of the SPS, the service propulsion system, to make the first burn setting up their rendezvous. That burn is programed to take place between Tananarive and Carnarvon. I'm sorry it looks like most of it would take place over the Australian in the Carnarvon circle of acquisition. We'll be back with the Tananarive pass. This is Apollo Control Houston.

```
PAO
                     Apollo Control 26 hours 9 minutes.
Tananarive we had this conversation.
     CAPCOM
                    Apollo 7, Houston to Tananarive.
ing by.
     CAPCOM
                     Apollo 7, Houston to Tananarive.
                     Roger, Houston, how do you read?
     CAPCOM
                     You're five by, we're standing by.
     SC
                     (Garble)
     CAPCOM
                    Roger.
                    Houston, Texas tower just sighted west
     SC
at 1, uh, 35¼ (Garble)
     CAPCOM
                    Roger, we copy.
     SC
                     (Dead Space)
     SC
                     (Garble)
     CAPCOM
                    Apollo 7, Houston, you're 1 minute LOS
                We'll pick up ARIA 2 in about 2 minutes, have
to Tananarive.
continuous coverage through Carnarvon.
     SC
                    Roger (Garble)
     CAPCOM
                    Roger, I couldn't copy that, Wally.
                    Roger, I better go through (Garble)
     SC
     CAPCOM
                    Okay.
     SC
                    (Garble)
     COMM
                    ARIA 2 go remote.
     CAPCOM
                    Apollo 7, Houston to ARIA 2 standing by.
                    Apollo 7, Houston to ARIA 2 standing by.
     CAPCOM
     SC
                    (Garble)
     CAPCOM
                    I read your copy.
     COMM
                    ARIA 2 has AOS. ARIA 2 has AOS.
     SC
                    (Garble)
     CAPCOM
                    This is Apollo Control, Houston.
is over Mid-Indian Ocean. They're running through the check-
list leading up to the first SPS burn. Presently programed
4 minutes - uh 4-1/2 minutes from now.
                                        That would make it
about 2:25 - 2:26, 26 hours 25 minutes into the mission.
The burn will be, as we said, using the service propulsion
system. It will be a 9.6-second burn. Now that might vary
very slightly, but it will be on the order of 9 to 10 seconds.
Uh, imparting differential velocity of 207 feet per second.
The burn will be done in-plane, in other words, in the direc-
tion of flight and the resultant apogee perigee should be
122 by 197 or thereabout. Have the effect of raising the
apogee. Our present orbital elements leading up to the burn
are a perigee of 120 and apogee of 164. At 26 hours 21 min-
utes into the flight, this is Apollo Control, Houston.
```

23 minutes into the flight. We have acquired at Carnarvon

PAO

This is Apollo Control Houston 26 hours

```
and we are standing by. We are about 60 seconds away from
the first burn of the service propulsion engine.
                                                 This burn
will be handled by the guidance and navigation system.
Standing by for an ullage burn, 15 seconds away from the
      The countdown from 10, 4, 3, 2, 1 and we are thrust-
ing, the crew reports. Thrust cutoff and it looks like we
had about 9 to 10 seconds. Wally Schirra's comment was
that was a ride and a half. Walt Cunningham did most of
the commentary - most of the advising us to what was going
on during that time. So the service propulsion engine,
which puts out something like 21,000 pounds of thrust, has
passed its first major test in space. And now we have com-
pared the data here, and it was a 10 second burn. It's
been quiet from the spacecraft since the burn. We are
looking at the data here, we got it by the Carnarvon station.
The spacecraft, at the start of the burn, was about 300
miles due west of the Australian continent, about due west
Perth. Donn Eisele has just checked in, he is happy with
the burn in all respects. Here is the tape of the entire
sequence as it occurred.
     CAPCOM
                    Apollo 7, Houston.
                    Roger Houston, just a minute.
     SC
                    Roger. I will give you that time hack
     CAPCOM
at T-2 minutes.
                    Roger.
                    2, 1, mark. T-2 minutes.
     CAPCOM
     SC
                    Very good.
     CAPCOM
                    Adjust the AI scale 55.
     SC
                    55.
     CAPCOM
                    L and B sets, A and B normal.
                    Okay, normal. Two is normal.
     SC
                    Hand control in on.
     CAPCOM
                    Roger, on.
     SC
                    Number 2, standing by for 30 seconds.
     CAPCOM
                    Roger and standing by for 30.
     SC
     CAPCOM
                    -60.
     SC
                    Roger.
                    30 seconds. AMS, DELTA-V and R/O.
     CAPCOM
                    R/0.
     SC
                    Roger. Full charge in 15 seconds, you
     CAPCOM
getting when you have 5 seconds, Donn.
                    Roger, I'll hit the inner.
     SC
                    You have got one count on the fifth one.
     CAPCOM
10, 9, 8, 7, 6, 5, 4, 3, 2, 1, 0.
                    Tested. Like a bomb, yabadabadoo.
Great, man that's like a ride and a half there.
```

CAPCOM Spacecraft control SPS. SC (garble) for DELTA-V correction. CAPCOM (garble) 1.2, burning up 1.9, and we burnt aft 2.4. CAPCOM Roger, copy that. Roger. We are burning down to +4 balls SC one, -4 ball three, +4 ball four. We are going to quit here. CAPCOM We copied real fine. SC Recounter residuals -9.9. CAPCOM Copy that. SC Gimbal motors are all off. Circuit breakers open (garble) SC Houston, Apollo 7. CAPCOM Go ahead. SC Give you a plus one on that. That's a real kick in the center. That really socks it to you. CAPCOM Roger. A very sudden start, that's like a hydraulic catapult, almost like a steam cap. CAPCOM Okay, I can't help you out any compared to (garble) SC This is Apollo 7, we are now drying off our heads. CAPCOM Roger (laughter). CAPCOM You are about 30 seconds to LOS in Carnarvon. We will pick you up in Hawaii in about 18 minutes. SC Roger. CAPCOM Everything looked real fine down here. SC (garble) here. Surprised at the (garble) start. CAPCOM Roger.

COMM ARIA 3, go remote.

CAPCOM Apollo 7, this is Houston. We will be

monitoring through ARIA 3 at this time.

PAO This is Apollo Control Houston 26 hours 34 minutes into the flight. We may have some additional comm through an ARIA aircraft off the north coast of Australia, but it is really rather doubtful. The burn was completed, the burn at 26 hours 25 minutes into the flight. It was 10 seconds duration. It was the first burn of the service propulsion engine imparting a differential velocity of 207 feet per second. Our resultant apogee and perigee are 125.3 nautical miles, 125.3 nautical miles perigee, 196.1 nautical miles, 196.1 nautical miles apogee. Those are the new elements of the flight, and the burn was normal in all respects. This is Apollo Control Houston.

PAO
This is Apollo Control Houston, 26 hours, 49 minutes into the flight. We have just acquired by the Hawaii station. We should have a good long pass here. We're on the 17 rev, it should carry us all the way over the Antigua station and will pick up again quickly at Ascension. The - I'm sure the most recent burn will be discussed, as we move across the States and let's find out what else. There is no conversation on the loop right now and - but we do have this opening conversation a few seconds ago as we moved in to Hawaii. Let's listen to it now.

CAPCOM Apollo 7 through Hawaii, standing by.

SC Roger, Jack, I just did what you told

me, to look at the booster and I think I saw it, but it

was a little hard to tell because of all the debris I've

been picking up since sunrise. (Garble) and I'm sure that

is it. Like I said there is a lot of trash and debris (garble)

it's kind of hard to tell.

CAPCOM Okay, Roger, we copy that, Donn.
PAO That was Donn Eisele you heard saying
that he thinks he saw the booster, which would be about
100 miles away according to our last check. Possible,
I think certainly possible. We will leave the line open
and continue the moderator.

SC Houston, Apollo 7 ready to read.

CAPCOM I read you (cut off).
CAPCOM Apollo 7, Houston.

SC Twenty-seven hours into the flight,

we're fixin to take some pictures of the (garble).

CAPCOM Roger, I understand. Walt over Texas, in about 3 minutes we will have 3 NAV loads we would like to send you. There will be no MCC2 maneuver, and I'll pass you maneuver pad as soon as I get it.

SC Roger, waiting and ready. (garble)

CAPCOM Apollo 7 Houston. We would like to send you your three up posts. Would you go to accept, please.

SC Accept. We are in ACCEPT.

CAPCOM Roger copy. Coming up.

SC Apollo 7 proceeding down trip two direct

Houston.

CAPCOM Roger, copy.

SC Hey Jack, I think we are going to pass Houston. Run outside and wave, we want to look at you for a second.

SC And when you get back in, Jack, why don't you have the E COM take a look at the performance of the fuel valves and if they are matching up our performance there.

CAPCOM Say again about the fuel cells, Walt.
SC How about having someone take a look at
the - what they are doing with the spectrum performance
purge. Looks a little low to me.

CAPCOM Okay, will do.

WC Garbled CAPCOM Roger copy.

CAPCOM Apollo 7, Houston. I have your NSR pad that I'll give to you whenever you are ready.

SC Ready to copy, go.

CAPCOM Roger. NSR 028 00 5000 minus 00927 plus 00013 minus 01486 1536 plus 1139 01649 31599 minus 086 minus 040 008 NA NA NA 027 17 0000 plus 1959 minus 055534 1750 001 096 000. Remarks retrograde pitched up 55 degrees, head down.

SC Roger, say again after NA and it seems to me the CAPCOM's - there is a difference in purpose here - I think you're giving an NA for each line?

CAPCOM Roger. Let me read after the first the burn time - burn time is 0 plus 08 NA NA NA. Do you want - did you get copy now on 34 and on 43?

SC Did not.

CAPCOM Okay. 027 17 All Balls plus 1959 minus 05534 1750 001 096 000. I have a correction on the noun 33 time. That should be - the second should read 5600.

SC Roger, read back the following: NSR 028 00 5000 minus 00927 plus 00013 minus 01486 1536 plus 1139 01649 31599 minus 086 minus 040 008 no sextant star 027 17 0000 plus 1959 minus 05534 1750 001 096 000 retrograde pitched up 55 head down. Over.

CAPCOM Roger. I have the bore sight star for

ou. That's 045 plus 278 up 0.2 left.

SC Roger, star 45 plus 278 up and 0.2 left where is the decimal on the up?

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116/2
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APOLLO 7 MISSION COMMENTARY, 10/12/68, GET: 27:03:30
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CAPCOM 27.8.
SC 27.8 thank you.
SC (Garbled)
CAPCOM 27.8.
SC Thank you.
SC (garbled) we completed a series of photographs from the (garbled) gulf coast and Houston (garbled)

CAPCOM Uh, Wally, you were a little bit garbled, I didn't catch you.

SC (Garble) Hawaiian Island, across the Gulf Coast, through Florida to Grand Bahama, our magazine petered about that time (Garble)

CAPCOM Alright, I've got a copy of that now.

SC (Garble) CAPCOM Okay.

CAPCOM (Garble) 3-1/2 crossing that (Garble) Apollo 7. All three loads are in their

five peter here.

SC (Garble)

This is Apollo Control, Houston, 27 hours PAO 16 minutes into the flight. We still have a little ways to go in the Antigua circle, but it's questionable whether we will have any more COMM with the crew unless perhaps we pick them up again in Ascension. We've been looking here at the consumable chart on weights up to date, and actually these numbers are coming to us from Antigua. They read like this: the command module dry weight - that is if there were no other weights aboard: The present dry weight reading of it is 12 203 pounds; service module dry weight, 8630 pounds. We have some additional readings here on the various - uh the four quads. RCS quads, the reaction control system quads on the service module. They go like this: quad A, propellant weight - total propellant weight in pounds, 281; Quad b, 289 pounds; Quad C, 276 pounds; Quad D, 288 pounds. fuel propellant weight in the service module 3374 pounds and we just lost the chart. Stand by one until we find which channel it was switched to. I'm sorry, we've lost the chart. It's - we will locate it and come back to you and - . The crew has just been given a 60 seconds to LOS and in which they Rogered. This is Apollo - This is Apollo Control Houston.

This is Apollo Control Houston 27 hours 27 minutes into the flight. Via Ascension we have had this conversation. Apollo 7 Houston through Ascension CAPCOM Roger, would you mark 20 clicks of SC water for CDR over (garbled) How many clicks of water? CAPCOM 20, Roger copy. And on the fuel cell SC performance we are finding the fuel cells are right on CAPCOM nominal, however, we are going to continue to monitor the performance as we go along here. Roger. He's doing a pretty good job Thank you. You guys are, too. today. Jack, how are we doing on our fuel CAPCOM SC pressure? Could you say again, Walt? How are we doing on our fuel pressures? CAPCOM SC Okay, just a minute. We'll get it CAPCOM right to you. (garbled) Wally, on the RCS budget, we think we'll SC CAPCOM be right on nominal going in to TPI. Great. And Jack, okay, we've got our tape SC back now, I guess, or are we dumping it? If we use another 32 pass again with no tape we are going to stuff up. Apollo 7 you are 1 minute LOS Ascension. CAPCOM

We'll pick you up in Tananarive in 8 minutes.

This is Apollo Control Houston 27 hours PAO 51 minutes into the flight. We've got some conversation through Canary. We will play that for you in just a moment. Before we get to that, one or two other things. We've got some data here taken on the last pass over Ascension where we looked at the heart rate, some of the physical parameters on board the spacecraft and some of the specific physical parameters on the lunar module pilot, Walter Cunningham. They look like this. His mean heart rate was 66, his respirations were 21 per minute, and then as to the cabin, the cabin pressure at Ascension was 5.1 and very steady, cabin temperature 69 degrees Farenheit. I guess those are the pertinent readings on that chart. The S-IVB, the second stage coming on this second burn, which will be performed about 8 minutes from now over Carnarvon, second in a series of burns to bring off the rendezvous with the S-IVB. The present position on that S-IVB is about 80 miles trailing the command module, about 80 miles trailing it. It will reach a maximum separation according to our plots, of about 87 miles, just a minute or two before the burn. We have now the Tananarive conversation, let's play it.

CAPCOM Apollo 7, Houston through Tananarive. Apollo 7, Houston through Tananarive. Apollo 7, Houston

through Tananarive.

ČAPCOM Apollo 7, Houston through Tananarive. Tananarive M & O, CAPCOM. Tananarive M & O, Houston CAPCOM. Apollo 7, Houston through Tananarive. Apollo 7, Houston through Tananarive. Apollo 7, Houston CAPCOM.

TAN Houston CAPCOM, Tananarive M & O. CAPCOM Can you confirm if I am going out down there?

TAN Affirmative. We are tracking you 100 percent.

CAPCOM Thank you. Apollo 7, Houston.

SC Roger, Apollo 7, reading you loud and lear. How are we, over.

CAPCOM You are fine now, Walt. We would like you to put up telemetry switch to command reset then normal. We missed the command going out of Ascension.

SC Roger. Telemetry reset then normal.
CAPCOM Roger and you will on the A for the burn.

SC Roger.

CAPCOM Apollo 7, Houston. You are 1 minute LOS to Tananarive. We will pick you up over Carnarvon in about 7 minutes.

APOLLO 7 MISSION COMMENTARY, 10/12/68, GET: 27:51:20

119/2

SC CAPCOM

Roger. (garble)
Say again.
Will we be in touch during the burn?
Yes sir, you will. SC CAPCOM

PAO This is Apollo Control Houston, 27 hours, 57 minutes into the flight. We have established contact by Carnarvon and we're about 2 minutes away from our second SPS burn today. Burn program for about 8 seconds, a differential velocity of 175 feet per second. We'll you in on the conversation, Jack Swigert is going to give the crew a mark of 2 minutes.

SC (garble)

CAPCOM Apollo 7, Houston.

SC Roger, standby (garble)

CAPCOM Apollo 7, Houston. Reading you 5 by,

I'll give you a mark in 2 minutes.

SC Roger.

We've just given a mark of T-2 minutes. PAO Cunningham advises he's standing by for a 30 second mark. This burn is programed to have the effect on the orbit resulting, should be 114 by 154 nautical miles. We're 1 minute away from the burn. 8, 7, 6, 5, 4, 3, 2, 1 and we are thrusting, Schirra says. Pressures in the service propulsion engine are quite good and I think we heard thrust off. And as the pitch and yaw thrusters are shutdown, they are reported by the crew. SPS burn, according to the chart here began at 28 hours, 1 minute, 6 seconds into the flight. It ended at 28 hours, 1 minute, 14 seconds, an 8 second burn. The other burn set us up on a circular plane which has carried us around to a point where we are now firing the booster about 85 miles. Now we will begin closing and at about 1 hour, 23 minutes from now, at 29 hours, 23 minutes we should begin the terminal phase of initiation burn, which will be the final burn on bringing us from a point we're on a plane now running about 8 miles under the line on the line of flight of the booster and this will swing us up to hopefully the rendezvous with the booster, coming up just slightly in front of it, we estimate and about 30 hours into the flight. Here is the entire tape through the second burn sequence. We'll play it for you now.

CAPCOM

CAPCOM

SCIA scale 55. (garble) A and B normal.

SC

A normal, B normal.

CAPCOM End controllers on. Standing by for

30 seconds.

CAPCOM Minus 1 minute.

SC Roger, 1 minute. Delta-V AUTO.

CAPCOM Four Charlie, 15 seconds.

SC Roger, (garble) at the count of 4

(gargle).

120/2

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APOLLO 7 MISSION COMMENTARY, 10/12/68, GET: 275730
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10, 9, 8, 7, 6, 5, 4, 3, 2, 1, 0.
     CAPCOM
                    Tested. Burn complete, all 4 balls
     SC
(garble).
     CAPCOM
                    Roger, copy.
                    DELTA-V thrust AV off.
     CAPCOM
                    Roger, pitch end off, yaw one off,
pitch two off, yaw two off.
                    Residuals are + 4 balls one + 5 balls
+ 4 balls two and we burnt about a total of 6 feet per
second.
                    Roger, copy.
     CAPCOM
                    Residuals -9.9.
     SC
                    Okay, copy that.
     CAPCOM
                     (garble)
     SC
                    Same exact number.
     CAPCOM
                     (garb1e)
     SC
                    Houston, Apollo 7, Wish to commence
     SC
battery charging on battery A, I would say a curve right
now of about 2.3.
                    Roger.
     CAPCOM
```

This is Apollo Control, Houston, 28 hours 23 minutes into the flight. Hawaii should acquire momentarily and we will be listening for that pass which will take us across the states. Early today we were talking about a chart which got unlatched in the middle of our transmission as we are discussing onboard weights. we've since run that chart down and of interest to us on it and I hope to you will be one way the current total Command Service Module weight, which is carried at 30 980 pounds. Now we have contact with the crew, now let's find out what's going there.

HAW Apollo 7 through Hawaii, standing by.

CAPCOM Thank you.

SC Roger, I got you.. (garble) the thing is

really taking in there, right on the money.

Roger, you're fading in and out, but I think I CAPCOM got it. You're tracking okay.

SC Pop and seal two-way lock, vent and drain.

APOLLO 7 MISSION COMMENTARY, 10/12/68, GET: 28:11:23

COMM

ARIA go remote. Apollo 7, Houston to ARIA 3 standing by. CAPCOM

122/1

SC

Roger. Read you.
Apollo 7, Houston to Guam, standing by.
Apollo 7, Houston 1 minute LOS Guam; CAPCOM

CAPCOM

Hawaii in 8 minutes.

(Garble) SC Not too bad. CAPCOM

SC Crew to Apollo 7.

CAPCOM Apollo 7, Houston go ahead.

SC Why can't we get the record for here Donn, for a lot of comments back to the ground mode?

SC (garble) Are you recording this down there?

CAPCOM Are we recording?

SC Roger, I'm almost 3 minutes into this TPI solution here and it seems like quite a while, I was wondering when you are planning to take it off.

CAPCOM Roger, Donn. We're trying to mark the uh, polar plot along with you here as you go through the solution.

SC Whenever we call K three, four or some such thing you can expect it to drop the tracking or pull off some and then we will return after you get back to the basic program, for instance, the TPI solution just came back and before we got it (garbled) target adapter also I do not have (garbled)

CAPCOM Roger - Apollo 7 Houston

SC Roger

CAPCOM Roger, Walt, we'll have a clean tape for you to record the rendezvous on that Antigua LOS which occurs about 28.54.

SC Roger, 28.54

CAPCOM Roger

PAO This is Apollo Control Houston 28 hours, 47 minutes into the flight and we are about half way through perhaps the longest and quietest state-side pass in our memory. The crew is working on the rendezvous, they are rapidly approaching the terminal phase of it and we can only assume that accounts for the quiet. We have the line open and we'll just leave it open and continue to monitor the situation whatever might develop

CAPCOM Apollo 7 Houston. I have your TPI update pad I will give you when you are ready to copy.

SC Ready to copy, go.

CAPCOM Roger. 029 183400 plus 150 plus 019 minus 075 168/46 forward 020/11 right 003/03 down 075/08 01960 minus 0729 02240 35950 133 trunion check. The GET in midcourse 029 plus 23 plus 00. Remarks, you will be flat at TPI.

SC Roger, that's flat at TPI midcourse. 029 plus 23 plus 00 TPI update follows: 029 183400 plus 150 plus 019 minus 075 168 46 forward 020 11 right 003 03 down 075 08 01960 minus 0729 minus 0240 35950 133 on the trunion. Over.

CAPCOM Roger. Your elevation minus 5 minutes I copy, it should be 02240.

SC Is that - oh - 02240.

CAPCOM Roger. Everything else correct. I'll give you a DELTA-V cutoff in a minute.

CAPCOM Your DELTA-V cutoff will be 90.

SC 90 copy.

CAPCOM Apollo 7 Houston.

SC Go ahead.

CAPCOM Roger, Walt, you have a clean tape on the DSC. You should have 3 switches in proper position there. Telemetry input should be high, your former rewind switch should be off, your up telemetry switch - command reset to normal. When you want to record then cycle the forward rewind switch to FORWARD then OFF.

SC Roger, but we don't want to be recording at DCM HIGH. yet we want to still get all the RCS burns on HIGH tape. Over.

CAPCOM Okay, standby.

CAPCOM Okay, Apollo 7, you are GO the way you want to do it. We'll have a mixed dump, but that will be okay.

SC Roger. Do you understand that I'll be going - I'll be stopping the tape and going to HIGH PITCH rate for each of the RCS burns and after the last RCS burn I'll run at HIGH PITCH rate right on into the rendezvous till the tape is up.

CAPCOM Roger, we understand that.

PAO This is Apollo Control Houston. We are out of range of the spacecraft and at 28 hours 56 minutes into the flight that's our situation.

CAPCOM Apollo 7, Houston through Ascension, standing by.

SC Roger.

CAPCOM Apollo 7, Houston. Apollo 7, Houston.

SC Go ahead, Houston.

CAPCOM Just for your information only, the tracking data across the states indicates that TPI could occur about 30 seconds earlier. All our other values remain unchanged.

SC Roger. We show 16 + 45 on our (garble)

CAPCOM Roger.

SC The (garble) now is 7, but you can

mark it 11.

CAPCOM Okay, it's 28. I'll give you 1030 or

do you want 10?

SC (garble)

CAPCOM 35 seconds, 10 seconds, 3, 2. 1, and

marking.

(garble)

CAPCOM Apollo 7, Houston. Tananarive in 10

minutes.

END OF TAPE

SC

PAO This is Apollo Control, Houston 29 hours 17 minutes into the flight. The Spacecraft is over the southern tip of Africa and we are about to acquire via Tananarive whether there will be any conversation, we don't know. We have gotten some numbers on the first two burns using the service propulsion system - the big engine and they go as follows: the first burn performed earlier in That's a combination the day used 674 pounds of propellant. of fuel and oxidizer. Again, 674 pounds in the first burn. In the second burn, 565 pounds of propellant used and the combination leaves in, in a, leaves in the service propulsion system propellant tanks 8235 pounds remaining. Now additional burns have been done throughout the night and throughout the day with the service module reaction control system thrusters and up until this point we have logged the total usage of 262 pounds, 262 pounds of propellant in the RCS and that leaves a remainder of 1045 pounds. Tananarive should acquire momentarily and when it does we will come into that conversation. In about 5 minutes - or more precisely at 29 hours 23 minutes into the mission, 4 minutes from now, the spacecraft should be trailing the S-IVB by about 12 miles and it should be running about 8 miles below the S-IVB and at that point, approximately 29 hours 23 minutes they will begin terminal phase initiation. There's the first call going out to 7 via Tananarive.

PAO This is Apollo Control. I don't see any point in deafening everybody in the news center. We will come back as soon as we get a cleaner signal. Out at 29 hours 20 minutes.

PAO This is Apollo Control Houston, 29 hours, 22 minutes into the flight. We have a little tape by Tananarive; it is unreadable but we'll let you hear it anyway, and if you can understand what they're saying, you're better than a lot of people that tried to hear it. We did pick out one or two words on it that the crew had gone ahead with the TPI, the Terminal Phase Iniation, of the rendezvous situation and they are using a program which called 4 TPI at 29 hours, 17 minutes; earlier I gave you 29 hours and 23 minutes; I want to correct that. They did begin the TPI burn at 29 hours, 17 minutes. We'll all know when they get to Carnarvon how everything came out. Here's that Tananarive tape.

CAPCOM Apollo 7, Houston through Tananarive;

standing by.

SC (garble) Three hours (garble) retro
CAPCOM Walt, we got real bad com here at
Tananarive; we could read that you were saying something but
we can't make it out.

SC Okay; we'll all do what you say. (garble) Ignition -

CAPCOM We couldn't make it out - we made out the word PPI and that was all. Can you confirm that you have burned PPI?

SC That is affirmative.

CAPCOM Alright; we got it. Thank you.

SC Power - 3, 2, 1, mark.

CAPCOM 7, we are 1 minute LOS Tananarive; we'll pick you up for a very short pass at Carnarvon in 9 minutes.

PAO This is Apollo Control Houston, 29 hours 32 minutes into the flight. In one small historical note perhaps worth mentioning, it was nearly 3 years ago, lacking 3 years by 2 months, that the same spacecraft commander Wally Schirra, then in command of Gemini 6, carried out the world's first rendezvous over perhaps very nearly the exact same piece of real estate when Gemini 6 pulled up in front of Gemini 7. That rendezvous took place over the Islands just north to northwest of Australia, and apparently if everything continues to go as well as it has in this maneuver, Apollo 7 will pull up in front of the S4B in almost precisely the same location. It will be another 11 minutes before we get any definitive information probably on just how the maneuvers go and that information should come to us through Guam. This is Apollo Control, Houston.

PAO Apollo Control, Houston here, 29 hours 45 minutes into the flight, and we've been having some power difficulties in building 1 today as opposed to building 30 yesterday. Everything back - is up now and operating again. I understand even the phones are working. They were out for about 5 minutes. We've got a little tape from Canarvon then we'll patch right into the Guam area which is about to acquire. Here's the tape and then we'll go into a live pass across Guam.

CAPCOM Apollo 7 Houston to Canarvon, standing

by.

SC (Garble)

CAPCOM Seven 1 minute LOS; Guam in 7 minutes.

SC Roger, coming up the pike.

CAPCOM Roger.

SC (Garble) have been corrected.

CAPCOM Be there in 5 minutes.

PAO Apollo Control here. The program shows that they should be in their breaking mode about 1 mile out at this point. We have not heard from them, We do have some data coming in from Guam that shows them approximately 1 mile from target. We just heard Gene Cernan comment. He's been plotting in here that, uh - his statement was "they're right on the pike." We'll monitor the open line.

PAO I understand they're inside of a mile and braking. Braking like hell as one flight controller

just put it.

on our charts here. As we look at the RCS quads using all four of them here now again. We're getting some educated guesses that they ought to be on the order of a half mile from the S-IVB. They have not said anything as we move through the Guam area. Still got about half of it to go. Another 2 or 3 minutes. Earlier, we gave you a - prior to this vital maneuver, we showed 1045 pounds of propellant remaining in the RCS quads. All four quads now are down the range of about 180 to 190. All of them with the exception of one, under 200 pounds, and all four quads very active. So, we've got something - we've used about 250 pounds of RCS fuel, it would appear, on this maneuver to date, which is pretty conservative usage.

CAPCOM Apollo 7 Houston, 1 minute LOS Guam;

Hawaii in 8 minutes.

SC We're closing, we're at about 7 or 8 feet. We're just about locked up in this loop.

CAPCOM Real fine, Wally.

SC (Garble) CAPCOM Real fine. PAO This is Houston, uh, you heard Schirra say he was about 400 feet away from the target, braking at 50 to 60 feet per second, and it seemed to be going very nicely. The time of that last transmission of the spacecraft was at a latitude of 20 degrees North, a longitude of a 100 and about 150 degrees East, 150 East, 20 North. Let's make that 155 East and 20 North. 155 East, 20 North. We have lost signal now by Guam. We don't know what the situation was with the S-IVB, what it's attitude was. We'll know more in about 8 minutes when we get to Hawaii. At 29 hours 53 minutes into the flight, this Apollo Control, Houston.

PAO Apollo Control Houston here. 29 hours 59 minutes and momentarily we should acquire the spacecraft via Hawaii and hear more about how the rendezvous went. Here goes the first call.

SC Go ahead, Roger. We're in about 150

yards (garble) random direction.

CAPCOM Roger, understand.

SC (garble)

CAPCOM We have got some poor comm this time, Walt. We will stand by a little bit until we get in a little closer.

SC (garble) station keeping

CAPCOM Roger, we copy station keeping.

CAPCOM Apollo 7, Houston. How do you read

now?

SC Loud and clear, Jack. Go ahead.
CAPCOM Okay, you are real fine now Walt, we have just switched in.

SC Okay, this is Donn. Everything was pretty normal as far as the solutions were concerned. We had a DSKY solution of 3.6 to the midcourse, and Wally had a 1.7 solution on his charts. We split the difference and took 2 feet per second aft and that slid us right in there. Except for a little bit of cross plane correction that Wally had to make at the tail end, we were normal right up the pipes. According to noun 40's estimates of fuel here, we used 76 feet per second, however, noun 40 integrates velocity even when you are not thrusting, so I think we used somewhat less than that, probably only 60 to 65 feet per second.

CAPCOM Roger, copy that.

SC Roger. PCM high data, we had a loss of contact with the S-IVB just prior to TPI and in the confusion here, I didn't get high bit rate data, the TPI burn. We had high bit rate data in the midcourse burn and final RCS thrusting on in.

CAPCOM Okay, copy that. Walt, I have your separation pad whenever you are ready to copy that.

SC Wait one.

CAPCOM Apollo 7, Houston. How close are you now?

SC Pretty close, about 70 feet, it's tumbling rather wildly, so we are just going to have to stay away from it.

CAPCOM Roger, understand.

SC Ready to copy.

CAPCOM Okay, separation task 03020 all balls.

Noun 82, NA 1618 + 12210002030847, CAPCOM Sextant triangle NA, noun 34 NA, noun noun 48 NA 0 + 05.43 NA 359310000, remarks: It will be a posigrade burn, BEF, heads down using -X thrusters, the burn will take place in front of the booster. The SLA panel on the opposite side of one large sphere sticking out of the engine. It does not have a flashing light. The others are working fine. CAPCOM Roger, copy. What were the minutes on the GETI? I SC missed the minutes. CAPCOM Minutes on GETI 20. Okay. Roger. Read that fine - you're a little SC Check close, set burns 0302000001618 plus garbled at times. All the way down to roll, pitch and yaw 12210002030847005. 359310000. Over. Rog, that's correct. Did you copy the CAPCOM remarks? Possibly BEF heads down minus Roger. SC X-thrusters for the power booster. And Walt, on your charging of Roger. CAPCOM Battery A -Say again. SCOn charging Battery A, we'd like you not CAPCOM to stop charging -SC Say again, Jack. Apollo 7, you read Houston. CAPCOM Roger. I read you. How me? SC You're fine. Fire. CAPCOM What was your last question after my SC last readback? We do not want you to discontinue charging CAPCOM Battery A at point 6 X. We'll give you a cutoff charge. Roger. I'll probably be all right.

Roger.

You'll continue charging. We'll give you

I'll be standing by for your cutoff later.

END OF TAPE

SC

SC CAPCOM

CAPCOM a cutoff time.

CAPCOM Apollo 7 Houston SC Go ahead, Houston All right, we feel you're at the end of CAPCOM your tape on your DSC, if you concur, we'll take command and we'll dump it and you can go back to your normal switch configuration. SC Roger, we concur CAPCOM Okay, we're gonna dump. SC Houston, Apollo 7 CAPCOM Go ahead. Seven It's a real nice setup on the ground your solution to that was pretty close, you did a real good job. You all did a real fine job, too. CAPCOM SC Same here. CAPCOM That's what we call team work. SC Roger, that's a fact. CAPCOM Hey, Apollo 7 All says go SC CAP COM Apollo, go

PAO This is Apollo Control Houston, 30 hours, 20 minutes into the flight. And only a few minutes ago, we were within contact by the Texas station with Apollo 7 flight Crew Operations Director Deke Slayton. He had a conversation with the crew regarding - he congratulated them on the performance of the rendezvous today and he also discussed the future use of the television camera. Here is the recording of that conversation.

CAPCOM Apollo 7, opposite OMNI.

CAPCOM Apollo 7; CAPCOM. SC What you say there.

CAPCOM Congratulations on a good job up there.

SC Thank you; we're (garble) today.

CAPCOM Yeah, listen; we need a commitment on

rev 45 in some relative to TV from here Walt.

SC Roger; we got all of that. We were awfully busy up here and behind on the (garble) and we had to cut you off.

CAPCOM Roger. Okay. And you are okay from 45 on, is that correct?

SC That's affirmative. CAPCOM Okay, fine, thank you.

SC Real job but we did them all within the period and the range really came up beautiful today.

CAPCOM Roger. Okay, have fun. We will see you

later.

SC Okay, thank you.

CAPCOM Apollo 7, Houston. You are 1 minute LOS Texas; we will pick you up at Tananarive in 34 minutes.

SC Ready to go.

CAPCOM Roger.

SC I know it will take a long time for you

to dump that tape; give us a call if this (garble)

capcom Okay, 7, it's gonna take a little while to get the tape dumped - let us know when it is ready and we'll tell you when you can use it again.

pao This is Apollo 7 Houston, 30 hours, 22 minutes into the flight; that last conversation primarily between Don Slayton and Wally Schirra. In the course of it, if you followed it, the Apollo 7 crew commander agreed and committed to the use of the television camera from Rev 45 on as per flight plan. Earlier in the day there had been some discussion it was scrubbed as an event leading up to the rendezvous which was carried out most successfully in the last few Revs and we will not attempt any television tomorrow because of the sleep cycle. We are next scheduled for that experiment on Rev 45 which will be Monday morning. At 30 hours and 23 minutes into the flight, this is Apollo Control Houston.

PAO This is Apollo Control 30 hours 52 minutes. Apollo 7 is nearing acquisition at Tananarive. We will monitor through that pass.

CAPCOM Apollo 7, Houston through Tananarive.

SC ... Roger.

CAPCOM Roger, you voice is pretty good this time. Between your chow there, I have got a block data number 4 to give you.

SC (Garbled)

CAPCOM Say again. You are ready to copy?

SC Go ahead.

Zero two one dash four Alpha. CAPCOM Roger. Plus two six zero minus one six three three zero three two plus five three plus four two four nine three three zero two two dash three Bravo plus three one seven plus one three eight eight zero three four plus one three plus five four four five two three zero two three dash three Alpha plus two nine five plus one three eight five zero three five plus four nine plus two seven four seven seven five zero two four dash three Bravo plus two three three plus one three five six zero three seven plus two four plus two eight five zero one three zero two five dash Alpha Charlie minus zero two one. Wait one. skipped GET zero three eight plus one four plus one one four three four two. (Pause) Apollo 7, Houston. On your longitude for area 25 Alpha Charlie.

SC In 25 Alpha Charlie, I got lat minus zero two one and no longitude.

CAPCOM Roger. Longitude minus zero one eight zero. Area zero two six dash Alpha Charlie plus zero nine zero minus zero two four zero zero three nine plus four nine plus two seven four one five nine. Houston over.

SC Roger. Houston zero two one dash four Alpha plus two six zero minus one six three three zero two two (garbled) four nine three three zero two two dash three Bravo and I didn't get plus or minus on this. Three one seven plus one three eight eight (garbled) plus one three (garbled) four five two three.

CAPCOM
SC
two three dash three Alpha plus two nine
five plus one three eight five two zero five plus four nine
plus two seven plus seven seven five three zero two four dash
three Charlie (garbled) plus one three five six four five seven
seven (garbled) three zero two five dash Alpha Charlie minus
zero two one minus zero one eight (garbled) one one (garbled)
Alpha Charlie plus four nine zero minus zero (garbled) plus
four nine plus three seven (garbled) over.

Roger, your latitude on area 22 three CAPCOM Bravo is approximately one seven.

Everything looks good.

CAPCOM Everything up correct. Just about LOS there, Wally. You and Donn, we would like to have you do some troubleshooting on the biomed harness there when you get a chance and maybe we can pick it up over Mercury.

Roger, (garbled) SC

CAPCOM Roger.

(garble) around. Tananarive I would like to SC

hear how much RCS propellant we have left ...

Affirmative. Go. CAPCOM ...thrusters? SC

Apollo 7, Houston. CAPCOM

We have LOS at Tananarive. This is PAO

Apollo Control 31 hours 1 minute.

PAO This is Apollo Control 31 hours 41 minutes into the mission. Apollo 7 is within range of the tracking ship Huntsville now. We have tape of the passes at the Mercury and the Hawaii station prior to this. We'll start with the tape at Mercury and play catchup.

CAPCOM Apollo 7, Houston. Apollo 7, Houston,

I have a flight plan update.

Roger. Late one? Should we also use the flight plan or use the log book?

Say again, Walt. CAPCOM

SCDid you plan to use the flight plan or use the log book?

CAPCOM No, it's just one line. the fuel pump purge of the 02 only. That time 3330,

Check the 02 only of the fuel pump purge it has to be checked at a specified time. Right?

Roger. It's at the same time, 3330. CAPCOM It's duly noted. A roundup to date on our window status, the center hatch window now is pretty badly blurred on the useful area to detect the horizon.

CAPCOM Roger here. You say it's hard to detect

the horizon?

I say that it is just barely usable for SC detecting the horizon but Walt says there is nothing to it. It would be usable for back angles and that's about all.

CAPCOM Roger.

My left window, what I call my number 1 SCwindow.

CAPCOM Roger.

Is now developing the film on the inner surface of the outer pane. Although it's not too bad at this point, but I would not shoot pictures through it.

CAPCOM Roger, copy.

I'll go on around the cockpit, the SC number 2 window, the one we use to rendezvous is beautiful. It is interesting to note small hairs like a fuzz around the parameter of all the windows that apparently just developed as a sort of belt. It's about three-quarters of an inch to an inch long.

Roger. Is that on all windows or just CAPCOM the -

That's on all windows and now I'm on number 4 window. It does have the same dust and it's getting a little bit cloudy but only around the perimeter on the upper right corner. As you think of the upper and lower (garble).

It looks like the number 4 window may have cleared out after a few more days.

CAPCOM Roger. Looks like number 4 window may have cleared out after 3 or 4 more days, huh?

SC Roger. Number 5 I had swab it now it has a slight film on the inner surface. Understand, filing for IFR.

CAPCOM Yeah, sounds like it.

SC Actually, we'll keep you updated on this and we'll discuss where we're going.

CAPCOM Roger.

SC Affirmative. The target was visually fixed during the final stage of braking about midway between Regulus and Sirius on the line drawn between the two stars.

CAPCOM Have you, copy.

SC And it's a very traumatic experience.

CAPCOM Sounds like it was a good one.

SC We arranged for an update and switched our channels on awhile ago to get a hack on our fuel remaining. Just an academic theory.

CAPCOM All set.

SC The pass on and then you get fixed for subsequent spacecraft. On channel 352, the QD is up to the waste water servicing valve. That QD, after it's installed, provides interference with storage area D8 such that D8 cannot be opened and gotten into without taking down the QD again.

CAPCOM Roger.

There's something I think we ought to make note of, Ron. The lightweight headsets are preferable to the comm carriers due to the comfort of not having anything on your head but the plugs in our ears. We're using the plastic plugs rather than the rubber type nipples.

CAPCOM You're using your own molded plastic

plugs, right?

SC That's affirm.

CAPCOM From our calculations on the RCS fuel down there, it looks like it was pretty much nominal. We used the nominal plus a portion of the reserve. We're about right on, we're standing by for a further temperature stabilization to get a more accurate picture of it.

SC Roger.

CAPCOM On your tape recorder, as you know, we've recorded a lot of high bit rate and not too many places to dump it. It's going to take about 3 revs. So you'll have no voice recording on your tape recorder for awhile. We'll let you know when it's available for use again.

SC Roger.

CAPCOM Wally, we'd like to get an indication of how you're feeling up there and if the activity did you any good. Apollo 7, Houston. About 1 minute to LOS Guam.

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134/3
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Roger. I didn't give an answer on the
                     Cutoff.
actifed or aspirin.
                    Roger, I need to get an idea of how you
feel then if the actifed was working. Do you have any
further symptoms?
                    My mucous is much thicker and since I
probably should continue on actifed and use aspirin when I'm
not sleeping.
                    Apollo 7, Houston through Hawaii.
     CAPCOM
                    Roger, we're recording you on (garble)
     SC
                    Say again.
                    Roger, we're recording you on (garble)
     CAPCOM
     SC
                    Understand.
     CAPCOM
                    Go ahead, we're standing by.
                    Wall, we're just a little curious if you
     SC
     CAPCOM
have had any indications of a fever at all?
                    my temperature is normal and it just
appears that the nasal passage is very full. I haven't been
coughing - there's nothing in the lungs.
                     Roger.
                     (garble) dry it up if I could and a decongestant
     CAPCOM
      SC
is my best bet.
                     Wally, we would like for you to go
ahead and stay on the actifed and continue with the aspirin
      CAPCOM
                     Roger. What's the frequency of (garble)
 then.
      SC
                     Standby.
      CAPCOM
                     Say again.
      SC
                     The actifed once every 8 hours.
      CAPCOM
                     Roger.
      SC
                     Wally, aspirin can be as often as 2 every
      CAPCOM
 4 hours if desired.
                     Roger. Thank you for your help. I'll
 follow that schedule til we land, we run out or I feel better.
                     Pretty hard to read that time, Wall.
      CAPCOM
                     Roger. I'll follow that schedule until
      SC
 we land, run out or feel better.
                      Roger. Concur.
      CAPCOM
                      Huntsville LOS.
      HTV
                      Apollo 7, Houston. one minute to LOS
      CAPCOM
 and then we'll pick you up Tananarive at 32 plus 27.
                      Roger. That's 32 plus 27?
      SC
                      That is affirmative.
      CAPCOM
                      Apollo Control, 31 hours 50 minutes.
 next station to acquire the spacecraft will be Tananarive at
  32 hours 27 minutes.
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APOLLO 7 MISSION COMMENTARY, 10/12/68, GET: 322700 135/1
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PAO This is Apollo Control at 32 hours, 27 minutes. Apollo 7 is in it's 21st revolution coming up now on the Tananarive Tracking Station. We'll listen in through this pass.

CAPCOM Apollo 7, Houston. Roger. Apollo 7,

Houston. Apollo 7, Houston?

SC Apollo here; go ahead.

CAPCOM Roger. We request you terminate battery A charging at .4 AMP.

SC Roger; .4, over.

CAPCOM Roger; we showed .47 AMP at Guaymas, Request onboard reout this time.

SC (garble) We might check on my telemetry now.

CAPCOM That's negative telemetry on that,

Tananarive.

SC Roger; we thought the (garble) pull back on (garble) at Tananarive addition. We'll (garble) for that pass and miss entirely.

CAPCOM Roger. We should be able to get some

thing on the mercury at about 32 plus 50.

SC Failed to get your answer; we're over the hill.

CAPCOM Say again.

SC Apollo is (garble) about .5 AMP.

CAPCOM Roger; copy .5. Apollo 7, Houston. You might be advised that our last check on the voice quality at the DSC is still very good.

SC Heard. Houston; Apollo 7.

CAPCOM Houston, go. CAPCOM Houston, go.

SC Roger; we have started our EPS redundant component check about 5 minutes ago and our product (garble) pressure 2, the AC prior to setting (garble) here is OFF and at that time I had half AMP (garble) and (garble) and reset (garble)

CAPCOM Roger; understand. Will you turn the compressor 1 off, you also had a main bus A and B undervoltage and it read okay.

SC Affirmative.

SC (garble) power breaking. I had 2 on

at (garble)

CAPCOM Say again, Walt.

SC Copy.

CAPCOM Negative on Schirra's statement.

SC Add 21 at once and up on the main pump A and main bus B (garble) reading 27 and a half volts on the (garble) pump.

CAPCOM Roger; understand.

APOLLO 7 MISSION COMMENTARY, 10/12/68, GET: 322700 135/2

SC And where is the next place where I'll be able to turn my (garble) A and B?

CAPCOM Roger. We should get that at Mercury, we pick them up at 32 plus 50.

SC Roger, thank you.
PAO LOS at Tananarive now. The Tracking Ship Mercury will acquire at 32 hours, 50 minutes. This is Apollo Control at 32 hours, 36 minutes.

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APOLLO 7 MISSION COMMENTARY, 10/12/68, GET: 325030 136/1
                    This is Apollo Control, 32 hours, 50
     PAO
minutes into the mission. Apollo 7 is about to acquire at
the Mercury Tracking Ship.
                    Houston, Apollo 7; how do you read?
     SC
                    Apollo 7, Houston. Loud and clear.
     CAPCOM
                    Did you get somebody standing by; we
     SC
would like to check our main oxygen rate.
                    Roger, go. We're receiving the data.
     CAPCOM
                    Okay.
     SC
                    Stand by; we just lost data.
     CAPCOM
                    Stand by; did you get that one?
     SC
                    The data is back in; continue.
     CAPCOM
                    Main flight B is out closed.
     SC
                    Okay, we're reading 10 - 10.
     CAPCOM
                     Roger; we are reading 102.
     SC
                     That is affirmative; 102.
     CAPCOM
                     (garble) now is back on. Pump A is out
     SC
(garble)
                     Apollo 7, Houston.
     CAPCOM
                     Standing by for your reading on the other
valve.
                     Roger, we are reading 105.
      CAPCOM
                     Saying 105, thank you. Again back on.
      SC
      CAPCOM
                     Are you reading (garble) at (garble) now?
      SC
                     Apollo 7, Houston; affirmative. It looks
      CAPCOM
 good now. We'll work on Donn when he wakes up.
                     Exercising right now.
      SC
                     Very good.
      SC
                     The CDR exercing you say?
      CAPCOM
                     All exercising. I think you ought to
 pass that on to Pete.
                     I'll call him on the phone. Apollo 7,
 Houston; number one surgeon certainly appreciates your efforts
      CAPCOM
 there.
                     Roger; the lead is quite (garble)
      SC
                     Roger; we understand.
      CAPCOM
                               This is Apollo 7, the ECS re-
                      (garble)
 dundant component check is complete; we did not flow second-
      SC
 ary radiators.
                      Roger, understand did not close secondary
      CAPCOM
 radiators.
                     Also wonder if how long we want to go
 with the preliminary boiler without trying it and possibly
      SC
 reservicing it.
                      Roger; looks like right now we're going
      CAPCOM
 to work on that maybe the next shift; I don't know. Or
 tomorrow. You have 1 minute to LOS; be advised turn up your
 S band volume at 33 plus 09. We will have a S band pass over
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APOLLO 7 MISSION COMMENTARY, 10/12/68, GET: 325030 136/2

Hawaii.

SC 33 plus 09. (garble) go. Agreed to do

the BPF?

CAPCOM I'm getting an update on the time and

I'll pass it up later.

Roger; what is the time for the next TV pass and turn on S band volume there would be a lock on, on the light.

CAPCOM Roger. Concur.

pAO This is Apollo Control. Mercury has LOS now. Hawaii will acquire at 33 - 8. We're attempting to get the heart rates on Wally Schirra during that exercise. If you will stand by, we'll come up with those in just a minute.

PAO This is Apollo Control 33 hours 4 minutes into the mission. Flight Surgeon John Zeiglschmid reports that Wally Schirra was already exercising as they came into the pass and he started monitoring with rates of 88 and those rates climbed right up to 96 as he continued to use the inflight exerciser. He reports Captain Schirra's normal base heart rates at 65 to 75. At 33 hours 5 minutes this is Mission Control.

```
This is Apollo Control 33 hours 8 min-
     PAO
utes and the Hawaii station is about to acquire Apollo 7.
Tracking ship Huntsville has a slight bit of overlapping
coverage on this pass. We will stand by now.
                    Apollo 7, Houston. Apollo 7, Houston.
     CAPCOM
                    Roger. Am I clear, understand?
     SC
                    Hey, sounds beautiful.
     CAPCOM
                     Really does. Would you give us ascending
     SC
              Chart update?
node update?
                     Roger. Stand by. I don't have one
     CAPCOM
right now. Give you one shortly.
                     No rush.
     SC
                     And be advised on the TV usage about
     CAPCOM
71 plus four zero.
                     Okay.
     SC
                     Apollo 7, Houston. Here is your little
     CAPCOM
update.
                     Go ahead Houston.
     SC
                     Roger. Rev 21, GET is three two plus
     CAPCOM
four zero plus zero nine. Longitude seven seven point one
east right Ascension zero six one eight.
                     Roger, we have that. Thank you.
     SC
                     Roger.
     CAPCOM
                     (Pause)
                     Apollo 7, Houston. (Pause) Apollo 7,
     CAPCOM
Houston. We will have a handover to Huntsville at 33 plus
16 so standby for F-band volume decrease slightly before
that.
                     Hawaii here, Apollo 7.
     HAW
                     Houston, Apollo 7.
      SC
                     Houston, go. Wally, did you copy that
      CAPCOM
33 16 we will switch to Huntsville? And that band will
break lock--
                     Houston, Apollo 7.
CAPCOM Houston. Do you - (garbled). I want to know can you give me a VHF? Apollo 7, Houston.
      SC
                     Houston, Apollo 7.
      SC
                     Apollo 7, Houston.
      CAPCOM
      (garbled)
                     Apollo 7, Houston.
      CAPCOM
                     Come in Huntsville.
      SC
                     Roger, we are back in VHF again. Commence
      CAPCOM
 your last (garble) on S-band.
                      Roger, we have had LSC back on ...
                      Roger, we confirm.
      CAPCOM
```

PAO Apollo 7, Houston, 1 minute LOS, Tananarive at 34 + 03. The Huntsville has LOS now. This twenty first revolution is too far east for the Redstone to acquire Apollo 7. So we will be out of range of any tracking stations - that is Apollo 7 comes down across the South Pacific, South America, and the South Atlantic Ocean. And the next station to acquire will be Tananarive at 34 hours, 3 minutes. At 33 hours, 21 minutes, this is Apollo Control.

PAO This is Apollo Control 34 hours 3 minutes and Apollo 7 coming up on Tananarive station. Capcom Ron Evans plans to just put in a call and telling them we will standby through the pass. We don't intend to initiate any communication here, but we will stand by to monitor anything the flightcrew might care to communicate to us.

CAPCOM Apollo 7, Houston. Tananarive standing

by.

PAO We are getting so much crosstalk and noise here that will punch off and come back up if there is any communication on this pass.

Go. CAP COM Roger. We have the (garble) meter readouts SC for you if you've got time to take them. Roger, we have one minute to LOS. CAP COM Forget it. SC Roger. We'll check you on Mercury at CAP COM 34 + 25.This is Apollo Control, 34 hours 8 min-PAO utes. There will be no more communication at Tananarive. We'll pick up the Mercury at 34 hours 25 minutes. At this time we are planning a change of shifts in the Control Center between 23:00 and 23:30 p.m. Central Daylight Time which would place the News Conference with Flight Director Gene Kranz between 23:00 and 24:00 Central Daylight Time. Apollo

END OF TAPE

Control.

This is Apollo Control 34 hours 25 min-PAO utes into the flight. Apollo 7 has just been acquired at the Mercury tracking ship. There is a call now.

Apollo 7, Houston. Opposite omni. CAPCOM Roger. Hey, Ron, would you identify SC

(garble) for us please. (garble) serial number 102 is the number on the other side. Sugar Easy Baker three three's one zero zero zero five zero dash two oh six. Over.

Roger. What was your request on this? Want you to verify if that is the 2A CAPCOM SCThe filter that is called out as 2A in our documenta-That is the only labeling on this filter.

Roger. A filter you say? CAPCOM

A filter for the 70mm Hasselblad. SC Roger, copy now. Walt, we would like CAPCOM

some onboard readings. Your battery charger current.

the service module RCS propellant quantities.

Battery current is still reading point SCfive amp and I would like to know what you have on it and I will read you the onboard quantities in the service module RCS propellant. Quad A is showing 58 percent. Quad B is still at 93 percent where we launched at. Quad C is 65 percent. Quad D is showing about 68 percent. Over.

Roger, we copy and we are reading point CAPCOM

four three on the battery charger current.

Roger, I will continue charging and I am still reading point five down the line and you can give me a call when they cease charging.

Roger, will do. (Pause) Apollo 7, CAPCOM Do you want your temperature corrected onboard Houston. For the RCS?

readout? (garble) SC

Roger. Alpha five six disregard Bravo CAPCOM Charlie six one and Delta is six four.

Five six six one six four. I have all the service test meter readouts. Are you interested in any of them in particular. I have them logged in the flight plan. I will give you the RCS anyway. That is five C and D and six A B C and D all five modes except 60 C and 64.6.

Roger, we copy and we like the battery CAPCOM pressure if you have it available. And while S-band volume

up at three four plus four four.

Point four volts and it seems to be in SC a standard position. We checked it before we made that urine dump and goes right down to point 6 volts and (garble) right back up to one point four.

APOLLO 7 MISSION COMMENTARY, 10/12/68, GET: 342550 142/2

CAPCOM Roger. PAO This is Apollo Control. We have LOS at the Mercury new. Hawaii will acquire at 34 hours 43 minutes. At 34 hours 33 minutes this is Mission Control Houston.

```
This is Apollo Control at 34 hours 43 min-
     PAO
       Apollo 7 coming up on Hawaii now on it's 22nd revolu-
utes.
       The Hawaii station has just acquired. We'll stand by
and wait for a call.
                    Apollo 7, Houston. Apollo 7, Houston.
     CAP COM
                    Apollo 7, loud and clear.
     SC
                    Roger. Loud and clear you're coming
     CAP COM
down down voice backup now.
     SC
                    Roger.
                    Ah, Wally, we'd like to select (garble) at
     CAP COM
your convenience just to update the ...
                    (garbled)
     SC
                    Apollo 7, affirmative.
     CAP COM
                    Roger.
                            (garbled)
     SC
     CAP COM
                    Say again. A little garbled that time.
                    We'd like to give you an update.
     SC
like to put the sextant calibration test when we call for
36 hours and 30 minutes into Donn Eisele's wake period.
                    Roger, sextant calibration test.
     CAP COM
see if we can't move that into Donn's wake period.
                    Thank you.
     SC
                    Apollo 7, Houston. We're still looking
     CAP COM
on that Dash 206 to determine which one it is.
                    Roger. Its showing RED, it's not GREEN.
     SC
We're hoping it's 2A.
     CAP COM
                    Roger.
                                         (garbled) showed on us before
     SC
                    Clear foil filter.
we launched.
                    This is Apollo Control. We've got about
     PAO
                  It seems doubtful we'll have anymore trans-
a minute to LOS.
missions on this pass. We'll come back up if we do.
                    One minute to LOS. We're getting a lot
     CAP COM
of static on the ground down here. I was just wondering if
you're getting it.
     SC
                    Say again.
     CAP COM
                    Ah, you're --
                    Go ahead. Roger, would you say again?
     SC
                            We're receiving a lot of static
     CAP COM
                    Roger.
                Are you receiving any at all?
on the ground.
     SC
                    Negative.
     CAP COM
                    Roger.
```

LOS at Hawaii now.

Redstone in the South Pacific will pick up the spacecraft at 34 hours 59 minutes. This is Mission Control Houston at

The tracking ship

PAO

34 hours 51 minutes.

PAO This is Apollo Control, 34 hours, 59 minutes, Apollo 7 coming within range of Redstone now.

CAPCOM Apollo 7 Houston - Apollo - Apollo 7

Houston

SC This is Apollo 7, are you ready? CAPCOM Roger, the dash 206 filter is the two

Alpha filter, and it should be clear, hopefully.

SC Houston, say it again

CAPCOM Roger, the dash 206 filter is the two

Alpha 2A filter.

Roger, thank you. I have a question on a pool of water, we are scheduled to coordinate at this time and we have a completely full tank. This tank has been full for some time, Ron, and it came up several months back, there is a question as to how much ullage volume you have to have atop that tank before chlorinate. I'm kind of unclear about the fact that the chlorination that we put in yesterday is probably still in that tank.

CAPCOM Roger, we'll attack the problem and get

the word to you shortly here.

SC Okay, CAPCOM will you tell them that we will wait till you get an answer.

CAPCOM (garble) I understand I told you to answer.

CAPCOM CAPCOM to Flight - Apollo 7 Houston, we are reading .41 on the battery charger and you can terminate charging that battery.

SC Understand, stop charging .41 AMP.

CAPCOM Affirmative

SC I am still reading .5 on board

SC Houston, Apollo 7, over

CAPCOM Houston, over - go ahead Walt.

SC Roger, I show that we've probably been charging battery A now for about 7 hours, is that consistent with putting all the energy back that we took out to reboost and both the burns, over.

CAPCOM Walt, we've took out 9.3 and looks like

we put in about 4.5 hours.

PAO This is Apollo Control, Redstone has loss of signal now. Water chlorination is the only task spelled out in the flight plan for the next hour; since we didn't get an answer back up to them, I suspect that they wont do anything about it till we get to Ascension. We estimate acquisition at Ascension at 35 hours, 26 minutes, at 35 hours, 6 minutes. This is Mission Control Houston

pAO This is Apollo Control 35 hours 26 minutes into the mission. Apollo 7 coming up Ascension now in a low elevation pass but we may be able to get two to three minutes of acquisition here we'll stand by.

PAO This is Apollo Control at 35 hours 29 minutes. We went by Ascension without attempting to communicate with the spacecraft on this low elevation pass. Next station to acquire will be the tracking ship Mercury. Acquisition there at 36 hours.

```
This is Apollo Control at 36 hours into
     PAO
              Apollo 7 coming up on the tracking ship Mer-
the mission.
cury now. The station at Guam has overlapping coverage so
we'll have a fairly long pass here. We have acquisition at
the Mercury and we'll stand by for some communication.
                    Apollo 7, Houston.
     CAP COM
                     Roger Houston.
     SC
                     Roger, we'd like to send a P-27 update
     CAP COM
request accept and I have a nav check to give you.
                     check.
     SC
                     Nav check 036 15 4 balls + 1875 + 16885
     CAP COM
1271. Read back.
                     Roger understand 615 4 balls + 1875
16885 1271 over.
                     Roger. I didn't get your readback on
     CAP COM
            036 hours 15 minutes.
the hours.
                     Roger
                     Apollo 7, Houston. I've got some update
     CAP COM
for you on the RCF calculated quantities and your profile
from battery status if you want to copy.
                     Did you read our readback on the nav
              (garble) for your info on the RCS quantity and what
check okay?
update.
                             This will be an update on fig-
                     Roger.
      CAP COM
ure 3-1 on your RCS profile at 36 hours you have 820 pounds.
                     Roger. 36 hours 820 pounds.
      SC
                     And your RCS ground calculated quantities
      CAP COM
are in order 56 percent 63 percent 47 percent 63 percent.
                     Roger. I read 56, 63, 47, 63 and the
total quantity again 83.
                     Roger, your total quantity is 820 pounds. Apollo 7, Houston. Apollo 7, Houston.
      CAP COM
 Apollo 7, Houston.
                     Apollo 7, Houston. Apollo 7, Houston.
 Apollo 7, Houston.
 Guam M&O, Houston Cap Com, are we getting out to you?
                     You read. Hey, Guam, you read?
      COMM
                     Roger, understand (too faint)
      GWM
                      Apollo 7, Houston.
      CAP COM
                      Apollo 7 go ahead.
      SC
                     Roger, reading you weak. The computer
      CAP COM
 is yours.
                      (too faint)
      SC
                      Say again, Walt.
      CAP COM
                      Roger, at 36 hours into the flight what
 number do I go on my chart?
                      Roger, you go in 820 pounds, 820 pounds.
      CAP COM
```

(cut out)

SC

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APOLLO 7 MISSION COMMENTARY, 10/12/68, GET: 361100

CAPCOM Roger. You are going in 820 pounds,

820 pounds.

SC Eight hundred and twenty pounds and I

copied 561607 and 56634763.

CAPCOM All right, Roger. How's that again?

56634763.

SC Right, thank you.

CAPCOM And your battery status?

SC Say again.

CAPCOM Your battery status, ampere hours.

Sp Roger.

CAPCOM About A35.2, B30.4, C39.5.

pAO This is Apollo Control. Guam has LOS now. Very - bad communication through those passes. Redstone will acquire at 36 hours, 32 minutes. We will not pick up the HAW station on this pass. We are still estimating a ship change here in the control center at - approximately 11 to 11:30 central daylight time which would put the news conference from starting between 11:30 and midnight. At 36 hours, 12 minutes, this is Mission Control, Houston.

This is Apollo Control 36 hours 32 min-PAO utes into the mission. We are about to acquire at the Redstone. The sextant calibration test that was scheduled for this time and that Wally Schirra asked to be postponed until the command module pilot, Donn Eisele is awake, will be postponed looking now at about 42 hours and a half into the mission. Estimated time when the sextant calibration test will probably be performed. Redstone has acquired. There hasn't been a call up to the spacecraft yet, but we will stand by for that.

Apollo 7, Houston. CAPCOM

Go ahead. SC

Roger. Did you copy battery status last CAPCOM

pass?

Stand by. Roger I had 35 point six 30 point four I think it was and 39 something Ron. It looks to me like we didn't fill up battery A again and is anybody getting consideration to do a second recharge on that battery some other time of the flight?

Well, that is a possibility. We wanted CAPCOM to cut it off at the point four limit though to - so we wouldn't get into overcharge type of problem we were talking about before launch. And we are working on it now and we can't really come up with an answer at the present time. We are working on it and will let you know. And Wall, I have a Lima Sierra update for you.

Apollo 7, Houston. (Pause) CAPCOM

Go ahead, Houston. SC

Roger. I have a Lima Sierra update. CAPCOM

Still very weak. SC

Roger, Lima Sierra update. CAPCOM

Go ahead. SC

Roger, Lima Sierra zero seven four flash CAPCOM

zero five one.

Roger, zero seven four flash zero five one. SC Seven, Houston, 1 minute until LOS. Be CAPCOM

advised Air Force 26, Navy 20.

Roger. SC

Sorry about that. CAPCOM Welcome to the club. SC

This is Apollo Control 36 hours 41 minutes. PAO Redstone has LOS now. As you heard, they passed up the bad news on the football game to Naval acadamy graduates, Wally Schirra and Donn Eisele. Air Force 26, Navy 20. This is Mission Control 36 hours 41 minutes.

This is Apollo Control, 36 hours 59 min-PAO utes into the mission. Ascension has just acquired Apollo 7. 7, Houston. Apollo 7, Houston. Apollo 7 CAP COM

Houston.

Go ahead. SC

Roger, on the water correlation, withdraw CAP COM about 8 ounces of water then correlate.

(garbled) SC

Roger. I have a flight plan update. CAP COM

Ready to copy?

(garbled) SC

Roger, flight plan update 38 + 40 CAP COM 39 + 40 do option 3 vice option 2 delete NCC update. 40 + 10. Cancel rendezvous nav at 8 -- 80 nautical miles 41 + 00 waste water dump 42 + 35 sextant calibration previously scheduled at 36 + 35. Over.

Roger. Over. SC

This is Apollo Control, 37 hours 3 min-PAO utes. This water correlation was accomplished by injecting an ampule of chlorine into the water tank with a syringelike device. It's about an ounce of chlorine. We're in a process of changing over the shift now and the shift headed by Jerry Griffin will be up very shortly.

pAO This is Apollo Control 37 hours 33 minutes into the mission. We are coming up now with a pass in the Mercury tracking ship. We did have some further communication after the change of shift here on the Ascension pass between MCC and Apollo 7. We will play and then go live into the possible communications between Mercury tracking ship and the spacecraft.

CAPCOM Apollo 7, Houston. S-band volume up

at three seven plus three six.

SC .

CAPCOM Apollo 7, Capcom.

SC Go ahead.

CAPCOM We wanted to know how you felt about shuffling this sleep cycle around a little bit. Kind of looks to me at least and speak up if you don't like the sound of it, but we have got a hell of lot lost motion here when you might better be getting a little rest.

SC We are getting kind of pooped and I think that is why we started off the way we did today. ... CAPCOM You are very garbled. Not able to read

you.

SC Roger. Donn is sleeping now and he

needed the sleep more than we did.

CAPCOM Roger, understand that. I guess the question I am asking is whether you have got any allergy at all that all three of you knocking it off for a while.

CAPCOM Okay, we only have about 30 seconds left in this pass. Why don't you think about it and Tom or Ron will talk to you about over Guaymas.

SC Roger.

MER This is Mercury.
CAPCOM Apollo 7, Houston.

SC What do you say here, Tom?

CAPCOM Roger, Wally. Real good rendezvous you pulled off today.

SC ... Yeah, that's a little more dramatic

than the other bird we use to fly.

CAPCOM Understand. ...discuss free flight..
period of time about looking ahead in the flight plan. About
the possibility of you all going all three crewmen on the
sleep cycle. I just want to discuss it for down the line What Deke was trying to say - what do you think about it?

SC I don't think I would be afraid to do it on another flight maneuver, kind of reluctant right now.

CAPCOM Okay.

The machine is working real well, Tom. SC (Garbled)..block down about 40 hours CAPCOM and also waste water dump at 41 and kind of quiet time after that for another 4 our 5 hours. ...is no problem at all. In Very good. SC fact, it is an asset. CAPCOM Okay. For all of those worried about the space-SC craft picking up motions from the crew, no such thing. We can knock around the cabin like mad. You get to be quite a gymnast. CAPCOM I want to ask you a question. the sleep bags working out? Not so hot. SC CAPCOM Okav. You miss the one g lying down. SC seat belts resisting you are held down and you feel better controlled and better contained, I guess. Sleeping bag, you try to find a place to stick your head or your arm to hold Our analysis is the couch is probably CAPCOM a little better than the sleep bag. That is correct. SCOkay. CAPCOM We find the lightweight headsets are SC preferrable to comm carriers too. Right, reviewed the flight plan here understand when you went to the lightweight headsets. Yeah, the cables for the comm carrier is very objectionable and jams you in the neck and the shoulder and keeps pulling your hair out. All right. CAPCOM We are not at all hungry by the way. SC are trying to get some exercise to keep ourselves going. That exergenies are a heck of a good deal. Works out real good in zero g. CAPCOM Hate to admit that, but it is probably SC one of the best spacies things we have had in years.

SC Houston Capcom.

CAPCOM Go ahead.

more, longer sessions of it.

SC We don't think we ought to sink Hasselblad here, we may be able to take one a little later.

it is strictly your option, obviously. We just got to thinking maybe it will work out better, give you a little

Okay. Okay, on the sleep thing, Wally,

Roger, understand about the camera. CAPCOM Hey, Tom, I would like to log some SC photographs here on magazine PU, starting the same... started shooting about over the Red Sea and we are continuing the same 12 right now. Okay, we will record in and we have it CAPCOM Walt, thank you. When are we going to get our tape recorders back. I see it is in motion now. Will we ever finish dumping all the tapes on the rendezvous run. Not yet Walt, we are still dumping. CAPCOM Okay, we would like to get a go as soon SC

as we get that through.

CAPCOM Roger. We will let you know as soon as it is finished.

Houston, Apollo 7, over. SC

Go ahead 7, Houston. Houston, Apollo 7 CAP COM Apollo 7, Houston, we go.

Houston, Apollo 7, over.

Roger. Apollo 7, this is Houston. CAP COM

ahead.

Roger, Tom. Do you know if they ever got the voice dump right after ah, the east end we put our com in for on about the tape and I'm not sure if they dumped (garbled).

Apollo 7. We'll check on it. CAP COM

Thanks Tom. SC

Apollo 7, Houston. Will you give us CAP COM opposite omni? Apollo 7, Houston will you give us opposite omni? (from background someone said - we got him) I heard the boys in the backroom, you

got it now.

Roger. Apollo 7, Houston it's taking CAP COM quite a while to get all the de-voiced data played back Walt and we won't really know for quite a while. Is there any particular GET on the voice you want us to check.

Roger. I know we rewound the tape at SC the Canaries, I think it was. I'm hoping we (garble) sometime there about 20 minutes I think we put our description of (garble) by the tape and someplace the first hour (garble)

Apollo 7, Houston. CAP COM

Go ahead. SC

Roger, (garble) first made ... from liftoff CAP COM until Canaries and because of rewind and everything we do not have that on voice.

Okay, when we get the tape back, we'll SC

probably try to put some on it.

Okay. Apollo 7, Houston. We are about, CAP COM ah, we're close to LOS and you gonna have the tape back, we're just about finished all the rendezvous dump.

Roger. Thank you. We've just finished SC chlorinating the water ...

Roger. CAP COM

This is Apollo Control 37 hours 49 min-PAO utes into the mission of Apollo 7. During this last pass which was rather a long pass including the Mercury tracking ship and Guam. We heard the crew complimented for a good rendezvous today. Spacecraft Commander Shirra is reluctant to change the sleep cycle, that is for all three to sleep at the same time. They indicated that the sleeping bags were not working out too well and that the seat belt in the seat works better than the sleeping mode or rather in the couches than the sleeping bags. The lightweight head sets

pAO are better than the com carrier because the cable jerks their heads around. They indicated a possible problem with the Hasselblad camera and just indicated before LOS that they have finished chlorinating the water onboard. The next contact will be with Redstone tracking ship. That will come at about 38 hours 47 minutes into the mission. At 37:51, this is Apollo Control.

This is Apollo Control 38 hours 7 minutes into the mission. The spacecraft commander and the LM pilot are now in an eating period. The command module pilot is in a sleep period. We should have contact with the Redstone tracking ship very shortly now - in 1 or 2 seconds. There's nothing scheduled in the flight plan for contact but let's stand by.

Apollo 7, this is Houston. We have CAPCOM

acquisition on Redstone.

Opposite omni please. Apollo 7, Houston. CAPCOM Would you give us

Apollo 7, Houston. CAPCOM

the opposite omni now?

That's back where we started. Roger. SC

Is that where you want?

Yeah, you switched about the same time CAPCOM

we said to switch so -

(Level too weak to read) SC

Apollo 7, Houston. Have 1 minute to CAPCOM

LOS at Redstone.

Roger. SC

This is Apollo Control, 38 hours 16 PAO minutes into the mission of Apollo 7. We have loss of signal at Redstone tracking ship. The next contact will be at Ascension Island 38 hours 33 minutes into the mission. This is Apollo Control.

```
This is Apollo Control 39 hours 7 minutes
     PAO
into the mission of Apollo 7. We are in the 25th revolution
coming up on acquisition with Mercury tracking ship. 39 hours
10 minutes. We have a tape of the last pass over Ascension
which we will play first and then we will go right into the
live standby on the Mercury tracking ship. So we will now
play the tape of the Ascension pass.
                     Apollo 7, Houston through Ascension.
     CAPCOM
     SC
                     Roger, read you about four by Wally.
     CAPCOM
     SC
                     Apollo 7, Houston, you are coming garbled.
     CAPCOM
Say again.
                     Apollo 7, Houston. Say again, please.
     CAPCOM
Roger out. Apollo 7, Houston.
                    Go ahead.
     SC
                     Roger, now reading you loud and clear,
     CAPCOM
Wally. You happen to be in an attitude and you have the
camera available, here is a good area that we haven't had
many pictures in. It is 38 56 30. The upper end of the Persian Gulf down and to the right. Do you have some time
and camera, is fine, if not no problem.
                     Roger, say again the target.
     SC
                     Roger. The upper end of the Persian
     CAPCOM
Gulf. It will occur in 38 56 30.
                     Okay.
     CAPCOM
                     Houston...
     SC
                     Go ahead.
     CAPCOM
                     ...night air glow 240 degrees ...all
almost all over the horizon as we sweep low. ..
                     Okay, you say all around the horizon?
     CAPCOM
Wally.
     SC
                     ...sky.
     CAPCOM
                     Roger.
                     ...Sirius came up ..
     SC
                     Okay.
     CAPCOM
                     Hello Apollo 7, Houston. Just looking
     CAPCOM
at the DSKY, are you pitched down from about 90 degrees?
                     That is affirm. Camera all ready.
     SC
                     Well, we have about 1 minute until LOS
     CAPCOM
with Ascension, Wally and we will catch you next time over
the Pacific.
                     Apollo 7, Houston.
     CAPCOM
                     This is Apollo 7. How do you read?
     SC
```

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APOLLO 7 MISSION COMMENTARY, 10/12/68, GET: 390700

CAPCOM

Apollo 7, Houston.

SC CAPCOM I am reading you about three by three. I had a block update but I will give it to you over Guam in a Tew minutes. About 5 minutes.

SC That is a block update over Guam.

CAPCOM Apollo 7, Houston.

```
Apollo 7, Houston. (Pause) Apollo 7,
     CAPCOM
                   Apollo 7, Houston. (Pause) Apollo 7,
          (Pause)
Houston.
                   Apollo 7, Houston.
          (Pause)
Houston.
                    Roger, Houston. Apollo 7. Go.
     SC
                    Roger, I have block data. Are you ready
     CAPCOM
to copy?
                    Stand by one. ... stand by.
     SC
                    Are you ready?
     CAPCOM
                    Okay, go ahead. I got it now.
     SC
                    Roger. Zero two seven dash two Bravo
     CAPCOM
Plus two zero six minus zero two five four zero four one two
six one three four one zero four zero two eight dash two
Bravo plus two seven seven minus zero two eight eight zero
four three zero two zero five four one nine three zero two
nine dash one Bravo plus two four zero minus zero six three
three zero four four two seven five two four one two eight
zero three zero dash one Alpha plus two nine seven minus zero
six six two zero four six zero three three four four two four
six zero three one dash one Bravo plus three one seven minus
zero six six two zero four seven three nine two nine four
four three zero zero three two dash one Alpha plus two nine
one minus zero six six two zero four nine one five zero nine
four six five zero coming up on LOS.
                    Roger, understand. I read back later then.
     SC
                    Roger, thank you.
     CAPCOM
                    This is Apollo Control 39 hours 23 min-
     PAO
utes into the mission of the Apollo 7. We have just had quite
a long pass through the Mercury tracking ship and Guam.
next contact with the Redstone tracking ship at 39 hours
```

42 minutes 34 seconds. At 39 23 this is Apollo Control.

PAO This is Apollo Control 39 hours 42 minutes into the mission of Apollo 7. We are coming up on the Redstone tracking ship and a very few seconds we will stand by for whatever may transpire there.

CAPCOM Apollo 7, Houston. SC Roger, Houston.

SC Roger, Houston.
CAPCOM Roger, Apollo 7, Houston ready for your read back on block data when you are ready.

SC Roger, stand by. I am right in the middle of a P52. Will be with you in a second.

CAPCOM Right.

SC Houston, I am ready with the feedback.

CAPCOM Roger, go.

Roger, area zero two seven two Bravo plus zero six minus zero two five four zero one two six one three four one four three dash two Bravo plus two seven seven minus zero two eight eight zero four three zero two zero four five four one nine three zero two nine one Bravo plus two four zero minus zero six three three zero four four two seven five two four one two eight three zero dash one Alpha plus two nine seven minus zero six six two zero four six zero three three four four two four six zero three one dash one Bravo plus three one seven minus zero six six two zero four seven three nine two nine four four three four two two dash one Alpha plus two nine one minus zero six six two zero four nine one five four nine four six five zero.

CAPCOM Roger. Copy reads back. That check one item on the third block zero two nine dash one Bravo second entry plus two four zero.

SC Roger, plus two four zero.

CAPCOM Roger, reads back correct. And also advisory, we had good voice quality on the Redstone dump that

we got on the last pass.

SC All very good. I got a couple of small items for you. Wally took a couple of asprin and an actifed and he only took one actifed. He feels fine. He has just got a little stuffy symptom and I put some nose grease on my nose because my nostrils are a little dry and besides it smells good.

CAPCOM Roger, understand Wally took two asprins and one Actifed and only took one Actifed and you took some

nose drops was it or cream?

SC Nose cream. It is a fluid they gave me with my pills. Walt is the one that took the Actifed not Donn.

CAPCOM Oh, okay, Donn. I am sorry.

... about 16 drinks of water here Yeah. SC in the last 45 minutes or so.

That is Donn. CAPCOM Right. Check. SC

Check. CAPCOM

I just want to add ... coming out of a

very good sleep and feeling great. Thank you. Apollo 7, Houston. Roger. CAPCOM

We would like the biomed to number one.

Understand and I will do that after I Does that mean you want to...

after I do this alignment. Roger. We lost the down link on the CAPCOM biomed and this is just to see exactly the circuit or in the biomed powerdown.

Roger. I will do that in a couple of SC

minutes.

Okay, fine. We have about one and a CAPCOM half minutes until LOS.

You mean I get until next pass to .. SC

this alignment.

CAPCOM Okay.

This is Apollo Control 39 hours 51 minutes into the mission of Apollo 7. We have just completed our pass with the Redstone tracking ship. Next contact will be Canary Islands, which should come about 40 hours 14 minutes During this last pass, we went through an inertial 17 seconds. measuring unit realignment. The inertial measuring unit of course provides basic reference against which you can measure spacecraft movement and it has to be realigned periodically. We were informed that Astronaut Schirra took one Actifed and two asprins and Astronaut Cunningham one Actifed and Astronaut Eisele some nose cream was applied to his nose. We have had no biomedical readouts during this last pass and the medical people and the Flight Director now conferring in tracking down the situation to see if we can tune that up and get some biomed readouts in the next passes. At 39 hours 52 minutes, this is Apollo Control.

PAO This is Apollo Control, 40 hours, 14 minutes into the flight of Apollo 7. We are in the twenty sixth revolution coming upon Canary Islands in a few seconds. We will join such conversation as we have at the Canary point now.

CAPCOM Apollo 7, Houston acquisition, Canary.

SC I hear you Houston.

CAPCOM Okay. Apollo 7, Houston, about two bags LOS, Canary. Next acquisition will be Redstone at 41 + 17. That will be about 1 hour. Apollo 7, this is Houston.

SC Go ahead, Don.

CAPCOM Roger, Don, did you get P-52 finished?

SC Yeau, I did it two or three times.

CAPCOM Roger.

SC I was flying.

CAPCOM Good show. Apollo 7, Houston, interrupt 30 seconds to LOS.

SC This is LOS. It took about half an hour.

CAPCOM Okay.

This is Apollo Control. We have had PAO lost of signal, Canary Islands. Apollo 7 will now go for about an hour before we have contact at the Redstone - Redstone tracking ship. That will be - 41 hours, 17 minutes, 24 seconds into the mission. The program 52, inertial measurement, measuring unit realinement was confirmed to have been completed. The only thing that should take place between now and the next station contact will be the water waste tank dump and the environmental control system which will take place at 41 hours into the mission. At that point also, the spacecraft commander and the lunar module pilot will enter their sleep period. And Don Eisele, the command module pilot will be awake and on duty. So we have a long dry spell for 1 hour before the next station contact. At 40 hours, 20 minutes into the mission, this is Apollo Control.

PAO This Apollo Control 41 hours 17 minutes into the mission of Apollo 7. We're approaching the Red Stone tracking ship and astronaut Stafford is endeavoring to make contact with the spacecraft. Let's join them now.

CAPCOM ... Have you preformed the waste water

dump that was sceduled for around 41 hours?

SC ... we're going to wait until it gets to about 90 percent, that way we won't have to do it so often.

CAPCOM Okay. SP-1 we're going to give you the MC - we're going to send you an MCC update previously scheduled for for 4440 at 44 hours.

SC Roger. Understand.

CAPCOM And we're planning the S-IVB tracking previously scheduled at 4610. It will now be at four four plus three six. Are you sure that was good update vectored on that and the S-IVB will be at about 170 nautical miles.

SC Hey Tom, how (garble) as soon as I get them I'm going to write them down and then you can give it to me a little later.

CAPCOM Roger.

SC Paul, are you still there.

SC Houston, Apollo 7.

CAPCOM Go, Apollo 7, Houston.

SC Roger. We've just completed the 23 sextant calibrations. I think the your data is down range.

CAPCOM Apollo 7, Houston. We're about one minute to LOS and your starting to fade out. I understand you've completed the sextant calibration.

SC Roger.

CAPCOM Apollo 7, Houston. Did you experience

a restart a couple of minutes ago.

I experienced a restart during part of program 52 that I was using to find some stars I needed. and I think it happened - about one before the other day. When you go from zero optics to CMC and also hit the feed and you haven't waited 15 seconds. Its a procedural error and its just a momentary restart, almost program alarm.

CAPCOM Okay.

SC Incidentally I have a 02 flow high light I expect its the same problem we had earlier ... we haven't found the trouble shooter for sure yet, though.

CAPCOM Okay. We'll pick you up - its about 15 seconds to LOS and we'll pick you up over Canary's.

PAO This is Apollo Control 41 hours 26 minutes into the mission. We've finished our Redstone tracking ship pass. The next point will be Antigua at 41 38. They spoke about when to dump waste water. The crew desires to dump it

ever they're talking about it now. It's possible that that would be reached right in the middle of the spacecraft commander and LM pilot sleep period; in which case astronaut Schirra would have to be disturbed so they could get the equipment out to dump the excess water. That will probably be resolved by the time we have contact at Antigua. We're still getting no bio-medical data readouts and they can only assume that there's some mechanical difficulty with some of the equipment. At 41 hours, 27 minutes into the mission into the mission this is Apollo Control.

PAO This is Apollo Control 41 hours 38 minutes into the mission of Apollo 7. We're coming up and should have access with Antigua just about now. Let's join the conversation and see what goes on.

CAP COM Apollo 7, Houston. Apollo 7, Houston.

SC Houston, Apollo 7, Go.

CAP COM Roger. In reference to the water dump. We're reading 70 percent now, predicting a 90 percent level at approximately 45 hours but no later than 46 hours. We'll have to dump at that time. It's right in the middle of a sleep period, ah, to get dumping as soon as you can in order to prevent interrupting in the middle of sleep cycle.

Roger, I got you Bill. They're already asleep and the way we've got it arranged it won't disturb either one of them. Just as soon leave at 45 hours.

CAP COM Okay.

SC Good thinking. Ah, Bill, could you give me those flight plan updates that Tom called awhile ago. I was right in the middle of a G&N exercise and didn't get to write it down.

CAP COM Okay, I'll start talking I have about a minute and 15 seconds. Okay, at 44 hours we will give you the NCC update previously scheduled for 44 + 40.

SC Roger.

CAP COM Okay. At 44 + 36 perform S-IVB tracking. That was previously scheduled at 46 + 10. At that time, this new time, the S-IVB will be at 169 nautical miles. The last item at 45 + 30 delete 252 IMU realign.

pao This is Apollo Control. Our next contact will be Canary Islands at 41 hours 47 minutes, about 5 minutes from this time. The most significant thing in the last two contacts, of course, has been in the flight plan we have changed the S-IVB tracking time from 46 hours and 15 minutes into the mission back to 44 hours and 36 minutes into the mission. The reason being that the S-IVB will be at 169 nautical miles from the spacecraft at 44 36 where if they waited another revolution, it would be farther away from the spacecraft. They desire to track it at roughly that 170 nautical mile distance. We'll come up again when we have contact with the Canary Islands in some four minutes or so from now. At 41 hours 43 minutes, this is Apollo Control.

This is Apollo Control 41 hours 47 min-PAO utes into the mission of Apollo 7. We're coming up in a few seconds with acquisition with the Canary Islands tracking station. We'll join them now. SC Houston, go ahead. CAP COM Roger. How far did you copy on the flight plan update? ... I think I got it all Bill. I've got the S-IVB tracking at 44 36 instead of 46 hours and delete the 252 realignment at 45 30. CAP COM Roger. That completes the flight plan update. I have a couple of items. We're still monitoring an 02 flow high check waste dump closed. Second item, we'd like biomed CMP. Okay, we're monitoring it now. Forget the biomed, it's okay. SC Getting anything? Over. CAP COM Yes, we are. Okay. Bill, only getting half it, ... SC can't pick up, I'll try again later to get it to plug in. CAP COM Okay. SC I did have the waste dump OPEN now, I don't think that ought to ... so high. CAP COM Roger. Understand it was Open. SC Roger. ... a little while there it was ... department however I ... that ... so high and I just turned the ... OFF. CAP COM Roger. SC ... I suspect it's still a ... problem. CAP COM Okay. We're watching it. We have about six more minutes here. SC (garbled) I'd appreciate it. Roger. We'll keep you informed. CAP COM Apollo 7, Houston, we have about two minutes LOS Canaries. Your o2 minifold is dropping off. It's dropped from .96 to .74 in the last few minutes. O2 flow. Okay. 02 flow. SC CAP COM Right. SC ... doing the same thing. My onboard procedure leads me to believe it's still a failing sensor. Do you confirm that? A, Bill, what do you have down there for A2 tank pressure, mine is reading low, about 840. CAP COM Okay, stand by. SC Ah, correction, number two is reading Number one is about 860.

SC Okay, is that alright with everybody down there?

in one and two, 846 in the third tank.

Coming up on LOS you have 876 and 853

CAP COM

CAP COM I think so, stand by.

SC (garbled)

CAP COM No, that's good.

SC ... everybody concerned.

CAP COM We'll need the S-band volume up for

Honeysuckle pass at 42 + 32.

SC Roger, I'll ...

CAP COM Thank you.

PAO This is Apollo Control, 41 hours 57 minutes into the mission. We are out of range now with Canary Islands. At 42 hours 32 minutes, they will be in range of Honeysuckle in Australia. They have checked the O2 flow high rate as the readout was before, the check waste vents were closed and when that happened, the O2 rate came down from 94 and it came down to 70.7 ah .94 to .72 pounds per hour which is quite acceptable So, with everything looking good at 41 hours 58 minutes into the mission, this is Apollo Control.

PAO This is Apollo Control, 42 hours 32 minutes into the mission. We are coming up on our pass over Honeysuckle Creek. We're halfway through Australia now and we should have contact with the spacecraft in a very few seconds. We'll stand by for such contact.

CAP COM Apollo 7, Houston. Apollo 7, Houston.

pAO This is Apollo Control 42 hours 39 minutes into Apollo 7. We had no response from the spacecraft during this pass at Honeysuckle Creek in Australia. We should have some contact at the Redstone tracking ship which will have acquisition at 42 hours 52 minutes into the mission. At 42 39, this is Apollo Control.

This is Apollo Control 42 hours 52 minutes into the mission. We are coming up on the Redstone tracking ship acquisition period now. Let's listen in.

Roger. Reference the O2 flow high. CAP COM Analysis here indicates your O2 low high indication onboard was valid at the time you had 5.0 cabin pressure when the waste vent was open. Upon closing, the pressure gradually increased to 5.1. Apollo 7, Houston. Do you still have an O2 flow high?

Down to normal now. Negative. SC

Okay. One other item. The waste water CAP COM dump recommend dumping 85 percent instead of 90 percent. They're not sure it's safe to wait til 90 percent due to possibility of overboard drain freeze. Apollo 7, Houston. Is the commander's and the LMP's cobra cable unconnected? Verify it is not connected.

Roger. They're not connected up here. SC

They're off of it.

Thank you very much. Also I have a --CAP COM

disregard.

Say again. SC Ah, disregard. CAP COM

Hey, Bill, would you log me 12 clicks SC

when the waters gone?

Roger, 12 clicks when the waters gone. CAP COM One minute LOS Redstone, Antigua at Apollo 7, Houston.

43 + 10.Roger. 43 + 10. You got the night SC

shift, eh?

Apollo 7, Houston. Coming up on LOS CAP COM I will have a flight plan update. There are a couple of

items at Antigua. This is Apollo Control 43 hours 1 minute PAO We will have the next station contact at into the mission. Antigua, 43 hours 10 minutes, 9 minutes 8 minutes from now. At 43 02, this is Apollo Control.

PAO This is Apollo Control 43 hours, 10 minutes into the mission of Apollo 7. We're now coming into Antigua. We should have contact any second with Antigua. Let's join the conversation.

CAPCOM Apollo 7, Houston. SC Apollo 7, go ahead.

CAPCOM Roger. I have a couple of things for flight plan update.

SC Okay, go ahead.

CAPCOM Roger. Fuel cell 02 purge at 45 + 30.

That's over Carnarvon.

SC ... 02 purge at 45 + 30.

CAPCOM Roger. And due to the matter of information

have you checked any of the D&N control modes?
SC Roger. We've used - we maneuvered

manually about 5 degrees per second and our dead band we've done auto maneuvers, auto trip maneuvers, and same dead bands and I also used the minimum impulse controller in the LEB.

CAPCOM Roger. 5 degrees per second, minimum dead band, auto trim, minimum dead band, and a minimum impulse controller in the LEB.

SC Roger.
CAPCOM Thank you.

SC Houston, Apollo 7.

CAPCOM Apollo 7, Houston, go. Apollo 7, Houston

go.

SC ... Apollo 7.

CAPCOM Roger Apollo 7, ilouston.

SC We're getting a high pitched interference noise coming over VHF. Have you got any idea what it is? Are you picking it up down there?

CAPCOM High pitched interference on VHF, a

negative. Stand by.

CAPCOM Donn this is about the same place last night where you picked up the music.

SC There's music on there too.

CAPCOM Apollo 7, Houston. The net is looking at it.

PAO This is Apollo Control 43 hours 19 minutes into the mission of Apollo 7. We'll have acquisition by Canary Islands at 43:21:59, that's only two or three minutes from now. We heard from Mr. Eisele that the VHF high pitch interference noise was coming in as they were passing Antigua and astronaut Pogue indicated that that was the same place where the spacecraft had picked up the spurious noise of last night. They are now looking into this to see if we can track it down. At 43 hours 20 minutes into the mission, this is Apollo Control.

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PAO Minutes into the mission. We're coming up on Canary Islands now, 43:21:59 about 30 seconds from now. We'll see if we get any resolve on what the VHF interference was. Let's listen in.

SC Houston, Apollo 7.

CAP COM Apollo 7, Houston. Go.

SC Roger. I've got a hydrogen purge scheduled here at 44 hours, do you want me to do that or are we doing that just on demand so to speak.

CAP COM Negative. That one has been deleted.

SC Okay, that's that.

CAP COM That's the hydrogen purge at 44 hours, that has been deleted.

SC Roger.

CAP COM Apollo 7, Houston. We will be giving you a CSM and S-IVB state vector update over Carnarvon. We will require accept when you get to Carnarvon and we're estimating AOS Carnarvon at 43 + 57.

SC Apollo 7, understand.

CAP COM Apollo 7, Houston. One minute til LOS at Canary. If you need contact, we have about 2 minutes S-band after that at Madrid.

SC Apollo 7 understand. Thank you.
PAO This is Apollo Control 43 hours 31 minutes into the mission. We have our next station contact coming up which will be Carnarvon, Australia and that will be coming up 43 hours 57 minutes, some 27 or 28 minutes from now. At 43 hours 31 minutes into the mission, this is Apollo Control.

This is Apollo Control 43 hours 57 minpao utes into the mission of Apollo 7. We are approaching Australia now and we will be in contact very shortly with Carnarvon. At this pass there will be an MCC update in preparation of the S-IVB tracking which will take place at 44 hours 36 minutes into the mission, so let's monitor this conversation. Apollo 7, Houston. Apollo 7, Houston. CAP COM Apollo 7, Houston. Apollo 7, Houston. Apollo 7, Houston. Apollo 7, Houston. Houston, Apollo 7. SC Roger. Apollo 7, Houston. How do you CAP COM read? Loud and clear. SC Roger. If you'll go to accept we'll CAP COM send up your state vectors. Is on accept. SC And I have a Nav. check here ready to CAP COM copy. SC Roger. Nav. check reads 044 03 0000 minus 2170 CAP COM + 12234 1513. Ah, Roger. Could you send that one SC again. Nav. check 044 03 0000 minus CAP COM Roger. 2170 + 12234 1513. Read back. Roger. It was 44 03 0000 minus 2170 + SC

12234 1513.

CAP COM Roger. Readback correct. Okay, Apollo 7
Houston, the computer is yours. We have a little less than
two minutes LOS Carnarvon. Request S-band volume up in about
one minute or two minutes.

SC Roger.

one more minute of acquisition at Honeysuckle Creek but it doesn't appear that any more transmission will take place. The Cap Com Pogue here in the Control Center indicated and then we sent up an update from the Control Center for the purpose of preparing the spacecraft for the S-IVB tracking which will take place 44 hours 36 minutes into the mission. That will be in the 28th revolution, it will be coming out of the night side pass, going into the daytime. They will track the S-IVB which will be about 169 nautical miles away and he will track between the Redstone tracking ship and Central American coast. The next point we will have contact with the spacecraft will be the Redstone tracking ship, that will take place at 44 hours 28 minutes into the mission. At 44 14, this is Apollo Control.

PAO This is Apollo Control, 44 hours, 28 minutes into the mission of Apollo 7. We're coming up on acquisition with the Redstone tracking ship in a few seconds. We'll monitor that conversation now.

CAPCOM Apollo 7, Houston through the Redstone standing by. Apollo 7, Houston. One minute LOS Redstone, pick you up at Bahamas in about 12 minutes.

SC Roger Jack, I read you (garble).

CAPCOM You're 5 by Donn.

This is Apollo Control, 44 hours, PAO 32 minutes into the mission. We have just lost contact with the Redstone tracking ship. The next contact will be Grand Bahamas Islands, 44 hours, 43 minutes into the mission, some 8-1/2 - 9 minutes from now. At 44 hours, 36 minutes we will begin the S4B stage tracking at 169 nautical miles distance from the Spacecraft. Now we will go back and have in this period of time - we have here a couple minutes of update of what went on in the last 7-1/2 to 8 hours of the mission. At 37 hours, 2 minutes we had a flight plan update. We also found that everybody has evidence of Astronaut Stafford telling the crew that it was a very good rendezvous that day - yesterday. Astronaut Schirra was reluctant to change his sleep cycle as inquired into from the Control Center by Deke Slayton. He indicated the sleeping bags were not working out too well, that the Astronauts being in their couches with the seat belt buckled were much more comfortable and it worked much better than when they used the sleeping bags. The light weight head-sets, he said, were better than the com carrier. Because with the com carrier, the cable jerks the head around when they move around the cockpit. He indicated they had a problem with the Hasselblad camera, what that problem was - what extend it was I do not know. They finished chlorinating the water again and also Astronaut Schirra indicated that the Exergenie, the exercise device onboard the Spacecraft was "the best - one of the best spacie things we've had in years". He also indicated they were getting around in the Spacecraft very well and they were becoming gymnasts. We had normal inertial measurement unit realignments, we had an indication that Astronaut Schirra took a decongestion tablet, an Actifed tablet plus 2 aspirin, and that Astronaut Cunningham had taken 1 Actifed tablet, and Astronaut Eisele had used some nose This was at 39 hours, 43 minutes into cream for his nose. the mission. There was no particular physical problem indicated beyond the indication that they had taken that medication. At that time we had no biomedical readouts. Later on in the mission at 41 hours, 47 minutes, the biomedical readouts begin coming in to the MCC, satisfactorily.

They performed a waste water dump, as PAO they had the day before and there is no problen in the ECS system in dumping the water and having the ECS operate properly. They completed a sextant check well into the tour at 41 hours, 17 minutes and had a flight plan update on the S4B tracking time. That was when we changed the tracking time to 44 hours, 36 minutes into the mission instead of 46-1/2 hours. Due to the fact that the S4B would be in the 169 nautical mile proximity at 44 hours, 36 minutes and it would be too far away a revolution later. This tracking procedure with the S4B will begin very shortly, in fact, it has begun over 1 minute ago. It was indicated at 41 hours, 47 minutes that the 02, the oxygen flow rate as monitored at MCC in Houston, was indicating a high flow rate. It was also indicated to the crew at that time, that they should check the waste vent and close it if it were open, which it was. After that was accomplished, the O2 rate came down satisfactorily and is now riding around .35 lbs per hour.

PAO - .35 pounds per hour. Waste vent was turned off, still had onboard that was high at that time, but it did come down to that .35 pounds per hour. last - one of the last contacts that was indicated by Astronaut Eisele that the VHF high pitch interference noise was That was indicated to him through - around the coming in. Antigua area by Astronaut Pogue that last night the same type of interference came in when he picked up music and voice conversation in that particular area. The crew appears to be in good condition. The spacecraft commander and the LM pilot are in their sleep period and command module Eisele is now - should be in the process of tracking the S-IVB. At 44 hours 39 minutes into the mission, this is Apollo Control.

pAO This is Apollo Control, 44 hours, 43 minutes into the mission of Apollo 7. We are now coming up to the acquisition point at Grand Bahama Islands. We'll stand by for any possible conversation.

CAPCOM Apollo 7, Houston; standing by.

SC Roger Jack; I'm doing the B20 navigation

right now.

CAPCOM Roger.

SC I'll do a section. Houston, this is

Apollo 7.

CAPCOM Go ahead 7.

SC Roger; the (garble) flow is more than in here. It's not (garble). It's a different triangle because some of the background that I see from the base line (garble) but it's still there and you can still track it one more time.

CAPCOM All right. I've been following your marks
Don and it looks like you are getting in verbal 649; it looks

like you're getting real good marks.

Yeah, we (garble) free on the (garble) tracking length within, I guess, a couple of minutes at the last of the nautical time.

CAPCOM Roger. SC (garble)

CAPCOM Say again Don.

PAO This is Apollo Control 44 hours 54 minutes into the mission. We won't have acquisition at Canary Islands for another 2 minutes and 20 seconds or so. Astronaut Eisele indicated to the MCC that the tracking with the sextant, the visual tracking of the S-4B was going along. He said it was not as good as it could be due to bright earth shine. However, it was still there and you could still track it with the sextant. We'll be coming up at Canary Island pass in just a couple of minutes now. At 44 hours 54 minutes this is Apollo Control.

PAO This is Apollo Control 44 hours 56 minutes 35 seconds into the mission of Apollo 7. Canary Islands will acquire in about 10 seconds from this time. We will monitor that pass.

CAPCOM Apollo 7, Houston, through the Canaries.

Standing by.

SC Houston.

CAPCOM Go ahead, Donn.

SC Garbled.

CAPCOM I couldn't read that, Donn, you brought

two by.

SC Garbled.

CAPCOM Donn, we can't quite make that out. We've got you here for about another 5 minutes, and maybe signal strength will get a little bit better.

CAPCOM Apollo 7, Houston. How do you read now?

SC Garbled.

CAPCOM Okay, Donn, you are a little better there

on S-band.

SC Okay.

CAPCOM Apollo 7, Houston. You are about 1 minute LOS Canaries, we'll pick you up over Carnarvon in about 20 minutes.

SC Roger.

This is Apollo Control Houston 45 PAO hours 32 minutes into the flight. Donn Eisele just put in a call to us via Carnarvon. He said he could still observe the flashing lights on the S-IVB. Here is a rundown on the weather today around the world, some of which the crew may be able to observe on this upcoming rev as they go through the Windward Islands area. Taking it from the top: in the west Atlantic recovery area the weather will be partly cloudy to mostly cloudy with a few showers, winds will be mostly easterly, ranging from 10 to 18 knots, sea is 5 feet and the temperature is in the upper 70's. In the eastern Atlantic, weather will be mostly fair, with northeasterly winds of 15 knots, sea is about 3 feet, temperature in the 70's. In the west Pacific landing area, weather will be fair to partly cloudy with a few showers, winds will be mainly northerly 15 knots, seas 5 feet and temperatures in the 60's. In the mid-Pacific, weather will be cloudy with showers, strong easterly winds and moderately rough seas in the more northern landing areas. In the southern part of the zone, weather will be partly cloudy, winds southerly 12 knots, seas 4 feet and temperature in the 70's. An interesting weather feature that the crew may be able to observe today will be a disturbance in its formative stage in an area a few hundred miles east of the Windward Islands in the Atlantic Ocean. The command pilot and the lunar module pilot remain asleep, and the sleep period is programed to last several more hours. As a matter of fact, it is programed to last 5 more hours, so it looks like a nice quiet morning ahead of us. At 45 minutes hours and - we do have some tape from Carnarvon and we will play it for you now.

CAPCOM Apollo 7, Houston through Carnarvon,

standing by.

SC Roger, Houston. Houston, the lights

are still flashing on the S-IVB.

CAPCOM Roger, copy that. And Donn, as we go along here toward the end of our pass, which is about another 8 minutes, we will pick up Honeysuckle, so you will want to turn up your S-band.

CAPCOM And we have Honeysuckle for about a 9 minute pass, so we will have you for about another 16 minutes, and then you've got a long stretch without anything.

SC Roger.
CAPCOM Apollo 7, Houston. Go ahead.

That wasn't us, Jack.
CAPCOM Okay, I'm sorry, Donn.

CAPCOM Apollo 7, Houston. You want to turn up your S-band volume, we are just about to lose you over

CAPCOM

Carnarvon.

SC

Roger.

Donn, we want to make a radio check CAPCOM through this backup site at Honeysuckle just to check it out.

SC

Okay, Jack. Apollo 7, Houston through the Wind CAPCOM site, how do you read me?

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CAPCOM Apollo 7, Houston through the Wind Sight;

how do you read?

SC Clear Jack; I'll turn the volume up. CAPCOM Okay, you're loud and clear here.

SC Sounds pretty good.

CAPCOM Roger; this is a back up sight there in

Australia.

SC Roger; Jack. I've been looking at this horizon preparing for this mid-course navigation business, and at night there just isn't any horizon that you can define in the sextant at all. There is one in the telescope but I don't think that's accurate enough.

CAPCOM Okay.

SC The airglow band or what ever it is, is right's drumming. The real earth is so wide that there's no way to use it that I can see for navigation.

SC Okay, we copy that.

CAPCOM Don, can you confirm whether you did the O2 purge on the fuel cell?

SČ Negative; I did not. I was working the

LAP. I'll do that now.

CAPCOM Okay, real fine.

Apollo Control Houston, you're 46 hours, PAO 13 minutes into the flight. Jack Swigert just put in a call to Apollo 7 and gave them a standing by message. We'll monitor and see if any conversation developed.

Apollo 7, Houston. CAPCOM

Roger, Houston go ahead. SC

Roger. opposite on the - Donn, and we're CAPCOM reading now 87 percent on the waste quantity. We are recommending that you initiate the dumping of the waste tank.

Roger, opposite on the and 87 percent waste water and we've got a good lock with this antenna.

Roger. CAPCOM

Jack, record 12 clicks on the water. SC

Say again. Say again, Donn. CAPCOM

I said just record 12 clicks on the SC

water gun for me. Okay. CAPCOM

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CAPCOM Apollo 7, Houston. SC Roger, Houston, go.

Roger. You have a GO for 47-1. Roger, GO for 47-1 and log the LMP CAPCOM SC

for 12 clicks on the water gun.

CAPCOM Will do, and good morning.

SC Good morning.

Hey, Jack, so far this urine dump has been SC pretty doggonned good.

Apollo 7, Houston, go ahead. CAPCOM

Roger. I said the urine dump system has SC

been working beautifully so far.

Okay, fine. Walt, did you have the VHF CAPCOM

off just a minute ago?

Yes, I did, I've just gotten up and I

hadn't turned it on yet.

Okay, fine. CAPCOM

This is Apollo Control 46 hours, 42 minutes The crew was advised during a recent pass into the flight. through the Canary Islands area to scrub, to forget about, some LM mark tracking that was to take place on the West Coast in the next several hours. Clouds apparently obscure the area that was to be observed in a pass across either California or the Western United States. The flight director Glynn Lunney has gone around the room and gotten a very thorough status report from each area, from each console, in the room and other than that, we are witnessing one of the longer scheduled sleep periods of the flight. I show the commander of the Apollo 7, Wally Schirra, and Walt Cunningham are scheduled here for an 11 hour rest sleep period. Walt Cunningham has just talked to us briefly and rather sleepily and probably will drowse on back to sleep. He woke up, had a drink of water, and talked a bit on the last pass. Here is some tape from that pass.

We have the preliminary cool (garble) coming up emensely. I don't know how long the water boiler can go without reservicing and if it is not working, it seems

to be having an effect on that secondary pump.

Roger. We're having a meeting down here CAPCOM on that very subject. We'll come up to you with a procedure for activating that primary water boiler to take it out.

Roger.

SC Apollo 7, Houston. CAPCOM

Go Houston. SC

We have a flight plan up date here; the CAPCOM land mark tracking that was planned for about 4740, the weather is very, very bad over those areas and we are recommending that, we are asking you to delete that land mark tracking exercise.

Roger. I just did a little bit using clouds as unknown landmarks and ran through the program.

Seems to work okay. I got through our updates.

Okay, real fine Don. Apollo 7, Houston. CAPCOM We are showing the waste quantity down below at 20 percent now; it looks real good to us here.

Roger; we're shutting it off right now. SC Okay. Apollo 7, Houston. You're 1 minute CAPCOM I'll pick you up in about 14 minutes at LOS Canaries. Tananarive.

Roger. SC

177/1

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CAPCOM

Apollo 7, Houston through Tananarive,

standing by.

SC

Roger.
Apollo 7, Houston. One minute LOS CAPCOM

Tananarive, Carnarnon in about 9 minutes.

Roger.

PAO This is Apollo Control Houston, 47 We are in touch with Apollo 7 via Carhours 17 minutes. narvon and here is how it's going. Apollo 7, Houston through Carnarvon, CAPCOM standing by. Roger. Jack, could you give us a map SC update? Will do, we will work it out. CAPCOM Apollo 7, Houston with your map update. CAPCOM SC Roger, go. Rev 29, your GET is a node of 46 + 06 + CAPCOM 31, longitude will be 129.2 degrees west, the right ascension was 06 + 01. 46 + 06 + 31, 129.2 west. SC Roger. That was for Rev 29. You are on CAPCOM Roger. 30 now. Thank you. What's the news this morn-SC ing? Give you some scores if you would like. CAPCOM SC Any particular you interested in? CAPCOM SCUSC, UCLA. Okay. Walt, Penn State beat UCLA 21 to CAPCOM 6. SC Boo. And USC beat Stanford 27 to 24. CAPCOM homa beat Houston 21 to 17. SC That's a surprise. CAPCOM And here is a good one. Ohio State beat Purdue 13 to 0. Who beat Purdue? SC Ohio State. CAPCOM Apollo 7, Houston. CAPCOM SC Roger, Houston. CAPCOM Roger. Big news in the paper today was Apollo meets with second stage. What was that? That was the big news. Apollo meets CAPCOM with second stage, front page stuff. Almost makes it worth it. I tell you, you had three of us sweating up here. Apollo 7, Houston. Do you want to turn up your S-band? We are about 1 minute LOS Carnarvon.

SC Will go.

ous there.

CAPCOM And Apollo 7, just continuing with the morning news. Basically, the headlines this morning are

We will pick you up over Honeysuckle and - almost instantane-

CAPCOM all about the rendezvous. They had another heart transplant in Houston early this morning. It is going well at last report. Have you got the Air Force-Navy score, Air Force over Navy 26 to 20, Southern Cal over Stanford, Ohio State over Purdue, Texas 26 Oklahoma 20, Notre Dame beating Northwestern 27 to 7. Apollo 7, Houston. I have some flight plan updates here for you when you are ready to copy.

SC Roger, wait one. The last score we got was 27 to 7. Copy go.

CAPCOM Okay. At this G&N attitudes control test over Hawaii, we want to make sure that we have the high bit rate before we start it and we acquire Hawaii at 490845. It's a little bit different than is in the flight plan, we just wanted to make sure we had the high bit rate before we started it. The same way with the attitude control test which is at 5040. On Rev 33, the P52 IMU realign at 5130, we would like you to -

SC A little slower, please Jack.
CAPCOM Okay. The IMU realign at 5130, we would like you to use option 3 instead of option 2. We would like to keep the current rev map, and also we would like you to report your gyro torquing angles at the conclusion of this realignment.

SC Roger, got you.

CAPCOM Okay. The - at 52 hours to P20 navigation sunrise will be at 5206. This might be useful for your S-IVB tracking at 320 miles.

SC Roger.

CAPCOM And that's it right now.

SC Okay. I have a question here on the attitude control test. You've got high bit required 20 to 30 minutes on the G&N attitude control test, shortly thereafter you have 10 to 20 minutes of G&N attitude control test. How are we going to get all that and - are they going to get all that dumped so we can get our tape back?

CAPCOM Okay, stand by there. I'll get EECOM

on that.

SC Can't you get a lot of that in real time, rather than tapes?

CAPCOM Yes, we can. Stand by, Walt.

CAPCOM Apollo 7, say again.

SC We didn't call.

PAO This is Apollo Control Houston 47 hours 40 minutes. We are about to acquire through the ship Hunts-ville parked off the California coast and we'll monitor that conversation when and if it develops. For your information our orbit this morning is 120 by 155 nautical miles. 120 by 155 miles. And for those keeping precise times of the starts of revolutions, the next Cape crossing time will be at an elapsed time of 47 hours, 54 minutes, 32 seconds. That will be the start of the 31st revolution. Here's the pass.

CAPCOM Apollo 7, Houston. Apollo 7, Houston

through Guaymas.

SC Roger.

CAPCOM Roger. We'd like to get some continuing remarks on your habits there; how things are going, your living conditions, sleep and crew condition, and things like that. By the way, Walt, we would like to ask you how you are feeling this morning and if that one actifed that you took helped out.

SC Roger, I took one actifed; my nose was slightly stuffy last night but it didn't give me any problem while sleeping. I feel fine this morning. I feel in good shape.

CAPCOM Okay, real good news.

SC (garble)

CAPCOM If you feel like you want to take anymore

let us know, huh?

SC Roger, all of us are somewhat concerned on the same matter, but Wally seems to be getting a lot better too.

CAPCOM Okay, that's real fine news.

SC (garble) a little while up here, the world is (garble) at this time, we're still (garble) around and no extra time (garble). Little exercise now and then; good sleep.

CAPCOM Okay, that's fine.

SC I got 7 solid hours of sleep last night and Walt had just about 6 and he's still asleep.

CAPCOM Okay, that's fine.

SC (garble) update here. Several things, small things, but most of the things we (garble). Normally on the (garble). The sleeping bag is not, really not effective and (garble) and we all feel kinda that way.

CAPCOM Okay, copy that.

SC Other than that I think it is rather amazing how well and quickly we all went to sleep.

SC Okay.

CAPCON You might log that - from my personal observation at least, that there's far too much sweet in the diet, and I feel like we have more food than we need. I think Wally feels the same way. Don seems to be eating

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most of his though.

CAPCOM Okay.

SC I understand for a couple of days (garble) understand the whole deal in order to keep (garble).

CAPCOM Okay, copy.

SC Another comment is exercise is very, very good, will make you feel better up here. I find that after we're up here, oh about, around the middle of the first day, we started noticing that your lower abdominal muscles feel sore. Always in this seated position and there is certainly enough strain taken off them, and now they kinda want to bunch out and if we exercise once and awhile, we feel a lot better.

CAPCOM That's a good note. Copy that; that's real fine news. And Walt, sometime, Walt and Don, sometime after Wally gets awake and the three of you have a real good chance, we'd like to get a good status check of your windows.

SC Roger; I can give you that now if you'd

like.

CAPCOM Okay, let's do.

okay, window number 5 is still I'd say in very good shape. Nothing compared to the pictures I've seen of a bad window in Gemini. Window number 4 is still in good shape, I mean, no concern about taking pictures out of it at all. Window number 3 has been continually deteriorating since about the first day and you can see moisture collected on the inside of the outer pane and kinda spotty in the middle. You can see horizons out of it, but nothing more. Window number 2 is still in good shape. On the left front side of it, you can see a slight amount of discoloration that may eventually work it's way in on it. Window number 1 is similar to window 5 as it seems to have a lot of these little snow flakes settling on it and window number 1 is that close to the earth now and probably is pulling some air.

CAPCOM Okay, copy that. Okay, we'll have you all the way across the States and we'll just keep standing by.

SC Okay. You might make note that I haven't had any problems with food bags yet. Several comments though that the pill is supposed to be broken up and you're doing well when you get the pill inside the bag. I don't know anybody who's got fingers strong enough to break it. Also the chewing gum doesn't, gum doesn't have any velcro on it whenever it shows up and it's turning out that it's pretty significant that everything have a patch of velcro on it.

CAPCOM Okay, we copy that.

SC ... we have a (garble) on it.

CAPCOM Okay, we copy that.

SC Also, the wet wipe that's packed with the fecal bag, they do not have velcro on it and they need it.

CAPCOM Okay.

SC The temperature inside the cabin has been very comfortable. Wally and Donn put on their white coveralls. They got out of the suit. I've been in my y CWG ever since, and I guess when we start with the show business, I'll have to get dressed for it.

CAPCOM Okay, I copy that. CAPCOM Apollo 7 Houston.

SC Go ahead.

CAPCOM On the G and N control check that you were asking about, over Hawaii, that will be done over the States in high bit rate and real time. It won't require any DSE operation other than normal.

SC Roger, we will stand by for your veri-

fication that you have high bit rate data status.

CAPCOM
PAO
This is Apollo Control Houston 48 hours
O4 minutes into the flight. We are out at the far end of
the ship Vanguard's area of acquisition and we will probably
have no more contact for this pass. This pass did bring
us a very complete summary of the crew status on board and
among the things we heard was that Donn Eisele got 7 solid
hours, as Walt Cunningham described them, of sleep. Cunningham said he had 6 hours and he reported that Schirra was
still sleeping and he was still sleeping. We don't know
precisely how long Wally Schirra has been asleep. Cunningham
also reported some improvement in the - in what was beginning
to be described yesterday as sick bay. Schirra's cold is
better he said before he went to sleep, and he felt much
better after taking a decongestant tablet last night before Walt Cunningham took one before he went to sleep. At 48
hours and 05 minutes into the flight, that is our situation.

Houston, this is Apollo 7. SC Go ahead 7. CAPCOM We've got a lock up in the comp Roger. SC Could you get a G and N bearing (garbled) cycle program 21. tell me anything on what to do to correct that? To get out of it? Okay, I understand that you are locked CAPCOM up into program 21? Is that correct? Garbled. SC Okay, standby 7, we're getting somebody CAPCOM to help us down here. Roger. Apollo 7, Houston. CAPCOM Garbled. SC Donn, can you tell us at what display CAPCOM you had in the program when you hit the PROCEED? Yes, I had - garbled. Could you say again? We missed the CAPCOM display. Apollo 7 Houston. I understand you CAPCOM had the time in there and it was going to intergrate ahead to figure out where you were, and that is the procedure you are talking about? That's right. SCRoger. CAPCOM What time did you put in there, Apollo 7? CAPCOM Garbled. SC Apollo Control Houston here. The comm PAO via Tananarive was a little rocky, but we did make out Donn Eisele reported he had entered a program into the computer and got a CAUTION alarm. Something wasn't going just right with the computer. No big crisis. We will look at it and talk about it some more over Carnarvon I am sure,

at which point we will be in - due to acquire there at 48 hours 41 minutes into the flight, 7 minutes from now. At 48 hours 34 minutes into the flight, this is Apollo

END OF TAPE

Control Houston.

Apollo Control Houston, 48 hours, 42 min-PAO utes into the flight. We have just tagged up with the crew through Carnarvon and here is what it sounds like.

ARIA 1, go remote. COMM

Apollo 7, Houston through ARIA 1. CAPCOM

ARIA 1, AOS. COMM

Apollo 7, Houston through ARIA 1. CAPCOM

Apollo 7, Houston through ARIA 1. CAPCOM

Apollo 7, Houston. Apollo 7, Houston. CAPCOM We're reading you 5 by. Apollo 7, Houston through Carnarvon.

Roger, hear you CAPCOM, Houston. Roger, real fine. Did you come out okay SC CAPCOM

on P21, Donn?

Yes, it finally quit intergrating, I'd SC already asked him to go to PU, so he went straight to PU. Okay, real fine. I've got some dis-CAPCOM

cussion on the primary evaporator to take up with Walt here.

He's listening, he's writing.

Okay, there will be a couple of procedures, CAPCOM so you might want to copy this down. What we would like to do is to determine the status of the primary water boiler and therefore, we intend to activate the primary evaporator over the stateside pass this revolution. So when you bring the evaporator on, Walt, we want you to open the back pressure valve manually for 2 seconds, since we're not sure of how much water is in the evaporator and this would minimize any possibility of carrying excess water through the steam duct and possible freezing it. Then on the ground cue over the States, we would like you to first put the glycol evaporator H2O flow switch to AUTO. Second put the glycol evaporator steam pressure to MANUAL. Third, go decrease for 2 seconds. Observe the temperature decay on the primary evaporator outlet. If you don't get any decay, we want you to go decrease for 2 seconds more. If you get a temperature decrease then, wait 30 seconds, place the evaporator steam pressure to AUTO. We'll watch it all from the ground, but if you observe any anomalies in your out of ground contact, we would like you to trouble-shoot per the malfunction procedures recorded on high-bit rate on BSE and report it to the next site. If you want any of this repeated, I'll go over it with you.

I could copy about half that fast, SC and I only got the first three steps, Jack. That pressure open for 2 seconds, do you want me to do that prior to getting

into the States?

No, we will do this when we hit the States, CAPCOM so we can watch it here. We will tell you when we've got

CAPCOM good data and then you bring it on, open it for 2 seconds. This will all be on ground cue. I'll read these steps again, a little slower, Walt. First step, H2O flow to AUTO; second, steam pressure to MANUAL; third, decrease steam pressure switch to DECREASE for an additional 2 seconds. Observe a - for a temperature decay on the vap-out temperature. Okay, if you don't get any temperature decay, decrease the steam pressure for 2 additional seconds. Then if you get a temperature decrease on the vap-out temperature, wait 30 seconds then place the glycol evap-out steam pressure to AUTO. Okay, if you get any anomalies and you're out of ground contact, trouble-shoot it per the malfunction procedures, recording it on high bit rate and we'll pick you up at the next site.

SC Roger, Jack, I got step 4. Decrease steam pressure for 2 seconds, watch the glycol evap-out

temperature decrease and disconnect set.

CAPCOM Okay, after temp decrease is observed, wait 30 seconds, then place the steam pressure switch to AUTO.

SC I have here decrease something for 2 additional seconds.

CAPCOM Okay, let me go over it again.

SC Two seconds.

CAPCOM Okay, you go to MANUAL, decrease the steam pressure for 2 seconds, that's three. If you don't get any temperature decay, decrease the steam pressure for 2 additional seconds. That's step four.

SC Roger, I understand that if I don't get any pressure decrease - temperature decrease in how long a

time period?

CAPCOM About 30 seconds, give it 30 seconds,

Walt, to note any temperature change.

SC Open the back pressure for 2 seconds, on your cue, (garble) to AUTO on cue. Steam pressure to MANUAL, decrease pressure for 2 seconds. Watch the glycol evap-out temp decrease, if no temp decrease, in 30 seconds decrease steam pressure for another 2 seconds. If I get a decrease, I wait 30 seconds and then go to AUTO. Any anomalies, I trouble-shoot.

CAPCÓM That's good, you got it. Okay, Apollo 7 you might want to turn your FM volume up, we're about to pick up Honeysuckle here. We'll just be standing by here,

we don't have anything special for you.

SC Okay, you might turn (garble) up so that these G and N (garble) transmit.

I didn't copy that, Donn. You were CAPCOM a little garble. And what rate do you want put in. SC Okay, standby. CAPCOM Apollo 7, Houston.
Apollo 7, Houston.
Apollo 7, Houston.
Got AGHT or rate, CAPCOM CAPCOM CAPCOM rate. Rate, Jack SC Okay, standby. CAPCOM

APOLLO 7 MISSION COMMENTARY, 10/13/68, GET: 485245

Apollo 7, Houston. CAPCOM SC

Roger, go Houston. Okay, Donn. What we would like to CAPCOM have is a spacecraft maneuver rate, a summary rate 1 degree per second or greater DAP we would like you to set 4 degrees per second in the rate.

PAO This is Apollo Control Houston, 49 hours 9 minutes into the flight. Hawaii is due to acquire momentarily and let's listen.

CAPCOM Apollo 7, Houston with an update.

CAPCOM Apollo 7, do you read Houston?

SC Roger.

CAPCOM Okay, Don. We have an update on DAP rate dead band we'd like you to set in; we would like you to set in two tenths of a degree per second for the rate dead band for this P and N attitude control test.

SC Okay, I got that in.

CAPCOM Okay, real fine. SC Jack?

SC Jack? CAPCOM Go ahead.

SC I'm not ready to do that one degree per second just yet; using too much fuel. Just go ahead and put it in G & N attitude hold at dead band for two tenths rate and then let it sit around here as long as you want to look at it.

CAPCOM Okay, you want. We copy that. We haven't picked up high bit rate here; we'll give you a hack as soon as we have high bit rate.

SC Okay. Ready to copy of logdata.

CAPCOM Roger; I'll give you that. Opposite on the first. Apollo 7, Houston. We have high bit rate; you can search the G & N attitude control test and Walt, I will give you the block data.

SC Roger; this is (garble) now.

CAPCOM Okay, block data for block number 6 as follows: 033-4C plus 314 minus 1450. 52 plus 05 plus 094335. 34-3C plus 200 plus 1500. 53 plus 21 plus 42. 4119035-3B plus 250 plus 1390. 054 plus 55 plus 07. 4143036 - 4A plus 250 minus 1659056 plus 46 plus 40. 4785037 - 3A plus 315 plus 1390058 plus 07 plus 174439. 3038 - 3A plus 283 plus 1374059 plus 42 plus 35. 4645.

SC Roger, read that code. 033 - 4C. 314 minus 1450. 0520509, 4335, 34 - 3B plus 200 plus 1500. 053 plus 21 plus 42. 4119035 - 315 plus 1390058 plus 07 plus 17. 4439. 38 - 3A plus 283 plus 1374059 plus 12 plus 85 and 4645; over.

CAPCOM Roger. Walt, we had a transition from Hawaii to Huntsville and I lost a little bit of it here. The second block was 034 - 3C instead of 3B. And I lost you right after 035 - 3B. Could you give me that down to the beginning of 037 - 3A?

SC Roger; I'll pick up. 035 - 3B; I got your correction. 34 - 3C and 035 - 3B plus 250 plus 1390. 254 plus 59 plus 07. 4143036 - 4A plus 250 minus 1659056 plus 46 plus 40. 4785; over.

capcom Roger, that's got it. We copied lines.

APOLLO 7 MISSION COMMENTARY, 10/13/68, GET: 490950 184/2
CAPCOM I have some time.

CAPCOM Apollo 7, Houston.

Go ahead Houston, Apollo 7.

CAPCOM On this primary evaporator activation we are going to wait until we get a RAD out temperature above 50 before we start it.

SC Roger. Do you have any idea about what time you want to do that? It doesn't get above 50 until after we have been in a daylight pass most of the time.

CAPCOM Roger. We are just discussing that now. It looks like the way it's coming up, it's going to be a little bit.

SC Roger. It hasn't been coming up, if you are talking about the evaporator outlet temperature, I assume. The odds of it coming about 50, it's going to be the latter part of the daylight pass.

CAPCOM No, we were talking about the rad out temperature, Walt, just so we can make sure that the boiler is going to really work.

SC Okay, I can show you a rad out temperature now and it's right about 50.

CAPCOM Gkay, stand by here.

CAPCOM We are only showing a rad out of 42 degrees and we are going to check cal curve right now.

SC Roger. I am reading 49 about on

border.

SC Right on the nose, 3 point scale.

Let's say 45 to 50.

CAPCOM Okay.

CAPCOM Apollo 7, Houston.

SC Go, Houston.

CAPCOM Okay, Donn. On that rad out, when we are reading 43 now and there is a big spread between your value and ours, and ours is correct according to the cal curve. So it will be a little bit yet before we get to activation of the evaporator.

SC Okay.

SC Houston, Apollo 7.

CAPCOM Go ahead, 7.

SC Do you have VHF now?

CAPCOM Affirmative. We are receiving VHF, we are simultaneous on constant.

SC Okay, fine. Thought for a while it seemed you were really on S-band.

CAPCOM Apollo 7 can you tell us what direction you are pointed relative to the sun?

SC Why don't you read our gimbal angles

```
and figure it out? You can probably
     SC
do it better than we can.
```

Roger. CAPCOM

It's coming in the left side window, SC

it's a little bit forward of it.

Okay. CAPCOM

Apollo 7, Houston. Apollo 7, Houston. CAPCOM CAPCOM Apollo 7, Houston. CAPCOM

Apollo 7, Houston, we are going to CAPCOM delay activation of the primary evaporator until Ascension. We will contact at Ascension in approximately 8 minutes. Apollo 7, Houston. Thirty seconds CAPCOM

to LOS Antigua.

CAPCOM Apollo 7, Houston through Ascension. Apollo 7, Houston through Ascension.

SC Roger. This is Apollo 7. We're standing

by for your evaporator procedure. I can (cut off)

CAPCOM Okay, Wall. we're going to wait until we get high bit rate here. We've got a keyhole effect which is going to delay our high bit rate for minute or so, and then we'll be ready to start.

SC Roger.

CAPCOM Apollo 7, Houston. We're ready to start on the primary evaporator test. You can open the back-pressure valve manually for 2 seconds.

SC Are you ready to receive this procedure? CAPCOM Okay. You want to put your water valve

to auto?

SC Want me to decrease for 2 seconds first

don't you?

CAPCOM Okay. Wall we want to go auto first on

the water valve.

SC (Garble) S-band.

CAPCOM Okay. Walt, read you 5 by. You want to

(cut off)

SC The depressure came down to .15 and

bicarb operator outlet pressure is coming down.

CAPCOM Okay. Understand.

SC I am going to go auto on the steam pressure

because the bicarb operator temperature is down.

CAPCOM Okay. We'd like you to hold it for

15 seconds.

SC Do what?

CAPCOM Hold off on putting the steam pressure valve to auto for 15 seconds here.

SC I had it in there - I just took it back.
CAPCOM Okay.

APOLLO 7 MISSION COMMENTARY, 10/13/68, GET: 495150

Okay, Apollo 7, you can put the steam CAPCOM valve pressure to AUTO now.

Roger; it's in order. (garble) test is

reading to you onboard.

Roger; we copy. Apollo 7, Houston, we capcom are about 1 minute LOS; we would like you to continue this procedure. Watch the glycol evap out temperature. If you get any anomalies then record it on the high bit rate; we'll pick you up over Tananarive.

Roger. What time for Canaries? Tananarive will be - 50 hours, 1 minute. CAPCOM

Okay.

This is Apollo Control Houston, 49 hours PAO 53 minutes into the flight. I doubt that there will be additional conversation through Ascension. We have been up now since 49 hours and 10 minutes into the flight, in other words, 43 minutes during this swing from Hawaii through Ascension. While there wasn't talk during the entire period, it was a busy period. As we got into the evaporator test to see how well that element of the cooling is working. Some information on the consumables that remains onboard, 755 pounds of propellant in the RCS tanks, the combined tankage reading 755, that is opposed to a take off propellant weight of 1 307 pounds. In the SPS system there remains 8 266 pounds against the take off weight of 9 555 pounds. The oxygen summary is 82 percent remaining in the oxygen tanks onboard I don't have the figure in pounds. 82 percent in each two tanks. At 49 hours, 54 minutes into the flight, this is Apollo Control in Houston.

PAO Apollo Control here at 50 hours 8 minutes into the flight. Via Tananarive we had this conversation.

CAPCOM Apollo 7 Houston through Tananarive.

SC Roger, Bob, and the water boiler seems to be operating normally now.

CAPCOM Okay, Real fine.

SC It evaporated normally after we (garbled)
CAPCOM I think he said it evaporated normally
since he left Ascension. I wonder if he is evaporating now.
CAPCOM Apollo 7, Houston. 1 minute LOS

Tananarive. We pick up ARIA 1 in about 3 minutes. We'll have continuous coverage through Carnarvon.

SC (garbled) Roger.

SC Apollo 7. CAPCOM Go ahead 7.

PAO And this is Apollo Control. That concluded the conversation and while ARIA is available, apparently there are no plans to carry any further conversations with the crew. Earlier we gave you a citation from the amount of the percentage of oxygen remaining, 82 percent, in pounds that goes like this: tank 1, 265 pounds of oxygen; tank 2, 268. At 50 hours and 10 minutes into the flight, this is Apollo Control Houston.

```
PAO
                    Apollo Control Houston here, 50 hours,
             We are talking to apollo 7 through Carnarvon.
17 minutes.
                    Houston, Apollo 7.
     SC
     CAPCOM
                    Go ahead.
                    In the flight plan we have (garble) about
5 plus 45 (garble) control 7.
     CAPCOM
                    Roger.
                    Took us 20 minutes. We performed that dur-
ing the tracking exercise for the rendezvous. I'd like to
hold off that type of PPO until after we have our third burn.
                    Okay, stand by.
     CAPCOM
     SC
                    Roger.
                    Apollo 7, Houston. We concur on delaying
     CAPCOM
the attitude controls test until after burn 3.
                    Roger; I think we met the requirement Jack.
but if we can check the data from the previous revs, we prob-
ably didn't get to do that one.
                    All right; let's do that.
     CAPCOM
                    We'll check it 7. Apollo 7, Houston.
     CAPCOM
                    Go ahead.
     SC
                    We're trying to get an inertial attitude
     CAPCOM
hold angle that we would like you to go to, to further eval-
ulate this primary evaporator and we'll try to get you these
angles early so you can take your time maneuvering there.
What we want to do is heat up these radiators as much as
possible and it won't have to be a tight attitude hold at all,
just want to get as maximum a heat on the radiator as we
can to give us a lot of confidence in that primary evaporator.
                    Roger; what type of time are you
     SC
talking about?
                    Next state side pass.
     CAPCOM
                    A11 go.
     SC
                    Apollo 7, Houston.
     CAPCOM
                    Go ahead.
     SC
                    Roger; we have a roll pitch and yaw
     CAPCOM
gimbal angle of, for this evaporator evaluation.
                    Good.
     SC
                    Okay, we roll 218 pitch 129 yaw 18.
     CAPCOM
                    Jack, is that 18 degrees?
     SC
                    Roger; 018, excuse me. Yaw is 018.
     CAPCOM
can maneuver there as slowly as possible and set up the max
dead band and we'll evaluate this over the States.
                    Okay, what time would you like this
attitude?
     CAPCOM
                    For the day pass Wally; over the States.
                    Okay, it'll be approximately 50 hours and
     SC
45 minutes.
                    Okay, real fine.
     CAPCOM
                    What we got 218 roll, 129 pitch and 018
     SC
yaw.
```

```
yaw.
                     That's 218 roll, 129 pitch, 018 yaw.
     CAPCOM
                     Copied that.
     SC
                     Okay. And 7, we have finished with the
     CAPCOM
loads, we have verified them with the computers; you're -
                             Jack, do you have an update for
                     Roger.
us?
     CAPCOM
                     Say again.
                     Do you have an update for us after that
     SC
(garble) load?
                     Roger; that was TSM and S4B. Roger; don't we do the update to (garble)?
     capcom
     SC
                     Okay; stand by. I have your nav check;
     CAPCOM
are you ready to copy?
     SC
                     Okay, go.
                     Okay. Sextant track time 051 plus 35
     CAPCOM
plus 0000 minus 2779 plus 02505. 1549.
                     Roger; 051350000 minus 2779 plus 02505,
     SC
1549; over.
     CAPCOM
                     Roger.
                     Correct read back?
     SC
                     That's a correct read back; that's
     CAPCOM
154.9.
                     154.9; roger and copy that.
     CAPCOM
                     Okay.
                     Okay, it looks like we're right on,
     SC
doesn't it?
                     Stand by.
     CAPCOM
                     (garble) updates.
     SC
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501740

189/2

APOLLO 7 MISSION COMMENTARY, 10/13/68, GET:

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APOLLO 7 MISSION COMMENTARY, 10/13/68, GET: 504200
                    Apollo Control here at 50 hours 42 minutes
     PAO
                  Momentarily we expect to be talking to
into the flight.
Apollo 7 through Hawaii. Lets listen.
                    Apollo 7 Houston through Hawaii.
     CAPCOM
                    Roger Houston. We're drifting in attitude
     SC
now.
                    Roger, real fine. Wally, when we hit
     CAPCOM
the states we'd like to switch over to a MIN dead band as
long as we are holding attitude for this radiator- or
evaporated evaluation. We'd like to switch over to a MIN
dead band and we'll kill that DTO that's in an attitude
control test at the same time. I will give you a call over
California when we would like to set in the MIN rate.
                    The dead band is (garbled) it's about
5 pounds an hour and I have done that during the rendezvous
maneuver.
                    Roger. We understand that. This will
     CAPCOM
only be for a minimum of 10 minutes.
                    Bill, that's about one pound.
     CAPCOM
                    I mean -
                    Prior to the SPS burns about 5 to 10 min-
     SC
utes each.
            (garbled)
                    And by the way, Houston, Hawaii is part
of the United States now.
                    Roger, I understand, Wally.
     CAPCOM
                    You are showing your age, Jack.
     SC
                    Houston, this is Apollo 7.
     SC
                    Go ahead 7.
     CAPCOM
                    There is something we have never made
     SC
                 It happened during spacecraft tests and does
note of before.
here as well. When the 12th maneuver is put in, the gimbal
drives reflect that maneuver even though the clutch current
is off. Plus or minus about a half a degree.
                    Roger, I understand.
     CAPCOM
                    It's something that normally might
surprise subsequent crews.
     CAPCOM
                    Okay, we copy.
                    No problem.
     SC
                    Houston, the reason we are resisting
     SC
burning up fuel is that we're not really -
                    We just had a good view of a contrail
     SC
enroute to Hawaii.
                            Opposite omni, 7.
     CAPCOM
                    Roger.
     SC
                    Roger.
                    Wally, we are having some more discussion
     CAPCOM
```

orbit. CAPCOM Roger, we understand.

SC

on that MIN rate over the states here. We'll let you know.

We're right on the (garbled) making an

APOLLO 7 MISSION COMMENTARY, 10/13/68, GET: 504200

190/2

SC SC It's still two updates later. On it 02, we log valid range.

```
CAPCOM
                     Apollo 7, Houston.
     SC
                     Go ahead.
     CAPCOM
                     Roger. We still want you to go ahead
and fit in that min rate, complete this G&N attitude con-
tro1 test. This will be the minimum cost fuel-wise right
now.
     SC
                     Roger.
                             The (garble) you got here is
exactly the same.
     CAPCOM
                     Roger, we understand.
                     Okay. I don't think you could under-
stand real well, we are still testing.
     CAPCOM
                     Roger, understand.
                     (garble) be prepared to debrief on
this subject when we get back.
     CAPCOM
                     Yes sir.
     CAPCOM
                     Roger, we are timing right now.
will give you a mark in 10 minutes and the test will be
complete.
     SC
                     Roger.
     SC
                     Deke, you look like wide open today.
     CAPCOM
                     Roger.
     SC
                     (garble) a little (garble) off shore.
Like you have about three or four (garble) today.
     CAPCOM
                     Okay, I haven't been outside for
about 6 hours so I don't know.
                     Jack, after this G&N burn, do you
want us to hold it and let's see if the (garble)
                     Roger, Wally. After we get through
     CAPCOM
this, you've got about 4 minutes left, then hold attitude
in the cheapest way possible.
                     Roger.
     CAPCOM
                     And as soon as we hit the night pass,
you are on your own.
                     Pearl Harbor looked beautiful today.
     SC
     CAPCOM
                     Say again, Wally.
     SC
                     I said the Harbor looked beautiful
today. We took a lot of good pictures with the Hasselblad
we got one of Houston, one of Tampa, that's about the rate. It takes about 3 minutes to recock it.
     CAPCOM
                     Roger, we copy.
     SC
                     Probably the loop inside is jamming
it up. It's in the box itself, not in the main shutter
mechanism and not in the magazine.
     CAPCOM
                     Okay, we copy that.
                     We recommend carrying at least two
of these boxes along and the accessories to go with them.
     CAPCOM
                     Roger, we copy that.
     SC
                     That's it.
```

```
Houston, a lot of water hasn't been
boiling since we - have you been putting all the heat on
the radiator or (garble)
                    We've been trying to get the max
     CAPCOM
heat on the radiator, we expect it to start boiling here.
We are showing a rad out now of 50.
                    Roger, so am I, but my glycol evap-
orator outlet sensors still seeing 48.
                                         Jack, give me a
reading when we go off this DAP control.
                    Roger. You have got about a minute
     CAPCOM
and three-quarters.
                    Okay, then I'll (garble).
                                                Just a
second, she's starting to boil. Let (garble)
                    Roger, we concur.
     CAPCOM
                    How long will that stay in the SCS
     SC
monitor?
                     Stand by one.
     CAPCOM
                    Are you observing my steam pressure
     SC
now?
                     For move in, darkness occurs, Wally
     CAPCOM
about 5120 5, 5125.
                     Then we are going to stop holding
     SC
attitude, right?
                     Affirmative.
     CAPCOM
                     Okay.
     SC
                     Houston, Apollo 7. Are you reading
     SC
my primary evaporator now?
                     Affirmative, 7.
     CAPCOM
                     Roger. You got the evaporator out-
let temperature overshot all the way down to about 34.
                     We confirm, and we show it coming
     CAPCOM
back up.
                     Okay Apollo 7, we've completed 10
      CAPCOM
minutes in min deadband, you can come out of min deadband
and go to the cheapest way possible for attitude hold.
                     Roger, SCS.
      SC
                     Apollo 7, Houston.
      CAPCOM
                     This is Apollo 7, go ahead.
      SC
                     Roger. We feel that for all pur-
      CAPCOM
poses your primary evaporator is working normally.
You can discontinue attitude holding.
                     Roger, all channels off.
      SC
      CAPCOM
                     Roger.
                     Shall I go ahead and operate the
      SC
 glycol evaporator then and see if we have a reoccurrence
 of the earlier trouble?
                     Affirmative and we will watch it
      CAP
 too.
```

APOLLO 7 MISSION COMMENTARY, 10/13/68, GET: 505200

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SC

Thank you.

PAO This is Apollo Control Houston, 51 hours, 15 minutes into the flight. You heard during that pass that any and all consideration - any and all concerns about the primary evaporator and suspected problems have been put to bed. The primary evaporator was pronounced working normally in all respects by the ground and by the crew in space. We also heard Wally Schirra report he had gotten several good pictures. He said he thought he got a good shot of Houston and a good shot of Tampa, Florida, and explained some difficulty they had had with a mechanism on the camera, which I didn't fully understand. At - with the Spacecraft half-way across the Atlantic Ocean, we're 51 hours, 16 minutes into the flight, on the 33rd revolution. This is Apollo Control Houston.

```
Apollo Control here, 51 hours, 29 min-
     PAO
utes from Ascension, we have this conversation.
                    Apollo 7, Houston through Ascension.
     CAPCOM
                    Apollo 7, Roger, line clear.
     SC
                    We're standing by.
     CAPCOM
                    Houston, Apollo 7, do you read?
     SC
                    I read you 5 by. we're standing by.
     CAPCOM
                    I took the camera apart and used some
nose cream and cleaned up some of the inner gears and it
looks like it is working alright now.
                    Roger, copy, and I have a flight plan
     CAPCOM
update on that - the pad for the star - sextant star count
whenever you are ready to copy.
                    Go ahead with your flight update plan,
Jack.
                    Okay, GETFR will be 53 plus 36, roll
     CAPCOM
will be 40, pitch will be 92, delay that roll. Roll will
be 4, pitch will be 92, yaw will be 35 niner. GET of sun-
set minus 12 will be 54 plus 18, roll will be 184, pitch 97,
yaw 35 niner.
                    Roger, GET sunrise 53 plus 36, attitude
     SC
004 for roll, pitch 092, yaw 35 niner. Sunset minus 12 min-
utes, will be 54 plus 18, roll 184, pitch 097, yaw 35 niner.
                    Roger, that's correct.
     CAPCOM
                    Okay. Houston, Apollo 7.
     SC
                    Go ahead, Wally.
     CAPCOM
                    Roger, we still have reservations about
     SC
                 It looks good to us, so far, but we don't
the SPS engine.
have any data from you though.
     CAPCOM
                    Okay, standby.
                    Apollo 7, Houston.
     CAPCOM
                    Go ahead
     SC
                    Wally, could you confirm your reservations
     CAPCOM
about the SPS engine that have to do with the GPI movement
that you observed.
                     (garble) we had a mission rule with the
Flight Director, that we would not go into the SMS which is
reserved until we knew that we had a good SPS engine.
                    Okay, we copy.
     CAPCOM
                     Roger, I'd like one more thing.
     SC
     CAPCOM
                    Okay.
                     (garble)
     SC
                    We understand. Standby (garble).
     CAPCOM
```

Apollo 7, Houston, through Tananarive. CAPCOM Roger. We got a report (garble) for the SC alignment, minus .420 minus .175 plus .149 (garbled).

Roger, Donn, I've got a .175 a .149, I CAPCOM

didn't catch the first one.

SC The first one was a minus .420.

.420 a triangle difference of 4 balls 1 CAPCOM

and say again to start.

(garbled) and on the angles the first was a minus, second was a minus, the third was a plus. Roger, copy, and Walt, is Wally on CAPCOM the line? Apollo 7 Houston.

SC Schirra speaking.

CAPCOM Roger. About the SPS problem, after discussing down here, our feeling is that the SPS is GO. However, we have a DAP service module RCS deorbit capability at the present time, and we are within 10 feet per second of an sps service module RCS deorbit capability.

Roger. That was our figuring too. like to hold that reserve as long as possible. After the full turn we'll get to the lower (garble), I think we'll

sum up afterwards.

CAPCOM Wally, we aren't able to read you this time with that last transmission over Carnarvon. SC Roger.

CAPCOM Ckay, Rev 33 TEP is a node 52 plus 04 plus 32 Longitude 139.2 degrees east, right ascension 05 plus 54.

Okay. Houston, Apollo 7.

When you talk about the SPS re-

Go ahead 7.

Roger.

sults now that you had observed on the ground?

SC

SC

CAPCOM

CAPCOM Go ahead.

SC What did you observe?

CAPCOM Okay, stand by.

CAPCOM Apollo 7 Houston. On the, we re-looked at all the strip charts on the SPS operation, small valves, the temperatures, everything on the SPS appears normal.

SC Was that a change of (garble)

CAPCOM Okay -

SC With permission, I would like to add this.

(garble) burn before I give out the SMRS -

CAPCOM Say again on the SPS number 3 burn?

SC I would like to get the SPS number 3 grid

in before I eat into the SMRCS fuel budget.

CAPCOM Roger; we're gonna look at that.

SC Roger.

CAPCOM We are about 1 minute LOS. Carnarvon

will pick you up in Guam in about 5 minutes.

SC Roger.

pAO And we're just about, or have lost signal through Carnarvon so we shut the wire down now; we have had additional discussion here regarding propellant paths. You recall that this is a subject that is difficult to understand without looking at the charts but we have essentially two ways to leave orbit and return to earth. One through what we call the hybrid mode, using the RCS thrusters and the other using the SPS engine and we are slightly under one red line but the controllers here feel like we are more than adequate in the other mode and that has been a point under discussion between the crew and the control center these last several passes. At 51 hours, 1 minute into the flight, this is Apollo Control Houston.

```
PAO
                      This is Apollo Control in Houston 52
hours 10 minutes into the flight. We are in touch with the
spacecraft through Guam and here is how it sounds.
                      Apollo \frac{7}{2}, Houston.
     CAPCOM
                      Apollo 7.
     SC
                      Roger, read you 5 by.
     CAPCOM
                      Garbled
     SC
                      Say again
     CAPCOM
                      Navigate by sunrise and the sextant.
     SC
                      Roger. If you decide to delete the
     CAPCOM
P52 realine at 55 hours in the flight plan you may go ahead
with your G and N and SPS power down early at your option.
                      Houston, Apolle 7.
     CAPCOM
                      Go ahead.
                      This will break you up. We're having
     SC
competition to see who can get the exergenies first.
                      Roger. I say again that if you decide
to delete that P52 realine at 55 plus 00 you can go ahead
and power down the G and N and SPS carly at your option.
                      Roger, understand that, thank you.
     CAPCOM
                      Go ahead 7.
                              We have S-4B at
                      Roger.
this time through the sextant.
     CAPCOM
                      Roger.
                      How far away is it now, Jack?
     SC
                      Standby, I'll got it.
     CAPCOM
                      Great.
     SC
                      Standby, Walt, we'll get it up to you.
     CAPCOM
                      Jack, that small panel lights are -
     SC
     CAPCOM
                      Say again, 7.
                      The small panel lights that were not
     SC
lighted was the (garble) panel.
                      Roger, copy.
     CAPCOM
                      Minus 0 (garbled)
     SC
                                            The S-4B is 312 miles
     CAPCOM
                      Apollo 7, Houston.
away.
SC Roger, we're seeing it loud and clear in here. I don't know if it will hold up throughout the
entire day pass because when I get this orange background from the 6 liner pad it might blot it out, but I'll keep
you advised.
                      Okay. You are I minute LOS Guam, Hawaii
     CAPCOM
in 7 minutes.
     SC
                      Roger (garbled)
                      Roger, we'll get you one.
                                                    If I lose
     CAPCOM
you here we'll get it to you over Hawaii.
     SC
                      Roger.
                      Apollo 7, ready with the update?
     CAPCOM
     SC
                      Roger.
```

APOLLO 7 MISSION COMMENTARY, 10,13,68, GET: 520950

196/2

CAPCOM Rev 33 TET of the node 52 plus 04 plus 32. Longitude 139.2 degrees east. Right ascension 05 plus 54.

This is Apollo Control Houston, 52 hours, PAO We're about to acquire through Hawaii. We'll 17 minutes. standby for that pass. CAPCOM Apollo 7, Houston through Hawaii. Hello Houston, Roger (Garble) that SC SIVB I think what happened, is the auto optics quit working or it wasn't working right and I saw it go out on top of the sextant and I never was able to recover it. CAPCOM Roger, Copy. SC Up to the time it happened, it seemed to be working pretty well I had done a few marks and it seemed to be pulling it in a little closer to the center although not as well as I had done on the previous run. CAPCOM Okay, we copy that. SC I think it deserves a pretty good plus so far. CAPCOM Apollo 7, i didn't copy that last part. Roger, this is CDR I say it deserves a pretty good plus so far. CAPCOM Okay, real fine. SC Don't want the boys in Boston to get too excited yet. CAPCOM Roger. HTV Huntsville AOS. CAPCOM Go ahead 7. SC Negative transmission. CAPCOM Alright. HTC Huntsville cannot achieve a valid range.

and two wheel log AGC too low, AGC too low.

```
APOLLO 7 MISSION COMMENTARY, 10/13/68, GET: 522750
                                                       198/1
                    (garble) mark 20 California.
     SC
                    Roger; copy.
     CAPCOM
                    Wally, coming over Texas and about in 3
     CAPCOM
or 4 minutes we'd like you to turn your S band volume up
and we're going to be transmitting S band only.
                    Roger; at 21 East Coast, West Coast,
California, is due to arrive us shortly.
                    Okay.
     CAPCOM
                    Give us a call when you want the volume
     SC
up Jack and -
                    Okay, you can turn S band volume up now
     CAPCOM
we are just about to acquire Texas.
                    Correction on (garble) upper third of
     SC
California.
                    Roger.
     CAPCOM
                    The Hasselblad is working fine with a
combination of oral grease removal and nose cream.
                    Roger; copy that. Apollo 7, Houston,
     CAPCOM
transmitting S band for back up check.
                    Roger; we read you loud and clear.
     SC
                    You are fine.
     CAPCOM
                     - looks very nice today; a lot of star
2, it looks like pretty good weather for the olympics.
                    Roger; copy that.
     capcom
                    (garble) 26 (garble) was a straight shot
     SC
down at the Coast of Mexico. Just south of Monterrey.
     CAPCOM
                    Roger; copy.
                    Looks like a nice day to be on the beach.
     SC
                    It sure does.
     CAPCOM
                    What's your temperature down there today?
     SC
                    It's pretty nice down here; we had fog
     CAPCOM
in the morning.
                    Roger. Magazine Q 24; Eastern Coast.
Houston, this is your captain speaking and we are flying
across the Gulf of Mexico. We are cleared to the Yucatan
Peninsula. The west coast of the Yucatan looks loud and clear
and we will give you a report on clouds on arrival.
                    Okay, and we are going back to VHF in
     CAPCOM
just a few minutes here so you can turn the S bands on in
the ground in just a few minutes.
                    Roger. 35 and 26 West Coast on VHF; we
     SC
are crossing now.
     CAPCOM
                    Roger; copy.
                    The magazine we are referring to is Q
     SC
for queen.
     CAPCOM
                    Roger.
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SC Garbled SC GArbled. We're here in northeastern South America. CAPCOM Roger, copy. Sounds like you got some scenic music SC coming up. CAPCOM Apollo 7, Houston. Could we get you to switch the BIOMED switch to the CDR? Fools rush in where Angels fear to tread. SC CAPCOM Roger we copy your switch position. SC Roger. Are you playing music, Jack? CAPCOM Negative. SC There's a song, "Fools rush in where angels fear to tread." That's why the remark. We have some very good music up here. CAPCOM It isn't me. SC Okay. How's the radar at this time? SC Okay. Houston radio station, just heard the call, it's FM probably. CAPCOM Roger, read your copy. You might call around twon and find out who played "Fools rush in where angels fear to tread" and about 2 hours and 26 minutes - 25 minutes.

Roger, we copy

END OF TAPE

CAPCOM

PAO This is Apollo Control 52 hours 56 minutes into the mission. Apollo 7 is at Ascension now. We will stand by through pass.

CAPCOM Apollo 7, Houston standing by, Ascension.

SC Roger, we read you loud and clear.

CAPCOM Roger.

PAO This is Apollo Control. Ascension has LOS now. In the Control Center, we are in the process of changing shifts, Flight Controllers from Glenn Lunney's team are briefing their counterpart on the Gene Krantz team. Astronaut Ron Evans has relieved Astronaut Jack Swigert as CAPCOM, so at 53 hours 02 minutes, this is Mission Control Houston.

201/1

APOLLO 7 MISSION COMMENTARY, 10/13/68, GET: 53:12:50

PAO This is Apollo Control, 53 hours, 12 minutes. Apollo 7 is over Tananarive getting an update at this time.

CAPCOM

H2 fuel cell purge. Roger. That's 54 for a full view and SC hydrogen purge at 5500.

Roger, at 57 plus 50 - 02 oxygen fuel CAPCOM

cell purge.

Roger, 02 purge at 5750. Roger, end of update. БC CAPCOM

pao This is Apollo Control 54:29 into the mission. We have about 6 1/2 minutes of tape from the tracking station passes during the news conference. Start back at the Guam station. The signal strength is a little bit low, but CMP Donn Eisele does discuss briefly during the Guam pass the telescope star count that he is doing. Indicates that he is able to see some stars, at least a little while after they come out of the darkness. We will play that tape now.

GWM 53:30:00, HAW 535445; HTV 540220,

GYM 540330; TEX 540721

CAPCOM Apollo 7, Houston standing by Guam.

GUAM Roger.

CAPCOM Apollo 7, Houston. Were you calling? (Pause) Say again, Wally. (Pause) Roger, understand. (Pause) Roger. (Apparently Capcom is able to read Apollo 7, but we hear nothing, not even garble.)

CAPCOM And you say the count is 50? (Pause)

Greater than 50? Roger?

Standby just one minute. We're into the telescope, all around the edge and there is a big broad band of light across the center and a blob down at the bottom and this light is slowly increasing in intensity and I suspect that in a few minutes it's gonna blot out the whole field of view.

CAPCOM Roger.

SC Roger, at 44 I see 10 stars. I can see Orion and the four corner stars and Sirius and a handful of others scattered around. There's about 10-12 stars.

CAPCOM Roger. 30 seconds LOS SC Roger. We are with you.

CAPCOM Apollo 7, Houston, request onboard BAT C voltage at your convenience.

SC Roger, I got battery C, 37 volts.

CAPCOM Roger. 37.

SC Has anybody taken a good look at the total load we have on bat A, bat D, I know we didn't get back as much as we expected to on battery A yesterday.

CAPCOM That's affirmative, Walt. We are looking

at it.
SC Hey, Ron --

CAPCOM Go-

SC I guess I'm leaning toward another battery charge if necessary a little further down the pike.

CAPCOM I see what you are saying. You think that we may require another battery charge later on sometime.

```
SC
                     Houston, Apollo 7.
     CAPCOM
                     Houston. Go.
     SC
                     Roger, we are standing by our second
(garble) at 54 hours into the flight.
     CAPCOM
                     Roger. Your second what?
                     Our second bag of lithium.
                                                 Incidentally
you might note that the ORDEAL storage box, after the ORDEAL
is out, and closed up again, makes a nice little locker
for stuffing things into. The little hole that's open -
you can stuff it into, then later dump it into the empty
tissue box.
     CAPCOM
                     Roger.
     *(Several short bursts of garble)
                    Houston, Apollo 7. Frame 34 on magazine
2.
    (garble) approaching the western coast of Mexico.)
     CAPCOM
                    Say again, Walt. Opposite omni.
     SC
                    Approaching west Mexico, frame 34,
magazine 2, cloud formation. Frame 30, Baja California,
frame 31 will be of LaPaz.
     CAPCOM
                    Apollo 7, Houston. Say again.
     SC
                    Frame 30, Baja California. Frame 31,
LaPaz.
     CAPCOM
                    Roger.
     SC
                    Frame 32, Puerto Vallarta
     CAPCOM
                    Roger.
     SC
                    (garble)
     CAPCOM
                    Apollo 7, Houston.
                                        30 seconds LOS.
Tananarive at 46 minutes.
                    Apollo Control at 54 hours, 37 minutes.
That is the end of the tape. Apollo 7 has started its
34th revolution a little while ago. About 10 minutes away
from acquisition at Tananarive now. We will come back up at
that time.
END OF TAPE
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PAO
                     This is Apollo Control 54 hours 46 min-
utes into the mission. Tananarive is about to acquire
Apollo 7. We'll monitor this pass.
     CAPCOM
                     Apollo - Apollo 7 Houston, Tananarive
standing by.
     SC
                     Roger. We've logged another food-bag
failure and we powered down at 5435 for a drifting site con-
figuration
     CAPCOM
                     Say again time, Walt.
                     At 5435 we powered down to the drifting
site configuration and I ordered a food-bag failure report.
     CAPCOM
                     Roger. How did the second one fail?
                     I Had the second one and it was A3, AOB
to the LSP, the chocolate pudding, but the failure occurred
at the spout where it comes out near the end and it seems to
be giving away near the (garbled).
     CAPCOM
                    Walt, I got part of that, but I couldn't
             Chocolate pudding bag failed, but I'm not sure
get it all.
how yet.
                     It failed at the yank end about
where the external seam would have made it impossible to
eat it.
     CAPCOM
                    Roger, I understand now.
     SC
                    Chocolate pudding (garbled)
     CAPCOM
                    Roger.
     SC
                    That last pass was on the western coast
of Mexico, we got several nice pictures of the harbor at
Acapulco, Mexico.
     CAPCOM
                    Roger.
     SC
                    Houston Apollo 7
     CAPCOM
                    Roger, go ahead.
     SC
                    Roger. I'd like to give you a report
on the way we're eating. We're eating I'd say, as much as
                  Which is about two meals a day, so far.
we can put down.
     CAPCOM
                    Roger.
     SC
                    I'd better change that to two and a half
meals a day.
     CAPCOM
                    Roger, Donn is a big eater.
     SC
                    Say it again.
     CAPCOM
                    Roger. Donn is a big eater.
     SC
                    That's a fact.
     SC
                    We've been over Mexico now, about 30 min-
utes of time, and doubled the (garble) on it, and there's
not much more we can do. If we're not hungry we don't eat.
I think we're all feeling chipper (garble).
     CAPCOM
                    Roger. That's good.
     SC
                    A subject that we are concerned about
```

is the chlorination of the drinking water. We're drinking

about as much as we can.

SC I'd say that we've drunk enough water to lower the quantity sufficiently to have a chlorine check. CAPCOM Say that again, Wally.

CAPCOM Apolly 7 Houston. Say that again about the Chlorine and potable water.

SC The advisability of adhering to our schedule on the potable water

CAPCOM Apollo 7 okay Houston. 30 seconds to LOS.

Mercury at 09.

PAO Mission Control Houston. We've had LOS at Tananarive. Much of that transmission was a little hard to copy. The quality wasn't too good. So the high points we were able to copy reported a second food-bag failure - the chocolate pudding bag. They reported that they had powered down as scheduled on the flight plan. Walt Cunningham reported getting some good pictures while on the West Coast of Mexico. And the commander, Wally Schirra, reports that they've been eating as much as they can get down and that works out to about two meals a day. He also reported that his cold has improved considerably. At 54 hours 56 minutes this is Apollo Control.

PAO This is Apollo Control, 55 hours, 10 minutes into the mission. The Mercury tracking ship has just acquired Apollo 7. We'll stand by for any conversation.

CAPCOM Apollo 7, Houston through Mercury.

SC Roger. Do you read that?

CAPCOM Roger, you're a lot better this time. Can you say again your question about the potable water chlorination?

SC Yeh, Ron, we - adding chlorine to the water quantity and has that decreased since we've been - taken off practically. And if the taste of the chlorine has not bothered us yet. And we feel we haven't taken enough water out of there to warrant adding chlorine on a 24 hour basis.

CAPCOM Okay, understand your question now, and

we'll check into it then.

SC Roger.

CAPCOM Apollo 7, Houston output on me.

SC Roger.

SC This is Apollo 7.

CAPCOM Houston, Go.

SC At approximately 20 minutes ago, the time rater evaporator ran into the same kind of problem it had earlier in the flight. The steam pressure went all the way down peg low and could not increase it by going to manual and the increase switch. I reserviced it for 2 minutes, and operated manually for another couple of minutes, and finally went back to auto auto. And it's been running fine for the last 20 minutes. Maybe longer, I guess, more like 30 minutes ago.

CAPCOM Roger, we copy.

SC Apparently in this case, what happened the evaporator drying out instead of the evaporator being frozen.

CAPCOM Roger.

SC I think, the main details about the 2TV-1 test received yesterday could be simulated as to what happened when entered the chamber a couple of times. And there might be something we could bring up that keep preventing in 64 or the next flight.

CAPCOM Roger, concur.
CAPCOM Apollo 7, Houston.

SC Go ahead.

CAPCOM Roger, we would like to confirm that

you have completed the H2 fuel cell purge.

SC That's affirmative, completed at

approximately 4 minutes past the hour.

CAPCOM Roger, thank you.

CAPCOM Roger, thank you.

PAO Mission Control, Houston. Guam which had some slight overlapping with the Mercury at this time has loss of signal. Their specific task spelled out in the flight plan for the next hour, and we have entered that portion of the flight plan where Command Module Pilot Don Eisele is due to sleep. At 55 hours, 19 minutes this is Mission Control, Houston.

APOLLO 7 MISSION COMMENTARY, 10/13/68, GET: 55:28:00, MC205/1

PAO This is Apollo control at 55 hours 28 minutes into the mission. Apollo 7 coming up on Hawaii now and the tracking ship Huntsville has overlapping coverage here, so this should be a fairly long pass.

CAPCOM Apollo 7, Houston, standing by, Hawaii.

SC garble.

CAPCOM Apollo 7, Houston, you were real weak,

say again.

SC Allow 10 clicks H2O LMP; 6 clicks CMP;

15 clicks CDR and 2 aspirin CDR.

CAPCOM Roger, I copy that.

CAPCOM 7 from Houston.

SC Go ahead.

CAPCOM You might be interested to know that the Oilers blanked Boston 16 to 0.

SC Very good, they must have really had their picture by now.

CAPCOM They're still in the running.

SC garble.

PAO This is Apollo control, 55 hours 35 minutes, Hawaii has LOS now. This is a quiet time in the flight plan, the control center just plans to monitor these - this pass - this remaining pass through the Huntsville. We'll come up, if there is any conversation on this pass.

APOLLO 7 MISSION COMMENTARY, 10/13/68, GET: 55:41:00 206/1

minutes into the mission. Apollo 7 went through the Hunts-ville pass without any conversation. The CAPCOM you heard pass up the score on the Oiler's game was Captain Allen B. Shepherd, this Country's first man in space who came in a few moments ago and is sitting down on the CAPCOM console with the regular CAPCOM, Ron Evans, and Astronaut John Young is also on that console. We have a little bit more information here on that telescope star count, Ron Evans reports that at the time that Donn Eisele reported seeing about 50 stars Apollo 7 was approximately four minutes into daylight. At the time he reported he could see ten stars he was about ten minutes into daylight. At 55 hours, 42 minutes, this is Mission Control Houston

pao This is Apollo Control at 56 hours into the mission. Apollo 7 started its 36th revolution just a few minutes ago. It is now down over South America. The spacecraft has been out of touch with tracking station since it left the Huntsville area - Huntsville tracking ship area in the Pacific. And we will be out of touch for about another 20 minutes. At that time we will be in range of the Tananarive station. This is Mission Control Houston.

PAO This is Apollo Control 56 hours 21 minutes and Apollo 7 is coming within range of the Tananarive station now. We will stand by and monitor that pass.

CAPCOM Apollo 7, Houston. Tananarive standing

by.

SC ... Apollo 7, Houston.

CAPCOM Roger.

SC Hey, Ron. Can you give me a readout on

my (garble)

CAPCOM Not this pass, Walt. We have no dead air. We should be able to pick that up Mercury though.

SC (garble)

({
(Long pause)

PAO This is Apollo Control 56 hours 29 minutes and Tananarive has LOS. We went through that pass without any conversation. The next station to acquire with be the tracking ship Mercury in the western Pacific. At 56 hours 44 minutes. This is Mission Control Houston.

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APOLLO 7 MISSION COMMENTARY, 10/13/68, GET: 56:44:20, 209/1
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This is Apollo control 56 hours 44 PAO minutes into the mission, Apollo 7 coming within range of the tracking ship Mercury, now. We will stand by through this pass. CAPCOM Apollo 7, Houston, Mercury. Roger, read you loud and clearly. SC Roger, loud and clear. We have data, we CAPCOM can check your 02 manifold pressures. (garble). Okay. SC SC (garble). Houston, say again. CAPCOM (garble). SC Roger. CAPCOM Apollo 7, Houston. CAPCOM Still GO. SC Roger, you're GO on chlorinating. CAPCOM draw a little bit out, before you chlorinate. Roger. SC Houston, frames 45 and 46 of magazine 2, SC were shot one minute ago. Roger. CAPCOM Apollo 7, Houston, opposite OMNI. CAPCOM Apollo 7, Houston, one minute LOS, S band CAPCOM volume up at 57 plus 03. 5703. SC Apollo control at 56 hours 52 minutes. PAO Apollo 7 is out of the Mercurys range now. Next station to acquire will be Hawaii at about 57 hours 2 minutes. This is

END OF TAPE

mission control, Houston.

pAO Apollo Control at 57 hours 2 minutes and Hawaii has acquired Apollo 7.

CAPCOM Apollo 7, Houston Hawaii

SC Roger Houston. ...

CAPCOM Roger same. Seven, Houston. I have block data to pass up and also we are standing by for the O2 thing that you wanted to do.

SC Okay, ready to go on the block.

Roger. Zero three nine slant three Bravo CAPCOM plus two one two plus one three four five zero six one plus one seven plus five three four nine zero zero four zero dash Alpha Charlie plus zero zero seven minus zero one nine nine zero six two plus zero seven plus four zero four three six five zero four one dash Alpha Charlie plus one three four minus zero two two nine zero six three plus four three plus four six four one six eight zero four two dash two Alpha plus two two nine minus zero two six four zero six five plus one nine plus four three four one two eight zero four three dash one Charlie plus two zero six minus zero five four nine zero six six plus four seven plus two two four one two nine zero four four minus one Alpha plus two five seven minus zero six four nine zero six eight plus two zero plus five nine four one four four. Over.

SC Roger, we got those. Zero three nine slash three Bravo plus two one two plus one three four five zero six one one seven five three four nine zero zero zero four zero slash Alpha Charlie plus zero zero seven minus zero one nine nine zero six two zero seven four zero four three six five zero four one Alpha Charlie plus one three four minus zero two two nine zero six three four three four six... one six eight zero four two ...(Loud noise)

CAPCOM Apollo 7, Houston.

SC Roger. ...where did I leave it? CAPCOM Roger. Start again with Rev 42.

SC Roger. Zero four two two Alpha plus two two nine minus zero two six four zero six five one nine four three four one two eight zero four three one Charlie plus two zero six minus zero five four nine zero six six four seven two two four one two nine zero four four one Alpha plus two five seven minus zero six four nine zero six eight two zero five nine four one four four.

CAPCOM Apollo 7, Houston. Read back correct. SC Are you ready to take care of our 02

rig.

CAPCOM Roger, go.

APOLLO 7 COMMENTARY, 10/13/68, GET: 570215 (CDT 7:05P) 210/2

Roger. Will you give us a readout now... SC

Say again. CAPCOM

Will you give us a readout now and then SC

we will switch regs.

Roger, one zero five. CAPCOM

Roger, one zero five. Okay, do you get SC

a readout?

One zero two. CAPCOM

Roger, UCF's redundant component check SC

is go.

Roger. Apollo 7, better turn S-band CAPCOM volume down.

Huntsville, two wheel on down range. Apollo 7, Houston. One minute until LOS CAPCOM

Tananarive at 58.

This is Apollo Control at 57 hours, PAO 13 minutes, and we've had LOS at the Huntsville which had a slight bit of overlapping coverage with Hawaii. Apollo 7 is on the orbits now that sweep down over the Southern Hemisphere, takes it off much of the tracking range. We have a very low elevation pass 1 degree at Tananarive. may try to raise the spacecraft there, but the flight plan does not call for any further communication till we get to the Mercury, the tracking ship in the West Pacific. The Mercury is due to acquire at 58 hours, 19 minutes, 33 seconds. Flight plan activity scheduled during this long period of silence includes purge, an oxygen purge of the fuel cell. We completed the hydrogen purge an hour or so ago. crew is also scheduled to chlorinate the portable water during this time and to change the change the lithium hydroxide canister. This block update that you just heard passed up this time is the information the flight crew would need to re-enter on those orbits on which they re out of touch mainly with the range. We passed up that necessary information for the next several revolutions so that in the event of a contingency that would have that information and would be able to re-enter without being in direct touch with the tracking station. At 57 hours, 15 minutes this is Mission Control, Houston.

## APOLLO 7 COMMENTARY, 10/13/68, GET:580200 (CDT 8:05p) 212/1

PAO This is Apollo Control at 58 hours 2 minutes. Apollo 7 has just completed that very short lowelevation pass at Tananarive. There was a very brief bit of conversation there. We'll play that tape for you now.

SC (Garble)

CAPCOM Apollo 7 Houston, Tananarive standing

by.

SC Roger

CAPCOM Roger, loud and clear.

SC (Garble)

CAPCOM Roger. That short pass, 1 minute to

LOS.

APOLLO 7 COMMENTARY, 10/13/68, GET: 581930 (CDT 8:22p) 213/1

PAO This is Apollo Control, 58 hours and 19 minutes into the mission. The tracking ship Mercury has acquired Apollo 7, the Mercury is having a problem with their unified S-Band antenna and we will not get any S-Band data, but will stand by for some voice communication.

SC Roger

SC Houston, Apollo 7

CAPCOM Houston, go

SC Roger, for your flight plan status we've accomplished everything scheduled on the flight plan, we had a little bit of trouble getting all of the pictures, I don't think our camera is working too good.

CAPCOM Roger, it would be in a hot spot its not

working too good.

SC We've got it fixed, its ticking along now. We only took two holders on the 0368 on the 16mm, one for the separation and turn around maneuver and one on the final phase of the rendezvous. We are going to be using some of it out the window if it seems appropriate.

CAPCOM Roger

pao Apollo Control at 58 hours, 26 minutes we have LOS at the Mercury, now. Walt Cunningham reported that the crew did accomplish the flight plan items and that would include the oxygen purge of the fuel cell, the change of the lithium hydroxide cannister and chlorinating the potable water supply. He also reported that they had had a little problem with the camera but it appeared to be clicking along all right now. Next station to acquire will be Hawaii at 58 hours and 37 minutes. This is Mission Control Houston.

This is Apollo Control at 58 hours PAO 37 minutes, and Apollo 7 is within range of the Hawaii station now. Apollo 7, Houston, Hawaii. CAPCOM Apollo 7, Houston. CAPCOM Apollo 7, Houston. CAPCOM Apollo 7, Houston. CAPCOM Apollo 7, Houston. CAPCOM Apollo 7, loud and clear. SC Roger. Your number 2 flow proportioning CAPCOM valve has been doing a good job this last rev, and we reccommend returning to ECS radiator flow control number 1, by switching to number 1 then back to auto. What's wrong with that number 2's job? Rog. We just prefer to stay on number 1 CAPCOM as it has a little better You mean it goes to a smaller number, or what? Okay, we'll return to 1 for you. We were wondering when you would spot that. CAPCOM Rog. We checked it with Mercury, the last time around. We're kinda afflicted today, Ron, bear SC with us. CAPCOM Roger. Walt, on the battery charging - we're CAPCOM not considering any additional battery charging of A until we observe what happens when we charge Battery B. Rog. I understand, but we already SC arranged - to expect Battery B to go up to about 35 or 36 amp hours too, which shouldn't leave us in very good shape, I don't believe. I understand your concern. CAPCOM Rog. Walt we need some command module heater temps when you get a chance. They're 5 and 6A through D on your system status. No hurry. SC This is Apollo 7. CAPCOM Apollo 7, Houston, go. Rog. In about, oh it must have been a CAPCOM little over an hour and half ago, we had another anomaly like on the first night when Donn was awake all of a sudden the DC plus 1 went to 0 on the readout DC button light (Too much static to hear) Walt, say again after the AC button light CAPCOM went through a keyhole. Well, something is taking the inverter off of AC button 1 and we're getting (garble) right back on

again (Too much static to hear).

APOLLO 7 COMMENTARY, 10/13/68, GET: 583730 (CDT 8:40p)

Roger, it looks like the same thing that happened to Donn, then.

SC I'd say that it is.
PAO This is Apollo Control, 58 hours 43 minutes. We have LOS at Hawaii. We pick up the tracking ship Redstone beginning with this revolution. Acquisition there at 58 hours 52 minutes.

```
PAO
                    This is Apollo Control 58 hours,
52 minutes.
             We're coming up on the Redstone and we will
attempt to get some more information from the crew here
concerning the restart on this AC bus.
     CAPCOM
                    Apollo 7, Houston switch on.
     SC
                    Go ahead.
                    Apollo 7, Houston, could you confirm
     CAPCOM
that when you had the ACs fail, was it AC bus or an AC
overload light?
     SC
                     (garbled)
     CAPCOM
                    Say again, Walt.
     SC
                    (garbled)
     CAPCOM
                    You're awful weak, Walt, say again.
     CAPCOM
                    Apollo 7, Houston.
                    Houston, Apollo 7, did you read my
last communication?
     CAPCOM
                    That's negative, say again.
     SC
                    Roger, I had AC bus 1 light on, no
           The inverter was automatically disconnected, and
overload.
one of the boosters had possibilities with that inverter
putting out an over loadage.
                    Roger, we're working on this. Can you
     CAPCOM
associate this with anything else that was going on at that
time.
                    That's negative.
     SC
     CAPCOM
                    And it wasn't associated then with the
slow proportioning valve switch over.
     SC
                    Not associated with anything that I can
think of.
     CAPCOM
                    Roger. You're not going to luck out.
     SC
                    This one is going to be a rich one, Ron.
     CAPCOM
                    Yeh, I think so.
     SC
                    This is one of those things that's never
           It's a small thing, but it means keeping a watch
happened.
all the time.
     COMM.
                    Yeh, I don't think there's anything you
can do about it ron. I'm just reporting that we have had it
happen twice.
                    Okay, we're questioning the range down
     CAPCOM
here to see if they wouldn't come up with something.
     COMM.
                    It'll give you something to do during
passes anyway.
     CAPCOM
                    Apollo 7, Houston, 1 minute LOS, Ascension
at 19,
     SC
                    Roger.
     PAO
                    This is Apollo Control 59 hours into the
```

mission. Restone has LOS now. As you heard the AC bus 1 light came ON now. A bus is the - an electrical distribution system. Walt Cunningham reported no overload, but he wondered if inverter number 1 might be putting out an over voltage. The power comes out of the fuel cells DC, direct current, and these inverters invert it to alternating current. As you heard, the cognizant flight controllers here have taken these clues they were able from the crew and are now working the problem. That is not considered a real problem at this time, but the - they would like to track down the source of this anomaly if they can. The next station to acquire will be Ascension at 59 hours, 19 minutes. This is Mission Control, houston.

## APOLLO 7 COMMENTARY, 10/13/68, GET: 591900 (CDT 9:20P) MC216/1

This is Apollo control 59 hours 19 minutes into the mission. Apollo 7 is coming up on a fairly low pass, the Ascension station. We will stand by through this pass. Apollo 7, Houston, Ascension standing CAPCOM by. Apollo 7, Houston, Ascension standing CAPCOM by. Roger, hear you loud and clear. SC Roger, same. CAPCOM Apollo 7 (garble) the United Stated for SC our (garble). Roger, standby. CAPCOM Apollo 7, Houston, ready to copy. CAPCOM Okay, ready to go. SC Roger, rev 38, GET node 59 plus 32 plus CAPCOM 03 longitude 24.7 east right ascension 05 plus 44. Say the longitude again, please. SC Longitude 24.7 east. CAPCOM Was that 24.7. SCRoger, 24.7. CAPCOM Thank you. SC This is Apollo control 59 hours 25 PAO We've had LOS at Ascension now. The tracking minutes. ship Mercury in the western Pacific will aquire at 59 hours

55 minutes - at 59 hours 25 minutes. This is mission

END OF TAPE

control, Houston.

APOLLO 7 COMMENTARY, 10/13/68, GET: 595430 (CDT 10:00p) 217/1

PAO This is Apollo Control 59 hours 54 minutes into the mission. Apollo 7 in its 38th revolution around the earth coming up on the tracking ship Mercury in the Western Pacific now. Guam has overlapping coverage.

SC (Too much static to hear)

PAO This is Apollo Control. The tracking ship Mercury now reports having a problem with its COMSAT antenna. The antenna it utilizes to - connection with communication satellite. That leaves the ship with high-frequency capability only. We will probably wait until we get within Guam acquisition before putting in a call to the spacecraft. We'll continue to monitor through the rest of the Mercury pass.

CAPCOM Apollo 7, Houston, Guam standing by.
CAPCOM Apollo 7, Houston, 1 minute LOS Redstone

at 26.

SC Roger, We'd like to give the results of the rendezvous radar test and confer on the use of the rendezvous radar power. Would you pass that up to us Ron?

CAPCOM Say, again, Walt.

SC We have to know the position of the Rendezvous radar heater power switch and results of the rendezvous self-test. We don't have that onboard.

CAPCOM Roger. Awful hard to understand. Something about a power switch, and I'll guess which one. I'll find out.

SC Rendezvous radar, power switch and the preposition switch and the other end of it.

APOLLO 7 COMMENTARY, 10/13/68, GET: 601730 (CDT 10:11p)218/1

SC Power switch, and its a prepositioned switch, the other end of it (garbled)

CAPCOM Roger

PAO This is Apollo Control, 60 hours, 6 minutes, Guam has LOS now. Apollo 7 will be within range of the tracking ship Redstone at 60 hours, 26 minutes. This is Mission Control Houston.

```
APOLLO 7 COMMENTARY, 10/13/68, GET: 60:26:10 (CDT 10:30p)
                                                                219/1
                     This is Apollo Control, 60 hours,
     PAO
26 minutes into the mission. Apollo 7 coming up on the tracking ship Redstone now. We'll monitor this pass.
                     Apollo 7, Houston through Redstone.
     CAPCOM
- Apollo 7, Houston Redstone.
                     Roger, read you loudly.
     SC
                      Roger, a little weak but clear.
     CAPCOM
                     Roger, did you get the data on the
     SC
radar transponder switch.
                     Affirmative, are you ready to copy?
     CAPCOM
                      Go ahead.
     SC
                      Roger, the radar transponder power
     CAPCOM
switch, you put it to the heater for 1 minute and then
to power for the self-fell test. By the way, you leave 24 minutes
in heater if you are going to really operate it. Systems
pass left hand, then transponder right hand to Alpha.
Indicator should be 1 to 5 volts. Systems pass right hand
to Bravo. Indicator 2 plus or minus 1 volt. Systems pass
right hand to Charlie. Disregard the indicator. Systems pass right hand to Dog. Indicator should be zero to 4.5 volts.
Over.
                      I'm getting a very broken. We'll have
to wait for Ascension, I think, to get a good separator.
     CAPCOM
                      Roger.
                      Do you read, Apollo 7.
     SC
                      Apollo 7, Houston. Roger, read you
     CAPCOM
now.
                      Roger. You might try it again.
     SC
were (garbled) I couldn't read you at all.
                      Roger. Radar transponder power
     CAPCOM
switch goes to heater for 1 minute then to power.
                      Apollo 7, Houston. Is the COMM any
     CAPCOM
better now?
                      Roger. All's clear, you want to try
     SC
to read that off again.
                      Roger.
                             The radar transponder switch
     CAPCOM
goes to heater for 1 minute, then to power. Systems pass
```

left hand to transponder. Right hand to Alpha. Your indicator

1 to 5 volts. 7, Houston, you copy so far.

SC

Let's try to pick you up at Ascension.

CAPCOM

Roger, we'll try Ascension then.

SC

CAPCOM

Apollo 7, Houston, 1 minute to LOS.

Ascension at 52.

PAO

This is Apollo Control at 60 hours,

35 minutes. Apollo 7 beyond range of the Redstone now.

APOLLO 7 COMMENTARY, 10/13/68, GET: 602610 (CDT 10:30p) 219/2

That information that the Cap Com Ron Evans was attempting to pass up is the procedure for onboard testing of the radar transponder which will be used in connection of the Lunar Module radar tomorrow. The LM radar itself is at the White Sands, New Mexico test facility. It will attempt to lock on to the transponder onboard the Command Module as the Command Module comes over the White Sands area. Next station to acquire will be Ascension. At 60 hours, 52 minutes this is Mission Control, Houston.

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APOLLO 7 COMMENTARY, 10/13/68, GET: 605220 (CDT 10:55p) MC220/1
     PAO
                    This is Apollo control at 60 hours
52 minutes into the mission. Apollo 7 coming up on the
Ascension Island tracking station, now. We'll listen
through this pass.
     CAPCOM
                    Apollo 7, Houston.
     SC
                    garble.
     CAPCOM
                    Roger, I can continue with that trans-
ponder check now if you want.
                    Go ahead, I have the data for you, if
you're ready to copy.
     CAPCOM
                    Roger, ready.
     SC
                    garble. Alpha 3.2, Bravo 1.8,
Charlie 0.44, Delta 0.
     CAPCOM
                    Roger, I'll read back, 3.2, 1.8, 0.44,
and 0.
     SC
                    That is correct.
                                       Delta V to tab over
the point one at the most.
     CAPCOM
                    Roger.
     CAPCOM
                    Apollo 7, Houston, be advised of warm
up time for the real test on that thing is 24 minutes.
                    Roger, and we'll be using it for one
minute, right?
     CAPCOM
                    Say, again.
     SC
                    garble.
     SC
                    Apollo 7, Roger. Houston, Apollo 7.
                    Houston, go.
     CAPCOM
     SC
                    Before we prove that point on the
query they taste horrible right now.
                    It's two and a half hours after
injection.
     CAPCOM
                    Roger, we understand.
                    We've been asking it now for a long
     SC
time and now we will just have to wait or consider using
the survival kit water if it's necessary.
     CAPCOM
                    Roger.
     CAPCOM
                    Apollo 7, Houston.
     SC
                    garble.
     CAPCOM
                    Roger, we see no, biomed down link on
the LMP.
                    I wanted to fly, now I got to go get
     SC
it up.
     CAPCOM
                    Say it again, Wally.
                    Roger, we've got the cable all hooked
    SC
```

CAPCOM Roger.
SC We got down to keeping one man on watch at a time and that's going to help a lot. But we still need (Garble)

up.

## APOLLO 7 COMMENTARY, 10/13/68, GET: 606220 (CDT 10:55p) 220/2

SC (Garble)
CAPCOM Say it again
SC (Garble) How are you reading my heart?
CAPCOM Stand by.
SC Is my heart coming in five by five?
CAPCOM Roger, Walt we have it now, thank you.
CAPCOM Apollo 7, Houston. 30 seconds LOS
Mercury at 28.

PAO This is Apollo Control, 61 hours 1 minute. Ascension Island has LOS now. Here in the Control Center we are getting ready to hand over to the next shift of flight controllers. The next station to acquire Apollo 7 will be the tracking ship Mercury. At 61 hours 28 minutes This is Mission Control, Houston.

APOLLO 7 Commentary, 10/13/68, GET: 612030 (CDT 11:24p) 221/1

PAO This is Apollo Control. There will be a change of shift press conference here in Houston in approximately 15 minutes. That would be 20 minutes to the hour. This is Apollo Control.

This is Apollo Control, 61 hours. PAO 28 minutes into the mission of Apollo 7. We are coming upon acquisition with the Mercury tracking ship within a few seconds. Let's standby for that conversation. Apollo 7, Houston, acquisition Mercury. CAPCOM This is Apollo 7. SC Apollo 7, Houston, GO. CAPCOM SC Roger. We have a - have a (garble) Apollo 7, Houston. I will call you CAPCOM again in about 30 seconds. The signal is very poor. All I could copy is something about caution and warning panel. Apollo 7, Houston. You are unreadable right now. This is Apollo 7, say again. SC This is - this is Apollo Control, PAO 61 hours, 32 minutes. Communications have not been as desirable as could be wished for on this pass. We are still standing by live. It is possible since this pass runs into the Guam station, that will be the point where we will get better communications. Let's standby. CAPCOM Apollo 7, Houston. How do you read? SC (garble) Apollo 7, Houston. I read you about CAPCOM strength 1 and virtually unreadable. Roger. Are you ready to go? SC Roger. That is much better, GO. CAPCOM Apollo 7, say again. SC Apollo 7, Houston. At acquisition CAPCOM Mercury, you gave me a transmission. All I copied was something about caution and warning panel. Would you say again? Houston, this is Apollo 7. Just prior to crossing the Red Sea, we lost AC + 1 and AC + 2. (garble) Apollo 7, Houston. Understand just after crossing the Red Sea, you lost AC +1 and AC + 2. You have AC reset. I am going to wait over Guam and go over this again. I am missing too much of the transmission. Roger. We have to stand GO. SC Apollo 7, Houston. How do you read? CAPCOM Roger, loud and clear. SC Okay, I am sorry to ask this. Would CAPCOM you repeat this again. But I did not get the full message there. I got something after passing the Red Sea, you had AC + 1 and AC + 2 failed. You did get reset on both buses. Is that correct? That is correct, approximately 61 hours SC and 14 minutes. While we were there, we had a master alarm but no caution and warning light indicated.

You had no caution and warning lights.

SC That is very true here. After you called we had a better ghost earlier in the mission. The AC wasn't really necessarily lost as the BUS went twice indicated back up again. We got a...and that is a manned condition or not.

CAPCOM Roger, understand you think it is a ghost. Now - you can make sure I have it correct. You do have both ac buses working normally now.

SC That is correct. I am not sure kind what kind of ghosts we have, but we have had master alarms and no indication as to the cause.

CAPCOM Thank you.

SC Hey, Bill. We got one more thing that may or may not be significant. But after I reset the master alarm with no caution to warning light but took the currents and all the fuel cells. And we were averaging well over 20 amps of fuel cells and now we are back to about 15. And at first I attributed that to a cycling load. I don't know. It could have possibly been 98 loads. I don't know.

CAPCOM Roger, understand. Immediately after reset, you monitored the fuel cell currents at 2.0 amps and they are now reading 15.0.

SC That is a negative. After the - master alarm, there was no caution to warning lights. At 6109 is when I noticed the fuel cell clearance. The other two cau-

tion and warning lights when the bus failed were at 6114, over.

CAPCOM Roger.

SC This is (garble)

CAPCOM Right. Apollo 7, Houston. We are getting a tape dump here at Guam and we will be taking a look at it and will be trying to give you a call at Redstone on this.

CAPCOM Okay, there is not much we can do right now but I would like to read out what we have left and continue with it.

CAPCOM Right. All I know is that there is a lot of cold cathode according to the...

CAPCOM Understand. Apollo 7, Houston, 1 minute until LOS, Guam, Redstone, at 01.

SC Redstone?

CAPCOM And Apollo 7, Houston, I would like to confirm my cannister change around the 58 hour point.

SC That is good. CAPCOM Thank you.

This is Apollo Control 62 hours 36 minutes into the mission of Apollo 7. We have tapes of our pass over the Redstone tracking ship and we just finished a pass over Ascention Island. We'll play those tapes now.

Apollo 7, Houston. CAP COM

Roger, Houston. Go ahead. SC

Roger. I was a bit optimistic. It'll take a little longer to look at those tapes, but we did get a dump over Guam and we'll be giving you our analysis of the situation as soon as we get it. Meantime, I'd like to go back over my notes and make sure that I have the story correct. Okay, the way I have it. At 61 + 09 you got a master alarm light with no caution and warning light? You read that master alarm okay.

You better release ... SC

At that time, fuel cell current was CAP COM averaging 20.0 each. At 61 + 14, you got an AC1 and an AC2 fail. Do you read that, both AC1 and AC2 successfully. At the time that you were talking to me, about 61 + 30, the fuel cells were averaging 15 amps, one five amps. That is the story as I have it copied. Apollo 7, Houston. Did you read?

Houston, Apollo 7. You read? Roger. Apollo 7, Houston. How do you CAP COM read me?

Read you fine now. How me? SC

I read you about 4 by 4. Did you get CAP COM my transmission there?

... correct. The time was 61 + 05

for the master alarm and 61 + 14 for the buss fail.

CAP COM Apollo 7, Houston. Copied the correc-

tion, 61 + 05 for the master alarm:

And the fuel cell loading may or may not be significant. That was the third AC buss one fail we've had and the first AC buss two failure and my ... onboard analysis track it down to a ... overvoltage but guiding onto both busses which seems kind of difficult.

CAP COM Roger.

Did you read? Houston, Apollo 7. Did SC you read.

CAP COM Roger. Go.

Did you read my last transcription, SC

Bi11. CAP COM Roger. Understand, you have - this is the third AC1 failure but the first AC2 failure you've experienced. Ah, you are doubtful, you are in question as to how a transit overvoltage can throw both AC's off line, is that your question?

That's affirmative. SC We're looking at it. We will be look-CAP COM ing at that and trying to give you a complete story as soon as we can put it together. Okay. And confirm we have a good tape SC running now. Stand by. Apollo 7, Houston. We are CAP COM rewinding the tape now. The tape will be yours at LOS. Roger. Thank you. LOS in about 3-1/2 minutes. Apollo 7, CAP COM Coming up on LOS Redstone. Ascension at 27. Houston. Roger. We'll be standing by. SC And the tape recorder is yours now. CAP COM SC Houston, this is Wally. Houston, this is Wally. Go. CAP COM You might just check into our Roger. SC There was a last bit of variance on inverter configuration. safety wiring. Roger. Check into the inverter safety CAP COM wiring. There's a new change in the ... that they had in the plan. CAP COM Roger. I think Wally's referring to the change SC where they disconnected the overload transit. Apollo 7, Houston. Apollo 7, Houston. CAP COM Roger Houston, Apollo 7. Go. SC AOS Ascension and we're still study-CAP COM ing the problem. Okay. ... not here right now, every-SC things normal. Roger. We just finished the playback CAP COM and are still looking at it. Good show. Old Wally is sacking out so I'll be minding the store in the meantime. Okay, Donn. Apollo 7, Houston. One CAP COM minute LOS Ascension, Mercury at 04. This is Apollo Control, 62 hours 42 minutes into the mission. As you heard, we're anticipating contact with tracking ship Mercury at 63:04. The tape was self explanatory and the master alarm light coming on and the procedures that were gone through, the reset was successful. The AC buss one and two fail, ah, of course the AC buss being distribution points for the alternating current to go to the various spacecraft circuitry. As of now, as you heard on the Ascension pass, Bill Pogue, here in the Control Center talked pAO to the spacecraft. Everything appears normal, the current for the fuel cells at present is normal on the last readouts. Last word, the spacecraft Commander Wally Schirra and the LM Pilot Walt Cunningham were sacking out. At 62 hours 43 minutes this is Apollo Control.

```
This is Mission Control 63 hours 04 min-
     PAO
utes into Apollo 7. We're coming up on the Mercury tracking
ship for a pass. Let's join the conversation.
     GODDARD VOICE Houston, Goddard Voice Conference.
                    Go ahead, Goddard.
     COMM
     GODDARD VOICE
                    How do you read?
     COMM
                    You're loud and clear.
                    Stand by, I'll put you back to confer-
     GODDARD VOICE
ence.
                    Thank you.
     COMM
                    Mercury network, GOSS conference.
     GODDARD VOICE
Mercury network, GOSS conference.
                    Mercury.
     MER
     GODDARD VOICE
                    Mercury network, how do you read?
                    Read you loud and clear.
                    Hear you the same.
     GODDARD VOICE
                    Apollo 7, Houston.
     CAP COM
     SC
                    Roger, Houston, Apollo 7.
                           Acquisition Guam.
     CAP COM
                    Roger.
     SC
                    Roger.
     CAP COM
                    Apollo 7, Houston. About one minute
                        Redstone at 36 and we'd like to
30 seconds to LOS Guam.
confirm biomed switch center.
                            Stand by.
                                       (garbled)
                    Roger.
     SC
                    Roger. Understand (garbled)
     CAP COM
                    This is Apollo Control, 63 hours
16 minutes into the flight of Apollo 7. Our next acquisi-
tion point will be the Redstone tracking ship at 63:36.
Like to give a little recap on a situation we had concerning
the AC busses. At 62 hours and one minute into the flight,
Astronaut Pogue in the Control Center requestioned Apollo 7
concerning a message that was hardly readable which had been
received at 61:27 from Astronaut Schirra, spacecraft commander,
concerning the caution and warning panel. Then at 62:01 as I
say, Astronaut Pogue indicated that we had had a dump over
Guam of data, we were analyzing it and again went through what
had happened onboard. In the period of the 39th revolution
at 61 hours and 05 minutes, the master alarm light had come
     There had been no caution and warning light previous to
that. It was also indicated then that the master alarm was
okay after reset. After that, at 61 hours 14 minutes the AC
buss one and AC buss two failed. They were reset successfully
at 61 hours 30 minutes the fuel cells were averaging 15 amp-
heres. Before that time, they were averaging 20 amperes of
       It was indicated by the spacecraft that this was the
third AC buss one fail during the flight and the first AC buss
two fail during the flight. The question from onboard came
could it be transient overvoltage, that if it were why would
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it fail both busses. It was also indicated that from the 20 down to the 15 amp level in output could possibly be due to the power down of the spacecraft or cyclic loads. Astronaut Schirra then indicated in this pass that back at the Control Center that we should check the configuration, the inverter safety wiring. that time, Astronaut Cunningham indicated that Schirra had reference to changes concerning overload sensors that they had gone over previously. Over Ascension at 62:27 in the 40th revolution, Cap Com Astronaut Bill Pogue, talked to the spacecraft at that time Commander Schirra indicated everything was normal, Pogue indicated that they had finished the playback and that it was under study concerning the AC buss one and two problem and at 62 hours 30 minutes Apollo 7 indicated that the command pilot Schirra and the LM Pilot Cunningham were now sacking out, which indicates that everything at that time, to them, appeared to be normal. After this pass, which was a very uneventful pass, we also assume that everything is normal onboard the spacecraft. At this time, from the Guam pass, we did not get any biomedical readouts again. That's a recurring situation, we're tracking that down. Until right toward the end of the pass, about the last 20 seconds of the pass. At 63 hours 20 minutes into the mission, this is Apollo Control

PAO This is Apollo Control, 63 hours, 36 minutes into the mission of Apollo 7. We are currently on a nightside pass. Approaching South America, we are coming within range of the Redstone Tracking Ship. We will standby for any possible conversation.

CAPCOM Apollo 7, Houston, acquisition Redstone.

Apollo 7, Houston.

SC Go ahead, Houston, Apollo 7. You're

very weak, GO.

CAPCOM Roger, We detected a CMC power uphold

over Guam. Was that a valid reading?

SC Yeau, that is correct. I powered it up and went state detector integrate and put it back down.
CAPCOM Okay, thank you. Apollo 7, Houston.

One minute until LOS, Redstone, Canary 07.

SC Roger.

PAO This is Apollo Control, 63 hours, 44 minutes into the mission of Apollo 7. We are winding up our fourtieth revolution about to enter on our fourty first revolution, go over South America and come up on the Canary Islands acquistion point at 07 that is 40 - correction - 6407. At this point, spacecraft commander and the LM pilot, Schirra and Cunningham have been some asleep for some hour, 1 hour and 15 minutes. Everything appears operating satisfactorily in the spacecraft. At 6345 this is Apollo Control.

pao This is Apollo Control, 64 hours 07 minutes into the mission of Apollo 7. We are approaching Canary Islands. Canary just had acquisition, let's join the conversation.

SC Roger Houston.

CAP COM Roger. ... we have about a 6-1/2 minute pass here and then it's going to be about one hour before we pick you up and that'll be over the Redstone.

This is Apollo Control 64 hours
13 minutes into the mission of Apollo 7. Things continue
quiet. The spacecraft has just lost acquisition with the
Canary Islands. The next point of acquisition for communication will be at 65 hours and 10 minutes with the Redstone
tracking ship. We have nothing coming up in the flight
plan until some 65 hours and 40 minutes where we have at
this time a planned Control Center flight plan update which
would be passed to the crew of the spacecraft. So, with a
long dry spell coming up, this is Apollo Control, 64 hours
14 minutes into the mission of Apollo 7.

pAO This is Apollo Control 65 hours 10 minutes into the mission of Apollo 7. We are coming up into acquisition with the Redstone tracking ship in a very few seconds. The last communication we had was some - almost an hour ago. We'll stand by and see what transpires in this pass.

CAP COM Apollo 7, Houston. Apollo 7, Houston. Apollo 7, Houston.

SC Roger Houston, Apollo 7.

CAP COM Apollo 7, Houston. How do you read me? Apollo 7, Houston, how do you read? Apollo 7, Houston how do you read? Apollo 7, Houston. Switch omni please. Apollo 7, Houston, how do you read?

SC ... Bill.

CAP COM Okay, good. I waited for confirmation because I'm going to read off a fairly lengthy figure. We have a procedure developed here to assist in locating the AC buss problem.

SC Okay, fine. Stand by and I'll get something to write it down on. Go ahead with your procedure

CAP COM Okay, you can probably do it as I call it out. First, switch AC buss with power in the following cabin fan.

SC Roger. Cabin fans are OFF.

Roger. Cabin fans are OFF. Next

glycol pump.

SC Stand by. Glycol pump on AC1. CAP COM Roger. Glycol pump on AC1. Next

suit compressors.

CAP COM

SC Suit compressors on AC1.

CAP COM Roger. AC1. Do not change configuration.

SC Roger.

CAP COM Okay. Number two. We would like for you to check the six cryo fan circuit breakers on panel 226 and report if any are popped but do not push them in.

SC Stand by. Roger all the cryo breakers

are in.

CAP COM Roger. Understand all of them are IN. Thank you very much. Opposite omni please?

SC Stand by.

CAP COM Apollo 7, Houston. We would like you to switch omni for maximum signal strength. We'd like to get some TM before we have LOS here at Redstone which is going to occur in about 45 seconds.

PAO This is Apollo Control 65 hours 20 minutes into the Apollo 7. During this pass at the Redstone

PAO tracking ship we passed up information to Donn Eisele trying to isolate the AC, the alternating current, buss problem that occurred before. We heard procedures where our Astronaut Pogue here in the Control Center was asking if the cabin fans were OFF, Eisele said yes, glycol pump and Eisele indicated it was on the ACl buss or distributing point for the AC power, suit compressors also Eisele said were on AC1 buss. He was then instructed not to change the configuration, leave it the way it was. Pogue then indicated that he would like to know if the six cryo fan circuit breakers could be checked and if any were popped, that is out, of the circuit. The reply from Eisele was "No, they were all in" and that ended the pass except for Pogue to request him to switch the omni antennas so we could get a maximum signal strength. The next pass we will have will be at Antigua, which will be coming up at 30 minutes, ah, 65 hours 30 minutes, 9 minutes from now. At 65:21 this is Apollo Control.

PAO This is Apollo Control, 65 hours, 30 minutes into the mission of Apollo 7. We are coming up in a few seconds in a pass over Antigua. Let's standby for conversation of that flight.

CAPCOM Apollo 7, Houston, acquisition Antigua.

Apollo 7, Houston, acquisition Antigua.

SC Roger, Bill, loud and clear.

CAPCOM Roger. Apollo 7, Houston, 1 minute until LOS, Antigua, acquisition Canary at 40. I will have a flight plan update at that time.

Roger, Bill. See you in about 4 minutes,

okay?

CAPCOM Roger. Four or 5 minutes, that is cor-

rect.

SC Okay.
PAO This is Apollo Control, 65 hours,
36 minutes into the mission of Apollo 7. In almost 4 minutes,
we will have acquisition at the Canary Islands at 40. A
little over - or less than 4 minutes from now, we'll come
up then to see what will be passed up concerning this
ac bus problem. At 6536, this is Apollo Control.

```
This is Apollo Control, 65 hours,
     PAO
40 minutes into the mission of Apollo 7. We are coming
upon acquisition in about 30 seconds with Canary Islands.
Spacecraft commander, Schirra and LM pilot, Cunningham, are
still in their sleep period. We are starting in on the
forty second revolution, and I feel there will be some
conversation over Canary Island. Let's listen in.
                     Apollo 7, Houston.
     CAPCOM
                    Houston, Apollo 7.
     SC
                     Roger. I have the flight plan update.
     CAPCOM
                     Let's have the update, Bill.
     SC
                     Roger. At 66 + 15, delete the radar
     CAPCOM
transponder self test.
                                         Delete the pass at
                     Roger, understand.
     ŠC
66 + 15.
                             At 6900, add unstow and set up
     CAPCOM
                     Roger.
TV camera.
                     Roger, understand, get out the TV.
     SC
                            At 69 + 50, delete the reference
     CAPCOM
                     Roger.
to H2 heaters on.
                             No heaters on, understand.
                     Roger.
     SC
                             At 70 hours, 70 + 00, add fuel
                     Roger.
     CAPCOM
cell 02 purge.
                             Fuel cell 02 purge at 70 hours.
                     Roger.
     SC
                     Roger. And that is 71 + 41, TV on.
     CAPCOM
                             You want the TV on at the same
                     Roger.
time when we plan to run the radar test, is that correct?
                     No, I think the - rendezvous radar test
     CAPCOM
                  You're right. Wait just a minute.
is - standby 1.
get this set up.
                     Okav.
     SC
                     Meantime, would you switch on me, please?
     CAPCOM
                     Roger.
     SC
                     Apollo 7, Houston. Would you confirm
     CAPCOM
                  We are having a little trouble on TM.
opposite on me?
                     Roger. I can see the area outside
     SC
BRAVO.
                             And that is the correct time
     CAPCOM
                     Roger.
for TV on.
                             TB on at 71 + 41.
                                                 Is that
                     Roger.
     SC
right?
                                    That is the end of the
                     Affirmative.
     CAPCOM
flight plan update.
SC Roger. If you don't want the TV on until Sunday, 1 hour and 40 minutes, I think we will hold
off in unstowing it. The thing is in the way when it is up,
and I would rather not be running into it all the time.
                     I didn't hear it.
      CAPCOM
```

Understand you want the TV running at the same time - or will be doing the radar test. That's affirmative. That's the confir-CAPCOM mation I get here.

All right. SC

Apollo 7, Houston, opposite omni CAPCOM

please.

Roger.

And Apollo says to Houston for your CAPCOM information, I am pretty sure this TV on time is tied into the Texas acquisition time.

Yeau, that figures. SC

Apollo 7, Houston. Would you confirm CAPCOM

the report the position on your PMP power switch?

Standby. PMP is a normal spot. SC

Normal. Would you go to OFF, please? CAPCOM

Roger. SC

Apollo 7, Houston, 1 minute LOS, Canary, CAPCOM

Carnarvon at 18.

SC Roger.

This is Apollo Control, 65 hours, 50 minutes into the mission of Apollo 7. In this last pass over Canary Islands, we had a flight plan update that consisted of deleting the radar - tests at 6 hours, 15 minutes. At 69 hours, adding an unstow and setting up of the TV camera onboard the spacecraft. At 69 hours, 50 minutes, they have deleted the reference to the H2 heaters on. At 70 hours, they added fuel cell oxygen purge. And the big one at 7141 into the mission - the schedule for the TV ON. The signal would be received at Corpus Christi, Texas. It would go through the conversion process, and then be released. Eisele asked at that point - indicated that it seemed to him that it was the same time as the rendezvous radar tests. CAPCOM indicated "Yes, you're right, and to standby." And then he came back and said, "That is the correct time, 71 hours, 41 minutes into the mission." Eisele indicated that they would like to hold off in unstowing the TV, if possible because it is in the way when they are moving around inside the spacecraft. CAPCOM Pogue at that point, indicated that as long as the time of 71 hours, 41 minutes into the mission was met for TV ON, they could do as they wished. It was also indicated that the time for TV ON, coincides with the Texas acquisition coming over the United States. At 65 hours, 52 minutes into the mission of Apollo 7, this is Apollo Control.

PAO This is Apollo Control 66 hours 18 minutes into the mission of Apollo 7. We're coming up now over Carnarvon, Australia. We should have acquisition in some 25 seconds from now. On our 42nd revolution, let's stand by for conversation.

CAP COM Apollo 7, Houston. Apollo 7, Houston.

SC Roger, Houston, Apollo 7, Go.

CAP COM Roger. Acquisition Carnarvon and I'd like for you to check a couple of things for us please. S-band normal mode PCM switch to PCM and the power amplifier barber pole.

SC Roger. Power amp in barber pole and

the PCM switch is in PCM.

CAP COM Thank you. Apollo 7, Houston. One minute LOS Carnarvon. Request S-band volume up for Honey-suckle at 25.

SC Roger.

CAP COM Apollo 7, Houston. Acquisition Honey-suckle.

PAO This is Apollo Control 66 hours 32 minutes into the mission. We had very little contact on that pass. We're coming up on Redstone tracking ship at 66:45. At 66:32 into the mission, this is Apollo Control.

PAO This is Apollo Control, 66 hours 46 minutes into the mission of Apollo 7. We're coming up on acquisition with Redstone, let's listen in.

SC Roger Houston.

CAP COM Apollo 7, Houston.

SC 7 Go.

CAP COM Roger. Have you made any change in

the Comm system, particularly TM settings?

SC Yeah, I took the recorder for about 30 seconds (garbled) haven't monkeyed with the TM setting.

CAP COM Okay.

SC Do you have that ... tape.

CAP COM Have we got what?

SC Roger. I put the tape in ... for 30 seconds to record something and then left it off so it wouldn't ... run.

CAP COM No, I don't think that'll do any

harm.

SC Are you receiving things on tape

dump.

CAP COM Did you go to up telemetry command reset? Apollo 7, Houston. Did you go to up telemetry command reset? Apollo 7, Houston. Apollo 7, Houston if you read go to S-band OFF to tape. Apollo 7, Houston. About 30 seconds to LOS, Antigua at 03.

PAO This is Apollo Control 66 hours 54 minutes into the mission. We had an exchange there between Cap Com and the spacecraft concerning telemetry. There's no big problem but in this particular pass we did not receive satisfactory telemetry from the spacecraft. Will no doubt contact them in the next station which will be Antigua at 67:03 into the mission. At 66:54 this is Apollo Control.

This is Apollo Control, 67 hours, 3 minutes into the mission of Apollo 7. We are now coming up in a few seconds with acquisition with Antigua. We will be starting in the forty third revolution of the flight of Apollo 7. Let's listen in.

CAPCOM Apollo 7, Houston.

This is 7. SC

CAPCOM Roger, acquisition, Antigua.

SC Roger.

I would like to get a confirmation on CAPCOM something. Did you go to command reset when you use the tape?

That's affirmative. SC

CAPCOM Roger. Ground advisors do not use DSE as voice log. We have lost TM subcarrier. And we can't get data while you are dumping. We're working on it; we're trying to fix it.

Roger, say again.

CAPCOM We're working a - lost TM subcarrier

problem.

SC Roger.

CAPCOM Also we would like S-band off to tape.

Roger, it's to take. SC

CAPCOM Thank you. Apollo 7, Houston.

Apollo 7. SC

Roger. Apollo 7, Houston. We would CAPCOM like for you to stay in the present comm configuraton until further advice. We are having some difficulties on that TM.

Roger, understand. SC

PAO This is Apollo Control, 67 hours, 13 minutes into the mission of Apollo 7. We have lost acquisition. Antigua will come up the Canary Islands in just about 2 minutes from now. We still have some - some telemetry problem. And they are figuring out what to do about it at this time. So we will just standby for the next pass at Canary Islands which should be in a minute or half or so.

CAP COM Apollo 7, Houston. Acquisition Canary. SC Roger, Houston.

CAP COM We'll be at Carnarvon about 50, I will

have a state vector for you then.

SC Roger. Understand.

CAP COM Apollo 7, Houston. Opposite omni.

Roger. Stand by.

CAP COM Apollo 7, Houston. One minute LOS Canaries. Carnarvon at 50. Would like POO at Carnarvon acquistion.

SC Roger, will have it.

CAP COM Thank you.

PAO This is Apollo Control 67 hours 23 minutes into Apollo 7. We are looking for the spacecraft over Carnarvon at 67 hours and 50 minutes. At that time, the last communication from Cap Com Pogue to Astronaut Eisele in the spacecraft was they wanted POO at Carnarvon which means the platform of the inertial measuring unit on board the spacecraft, part of the guidance system, to be in idleing position at Carnarvon. At 67 hours 23 minutes and going into our 43rd revolution around the earth with Apollo 7, this is Apollo Control.

PAO This is Apollo Control, 67 hours, 50 minutes into the mission of Apollo 7. We're coming up now on Carnarvon, and within about 25 seconds we should have acquisition. Let's standby for the conversation.

CAPCOM Apollo 7, Houston. SC Go ahead, Houston.

CAPCOM Roger, confirm to and accept.

SC Roger, I'm am too. I'm here to accept. I would like for you to take a look at this program alarmed 1105 that we have been getting off and on to the play. I got to begin you about 5 minutes ago.

CAPCOM Roger, standby. 46.

SC I do accept now.

CAPCOM Roger. Have a main check to go with the CSM now that it is coming up, if you can get ready to copy that. And I also have an update for the rendezvous radar tests.

SC Roger. Go ahead, it's your month check. CAPCOM Roger, month check. 071110000 minus

2 niner 14 + 14170, 15 niner 3.

SC Roger. 071110000 minus 2 niner

14 + 14170, 15 niner 3.

CAPCOM Readback is correct. When you are ready I can give you the rendezvous radar test update.

SC Go ahead with that update.

CAPCOM Roger. Starting with the aline.

70 + 58, 15 niner degrees, 055017, 71 + 3 niner, 71 + 43. SC Roger, understand. 70 + 58, 15 niner,

055017,71 + 3 niner, 71 + 43.

CÁPCOM Readback is correct. Don, I have a analysis to this ac problem. I'll go over it and see what your comments are.

SC Okay, go ahead.

capcom Okay, point 1, we have spent considerable time going through the data here. And we have noticed that the ac bus gliches are associated with the cycling off of 02 cryo fans. This has caused the ac bus to surge to over voltage. It seems as though this is only a problem at low power loads on the ac bus, but it has been noticed repeatedly.

SC Okay, that - sounds pretty logical.

CAPCOM Point 2, recommendation 02 fans, tank 1, off, do that. This will insure at 1 stays on line. If our analysis of the problem is correct.

SC Roger, what about ac 2, we have that

CAPCOM Roger, You have that one on. We will periodically switch02 fans, tank 1 back to the on position.

At the same time, 02 fans, tank 2 off. This will insure at

CAPCOM least 1 ac bus is protected at all times from this - 30 to over voltage.

SC Roger, I see. If we get fired up again, do you think we will still have this problem?

I'm not sure. It seems as though it is CAPCOM not nearly as much a problem when you're powered up, it is only when you're in a low power condition. The voltage control is more sensitive or tends to overshoot or something there.

SC Okay, I'11 turn tank 1 off for now.

CAPCOM Right, understand.

When are they going to get some (garble)

navigation tests?

CAPCOM Roger: we have taken that into consideration.

SC Okay.

CAPCOM Apollo 7, Houston; opposite OMNI.

SC Roger.

Apollo 7, Houston. We are having a little CAPCOM trouble getting the CSN nav up; if we don't do it, I'll read it up to you over HSK; that'll be about 67 plus 59 and will require S band volume up.

Roger. SC

CAPCOM Apollo 7, Houston.

SC Go ahead.

CAPCOM Roger; I'm going to have to read you the B27 update if you have the pad out there. Apollo 7, Houston; do you read?

CAPCOM Apollo 7, Houston. Apollo 7, Houston. We will not have to give you a B27 update where we were going to uplink it. Apollo 7, Houston; do you read? Apollo 7, Houston.

PAO This is Apollo Control 68 hours 8 minutes into the mission of Apollo 7. During this pass we heard Astronaut Pogue, our Cap Com here at MCC, update the command module computer on the program P-27 it's called. He updated for the rendezvous radar test and also indicated that the AC buss problem we had reached a tentative conclusion here in the Control Center and that was that the glitsch is associated with the cycle of the OFF position of both of the 02 cryogenic fans, that's the cryogenic oxygen fans, causes surging of the AC alternating current busses or distribution points to overvoltage conditions. That's a problem, it seems, at low loads on the AC busses. proposed solution was indicated to be that the O2 fans for tank number two should be ON, the O2 fans for tank number one should be OFF. If the above solution works out, if its correct, then the AC one buss would stay on the line. Periodically they propose to switch the 02 fans in tank number one to ON and the O2 fans on tank number two to OFF at that time thereby keeping one ON and one OFF at all times to test out this solution. In that way, one AC buss would be protected at all times from that overvoltage condition. This was acknowledged by Don Eisele in the spacecraft and this is the solution that they are now testing out. We anticipate a pass over the United States, will be in acquisition Texas at 68 hours 34 minutes. At 68 hours 10 minutes, this is Apollo Control.

```
This is Apollo Control 68 hours 34 min-
     PAO
utes into the mission of Apollo 7. Spacecraft is approach-
ing America. It will be over Texas very shortly at which
time we should have some updates for the crew. Let's join
the conversation.
                     Apollo 7, Houston through Texas.
     CAP COM
                     Roger, Houston, Apollo 7.
     SC
                     Roger. Good morning.
     CAP COM
                     And how are you doing?
     SC
                     Very good.
     CAP COM
                     Oh, very well.
     SC
                     Apollo 7, Houston.
     CAP COM
                     Go.
     SC
                     Donn, I've got your block data number
     CAP COM
eight for you also could you switch biomed switch to CDR
and could you confirm that you have turned the cryo fans
tank one OFF?
                     Roger. Cryo fan tank one is OFF and
     SC
Wally's still asleep, I believe he doesn't have his biomed
hooked up.
                     Okay, copy that.
     CAP COM
                     Will get it on him when they get up.
     SC
                     Okay, real fine.
      CAP COM
                     You can go with your block update.
     SC
                     Okay, if you're ready block number
      CAP COM
eight 045 dash 1A + 311 - 0638 069 + 57 + 34, 4259 046 dash
1A + 313 - 0638 071 + 33 + 1A, 4405 047 dash 1A + 272 - 0649
073 + 08 + 47, 4593 048  dash 4A + 297 - 1650 075 + 52 + 37,
4202 049 dash 4B + 318 - 1650 077 + 28 + 29, 4321 050 dash
3A + 265 + 1371 078 + 47 + 51, 4161.
SC Sorry, Jack, I'm going to have to ask
      SC
you to run this back in a little slower and it might do to
stop now and then so I can butt in and tell you if I'm
missing any.
                      Okay, Donn. I guess I'm a little
      CAP COM
faster than you are this morning. Ah, okay did you get -
ah, where do you want me to start? From the beginning?
                     Yeah, I think you might as well.
      SC
                     Okay, going back. 045 dash 1A + 311
      CAP COM
 - 0638 069 + 57 + 34, 4259 046 dash 1A + 311 - 0638 071 + 33
+ 18, 4405 047 dash 1A + 272 - 0649 073 + 08 + 47, 4593 048 dash 4A + 297 - 1650 075 + 52 + 37, 4202 049 dash 4B + 318
 - 1650 077 + 28 + 29, 4321 050 dash 3A + 265 + 1371 078 + 47
 + 51, 4161 end.
                      Okay, readback follows 045 dash 1A
      SC
 + 311 - 0638 069 57 34 4259, 046 1 alpha + 322 - 0638 071 33
 18, 4405 047 1 alpha + 272 - 0649 073 08 47 4593, 048 dash
```

4 alpha --

```
073 08 47 4593 048 plus 4 ALPHA plus
     SC
297 minus 1650 0755237 0202 049-0 BRAVO plus 318 minus 2690
07728294321 050-3 ALPHA plus 265 plus 1371 0784751 4161.
                    Roger.
     CAPCOM
                    Donn, could you read the latitude in
     CAPCOM
046-1 ALPHA?
                    That's plus 311.
     SC
                    Should be plus 313.
     CAPCOM
                    Roger, 313, thank you.
     SC
                    Okay, that's got it.
     CAPCOM
                    Jack?
     SC
                    Houston, Apollo 7.
     SC
                    Apollo 7, Houston, go ahead.
    CAPCOM
                           (garbled)
     SC
                    Roger.
                    I didn't copy that Donn, say again.
     CAPCOM
                    Okay. Point of pressure AT on the cabin
     SC
is 235 millimeters.
                    Roger, copied that, and Donn, we're
     CAPCOM
through at the computer now, you can go to BLOCK on your
upheld switch. Also you have a GO for 62-1.
                    Roger, understand, GO for 62-1.
     SC
                    This is Apollo Control 68 hours 48 minutes
     PAO
                   We are coming up on Canary Islands at
into the mission.
68 hours 50 minutes and 1 second from now so we will continue
to stay live for that 7 minute pass, after which time we
will have a wrap up of summary of the last 8 hours or so
                 So lets standby for anything from Canary.
of the mission.
                    Apollo 7, Houston, through the Canaries
     CAPCOM
standing by.
                    Roger. We are powering up the SCS for
     SC
the G and N at this time.
```

Roger, copy.

END OF TAPE

CAPCOM

SC Houston, Apollo 7.

CAPCOM Go ahead 7.

SC Roger, we took frames 44 through 47 on magazine 0, Oscar, at 68 hours and 54 minutes. This is a picture of the weather formations around the Canaries.

SC Okay, Roger, copy that. Donn when you get a chance we would like you to switch your flow proportioning valve to 1 then back to AUTO again.

SC Okay, done.

CAPCOM Thank you. Apollo 7, Houston. You're about 30 seconds LOS Canary. You sure look good going over the hill, we'll pick you up at Carnarvon in about 28 minutes.

the hill, we'll pick you up at Carnarvon in about 28 minutes.
PAO This is Apollo Control, 68 hours, 57 minutes into the mission of Apollo 7. CapCom has indicated the Spacecraft looks good going over the hill, and they will be picked up at Carnarvon at 69 hours, 25 minutes. We will have a not too brief, I'm afraid, rundown on the last 8 hours of operation in the Control Center here. Beginning at 61 hours, 27 minutes over tracking ship Mercury and revolution 39, Apollo 7 reported caution and warning panel problems. Their communication was hard to read. On the next station, the Redstone tracking ship at 62 hours, 1 minute in the same revolution, CapCom Pogue contacted the crew and indicated that the data was dumped over Guam and it was being analyzed here at the Control Center. A review of caution and warning panel problems followed and that review indicated that at 61 hours and 5 minutes, the master alarm light went on. At this time, the fuel cells were indicating over 20 amps or amperes flow for each one, average. There was no caution and warning light preceeding the master alarm light going on. They reset the master alarm satisfactorily and at 61 hours, 14 minutes, AC bus 1 and AC bus 2 failure occurred. Alternating current through the AC busses is a distributing point for the AC current to go to the several systems of the Spacecraft to utilize such current. After that failure, they reset AC bus 1 and AC bus 2 satisfactorily, then at 61 hours, 30 minutes, they noted that the fuel cells averaged 15 amps each. Astronaut Schirra indicated this is the third AC bus 1 failure and the first AC bus 2 failure. If it was due to transient over voltage, the question was why would both busses fail. The decrease in amps - amperage from 20 to 15 amps average could be due, it was indicated to the Spacecraft power down or a cyclic loads. He suggested that they - down at the Control Center here - check the configuration and the inverter safety wiring, at which point Astronaut Walt Cunningham, the LMP chimed in and indicated that he felt Astronaut Schirra was referring to

changes in the overload sensors. Over ascension at 62 hours, 27 minutes in the 40th revolution, CapCom Pogue again contacted the Spacecraft. Schirra indicated that everything was normal. Pogue indicated that they had finished the playback of the AC bus trouble and it was currently being studied here by the Control Center. Apollo 7 then indicated that the CDR, Schirra, and the LMP, Cunningham were sacking out now. Over the Redstone tracking ship, it's 63 hours, 38 minutes in the 40th revolution. Pogue contacted the Spacecraft and asked the question was the Command Module computer power up over Guam. Eisele indicated yes, it was for a short while, then it was switched off. Pogue indicated that the procedure at 65 hours, 14 minutes over the Redstone again, revolution 41, for isolating the EC bus problem. Pogue asked what position the cabin fan control in, Eisele indicated off. We asked the glycol pump position, Eisele indicated on AC bus 1 the suit compressor position which was on AC bus 1. Pogue then indicated that Astronaut Eisele should not change that configuration, also indicated that he should check the cryogenic fan circuit breakers, if any were popped out and if they were, not to push them. The reply from the Spacecraft was all of them were in. Over Antigua, at 65 hours, 35 minutes and revolution 42, CapCom Pogue gave the crew a flight plan update and that indicated that at 66 hours, 15 minutes they would delete the radar transponder self test. At 69 hours, they would add into the flight plan unstow and set up the TV camera. At 69 hours, 50 minutes to delete reference to the H2 heaters ON. At 70 hours, to add fuel 02 purge. At 71 hours, 41 minutes to incicate TV on. That would be 944 central daylight time. Eisele asked the question at that time, would the TV be scheduled to be on at the same time as the rendezvous radar test, over the stateside pass? Pogue replied, you're right, standby. Then he checked and came back to the crew, to Eisele with the information that that was the correct time. Eisele said, if the TV is not on until 71 hours, 40 minutes, he felt they would hold off installing the TV from the scheduled time of 69 hours, since it would be in the way of the crew members moving around in the Spacecraft. Pogue indicated 7141 is the correct time for TV on. And TV on coincides with the Texas acquisition. At Redstone again, 66 hours, 46 minutes, revolution 42, some telemetry problems were encountered. They received no telemetry here at the Control Center during that pass from the PM, pulse modulation, USB. Then over Antigua at 67 hours, 4 minutes, revolution 43, they are still working on the

APOLLO 7 COMMENTARY, 10/14/68, GET: 685300 (CDT 6:56a) 238/3

TM problem, they still had no PM and over the Canary Islands at 67 hours, 15 minutes on the same revolution, the same condition existed; however, they could receive and still can receive TM on the FM band of the USB, as a backup mode. There are two ideal prime modes on USB, pulse modulation, PM, is for the telemetry and also for the TV system; and FM, frequency modulation, is for dumps of information and real-time data. When - since the PM portion is out, that cuts out 50 percent of the capability of the USB, which simply means that the TM and the TV would have to alternate with dumps and real-time data, using the FM system as a backup mode. Over Canary Islands at 67 hours, 15 minutes, revolution 43 CapCom Pogue indicated that the inertial measuring unit should go to IDLE or PU as it is referred to at Carnarvon, and there is still no PM at that time, so they're still using the FM backup mode for telemetry and data dumps. Over Carnarvon at 67 hours, 50 minutes, revolution 43 CapCom Pogue talked to the Spacecraft again, and updated the Spacecraft with a program 27, Command Module computer update. Rendezvous radar test update and talked about the AC bus problem, which we have encountered. conclusion from the Control Center here was that the glitches associated with the cycle of OFF osition of both of the oxygen cryogenic fans, caused a surging of the AC busses or ...

which is associated with the cycle of PAO OFF position of both of the oxygen cryogenic fans, causing surging of the AC busses or distribution points, to overvoltage conditions. It seems to be a problem at low loads on the AC busses not at high loads. So the proposed solution was sent up to the spacecraft that the 02 fans on tank number 2 be turned on and at the same time the 02 fans on tank number 1 be in the OFF position. And if solution is correct, the AC busses would stay on the line. Then they would propose to periodically switch the 02 fans, tank number 1 to ON, and the O2 fans, tank number 2, to OFF. In this way, one AC buss would be protected at all times from overvoltage conditions. On the Texas pass we just had, at 68 hours 34 minutes, revolution 43, CAPCOM Pogue again contacted the spacecraft and asked for a confirmation of the 02 fans on tank number 2 were on and the 02 fans on tank number 1 were off. Astronaut Eisele gave him that confirmation and indicated that Schirra was still asleep. At that time, Astronaut Pogue relayed from Flight Director Jerry Griffin that they had a go for 62 dash 1, which means that they have a GO condition for 61 orbits. We are presently crossing Africa, we will come up on Carnarvon at 6925 into the mission. The commander and LM pilot, Schirra and Cunningham, should be awake at this time. They will all go into an eat period and we will start a new day at 69 hours 10 minutes into the mission of Apollo 7, this is Apollo Control.

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APOLLO 7 COMMENTARY, 10/14/68, GET: 692630 (CDT 7:32 a) 240/1
                    This is Apollo Control, Houston, at 69
     PAO
hours 26 minutes into the flight. And through Carnarvon this
morning Jack Swigert just established contact with a rather
sleepy sounding Walt Cunningham. Here is how that conversa-
tion is going.
                    Apollo 7, Houston, through Carnarvon.
     CAPCOM
                    Roger, Houston. Good morning Jack.
     SC
                    Good morning, Walt. How are you this
     CAPCOM
morning?
                    Fine.
     sc
                    We'll be standing by.
     CAPCOM
                    Hey Jack; I have a question on our low
     SC
quad, what quad; yesterday it was reading 47 percent
and we would like that (garble) pressure around the 3 percent
level and switch to secondary propellants and end the loop at
43; over.
                    Okay, stand by; I'll get you the NP on
     CAPCOM
that here. Apollo 7, Houston.
                    Go ahead Houston.
     SC
                    Walt, you are about 25 pounds away from
     CAPCOM
the point at which you should switch, which is about 6 percent
so you are quite a ways away so there is no need to hurry on
that now and we'll give you, when you start getting close,
```

a gage reading of which you should switch.

SC

Roger, and will we switch quad by quad?

CAPCOM Affirmative. Quad by quad.

SC Okay, (garble)
CAPCOM Say again.

SC -

CAPCOM Oh, a map update? Stand by.

Apollo 7, Houston. We'll be talking to you, we'll pick up
HSK in about 4 minutes; we'd like you to turn up your S band.

SC Roger.
CAPCOM And I have your map update Walt.

SC Go.

SC

CAPCOM This is for rev 43. The GET is at 68 plus 29 plus 00. Longitude of the node 112.7 degrees west, right Ascension of 05 plus 33.

SC Roger. Roger.

CAPCOM Apollo 7, Houston through Honeysuckle.

Apollo 7, Houston through Honeysuckle.

SC Roger; this is Apollo 7, can you read?

CAPCOM I read you fine now. We need to switch the biomed switch to CDR.

SC Roger. Won't do any good; he's not

plugged up.
CAPCOM
Okay, when he gets plugged up, would you
do it?

Okay, and I got a high pitched squeal on

APOLLO 7 COMMETARY, 10/14/68, GET: 692630 (CDT: 7:32 a) 240/2

S band; how about you?

CAPCOM Roger Walt. We've commanded backup voice there because we've lost the PM and we're going on FM now. We got the voice on the SM.

CAPCOM Roger, Walt. We are - we've commanded because we've lost PM and we are going on FM now. We've got the voice on the FM subcarrier.

SC Okay. What's the status on our tape

recorder?

CAPCOM Stand by.

CAPCOM Apollo 7, Houston.
Apollo 7, Houston.

SC Apollo 7 here.

CAPCOM Roger. Walt, when you want to use the tape recorder, go to low bit rate and record. When you are ready, when you are through recording and want us to dump it, let us know and we will interrupt real time data and dump it.

SC Is this a change for our normal operating procedures for the flight? I am not reading you any

more.

CAPCOM Okay. Walt, what we have lost is the PM downlink. We are on the FM downlink now, which means we are time-sharing DSE with real time downlink.

SC Roger. Have we lost that permanently?
CAPCOM Is hasn't been determined yet. We

are going to do a little bit of checking here.

SC Okay. Well, I'll take the tape recorder back and - on 59 hours and 39 minutes.

CAPCOM Okay.

SC You are still going to keep the book-keeping on it?

CAPCOM Okay.

CAPCOM Apollo 7, Houston. LOS Honeysuckle,

pick you up at Guaymas.

This is Apollo Control Houston. We PAO have finally lost contact via Carnarvon station. We are 69 hours 42 minutes in the flight. The weatherman has sent us his happy report this morning and it goes like this. " In the western Atlantic areas, the weather will be partly cloudy, winds will be easterly 10 to 15 knots, seas about 4 feet, temperatures in the high 70's. In the east Atlantic, mostly clear to partly cloudy skies, easterly winds 12 to 15 knots, seas 4 feet, temperature in the mid-70's. In the western Pacific areas where Apollo might land if it had to, easterly winds 12 to 15 knots, seas 4 to 5 feet, and the temperature is ranging from the low 70's in the north to the low 80's in the southernmost landing areas. In the northern part of mid-Pacific landing zone, weather is mostly cloudy with scattered showers, winds are easterly 15 to 18 knots and with seas an average of 6 feet. The temperatures are in the mid-70's and the southern parts of the same zones

APOLLO 7 COMMENTARY, 10/14/68, GET: 693630 (CDT 0742am) 241/2

PAO the weather is partly cloudy with southerly winds of 15 knots and 5 foot seas. The spacecraft crew will perhaps have the opportunity to see a tropical developing in the Carribean today, that is out in the area of the Windward Islands. At 69 hours and 44 minutes into the flight, this is Apollo Control Houston.

APOLLO 7 COMMENTARY, 10/14/68, GET: 700625 (CDT 8:12A) 242/1

Apollo Control Houston here 70 hours 6 minutes into the flight and we are talking to the crew through Guaymas. Here's how it is going.

Apollo 7, Houston, through Guaymas. Apollo 7 reading 5 by 5. CAPCOM

SC

Roger 5 by. Walt, we want to delete CAPCOM these Com tests that we were going to do over this stateside pass here, or over Canaries.

Roger, understand.

Houston, this is Apollo 7. SC

Go ahead 7. CAPCOM

Roger, we have a (garbled) problem.

We are unable to get a (garbled)

And as a result of this we are not aligned at this point and possibly will not be able to support the WSMR test. (garb1ed)

If I copy you, Wally, understand you CAPCOM have had a problem in aligning the platform and you may not be able to support the WSMR test, is that CHARLIE?

That is CHARLIE. The problem apparently SC

is the MARK button.

A problem with the MARK button, Roger, CAPCOM

understand. SC

Yes, we had (garbled) Jack, it was attempted in the P51, and step 4 we have a flashing 51 and calling for a mark, we pushed the MARK button repeatedly and it will not go on to the next display. Apparently it's not accepting the mark, or else the mark button is filled, I'm not sure which. I did check - I did check a bit in Flagwood 74, the L53 flag, and that was set when the 51 was flashing. I also did a CNC sales check and that turned out okay and we did a halting 53, by that I mean we just ran through the program without actually maneuvering. It seemed to work fine. We did punch the ENTER button, but the computer progressed through the program.

Okay, Roger Apollo 7. Looks like we're reading your DISKY now. You're still on Program 51 with

noun 70?

We've got 2 in there right Negative. SC

Do you want me to call it back up?

Okay, Yes, I guess we missed a LOCK CAPCOM on data.

Okay. SC

Roger, understand, copy that you had CAPCOM failed pre mod processor and you're going to run the rest of the flight in AUXILIARY.

Negative. We are -

SC Walt, we're working on a trouble shooting CAPCOM procedure on this. I'm sorry I missed part of your transmission. APOLLO 7 COMMENTARY, 10/14/68, GET: 700625 (CDT 8:12a) 242/2

CAPCOM We'll be trouble shooting this and we will get you a reading on it shortly.

SC Hey Jack -

CAPCOM Just a minute Walt. CAPCOM Apollo 7, Houston.

SC Go Houston.

CAPCOM Roger. Walt we had a problem last night with the normal PM where we lost voice and telemetry sub carrier of the normal PM and we're devising a trouble shooting procedure now. We'd like for you to stay in this present configuration until we've gotten that procedure up to you. You can use the tape recorder as you want as long as you are in LOW bit rate.

SC Okay. I picked up the tape recorder when it was already played out. I rewound it, it's standing by for a dump now in case he has something on it. Do you want a dump?

CAPCOM Walt, did you have very much of a voice

transcription on that tape recorder?

SC I don't know, the whole tape has been recorded, so it's going to take you about 8 minutes for a complete dump.

CAPCOM Okay, standby.
CAPCOM Apollo 7, Houston.

SC Roger go.

CAPCOM On the tape recorder, there's nothing there that we feel we'd like to dump it for unless you have made some voice transmission in there that we don't know about.

SC The only thing we might lose that I can think of would be some of this film log and I think we can cover that another way.

CAPCOM Okay, we won't dump it then.

SC Okay, we'll go ahead and only data run when we want to record something. That way we will limit the amount of time we tied up for dumping.

CAPCOM Roger.

end of tape

```
CAPCOM
                    Apollo 7, Houston.
                     Apollo 7, Houston.
     CAPCOM
                     Apollo 7, Houston. Apollo 7, Houston.
     CAPCOM
     CAPCOM
                     Roger, Houston, Apollo 7. How do you
     SC
read? Over.
                     I read you fine. We've got a few
     CAPCOM
things to try, Donn, to check the MARK button.
     SC
                     What did you say again, Jack?
                     We have something we would like you
     CAPCOM
to do to verify the operation of the MARK button.
in program 00, we would like to have you press the MARK
button and verify whether you get a PROGRAM ALARM.
                     Okay, here goes. I do not get a PRO-
     SC
GRAM ALARM.
                     Okay. If you don't get a PROGRAM
     CAPCOM
ALARM now, press the MARK REJECT button while in PU there,
and see whether you get a PROGRAM ALARM.
     SC
                     Roger, pressing MARK REJECT, I get
no PROGRAM ALARM.
     CAPCOM
                     Roger, copy that. During this next
night pass, we would like you to try P51 again. If you
'don't get any response from the MARK button, then try P53
and P54.
     SC
                     Jack, do you have any (garble)
     CAPCOM
                     Roger, copy.
                     Roger. (garble) Got those updates
                      This is the reason I'm concerned about
on our fuel status.
it and I sure do (garble) TV (garble) problem.
     CAPCOM
                     Okay, Wally, Stand by, we are going
to discuss that end.
                     Okay. Realize that your new 53 is
(garble) and use the (garble) for burns.
                     Roger, we understand.
     CAPCOM
     SC
                     Pretty busy getting set up here.
Guess you want to watch our (garble) TV.
                     Okay, we will discuss that Wally.
We will be back to you. In the mean time Walt, we would
like to have you read off the positions of your S-band
normal and S-band off switches here so we could start the
troubleshooting procedure on this PM.
                     S-band normal switches are in voice,
PCM and ranging, S-band off is still in tape and I guess
I may as well turn the tape switch off. I still have power
```

APOLLO 7 COMMENTARY, 10/14/68, GET: 701625 (CDT 08:22a) 243/2

SC CAPCOM END OF TAPE switches, SCE normal PMP on off, over. Roger, we copy.

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APOLLO 7 COMMENTARY, 10/14/68, GET: 702625 (CDT: 8:32a) 244/1
                    Powers which is the SEE mode
     SC
on OFF: over.
     CAPCOM
                    Roger; we copy. What are the positions
of your transponders Walt?
     SC.
                    Secondary of the transponder and power
up above in HIGH.
     CAPCOM
                                 We'll be back -
                    Okay, copy.
     SC
                    (garble)
     CAPCOM
                    Go ahead.
                    Over a place now; why don't I turn the
fan off and tape switch on?
     CAPCOM
                    We'd rather have you just leave it on
Walt.
     SC
                    Okay.
     CAPCOM
                    Apollo 7, Houston.
     SC
                    Roger Houston. Go.
                    Okay, if we can't get through the P51
     CAPCOM
and 52 using the MARK button, go ahead and use the COAS and
get 53 and 54 for the IMU alignment.
                    Roger Tom. My concern is; are you
     SC
willing to expend the Service Module fuel for the (garble)
transponder test? Or are you asking me to be willing to?
     CAPCOM
                    Well, the whole thing Wally; we want
to get the platform aligned first and see what we've got.
We'll talk about the rest of it down the line over Carnarvon.
                    I think we've got a problem and I go
along with just the (garble) alignment, true.
                    We'll try the COAS one time; it's worth
     CAPCOM
it one time in case that we can't get the optics going.
                    That's it.
     SC
     CAPCOM
                    All right.
     SC
                    Will you give us a total number of pounds
of RCS propellants remaining; I can put it in my (garble)
     CAPCOM
                    Yes, okay, Walt. We're going to give
you this over Carnarvon.
                    Standing by.
     CAPCOM
                    Roger. Apollo 7, Houston. Your total
usable RCS fuel now is 750 pounds.
                    That is 750 pounds goes on my chart at
70 hours into the flight. I want total number of fuel be-
cause I think, at this nightside here, the unusable is al-
ready taken off the bottom.
     CAPCOM
                    Okay. Now the 750 is usable.
     SC
                    Well, would you take a look at your
copy of my onboard chart and give me a number that I can
stick on that?
     CAPCOM
                    Okay Walt. We'll pass that over to you
over Tananarive; we're about to lose you here. Tananarive
at 13 minutes.
```

SC

Okay.

APOLLO 7 COMMENTARY, 10/14/68, GET: 702625 (CDT: 8:32a) 244/2

This is Apollo Control Houston, 70 hours, PAO 33 minutes into the flight. And we have lost contact by the Canary Station, and we will pick up again at Tananarive and conclude that conversation about onboard usable. precise gaging here, other affects are being figured in here; you heard the flight director tell the CAPCOM to give him 750 pounds which number was passed up. Now in addition to that there is a gaging factor, certain other allowances and the precise overage estimate is also being calculated now. In the course of that ON, you heard a trouble shooting procedure real time wherein Don Eisele was asked to push the MARK button on some of his equipment related to the guidance and navigation system. This gear is down in the lower equipment bay and the MARK button effectively has the capability of putting into the computer certain angles and other mathematical information about a given star when it's properly sighted through the GNN optics. In other words, the pilots look at a star when they are satisfied they have the right star in the window, they press the MARK button and the information regarding angle and such is automatically transferred to the computer. This function apparently is not taking place. The second step in the trouble shooting procedure was to hit the MARK REJECT button, both of which should have produced a warning buzzer, but apparently neither worked. Other devices can be used of course to get this information. The cabin temp this morning is 69 degrees. And at 70 hours and 35 minutes into the flight, this is Apollo Control, Houston.

APOLLO 7 COMMENTARY, 10/14/68, GET: 704610 (CDT 8:52a) 245/1

PAO Apollo Control Houston here at 70 hours 46 minutes into the flight. We are in touch with Apollo 7 through Tananarive and here's how that's going.

CAPCOM Apollo 7 Houston. SC Go ahead Houston.

CAPCOM Roger. Walt, the reading that you should be having on your chart for RCS fuel is 808 pounds.

SC Roger 808 temperature supposed to be

750 and gaining,

CAPCOM Roger.

CAPCOM Apollo 7 Houston

SC Go ahead.

CAPCOM Okay, I want to check out the alinements going out. We've already worked out with Steve here a real slick real cool way of doing 53 and 54 using those optics down below that should cost us very little fuel. And be about as accurate as 51 and 52.

SC Very good. We've done an alinement.

Let me readout to you.

CAPCOM Okay, Donn, have you got your book out for P53?

SC Standby one.

SC Okay Go.

and step 2. When you acquire the two stars we will use the sextant and telescope down below, and when you get it in the sextant you will note the shaft and trunion angles that you have there. You will have to call Verb 16, Noun 91. Go back and enter above as Verb 06 Noun 92 in step 3. You can proceed and then you'll hold attitude at ENTER. If the attitude hold is brought on it should be about as accurate as we had before. Over.

SC Okay (garbled)

CAPCOM Okay

SC Roger Tom. How much more time this

pass?

CAPCOM We've got about 2 more minutes.

SC Okay. do you want to go through and read that one again?

CAPCOM We've got 4 minutes. Do you want me

to read it over?

SC Garbled.

CAPCOM Apollo 7, say again.

SC Yes, Tom, will you go through that again a little bit slower. I was a little bit behind in copying down the procedures. I'm ready to go again.

of P53, and you can use the course aline option if you want

APOLLO 7 COMMENTARY, 10/14/68, GET: 704610 (CDT 8:52A) 245/2

But we acquire the stars within to. CAPCOM the telescope.

Roger. SC

Once we get the NAV star in the Okay. CAPCOM telescope then go ahead and get it into the sextant.

Okay. I receive (garbled) SC

Okay. When you get it into the sextant CAPCOM then you can hit Verb 16 Noun 91 to read the shaft and trunion of that star.

Roger. SC

Okay, with that value you go back in CAPCOM step 3, you see flashing Verb 06 Noun 92 you can enter now 92 which is the value you have read out.

Roger.

Then proceed. CAPCOM

Proceed.

Then you can use the ENTER button for CAPCOM

your mark.

This is Apollo Control Houston at 70 hours 52 minutes into the flight through Tananarive through which we lost contact. About a minute ago you heard Tom Stafford give Apollo 7 an alternate way of getting the shaft and trunion, the two angles required to do a navigational plotting on a star - he gave them an alternate way to get that information into the onboard computer. Earlier we had established that the MARK button, or the MARK device through which that information is normally inserted into the computer is - we established that it is inoperative. We are now going through the data insertion keyboard, which on checking we discover is another way to put that information in. At 70 hours 53 minutes into the flight this is Apollo Control in Houston.

```
PAO
                     This is Apollo Control Houston 71 hours
17 minutes into the flight. Over Carnarvon a few minutes
ago, we had some conversation. We - the crew was quite
busy doing star alignment and getting our attitudes set up
for the next pass across the States. They - the transponder.
the radar transponder test out of White Sands, they are to
be blunt end forward, since the 00 attitudes, that is aligned
straight upright, blunt end leading, as they come across
the White Sands Missile Range near Los Cruces, New Mexico.
And precisely one alignment they will have, I think they
will simply go amiss, the flight plan shows they go into free drift after the White Sands pass. We planned to tell
them, as they started across the States, Tom Stafford called
several times and they were busy and didn't get the word via the Honeysuckle station in east Australia, but we do
want to tell them that we are planning a minor burn later
today to adjust their apogee and to make our total onboard
fuel redlines a little more acceptable all the way around.
They are not out of alignment with the overall program as
planned but the affect of an adjusting burn would be to
lower apogee somewhat and to bring those redline values
even into more conservation views. Here is the tape by
Carnarvon.
     CAPCOM
                     Apollo 7, Houston.
                     Go ahead, Houston.
     SC
     CAPCOM
                     Roger, Apollo 7. How is the alignment
coming?
     SC
                     We arestill star reading right now.
     CAPCOM
                     Okay, understand you are still in
program 53.
                     We are just trying to acquire star
     SC
report time.
     CAPCOM
                     Okay.
                     Apollo 7, Houston. I'll go ahead
     CAPCOM
and brief you on what we've got planned.
                     Wait, let's put down what (garble)
     CAP
                     Yes, yes okay, I'll just stand by
here.
                     Okay, I would like to (garble)
     SC
     CAPCOM
                     All right.
                     Houston, Apollo 7.
     SC
                     Go ahead, Wally.
     CAPCOM
                     Okay (garble)
     SC
                     That was too fast. Say again.
     CAPCOM
                     Donn is in the (garble) right now,
but is it necessary for him or could I take it?
                     No, it's for the whole crew and the
     CAPCOM
```

main thing is to get the platform aligned and Wally, if you

Honeysuckle, how do you read Wally?

CAPCOM Hello, Apollo 7, this is Houston, how do you read?

CAPCOM Hello, Apollo 7, Houston, over.

CAPCOM Apollo 7, this is Houston standing

Hello, Apollo 7, this Houston through

by through Honeysuckle.

CAPCOM Apollo 7, this Houston, how do you

read?

suckle.

CAPCOM

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APOLLO 7 COMMENTARY, 10/14/68, GET: 10/14/68, (CDT: 9:42) 247/1
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This is Apollo Control Houston. PAO 37 minutes into the flight. We are trying to establish com with the crew by the Huntsville station, and the signal is very shakey, as you recall in the earlier passes, the Huntsville com has not been the best and it is no better today. few minutes we expect to acquire through Guaymas. In a very cloudy communication, cloudy voice communication with Apollo 7 a few minutes ago, the crew commander advised that they were GO for this pass, GO for the transponder test at White Sands, and GO for the television through Corpus. We should acquire by the Guaymas station - stand by 1 - we'll acquire at 738 which is right now and now Wally is coming in loud and clear. Sounds like it's (garble) coming in pretty good, huh? (garble) at about .18 degrees. CAPCOM That's not bad. (garble) go ahead and did an alignment to the (garble) was 58 minutes. Okay, that' what we -CAPCOM Now we have established good communications PAO with the crew; let's cut in on that conversation now. We want the DSC to stop at 7146 plus 00. CAPCOM SC Roger; we got it. Okay. Now after we finish, when we come CAPCOM up for the TV pass, for Walt, make sure that the tape position is OFF; over. Roger. SC CAPCOM Tape off now. Okay, Walt, again, the tape should stop CAPCOM the DSC and the tape off at 71 plus 46. The tape is stopped now and the DSC is running and I can keep the DCS running; can I keep the DSC running with the TV on? Yeah, you sure can Walt; no problem. CAPCOM Roger. SC Apollo 7, Houston. Looks like we have CAPCOM a real pretty day down here. Roger; that's the way it looks. Houston, SC this is Apollo 7. CAPCOM Go ahead. Roger; what time do you want the TV turn-SC ed on? CAPCOM Say again. At what time do you want the TV turned SC on? CAPCOM In about - Roger, we are ready for TV now. Turn it on. SC TV going on. This is Apollo Control here. We just PAO heard Walt Cunningham acknowledge he was turning on the TV. We are looking at a rather snowy TV screen and we see nothing

at this point.

PAO Still nothing - a little snow pattern. Which is considered just normal TV line noise. Most of the flight controllers have the proper channel punched up. now we are getting some indication from the network controller that the signal is too weak to read. We are 71 hours and 43 minutes into the flight. And we are about, nearly 1 minute beyond the time of the planned Corpus acquisition. Here comes the picture and it's White. We look at Eisele, nice shot. Looks straight up, and he's moving. He's really quite clear; let's all have a look at it.

Yeah, we're picking it up, I can read CAPCOM it; just a minute. It says, "From that lovely Apollo," something - he doesn't write - "high on top." It looks good; I can see Wally handle it now, and Don has a smile on his face and there's Walt. The definition is pretty good down here; I can see center hatch. Actually I am amazed; it looks real good. Hey Don, how about saying something since you're paying.

SC Say again.

Hey, I can read you; you're loud and CAPCOM clear. It really looks good; I am amazed.

It's coming in - you want us to put -Lean back a little bit, you are too close CAPCOM to the camera; there you are. We'll have Cecil Stafford directing.

SC Roger.

SC I forgot to shave this morning.

SC Lost my razor.

Some of the reproductions here are real CAPCOM good; I can look out through Wally's rendezvous window; I can see the COAS up there, the orbit rate ball.

We're looking right down the Gulf Coast. SC Okay, what's the next one? Little closer CAPCOM Wally.

It says, "Keep those cards and letters CAPCOM

coming in folks." and it's loud and clear.

Yes sir, a pretty show for the whole family. Would you like to get a look out the window with the TV camera; I can give you the whole island right here.

CAPCOM Okay, let's take a look and see how New

Orleans is this morning.

Apollo Control here. You were listening primarily to Tom Stafford talk with the crew; Deke Slayton threw in a couple of lines. Here we are with a view out the window.

Coming into view now. SC CAPCOM Okay, we're looking.

(garble) CAPCOM Okay.

PAO The crew reports that they are changing

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APOLLO 7 COMMENTARY, 10/14/68, GET: 713745, (CDT 9:42) 247/3
lenses and that they are right over Lake Ponchatrain outside
New Orleans.
                    We're are passing now over Mobile Bay.
     SC
     CAPCOM
                    Okay, we're starting to get it.
Looks like there's a few clouds down there. Yeah, we can
        Is that the coast line you're pointing right now?
see it.
                    Going over Mobile now, quickly, and
     SC
Apollo 7 (garble)
     CAPCOM
                    Okay, Wally, can you focus one spot for
a minute? We can see the orbital rate coming in real fast.
There you go. Try to hold it on one spot. Now you can
see the coast line.
     SC
                    There's engine roll here.
     CAPCOM
                    Okay.
                    We had a beautiful day here; I can give
you a good shot of the Cape today.
     CAPCOM
                    All right. Yeah, there's the coast line;
it's coming in good.
     SC
                    Roger.
     CAPCOM
                    Real good.
     SC
                     (garble) that we used in line with what?
     CAPCOM
                    All right.
     PAO
                    That's the Florida peninsula we just
crossed in about 1 minute.
     CAPCOM
                    Okay, are you passing over Florida now?
     SC
                    Affirmative.
     CAPCOM
                    Okay, if you can just hold it. The big
thing on that long lens is just to hold it still for one
spot and then move to another it looks like. You can sure
see orbital motion.
     SC
                    Tom, we used (garble) out again.
     CAPCOM
                    You're coming in garbled Wally; I couldn't
hear you.
     SC
                    This is what constellation we used for
the alignment.
     CAPCOM
                    Okay, stand by, we'll get it.
     SC
                    Here's the island.
     CAPCOM
                    I thought you said -
     SC
                    We did.
     PAO
                    Apollo Control here. Among the more
interested viewers of these live pictures as they come in
is Wally Schirra's wife, Jo Schirra, who I just observed
lighted her second cigarette in the course of this pass.
She's with Marjorie Slayton, the wife of the flight crew
operations director here in the Control Center.
     CAPCOM
                    Looks like we found out what's wrong
with the MARK button.
     SC
                    Very good.
```

Okay, it looks like there is an improper

CAPCOM

APOLLO 7 COMMENTARY, 10/14/68, GET: 713745 (CDT: 9:42) 247/4

exit from a program yesterday and with the IMU's aligned we select Program 20; if you got a piece of paper we'll copy it down to you.

SC Ready.

PAO Apollo Control here - it looks like we are out on the edge of the Cape acquisition here; here we come in sharp again, it looks like they brought the camera back inside.

CAPCOM You are in verb 57 enter. After that you will key enter and then you will select program 00. Now what that does is cause a reset of flight work 2 bit 14 which is preventing that mark from getting in.

SC (garble) CAPCOM POO.

PAO And Apollo Control here. We have lost the picture; apparently have lost lock - here's something more from the crew.

SC (garble)

CAPCOM Roger; that should reset that flight work and you should be all set to use Program 51 and 52 -

PAO That's affirmative; now we have lost lock; the spacecraft is out near Bermuda. However, we are now ready to give you the NASA instant replay of that entire pass. Could we see the tape from the - I am sorry - it is not quite ready yet. The picture came in remarkably clear and it was some time after Cunningham reported turning the switch on. We looked at it quite awhile and it seemed to me, we'll have to go back and listen -

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APOLLO 7 COMMENTARY, 10/14/68, GET: 715230 (CDT 9:57a) 248/1
     PAO
                     ...we looked at it quite awhile, and
it seemed to me, we'll have to go back and listen to the
tape itself; but it seemed to me the clarity came up about
200 percent when we changed lens. Then another lens change
was made as Walt Cunningham put it out the right hatch, the
right side window.
                    Standby 1 and see if we are ready with
the tape.
     SC
                    That last land we saw was an example of
(garble) what made up our obscure DPO's.
     CAPCOM
                    Okay.
     SC
                    This is still the first phase.
     CAPCOM
                    Roger.
                    Here is the video tape being run on all,
     PAO
at least news center monitors.
                    When you pass up the total RCS propellant
remaining, I would like to get a readout for each quad also.
     CAPCOM
                    Apollo 7, Houston.
     SC
                    Go ahead.
     CAPCOM
                    Okay, what we'll plan to do is put you
the NAV load for this maneuver up over the Canaries and we'll
be passing over that in about another 4 or 5 minutes.
     SC
                    Roger, standing by.
     CAPCOM
                    So, if you get a chance, go ahead and
select programs 00.
     SC
                    We have already tried to (garble).
     CAPCOM
                    Okay.
     CAPCOM
                    Apollo 7, Houston through Canary.
     SC
                    ROGER
     CAPCOM
                    Roger, I read you 5 by.
     SC
                    Jack, would you say again the burn time,
for burn 3.
     CAPCOM
                    Right, 7548. We're going to be sending
you up some NAV loads and I'll be passing you up a maneuver
pad here.
     SC
                    Fine.
     CAPCOM
                    Apollo 7, Houston, if you will go to
ACCEPT, we'll send you up a NAV load.
```

SC-Copy.

ready to copy your maneuver pad.

Roger, SPS 3075475860 minus 00550 plus CAPCOM 02000 plus 004101601 plus 09030200730584 minus 086 minus 0460 plus 09.

Walt, you might let me know when you're

Roger, accept.

END OF TAPE

SC

CAPCOM

CAPCOM 0 plus 09 303484 323 075 05 all balls plus 1330 minus 05642 1256 000 000 000. Remarks, SCS control 2 second to jet ullage using quads B and D. You will be out of plane to the south slightly retrograde, slightly pitch down, the sextant star will not be visible after 075 plus 35 plus 00.

SC Roger. I'll hit the remarks first.

We won't be doing a 2 jet ullage on SCS (garbled) burn 3
075 47 5860 minus 00550 plus 02000 plus 00410 1601 plus
0903 02007 30584 minus 06 minus 046 009 30 3484 323 075
05 0000 plus 1330 minus 05642 1256 all balls on the roll,
pitch and yaw, it's SCS burns for 20 seconds and (garbled)
on the 2 jet ullage. Out of plane south slightly retrograde
and sextant (garbled) 35 hours 35 minutes.

CAPCOM Roger. The reason we are doing a 2 jet ullage, Wally, is to even up the RCS fuel. When we do this all the QUADS will be even and we will be in fat shape for an SCS RCS deorbit red light.

SC You said a 2 jet SCS (garbled) I can't

do it.

SC Jack, the only 2 jet ullage we're going to do is on a G and N burn.

CAPCOM Roger. We'll come back with you over that - over Tananarive. And we have the loads in and verified the computer is yours.

SC Houston, Apollo 7 (garbled)

CAPCOM Roger say again.

This is Apollo Control Houston 72 hours 7 minutes into the flight and it appears we have lost lock through the Canary station. The spacecraft now is moving across Africa. To recap a couple of the highlights of our first television pass of Apollo 7, you saw Wally Schirra extend two cards down camera range. The first one read "Hello from the lovely Apollo Room high atop everything." And a little later you say him hold another card up, both obviously in jocular vein, it said "Keep those cards and letters coming in, folks." We've timed the total television pass from receipt of the first seeable to the loss of the signal out over the Atlantic, at 7 minutes. A little bit shorter than we had anticipated, but all in all we are agreed that it was a good, a very valid first test. It had comments in the Control Center here from varied flight controllers, words like "Amazing", "Much better than I expected", generally that would describe the reaction here in the Center. We will plan very likely to do an apogee adjustment burn a little later today. That will be discussed, I suspect, over Carnarvon on the next pass, and the affect of this will be to lower apogee, which is presently running

APOLLO 7 COMMENTARY, 10/14/68, GET: 720230 (CDT 10:07a) 249/2

page about 160 by 122 and it will have the happy affect of adjusting - of bringing our RCS budgets - our onboard propellant budgets to more conservative alinement. In the television pass Donn Eisele was wearing his space suit. He still has it on. We could see his hoses set up unpressurized, and I'm looking at a rerun now and it's pretty clear that Wally Schirra and Walt Cunningham are in their flight coveralls, powder blue coveralls. Of course, we don't have color television yet, but they are blue in color with a NASA wishbone and as I understand it the picture is being replayed to the news center so they can have a look. It's 72 hours and 10 minutes into the flight. This is Apollo Control Houston.

This is Apollo Control Houston 72 hours 38 minutes into the flight. We have some conversation which was taped back at Tananarive. We will play that for you and we are now moving into the - rapidly moving into the Australian area and we will come right into that. First, there is this word on the transponder test from White Sands, immediately preceding that most successful TV pass. The data at this point is inconclusive. There is some indication that the test didn't work or perhaps we weren't pointed just right, or perhaps the transponder in the spacecraft had not been turned on. I say again, the data is inconclusive, but the test objectives were not fulfilled in that particular pass. We have other revs across White Sands and the test, of course, can be repeated. Now let's hear the conversation via Tananarive.

CAPCOM

SC

Roger Houston, read you loud and clear.

CAPCOM

055. On the - on this two jet ullage,

Wally, we felt that we could do a two jet SPS ullage, RCS

ullage and save about 8 pounds of RCS fuel. You can do
this by having the pitch and yaw channel switches at A and
pulling pitch main A circuit breaker. How do you feel
about that?

SC We've got to fly (garble) energy, Jack, (garble) we will give you people a pretty tight burn.

CAPCOM You will still have two jet ullage attitude hold.

SC The main thing is I don't think you

will observe it (garble)

CAPCOM Okay, if you are uncomfortable about it, we will go with the four jets. We just thought we could save you about 8 pounds of fuel.

SC Okay, we will go with four jets.

CAPCOM Okay, understand. CAPCOM Apollo 7, Houston.

SC Go ahead.

CAPCOM Okay, Wally. On this AC glitch, what they are doing is we have a series of tests being run off line first, but we're using 106 at the factory to checkout all the AC systems in the sensing systems. At the beach, they are testing the whole lashup, the cryo stands, heaters, and everything and we should have some data on this by tomorrow.

SC Okay Tom. I think you should realize that all that trouble of going into the hybrid gears is

SC that kind of glitch coming along.

CAPCOM That's right and that is why we just decided to go ahead and do this burn 3 and get the perigee down.

SC Okay, we will be doing two jet here, we will have to kick it over for a while.

CAPCOM Okay, then we have got plenty of time to pick it up later. No problem on that.

SC Okay.

CAPCOM And they don't plan - they are not suggesting running any test on board up there, what with the AC power. We will do it all on the ground and tell you what we find out.

SC Okay. We are knocking off all the fuels since we want to stay out of gimbal lock.

CAPCOM Say again.

SC We are knocking off all fuels except for one in gimbal lock.

CAPCOM Okay. What we are going to do is delete to the present all flight plan items after 72 hours to prepare for this burn.

SC Concur.

CAPCOM Apollo 7, Houston. One minute to LOS Tananarive, we will pick up ARIA 2 in about 2 minutes and then on through to Carnarvon.

CAPCOM Apollo 7, Houston through Carnarvon. SC Roger, you are loud and clear, Jack.

CAPCOM You are loud and clear, Wally. We have a procedure for troubleshooting that loss of the voice and telemetry subcarrier that we had. Are you ready to go?

SC Roger.

CAPCOM Okay, we are just going to walk you through it Walt. We would like you to switch the S-band transponder switch to primary, pausing in OFF as you go through from secondary to off to primary.

SC Jack, go slower than that and I will

follow you up again.

CAPCOM Okay. We would like to switch the primary S-band transponder switch into OFF, pausing a bit, and then to primary.

SC S-band off.

CAPCOM S-band transponder.

SC Okay, gone into primary, then off, then back to primary. Got it?

```
APOLLO 7 COMMENTARY, 10/14/68, GET: 723800 (CDT 10:43a) 250/3
                    Okay, we got it. Okay, now we are
     CAPCOM
going to wait a bit and look at some data here.
                    Roger. I intend to blow my nose.
                    All right, go ahead.
     CAPCOM
                    Houston, Apollo 7.
     SC
                    Go ahead.
     CAPCOM
                    Do you have "tut, tut, tut" to your
     SC
receiver?
                    Negative. Negative, Wally.
     CAPCOM
                    Okay, affirmative digital pilot goes
     SC
"tut, tut, tut".
                    Roger, stand by.
     CAPCOM
                    Whatever that was, it stopped it.
     SC
                     Roger.
     CAPCOM
                     It must have been something wrong
with Carnarvon's gear transmitting.
     CAPCOM
                     Roger.
                    Okay Jack. Carnarvon probably had a
     sc
(garble)
                     Apollo 7, Houston.
     CAPCOM
                     Go Jack.
     SC
                             On the results of this trans-
                     Roger.
     CAPCOM
ponder shift that we've gone through. We've got our voice
and telemetry subcarrier back. We are go on the primary
transponder. The problem was in the secondary transponder,
so we are go the way we are.
                     Very good, I'll leave it this way.
     SC
                     Wally, do you still have the clicking
     CAPCOM
in the receiver?
                     That was at Carnarvon. They got on
     SC
it right away and clicked it off.
                     Okay, real fine.
     CAPCOM
                     We were paying attention to it, they
did a very good job.
                     Roger.
     CAPCOM
                     In fact, I would say the team worked
harder today than they did yesterday.
                     Say again, Wally.
     CAPCOM
                     I say, this team worked harder today
     SC
 than it did yesterday.
                     You bet your life.
      CAPCOM
                     Good show.
     SC
                     Apollo 7, Houston. You want to turn
      CAPCOM
up your S-band volume. We are just about to lose you over
 Carnarvon.
                     Roger.
      SC
```

CAPCOM

And 7, looks like that right now we

APOLLO 7 COMMENTARY, 10/14/68, GET: 723800 (CDT 10:43a) 250/4

CAPCOM observe the primary evaporator has dried out again.

It figures. SC And this is Apollo Control Houston. PAO We may get some additional by either Woomera or Honeysuckle, but right now it's pretty noisy. You heard on the loop, the ground, Jack Swigert, our capsule communicator tell Apollo 7 that we had resolved the telemetry difficulty we noted earlier in the day. The troublesome item proved to be a secondary circuit transponder and it has been ruled inoperative. We switched over to the primary transponder in the telemetry loop and we are getting all the data from the - in all possible modes and everything is rosy. brought a cheer here, a small cheer in the Control Center, and when the word was passed up to the crew, we could hear what sounded like a cheer there, at least Donn Eisele called Walt Cunningham to be sure he knew about it. Apparently Walt may not have had his headset on. So all in all, things are looking up and quite rosy at this point, and we will continue to monitor until the spacecraft moves off the coast of Australia. At 72 hours 46 minutes into the mission, this is Apollo Control Houston.

APOLLO 7 COMMENTARY, 10/14/68, GET: 724800 (CDT 10:53a) 251/1

PAO This is Apollo Control Houston, we have lost lock with the Spacecraft now, by Australia and that will bring the circuit down, we'll be back up in about 12 minutes from Hawaii. One additional note, on the television pass, the altitude of the Spacecraft at the time that trans - television transmission came through was approximately 130 miles and decending slightly to perigee which occurred out in the Atlantic. You could say the pass started roughly at 130 miles - nautical miles and probably was 126 or 127 nautical miles at the conclusion of the pass. Tomorrows television show, if you will, is presently scheduled for an elapse time of 95 hours and 25 minutes, that's the Corpus Christi acquisition time. At 72 hours, 52 minutes into the flight this is Apollo Control Houston.

PAO This is Apollo Control, Houston, 73 hours 1 minute into the flight. We're on the 46th revolution around the earth and we just put in a call through Hawaii. Here's how it's going.

CAPCOM Aloha. We would like to ask you whether

you were able to accomplish the (cut off)

SC Roger. I have the tape recorder being rewound now and it will be ready for dump. We did a (garble) alignment in our last night pass. Used Diphda and Aldebaran and got 5 balls and the star angle difference will be on the tape.

CAPCOM Roger, copy.

SC I mean distortion angle will be on the

tape.

CAPCOM Okay, copy that. Walt, we would like to ask you whether you were able to accomplish the switching operation? Apollo 7, do you read Houston? Apollo 7, Do you read Houston? Apollo 7 Houston. Hello, Apollo 7, Houston. Apollo 7, do you read Houston?

pAO Apollo Control here. This pass is running well south of Hawaii. We apparently did not have a good acquisition or good lock on the signal, but the pass was opened by Capsule Communicator, -- Capsule Communicator, Jack Swigert, with the word Aloha. Of Course, he is here in Houston, but the signal went out through Hawaii. We will continue to stand by.

CAPCOM Apollo 7, how do you read Houston?

Apollo 7, houston.

pAO This is Apollo Control, Houston, apparently we are having a little ground communication problems. A line problem apparently. Network Flight Controller just advised that on the last rev, our voice signal from Houston was not reaching Hawaii. Now we are locked up again, let's go back.

CAPCOM Transmission on P52. We would like to know whether you were able to accomplish the switching operation for the WSMR rendezvous radar during the TV op-

eration?

about 2 minutes. We had not counted on performing that, and the whole sequence idea was a bit (garble). We probably should not even have attempted it, Jack. However, we did turn the heater on for a couple of minutes; turned it to power; we read out the test meter readouts, and I don't know if we passed them down, but we got them logged onboard here. The lock on -- the signal strength never came up above about 1.4 volts, I think it was.

CAPCOM Okay, we copy that.

SC Did you have any results from WSMR?

```
APOLLO 7 COMMENTARY, 10/14/68, GET: 730140 (CDT: 11:06a) 252/2
                    Negative; there is no results from WSMR.
     CAPCOM
                    Okay, and since we're up pretty well
     SC
on fuel, now, we'd like to try again on the second callout.
                    Wally, it looks like we're gonna have
     CAPCOM
a chance about - we may have a chance about 30 minutes after
the burn to get, to try again over WSMR.
                    Okay, and that might be pretty good.
We'll have a (garble) and can make out on that one.
                    Right.
     CAPCOM
                    You stay in burn attitude Houston and -
     SC
                    Okay, Wally, I wanted to ask you
     CAPCOM
             Did you have a problem with your biomed harness,
a question.
one time?
                    Yes I did. Aren't you reading me now?
     SC
                    We're reading - center now, you want us
     CAPCOM
to go to L and P?
                    Okay, we have switched to L and P.
(garble) L and P.
                    All right; real fine.
     CAPCOM
                    Just to give you a cable connection with
     SC
CDR is in the right seat, L and P is in the center seat
and CNT is in the left seat. That is per flight plan burn
3.
                     Roger; we copy that.
     CAPCOM
                     Roger.
     SC
                     Jack, do you have enough time this pass
     SC
for me to start a tape dump; it's rewound.
                     Negative Walt. We'll get you over the
      CAPCOM
States for the tape dump.
                     (garble) command okay?
      SC
                     Affirmative.
      CAPCOM
                     (garble) AOS a two way log. I am still
      SC
 LOS.
                     AOS and downlink signal is very weak.
      CAPCOM
 Downlink signal very weak.
                     This is Apollo Control, Houston. And
 we are continuing to monitor through the Hunstsville area
 but we really don't expect to get a useful voice signal.
 We should acquire from California, a combination of Califor-
 nia and Guaymas momentarily.
```

```
We should acquire from California
     PAO
combination - a combination of California and Guaymas momen-
        You hear Wally Schirra give us the positioning
of the men for burn 3. This is the third burn in our flight
plan, which had been programmed for about 95 hours. It is
being moved forward in the flight plan and it's presently
planned to do this burn at 75 hours and 47 minutes, 75 hours
47 minutes of elapsed time. Reading, we are presently 73
hours and 12 minutes and as I started to say Schirra positioned
the people for this burn accordingly. It will be Donn
Eisele's burn. He is over in the crew commander's couch on
the left side. Walt Cunningham will occupy the center
couch, which would normally be occupied by Donn Eisele,
and Wally Schirra will be over in Walt Cunningham's couch
on the right hand side, the right couch. That was the
planned configuration of people for the third burn and a
little later in the mission Walt Cunningham will move into
the commander's couch and he too will get some experience
in handling a burn. We have reestablished Com and let's go
back to Apollo 7.
                    Roger, Jack, 5C reads 5 volts full
     SC
        5D is 5 volts full scale.
                                   6A is 4.9. 6B is
scale.
5.0. 6C is 4.8.
                6D is 4.9 volts.
                                We have some - due to this
                    Real fine.
     CAPCOM
transponder problem we'd like to reconfigure some switches
```

there, and then we will be back in the normal configuration Could we get you to put your power for our Com switches. PMP switch to NORMAL.

PMP is set. SC

Okay, your forward rewind switch to CAPCOM FORWARD.

Forward rewind switch to FORWARD. SCYour record play switch to RECORD.

CAPCOM Record. SC

Your telemetry input switch to LOW. CAPCOM

SC (garbled)

Okay real fine. We're now back in CAPCOM normal configuration.

Okay. You asked about my biomed. I checked and the lead was apart again.

Okay real fine. CAPCOM

It's too short. They've got to change SC (garbled). It was alright during flight preparations.

Jack, I still have the tapes switch Do you want the tapes switch on?

Okay, we want the switches just like CAPCOM you've got them.

Okay, the tape is off and the tape is rewound. No motion, standby for your dump (garbled)

```
APOLLO 7 COMMENTARY, 10/14/68, GET: 731140 (CDT 11:16a) 253/2
                     in the Com system also to tell you
that we could not get the glycol evaporator back in right.
                     Roger, we copy that.
     CAPCOM
                    Okay, Apollo 7, did you try and reservice
     CAPCOM
the primary evaporator?
                     That's true.
                     Roger.
     CAPCOM
                     Apollo 7 Houston.
     CAPCOM
                     Apollo 7 Houston.
     CAPCOM
                     Apollo 7 Houston.
     CAPCOM
                     Go ahead.
     SC
                             To summarize our findings on the
                     Roger.
     CAPCOM
Com system, we have found that the secondary transponder
has failed. We have normal operation on the primary trans-
ponder and except for the secondary problem our Com system
 is operating normally.
                     Roger.
      SC
                     Apollo 7 Houston.
      CAPCOM
                     Go ahead.
      SC
                     Wally, on that biomed harness - that
      CAPCOM
problem that you reported. Do you think you'll have time
 to do any repair work on it?
                     Afraid not. The next time you are
reading me if you aren't getting it ask and I can plug it
back in. It seems to pull out when we exercise, or during
 a sleep period.
                     Okay, we copy.
      CAPCOM
                     It's no problem to hook it up.
      SC
                     One of the sensors is leaking. You better
      SC
 leave it out or pull it off.
                     Houston, this is CDR. Let me give you
 a check of operator light, check my lead. Did you receive?
                     Standby Wally.
      CAPCOM
                     Apollo 7 Houston. We're reading LMP
      CAPCOM
 data in the center seat.
 END OF TAPE
```

```
APOLLO 7 COMMENTARY, 10/14/68, GET: 732100 (CDT 11:26a) 254/1
                     Apollo 7, Houston, we're reading LMP
     CAPCOM
data.
                     Roger. We switched it over, and now
it's over in the right seat.
                     Okay, we copy the switch. Okay, we're
     CAPCOM
getting good data.
     SC
                     We're getting that radio station
interference again.
                     Okay. Apollo 7, opposite omni.
     CAPCOM
                     Our magazine O for Oboe.
     SC
                     Roger, copy. 5, 6, 7, and 8. Were of the Pensacola
     CAPCOM
     SC
area, Tallahasee, Jacksonville, St. John's river to its
outlet to the Atlantic.
                     Okay, we copy magazine Oboe 6, 7, and
     CAPCOM
8.
                     That was 5, 6, 7, and 8.
     SC
                     Roger, 5, 6, 7, and 8.
     CAPCOM
                     Hey Jack, we need a map update.
     SC
     CAPCOM
                     Okay, coming up.
                     Thank you.
     SC
                     By the way, these five windows, almost
     SC
every darn one of them is looking at something.
                     I didn't copy that, Wally, could you
     CAPCOM
repeat?
                     Roger, these five windows have a view
     SC
almost all the time. Except the center hatch window is
useless for anything.
     CAPCOM
                     Roger, copy.
                     That would be a (garble) window to have
     SC
working.
     CAPCOM
                     Roger, we agree.
                     Okay, Apollo 7, I have your map update.
     CAPCOM
                     Roger, go ahead.
     SC
     CAPCOM
                     Okay, for rev 46 the GET of the node is
72 plus 57 plus 26.
                      Longitude 178.7 degrees east right
Ascension 05 plus 28
     SC
                     Thank you.
                     Jack, that reads (garble) Say again Apollo 7.
     SC
     CAPCOM
                     You say it's 58 or (garble) magazine
     SC
      We're on Bermuda loud and clear.
     CAPCOM
                     Roger.
                     The Western Atlantic is pretty well
     SC
clouded over.
                     Okay, copy that.
     CAPCOM
SC I would say about 40 miles east of Bermuda there's a long frontal line. It's running on a line
```

254/2

APOLLO 7 COMMENTARY, 10/14/68, GET: 732100 CDT 11:26a

about north and south. The tops are SC rather difficult to estimate that's about all I can see at this time.

Okay, copy. CAPCOM

This is Apollo Control Houston. Jack Swigert is giving Apollo 7 a 1 minute to LOS by Bermuda and he gets a Roger back. Let's turn in.

Ready to take a picture. SC

Apolio 7, Houston, it appears we got CAPCOM

85 degrees yaw, do you concur?

This Apollo Control Houston at 73 hours, 31 minutes. We'll take the line down now and bring it back up at Ascension.

This is Apollo Control Houston, 73 hours PAO 39 minutes into the flight. And we are about to acquire through Ascension. Before we do, a word or two more on the upcoming burn presently scheduled for 75 hours and 47 minutes. This will be a perigee adjusting burn, not an apogee; I believe I referred to it as an apogee adjusting burn. It will be a perigee adjustment and it will have the affect of lowering our present perigee which is about 121.5 nautical miles down to 90 nautical miles and the apogee which is presently 159 will remain about the same. But the total effect here is to give us a little bit more margin on our onboard propellant should we have to do a, what we call a hybrid deorbit or in other words, use the small 100 pound thrusters rather than the big service propulsion engine; that's our backup deorbit capability and we have to keep that constantly in mind and keep plenty of margin there to insure that we could do that. Now we have sufficient margin right now but we are going to add to that margin by adjusting the perigee downward about 30 miles and we are doing this some 20 hours of when we had routinely planned to do it, in the flight plan. We are putting a call in now to Apollo 7; here is that communication through Ascension.

We copied that our course aligned. CAPCOM

Apollo 7 here, loaded.

SC Okay, you're going to need to do P51 and CAPCOM 52 again - you go through P51 and then 40 and then P52 - as a reminder it will not be necessary to go to P30 however if you do, you will have to reload the targets. Did you copy that 7? Apollo 7, Houston.

Say again. SC

Did you copy my message about the programs? CAPCOM

Say again Jack. SC

Okay, you'll go to 51 then 40 and then P52 CAPCOM as a reminder it won't be necessary to go to Program 30, if you do you will have to reload the target.

Understand. SC

Okay, real fine. One question on these CAPCOM primary evaporators; did you, did the steam pressure come up to normal? After the serve - reservice?

Yes, the reservice burn went (garble) SC Apollo 7, Houston. Okay, copy that. CAPCOM

Go ahead Houston. SC

Roger. Would you go increase for 45 sec-CAPCOM onds on your T pressure control valve switch?

Roger; we'll try it again. SC

Apollo 7, Houston. 30 seconds to LOS for CAPCOM Ascension; we'll pick you up over Tananarive in about 18 minutes. We'd like to watch our reservice over Carnarvon. Roger; (garble) understand on pressure SC

valve.

APOLLO 7 COMMENTARY, 10/14/68, GET: 73:39:00 (CDT: 11:44a) 255/2

CAPCOM We copy that.

APOLLO 7 COMMENTARY, 10/14/68, GET: 740246 (CDT 12:13p) 256/1

This is Apollo Control Houston 74 hours and 02 minutes into the flight. The spacecraft is just beginning a swing across the Indian Ocean. We recorded this conversation through Tananarive. Apollo 7, Houston through Tananarive. CAPCOM Tananarive M & O, Houston CAPCOM. This is CAPCOM Tananarive. TAN Are we going out down there? CAPCOM Affirmative. TAN Okay(garble). CAPCOM Apollo 7, Houston through - This is CAPCOM Tananarive. CAPCOM TAN Roger, are we going out down there? CAPCOM Affirmative. TAN Okay(garbled) CAPCOM Okay, that's good, thank you. TAN Apollo 7, Houston through Tananarive. CAPCOM Okay Houston, do you read me now? SC I read you fine now, Wally. CAPCOM (garble) SC Roger. CAPCOM

CAPCOM Apollo 7, Houston, 45 seconds LOS Tananarive. We will pick you up over Carnarvon in about 8 minutes.

This is Apollo Control Houston 74 hours 11 minutes into the flight. We've got some contact via Carnarvon and we've also got some good news here on the ground. We watched the primary evaporator - that water boiler which was balky earlier in the flight, then the trouble seemed to go away yesterday, it all settled out, and it kind of kicked up again this morning. Now it's behaving more like it should. Time and again the little troubles that we've had consistently have been in the electrical environment communications area, all of which spells EECOM in the Control Center. That's our name for that particular controller, but from Carnarvon now lets cut over to that conversation.

SC This is Apollo 7.

CAPCOM Apollo 7 read you 5 by.

SC Roger. We just resynchronized our MET OF THE MPC it was running 5 seconds slow. The MET of the LEB was right on.

CAPCOM Okay, copy that. And Wally, we are standing by to watch for your primary evaporator reservice and -- if your ready for it.

SC Jack as your reading it, the steam

pressure has come up.

CAPCOM Okay, we copy that now, we see it.

The other thing is the burn 3 flight plan activity is of the SCS attitude reference check and the SLA stamping -
SCS SLA stamping we would just like to remind you of those.

SC Roger.

PAO This is Apollo Control here we have a little machine difficulty with our tape device in building 1. It will be fixed momentarily when we switch to another machine. And I'm sure I'll be given the signal when the machine is fixed. We're up and ready now.

CAPCOM Apollo 7, we copied your clock problems. We would like to give you a GET hack 074 plus 12 plus 03 in about 15 seconds.

SC Here we've got a 1665 on the board.

CAPCOM Okay.

SC The water boiler light is on again.
CAPCOM Copy. About that check, due to your water boiler comment, I'll give it to you at 074 plus 13 plus 00.

SC You can take care of the time. I'd rather have that instead. Aren't you reading me on DSKY?

CAPCOM Yes, we have a delay here, Wally, there's 4 3 2 1 mark. 074 plus 13 plus 00. We will read the DSKY but we have a delay here so we're not quite accurate.

SC Might add to that, consideration we're

7/100 of a second off.

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APOLLO 7 COMMENTARY, 10/14/68, GET: 741120 (CDT 12:16 p) 257/2
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Okay, copy. CAPCOM Okay, Jack. Did you (garbled) SC Apollo 7 Houston. CAPCOM Go ahead. SC Do you have any thoughts on why the CAPCOM evaporator didn't reservice the time before this? We gave it five minutes. This time we gave it a little bit longer. That makes it a variable. Okay, copy. CAPCOM (garbled) That may not be the answer. SC Jack, it came back spontaneously like it SC did once earlier in the flight. Roger, we copy that. CAPCOM That pressure valve, or water control SC valve is frozen closed or something? It more or less comes back on its own. SC Okay we copy. CAPCOM When I see it coming back I apparently help it along by throwing a little water on it. Walt, or Wally, do you think it might be CAPCOM a sticky solenoid in the water control valve? Could be, it's that kind of a trouble. Okay. CAPCOM Apollo 7 Houston, 1 minute LOS Carnarvon. CAPCOM Hawaii in 18 minutes. That's what we've got here.

Roger.

END OF TAPE

CAPCOM

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APOLLO 7 COMMENTARY, 10/14/68, GET: 744025 (CDT: 1:46p) 258/1
                     This is Apollo Control Houston. At 74
hours and 40 minutes into the flight we have acquired Hawaii
and here is what is going on.
                     Apollo 7, Houston through Hawaii.
     CAPCOM
                     Yes sir.
     SC
                     You are loud and clear. We would like
     CAPCOM
to pass up this WSMR rendezvous radar test data now - before
we get all tied up with burn procedures.
                     Okay. We were thinking about that our-
selves.
         (garble)
                     Okay, let me know when you are ready to
     CAPCOM
copy.
                     Go ahead.
                 Okay, you are roll attitude will be 349.3 Your GET AOS will be 76 plus 23; estimated
     CAPCOM
6305.8 yaw 061.
GET rendezvous radar lock 76 plus 25; there is a remark to
rendezvous transponder heater ON, at 76 plus 00.
                     Roger, understand. Altitude 349.3 305.8
     SC
         LOS at 76 plus 23, lock on at 76 plus 25; heater on
061 00.
at 76 plus 00.
                     Roger; that yaw attitude would be better
     CAPCOM
at 060.8.
                     We will get it pretty close to 060 Jack.
     SC
                     Okay.
     CAPCOM
                             Do you people have any "druthers"
                     Roger.
for S band antennas covering these burns?
                     Okay, stand by; we'll get it to you.
     CAPCOM
                     Jack, on this slosh test - that's all
the more reason to go to (garble) during the burn.
                     Roger Wally. We copy.
     CAPCOM
                     Thank you. I'm going down into attitude
      Hey, Jack, is the S4B still up?
                     Affirmative.
      CAPCOM
                     I don't know if we ever reported to you;
      SC
Wally and I observed it visually when it was about 400 miles be-
hind us and it looks as though it's almost in position now.
                     Okay, stand by. We will give it to you
      CAPCOM
exactly.
      SC
                      (garble)
                     Apollo 7; the S4B appears to be about 700
      CAPCOM
 and some odd miles ahead of you.
                     Roger. AOS -
      SC
```

APOLLO 7 COMMENTARY, 10/14/68, GET: 745600 (CDT: 0:01p) 259/1

This is Apollo Control Houston, 74 hours and 56 minutes into the flight. We are in touch with the spacecraft which is almost directly over Houston and here is how that conversation is going.

Huntsville 2 way lock solid range. CAPCOM

SC Apollo. CAPCOM Go ahead.

I think we are passing over Baja, Cali-SC fornia, again. I took the frame, magazine O (garble) 55 and 56 Hawaiian Islands, 57 and 58 were Baja, California, Gulf of California.

CAPCOM Roger, copy that one. Apollo 7, Houston.

SC Go Houston.

Roger, we would like for you to turn your CAPCOM O2 fans to ON for 3 minutes here.

Hey, Jack. Every several hours I've been

switching fans like this.

Okay, copy that. Walt, when was the last CAPCOM time you did it on tank 1?

On tank 1 - Oh, maybe an hour and a half SC

ago.

CAPCOM Okay, we would like you to do it again

here if you would.

Done. Jack, I gave you the wrong frame number a while ago. It's 65 and it looks like about 58 and 59 with the Hawaiian Islands and 60, 61, 62 coming across the Gulf Coast of Mexico.

CAPCOM Okay, copy.

Houston, Apollo 7. SC

CAPCOM Go ahead.

Did you get the fuel usage on the backup SC alignment technique?

I'll see if I can get some figures on CAPCOM

that for you to pass up.

Okay, the fuel we had before. we tried the - before the alignment up here - the fuel we had when we came across the States on the TV pass.

CAPCOM Okay, Apollo 7, Houston. You can turn

the 02 tank 1 fan off.

Tank 1 fan is off. Is it your wish only to have one running at a time from either of those two busses or do you intend to keep the pump off and put them on for the

next (garble).

Okay, Walt. What we're going to do, what CAPCOM we have been doing, is having only one fan on at a time. What we are going to do over Ascension here we want you to turn the fan tank 2 off and then you'll have them both off and after the burn we'll turn the number 2 fan back on.

Okay, I got both of them off now. You SC

want number 2 back on?

Roger. Turn number 2 on right now; we'll CAPCOM

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APOLLO 7 COMMENTARY, 10/14/68, GET: 745600 (CDT: 1:01p) 259/2
turn it off in at Ascension.
                    Roger. I just took 63 and 64 of magazine
     SC
"0".
                    Okay. Apollo 7, Houston.
     CAPCOM
                    Roger; go.
     SC
                    Roger. On that question about the RCS
     CAPCOM
fuel usage for the period across the States and including
the backup alignment we - about all we can accurately pre-
dict is about 5 pounds of RCS fuel usage.
                    You had to predict that? You couldn't
                    (garble) Again, we would like to have
measure that, huh?
an update to our onboard charts now, if you have it, and then
one after the burn, please.
                    Okay, coming up.
     CAPCOM
                    Jack, while you're at it, I'd like you to
     SC
consider the chlorination of our water today. It took just
about - oh, about 3 (garble) before it started tasting
palatable again.
                    Okay, copy
     CAPCOM
                    Put chlorine in tomorrow.
     SC
                    Okay, stand by. Apollo 7, are you in
     CAPCOM
auto in the primary evaporator steam pressure?
                    That's affirmative and I see (garble)
     CAPCOM
                    Okay.
                    This time I'm not going to try to increase
it; just try to turn the water on.
                    Okay, Apollo 7; we don't want you to do
     CAPCOM
that.
                     Okay. Must be dried out.
     SC
                     Okay, stand by 1
     CAPCOM
                     Okay, I'm falling (garble) now; attempting
     SC
(garble)
                     Okay, we concur on it.
     CAPCOM
                     It seems to be coming up.
     SC
                     Roger; we copy.
     CAPCOM
                     And Walt; we suggest that you leave the
     CAPCOM
back pressure valve closed until after the burn and then
we'll think it out; we'll have the answer to Wally's chlorina-
tion question after the burn also.
                     Isn't that; we had some pretty bad
water; it was pretty disappointing.
                     Okay copy.
     CAPCOM
                     I couldn't eat the last part of my
last meal yesterday cause I didn't want to put that water
in it.
      CAPCOM
                     Roger.
                     A lift off agreement was that if it
tasted bad, we'd stop; we're just proposing to knock off
one day.
                     Okay, we copy.
      CAPCOM
      SC
                     Roger.
```

APOLLO 7 COMMENTARY, 10/14/68, GET: 750600 (CDT 01:11p) 260/1

SC Houston, I've been able to get this up to a normal range so - I suspected a little manipulation of the water flow and just got the motor operating again, that's the way I did it once before.

CAPCOM Roger, copy. And Walt, the figure to update your onboard RCS chart is 800 pounds, 800.

SC Understand 800 now and will be standing by for one after the burn. And what does Quad C have now?

CAPCOM Stand by.

CAPCOM We will pick you up over Ascension in

about 6 minutes, Walt.

PAO And at 75 hours 07 minutes into the mission, Apollo 7 goes over the hill from Antigua and as you heard Jack Swigert say, we will pick you up at Ascension in a few minutes. This is Apollo Control in Houston.

APOLLO 7 COMMENTARY, 10/14/68, GET: 751600 (CDT 1:21p) 261/1

PAO This is Apollo Control Houston, 75 hours, 16 minutes and we have established contact with the crew by Ascension and a most interesting piece of information results from the conversation. Wally Schirra mentioned that Walt Cunningham came up in the line to confirm that in fact they had seen and observed and tracked a star in daylight. I'll say that again that the crew confirms they saw and tracked a star in daylight. Here is the tape of the conversation as we move through the Ascension area.

CAPCOM Apollo 7, Houston. Hello Apollo 7, Houston. Hello Apollo 7, Houston. Hello Apollo 7, Houston.

SC Roger, I'm clear.

CAPCOM Roger, you're not coming in loud and clear, I'll again remind you on the star check that the sextant stars are not visible after 75 plus 35.

SC Roger, we're set up.

CAPCOM And I just wanted to recheck on what the stars look like and also Jack will talk to you now on the ground.

SC Okay, we think we had a star check in

daylight, but we're not sure.

CAPCOM Okay.

SC The approximate attitude and I looked for the star and it came in with auto optics. I'm pretty sure it was lined up and I'm pretty sure I was looking at the right star in the daytime using a sextant only.

CAPCOM Okay, real good.

SC Okay.

CAPCOM And Walt, the question you asked on quad C fuel, the readout is 177 lbs. Your omni antenna for the burn will be omni B, Baker, and we would like you to turn the O2 fans in tank 2 to OFF.

SC Tank 2 is off, 177, I assume that's

quad C.

Quad C, Charlie.

SC Roger, and I've got a antenna B for

the burn.

CAPCOM

CAPCOM Apollo 7, Houston. One minute to LOS Ascension. We'll pick you up at Tananarive in 10 minutes. SC Roger.

APOLLO 7 COMMENTARY, 10/14/68, GET: 753105 (CDT 01:36p) 262/1

This is Apollo Control Houston 75 hours 31 minutes into the flight. The spacecraft is approaching the Tananarive site and the first call is going out to them.

The SPS burn, burn number 3, is pres-PAO ently programed 17 minutes from now, at 7548. It will be a 9 second burn, 211 feet per second. It will be done with the big engine out of plane. The resulting perigee should be 90 miles with an apogee of 160. The burn itself should take place over Australia, about 3 minutes into the Australian Correct that - well, 3 minutes into the Carnarvon area, actually pass will take it - take the spacecraft northwest of the Australian continent. It will run parallel about 500 miles northwest Australian coast, and then swing up through the island chains through the Pacific.

Well, I think it's unlikely that we PAO will get a conversation via Tananarive, so let me take the line down and wait for Australia. At 75 hours 34 minutes

into the flight, this is Apollo Control Houston.

```
This is Apollo Control Houston 75 hours
45 minutes into the flight and we're only a few minutes away
from the third burn - major burn - of this flight, a 211 foot
per second burn which will be done out of plane with the
engine pointed south. The engine pointed south. Jack
Swigert is now counting the crew down to mark T minus 2 min-
utes away from the burn. On the stateside pass this next
rev, or this present rev which is rev 48, the radar trans-
ponder test between the spacecraft and White Sands Missile
Range will be repeated. The rendezvous transponder heater
will be turned on a good 10 minutes before the test.
may have had something to do with the lack of data on the
      There was some question as to just when that heater
had been turned on in the other elements. This time it's
gotten a little more attention, and we're standing by for
the burn. Donn Eisele's in the commander's seat. Wally
Schirra has moved over to the right couch, and Walt Cunningham
is in the center couch. All quite in the spacecraft. Seconds
are counted off. 15 seconds, 5, 4, 3, 2, 1, zero. Ignition,
and we see thrust, beautiful cutoff, says Cunningham, here is
their report.
                    Apollo 7, Houston through Carnarvon.
     CAPCOM
                    Roger.
     SC
                     I'Ī1 give you a time hack at 2 minutes.
     CAPCOM
                     Roger, standing by. The FDAI still 5 5.
     SC
                    Okay, 10 seconds to time hack 6 5 4
     CAPCOM
             T minus 2 minutes.
3 2 1 mark.
                     Speed normal. Key controllers on.
     SC
                     One is on
     CAPCOM
                     Heat controller on. Limit cycle off.
     SC
                     Limit cycle off.
      CAPCOM
                     Standing by for 30 seconds.
      SC
                     Roger.
      CAPCOM
                     (garble)
      SC
                     For jetto's in 15 seconds.
      CAPCOM
      SC
                     10 9 8 7 6 5 4 3 2 1 zero.
      CAPCOM
                     Beautiful cut-off.
      SC
                     (garble) cut it off 1 2 3 and 4.
      SC
                     Did you pick up that SLA stamping jazz?
      SC
                     Roger, copy.
      CAPCOM
                     That's all that we want. Jack, are you
 picking up any residuals?
                     Affirmative we copy.
      CAPCOM
                     T .3 minus 14.3.
      SC
                     Copy the Delta V (garble)
      CAPCOM
                     Care if I turn my channels off?
      SC
```

APOLLO 7 COMMENTARY, 10/14/68 GET: 754531 CDT 1:51p

263/2

SC That will be all.

SC That's all of it. They're off. They're off. (garble) stand by. Locked and all channels are off.

CAPCOM Roger, copy.

Walt says he is surprised how that thing SC

really slaps you.

CAPCOM Roger, I bet.

SC Jack, on that SLA stamp we're getting absolutely no firings at all. And 4 degree dead band.

That's what we like to hear. CAPCOM SC Yes, that saves a lot of fuel.

APOLLO 7 COMMENTARY, 10/14/68, GET: 755838 (CDT 02:04p) 264/1

PAO This is Apollo Control Houston 75 hours 58 minutes into the mission. We have acquired through Guam and we have also had a chance to look at some of the data - that burn came exactly as programed, the resulting orbit is 90 miles by 160. The crew was congratulated by CAPCOM Jack Swigert. Here is how the conversation is going as we move through Guam.

CAPCOM Apollo 7, Houston through Guam.

SC Roger.

CAPCOM That was a real good burn, Wally. We confirmed your orbit on radar, 90 by 160.

SC Roger.

CAPCOM And we would like to have your 02

fans tank 2 to AUTO.

SC Done.

CAPCOM Okay and O2 fans tank 1 to OFF, and remain in this configuration until ground cue.

SC Roger, standing by.

CAPCOM Okay. After the WSMR radar test which is coming up, we will be ready to power down and set up housekeeping.

SC Roger.

PAO This is Apollo Control here. It is questionable whether we will get any additional - here comes a call now. They are being given 1 minute to LOS.

SC (garble)

CAPCOM We couldn't copy that, Wally. Say that again.

SC Roger. We have the transponder heater on, we are working into attitude.

CAPCOM Okay, real fine, real fine.

PAO Apollo Control here. Wally says they are getting set up for the transponder run over White Sands again, which is upcoming on this pass. Following that third burn, here are some numbers on the remaining propel-SPS fuel weight in pounds remaining is 2,874; SPS oxidizer weight in pounds remaining is 4,683 - 4,683 oxidizer, 2,874 fuel. Then you add those together and you have your propellant. In the quads, the reaction control system engines - they read thusly: quad A shows about 175 pounds of propellant, that's a combination number; quad B is 201; quad C is 171; and quad D as in dog is 201. Apollo 7 is being told that an aircraft ARIA 3 is out east - is between the Guam circle and Hawaii. If they have anything to transmit, they can reach us through that aircraft, a KC135, five of which are available for deployment in the specific areas between ships, giving us very extensive tracking coverage.

APOLLO 7 COMMENTARY, 10/14/68, GET: 755838 (CDT 02:04p) 264/2

PAO At 76 hours 05 minutes of Apollo 7, this is Houston.

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APOLLO 7 COMMENTARY, 10/14/68, GET: 761555 (CDT 2:21p) 265/1
PAO This is Apollo Control Houston, 76 hours,
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15 minutes. Through Hawaii, we are having this conversation. CAPCOM Apollo 7, Houston through Hawaii standing

by. Apollo 7, Houston through Hawaii.

SC Roger.

CAPCOM Read you 5 by Wally. We had a real good - close look at the SPS data and it was right down the line. Real good operation.

SC Roger, sounds like I got a good engine.

CAPCOM It sure does. Apollo 7, Houston.

SC Roger.

CAPCOM Okay, Wally, on your question on the chlorination, you may delete the chlorination for today. We'll ask you for some later data on the tapes of your water as we go along.

SC Roger, (garble). Very good.

SC Jack.

CAPCOM Alright, go ahead Wally.

SC If there's a power down, I'd like to leave one of the blue bags there to check our speed-up rate during drifting flight. I'd like to start drifting flight with our rate almost to 0 and then we'll see how that develops.

CAPCOM Roger, we concur.

SC We heard a report last night that Lunney said it looked like we were very stable, but it turned out not to be true.

CAPCOM Which one do you plan to leave on, Wally?
SC (garble) lifters, we could get a check on
this control board, we're another 2 (garble) rate high, SCS
attitude low.

CAPCOM Roger, we copy.

SC garble. Got to prepare that square for

the GTO.

SC garble.

SC garble, the command, garble.

```
APOLLO 7 COMMENTARY, 10/14/68, GET: 762555 (CDT: 2:31 p) 266/1
                     Roger understand; the reading is coming
     SC
up.
     SC
                     (Garble)
                               That's about 1.12 volts. Roger.
                     (garble)
     SC
(garble) 145. - 1.50.
                     Roger; understand. Solid of 15.
     CAPCOM
                     Roger; that's good news.
     SC
there.
     CAPCOM
                     Roger.
                      - point is 1.8. 1.7 (garble)
     SC
     CAPCOM
                     Roger.
                               about 1.4. (garble) feel
     SC
                     (garble)
a lot better.
     CAPCOM
                     Okay.
                     Looks like we beat the Gemini 6.
     \mathsf{SC}
     CAPCOM
                     Roger.
                     Still in having LOX 1.5 in through (garble)
     SC
                     Okay; 1.5.
     CAPCOM
                     Just dropped off and she's down. (garble)
     SC
good job. I think I started the other LOX.
                     Okay, start the - here.
     CAPCOM
                     Okay.
     SC
     CAPCOM
                     Okay.
                     (garble)
     SC
                     Yeah, you're gonna be cutting across down
     CAPCOM
around Mexico City shortly.
                     (garble)
     SC
                     Okay, as soon as we find out the data
     CAPCOM
Wally; we'll call it back to you.
                     Okay, I'm sure glad to see you got
     SC
that one.
                             Apollo 7, Houston.
     CAPCOM
                     Roger.
     SC
                     (garble)
                     Roger. White Sands said they had locked
     CAPCOM
on solid, had good data, they had you at 450 miles for 50
seconds.
                     Mexico; you mean they copied it?
     SC
                     Yeah, right - rate ourselves pretty
     CAPCOM
good doesn't it?
                     Good news.
     SC
                     Good show
     CAPCOM
                     I'm going to get out of this -
     SC
     CAPCOM
                     Yuk.
                      - mode. I can't guarantee (garble)
     SC
TV of the picture.
                     (laughter only)
     CAPCOM
                     Some kind of small success there.
     SC
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APOLLO 7 COMMENTARY, 10/14/68, GET: 762555 (CDT: 2:31p) 266/2
                      The DPO's are looking pretty good.
     CAPCOM
                      Roger.
     SC
CAPCOM They sure looked good around SCS burn too; that looked bright as the dickens.
                      (garble)
     SC
     CAPCOM
                      Roger.
                      (garble)
     SC
                      Roger; we have yaw at 70 degree at this
     CAPCOM
time.
                      (garble) so we won't worry about that
     SC
at Carnarvon.
                      Roger; I'll give your regards to MIT.
     CAPCOM
                      We'll drop another (garble)
     SC
      CAPCOM
                      Somewhere we're planning to power down here;
      SC
does that jive with your revised?
                      That's right; we're going to power down
      CAPCOM
shortly.
                      Okay, we'll leave the (garble)
      SC
up.
      CAPCOM
                      Okay.
```

APOLLO 7 COMMENTARY, 10/14/68, GET: 765000 (CDT 0253p) 267/1

pao This is Apollo Control at 76 hours 50 minutes into the mission. At present time the spacecraft is coming up on the Ascension tracking station. Actually, the spacecraft will be passing well south of Ascension, and this will very low elevation pass. We would not expect a great deal of communications to develop between the ground and the crew. However, we will stand by for any conversations that might develop with the crew on this pass and during that previous stateside pass, the crew was given a go-ahead to begin powering down the spacecraft. We just got the call to the spacecraft, CAPCOM Ron Evans will pick up that conversation as it develops.

CAPCOM Apollo 7, Houston. Your waste quantity is now about 77 percent and you have a go to dump at

your convenience.

SC

Roger. We will probably wait (garble)

Ron.

CAPCOM Roger.

This is Apollo Control. We have lost signal at Ascension. The next voice station to acquire will be the Tananarive tracking station. During that pass, you heard the ground advise the crew that the waste water tank was approaching 70 percent - 77 percent full mark and that the crew was advised to dump the tank at their conven-Donn Eisele is scheduled his sleep cycle and as we ience. mentioned before, the spacecraft will be powered down. will be primarily the guidance and navigation system and the stabilization and control system. These two systems were no longer needed after that very successful SPS burn. Here in Mission Control Center, we are presently going through the change of shift. Flight Director Gene Kranz will be replacing Glenn Lunney on the console and we would like to advise that the best estimate on the change of shift news briefing will be 3:30 pm. That will be in the Building 1 press Center. At 76 hours 55 minutes into the flight, this is Apollo Control.

APOLLO 7 COMMENTARY, 10/14/68, GET: 770420 (CDT 3:07p) 268/1

PAO This Apollo Control at 77 hours, 4 minutes into the flight. The spacecraft is just passed over the southern tip of Africa and is moving toward the Tananarive tracking station in the middle of the night side pass. We'll stand by for Cap Com Ron Evans to put in a call into the crew.

CAPCOM Apollo 7, Houston, Tananarive standing

by.

SC Roger, go ahead.

CAPCOM Roger.

SC Good afternoon Ron.

CAPCOM Yeh, watched the tail end of your burn there, it looked real good.

SC Perfect.

CAPCOM Apollo 7, Houston. About 1 minute till

į.

LOS. We'll have your block data at Hawaii.

pAO This is Mission Control. We've had a loss of signal at Tananarive on that rather quiet pass. The next station to acquire the spacecraft will be the tracking ship Mercury in about 20 minutes. This is Apollo Control at 77 hours 12 minutes into the flight.

This is Apollo Control at 77 hours PAO 30 minutes into the flight. The spacecraft has just been acquired by the Mercury tracking ship. However, we've been advised that we probably will not have voice communications on this pass over the Mercury. The ship is having trouble with the antenna used to relay communications via the Now we do have overlapping coverage on this pass satellite. with the tracking station at Guam and we'll be stand by for Cap Com Ron Evans to put in a call to the crew as the spacecraft approaches Guam.

Apollo 7, Houston. CAPCOM

SC

Go ahead, Ron. Roger. I have your block data in CAPCOM number 9 to give you.

Ready to copy.

Roger. 051 dash 3-Bravo plus 308 plus CAPCOM 1380. 080 plus 23 plus 36 - 2420 - 052 dash 3-Bravo plus 308 plus 1380. 082 plus 00 plus 15 - 3731. 053 dash 3-Alpha plus 266 plus 1370. 083 plus 36 plus 27 - 4280. 054 dash Alpha-Charlie. Minus 069, minus 0150 - 084 plus 22 plus 07 -4400.

Want us to repeat that?

Negative, output on me. I'll start again CAPCOM with 055 now. 055 dash Alpha-Charlie plus 026 minus 0220. 085 plus 55 plus 07 - 3988. 056 dash Alpha-Charlie plus 118 minus 0300. 087 plus 28 plus 31 - 3674, over.

Roger, read that. 051 dash 3-Bravo SC plus 308 plus 1380. 080 plus 23 plus 36 - 2420. 052 dash 3-Bravo plus 308 plus 1380. 082 to 00, 15 - 3731. 053 3-Alpha plus 266 plus 1370. 083 to 36 to 27 -4280. 054 Alpha-Charlie minus 0690 minus 0150. 084, 22, 07 - 4400. 055 Alpha-Charlie plus 026 minus 0220. 085, 55, 07 - 3988. 056 Alpha-Charlie plus 118 minus 0300. 087, 28, 31 -3674, over.

Apollo 7, Houston, you read back correct. CAPCOM

Go ahead, Ron. SC

Apollo 7, Houston, let's check the one CAPCOM The Delta-VC should be 3420. on fifty-first rev.

On 051 3-Bravo. SC

CAPCOM Roger, on 051 3-Bravo. 342 on 51 rev, Roger. SC

Roger, just about LOS. We would like CAPCOM to start battery B charging over Hawaii after we pick up data. Across. SC

This is Apollo Control we had loss of PAO signal from Guam. During that pass the ground passed up to

269/2

APOLLO 7 COMMENTARY, 10/14/68, GET: 773020(CDT 3:30p)

spacecraft information which the crew would use for REV 51 through 56 in the event a contingency situation developed requiring re-orbit and spacecraft goes out of touch with ground stations. This is a routine block update which is passed up regularly to the crew. They were also advised to begin recharging battery B. This would be to replace electrical energy removed from that battery during the SPS burn some 2 hours ago. This is Apollo Control at 77 hours 39 minutes into the mission.

```
This is Apollo Control at 78 hours
     PAO
25 minutes into the flight. We've had a relatively quiet
period of time here in the control center since the Press
                   The spacecraft completed a pass over the
Conference began.
Hawaii, Huntsville, Guaymas. And we have a small amount of
conversation with the crew that developed during those passes
that we'll play back for you now.
                     Apollo 7, Houston through Hawaii.
     CAPCOM
                     Roger.
     SC
                     Roger, we have data you can commence
     CAPCOM
that B charge any time.
                     Roger, commencing now. Is there any-
thing in particular you're observing there for voltage charge.
                     Okay. Apollo 7, Houston, we just want
     CAPCOM
to look at the voltage and the current. We would also like
to get your onboard reading of the current when you start it
up.
                     Roger, it's kind of interesting.
charger is showing EC amps at zero.
                     That is interesting.
     CAPCOM
                     Wouldn't be defective, is it?
     SC
                     Not quite.
     CAPCOM
                     Now we're on battery B, it's showing
     SC
2.2 amps. (garbled)
                     I don't want a key hole now, Walt, I
     CAPCOM
can't compare it.
                     Go ahead.
     SC
                     I want a key hole over Hawaii.
     CAPCOM
                    We'll pick up data here shortly.
can't compare it.
                     Okay. I was pretty sure the volts
give way two light amps.
                     Roger.
     CAPCOM
                     Walt, we're showing the 2.18 amps now
      CAPCOM
and 37.4 volts.
                     Huntsville, two along evaluate range.
     HTV
                     Apollo 7, Houston.
      CAPCOM
                     Apollo 7, Houston, about 1 minute till
      CAPCOM
LOS.
                     Roger, we can production now on
imperial photography.
      CAPCOM
                     Roger.
                     We're trying to show just how mobile
      SC
you can be inside of this thing.
CAPCOM Very good. Walt, for your information there the cut-off on that charge will be .4 amps or amp
hours replaced.
```

APOLLO 7 COMMENTARY, 10/14/68, GET: 782500 (CDT: 4:30p) 270/2

SC I understand sounds like try to get to 4.4 amps first or look for amp hours, right?

CAPCON Roger.

PAO This is Apollo Control. The spacecraft is now orbiting out across the South Atlantic toward southern tip of the African continent. And we expect acquisition with the Tananarive tracking station about 8 or 9 minutes from now. This is Apollo Control at 78 hours 30 minutes into the flight.

PAO This is Apollo Control at 78 hours 41 minutes. Capcom, Ron Evans, has just put in a call to the crew from the Tananarive tracking station and we will stand by for any conversation there.

pao This is Mission Control. It doesn't appear that we are going to have any conversation with the crew on this pass over Tananarive. Things have been very quiet on this shift since Flight Director Gene Kranz took over. Activities involve mainly with each of the individual flight controllers reviewing the systems he is responsible for on the spacecraft and reporting to the Flight Director. And we might add, that all those systems appear to be functioning very well at this time. This is Apollo Control at 78 hours 45 minutes into the flight. We will pick up next at the tracking ship Mercury.

This is Apollo Control at 79 hours PAO 2 minutes. We're coming up now on the tracking ship Mercury. We do expect to have communication with the crew on this pass over the Mercury, and we'll have some overlapping coverage from Guam. We'll stand by as we wait for Cap Com Ron Evans to put in a call to the crew.

Apollo 7, Houston, Mercury. CAPCOM Houston, Apollo 7, do you read? SC

Houston, Apollo 7, over.

Apollo 7, Houston. Roger, we read you CAPCOM

and we request your battery charger current?

That can wait. We had another problem when we left you awhile ago. We could hear you call us over Tananarive, but we couldn't raise you. The SPS burn left a large puddle of water on the aft bulkhead. At first we were very concerned about whether it was water glycol or water we're pretty sure it was replace water. We checked further and discovered that it was underneath the two pad. Since that time we mopped it up using the water hose electrical system. The water came from the coolant lines that we used to use and the water coolant lines and its condensation. We took a follow-up and the small perforator panel to determine how to work the problem. Houston, Apollo.

Roger, we copied part of that I think, Looks like you've got water on your aft bulkhead and Walt. it came from the water coolant line. I'm not sure of your condition at the present time, if it's still coming in or

not.

It's all mopped up. It's condensate water we're positive. It will probably occur again. We feed a full story on the tape to the dump. Roger, go ahead. Roger, I understand it's all on the CAPCOM

voice tape for the dump also.

Right, and the battery charge occurred. I'm showing about .6 amps. Looked to me like it jumped up real fast here and then took a long time on the plateau. Roger, we concur. We're reading .55 CAPCOM

now, Walt.

Okay, I'll let you take the EGB posted because I never got below .5 last time and you got down to about .41.

Roger, we understand. We're estimating CAPCOM

about 10 hours to get down to .41.

SC Okay, why don't you and the rest of the gang have a drink for us to celebrate Donn and my fifth anniversary in the program today.

Hey, great by golly will do. CAPCOM

At this rate I'll be an old man by my

second flight.

Walt, we could also use your Service Module RCS quanity readings, and then we will correct them for you.

Roger, I'll give to you. We haven't been too concerned with onboard read-outs, since we're going with your quanities.

Roger. CAPCOM

The 54 RCS-B is reading - well the same RCS-B is reading 60. (garbled) B is reading 65, SC as it was. over.

Roger, say again Charlie. CAPCOM

Roger, Charlie is reading 60. SC ·

Roger, 54 nothing or 93, and 60 and CAPCOM

Roger, we have it. I think we'd be 65. interested in GS quanities for each of our quad. Alright, we'll work it out and send it CAPCOM

And I don't think we ever got a total back. quanity for our how goes it through A numbers on my RCS profile as I carry in my checklist.

Roger, we're looking up on all that. And we've got a status coming up to you. It'll be coming up

a little later. We thank you. And we have our own estimate of the new Service Module RCS red line. Interesting to see what you guys come up with.

Roger. Wally, you might like to know that parties or harnesses become disconnected again. We don't read the heart rate down there.

Oh. SC

The spacecraft This is Apollo Control. has apparently gone over the horizon from the tracking ship Mercury, and we never did acquire from the Guam station. As you heard Astronaut Walt Cunningham reported to the ground what he characterized as a minor problem. He reported a puddle of water had collected on the spacecraft aft bulkhead. He said it had apparently had condensed off the relatively cool environmental control water coolant lines and had condensed out into the form of a puddle. And they reported that they mopped it up. Cunningham also as you heard reported that today is the fifth anniversary for himself and Astronaut Donn Eisele with the space program. We'll next acquire the spacecraft perhaps at hawaii. That will be a very low elevation

APOLLO 7 COMMENTARY, 10/14/68, GET: 790140 (CDT 5:05p) 272/3

pass if we acquire at all as the spacecraft moves south of the Hawaiian Islands and then move down over the tracking ship Redstone. This is Apollo Control at 79 hours 11 minutes.

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APOLLO 7 COMMENTARY, 10/14/68, GET: 792000 (CDT 5:25p) 273/1
                    This is Apollo control at 79 hours 20
     PAO
minutes, the spacecraft will be acquired by Hawaii shortly,
and we'll stand by for any conversations that develop with
the crew on this pass.
                    Apollo 7, Houston, opposite OMNI.
     CAPCOM
                    Apollo 7, Houston.
     CAPCOM
                    Roger, opposite OMNI.
     SC
                    Roger, Walt we'd like to request 02
     CAPCOM
tank one fans on for about five minutes now, then off.
                    Roger, tank one fans on.
                     If you get a chance, look down on the
     CAPCOM
ground there you might be able to see a big fire.
                     Where at?
     SC
                    You may not see it tell the next pass,
     CAPCOM '
it's over in Hawaii.
                     Roger.
     SC
                     You say that big fire is to the west?
     SC
                     Yea, that's affirmative, we'll try to
     CAPCOM
give you some pointing data for the next pass over.
                     Thank you.
                    Huntsville two way log, down link
     CAPCOM
weak, to weak for valid range.
                     Huntsville two way log, valid range.
      CAPCOM
                     Houston, Apollo 7.
      SC
                     Houston go.
      CAPCOM
                     Roger, we also just discovered water
      SC
coming out of our blue hoses, at least the one in the
center couch, I haven't checked the other three yet, but
we've got quite a bit of visible moisture flowing out of it.
                     Roger, coming out of the blue 02 hose,
      CAPCOM
 is that what you said?
                     Affirmative, and we've temporarily
 turned off the temperature pressure so we could clean up -
```

Roger.

here, I only wish it was a problem.

I know there's going to be a problem

END OF TAPE

clean it up.

CAPCOM

HTV Nell, we have had loss of signal. Now from the Huntsville. You heard the crew advise that they have water coming out one of the oxygen hoses and have turned off the suit compressor which apparently has stopped the flow and is allowing them to clean it up. We have no further evaluation at this time. Flight Director Gene Kranz is discussing the situation with the flight controllers. It doesn't appear to be a serious problem, however, at this point. Our next pass will be over the Tananarive tracking station. We are scheduled to acquire there at 80 hours 12 minutes and we will pick up the pass at that point. This is Apollo Control at 79 hours 33 minutes into the flight.

APOLLO 7 COMMENTARY, 10/14/68, GET: 793730 (CDT 5:40p) 275/1

This is Apollo Control, 79 hours 37 min-We have a few more details on the situation which Walt Cunningham reported to the ground a short while ago concerning water coming from one of the oxygen hoses, and forming a puddle on the floor of the spacecraft. Apparently this is the same nature of problem as we noted a short while earlier, and that is moisture in the cabin condensing off cool surfaces and forming puddles on the floor. The primary concern is the inconvenience it causes the crew rather than any significant problems with the spacecraft, itself. We do have a humidity survey coming up on the flight plan shortly. and this would give some indication of what the humidity is in the cabin. However, flight director, Gene Kranz, advises that the humidity in the cabin has been running well within the comfort level and apparently the condensation is a process that occurs when moisture, which is naturally in the air and the atmosphere of the cabin, comes in contact with exposed cool surfaces. We will continue to follow the situation and advise if any further developments relevent to it occur. This is Apollo Control at 79 hours 39 minutes.

This is Apollo Control at 80 hours 14 min-PAO The spacecraft is about to come into range of the Tananarive tracking station and we will pick up any conversations that come out of this pass over Tananarive.

CAPCOM Apollo 7, Houston. (Pause) Apollo 7,

Houston through Tananarive.

SC Roger, we can slide by one.

CAPCOM Roger. We sure could use your battery

manifold pressure - systems test 4A.

We read the temperature about a half an hour ago when we used it to dump something and it stayed 1.4 until you opened the vent and when you opened the vent it reads about point five.

CAPCOM Roger.

SC Read? Did you read that, Ron?

Apollo 7, Houston. Roger, read one point CAPCOM

four and zero point five when you opened the vent.

Roger, and we checked our lithium hydroxide canisters. They are dry. We have checked the suit circuit water (garbled) and it's functioning in auto 1 and auto 2. It's remaining in auto 2.

CAPCOM Roger. Have you come to any specific

point in the malfunction procedures? Not yet.

CAPCOM Apollo 7, Houston. (Pause) Apollo 7,

Houston.

SC Go.

CAPCOM Roger. Looks like our battery is charging current decreasing a little faster than predicted and we would like your onboard reading.

I am reading point 5 amps. SC Roger.

CAPCOM Roger. Point 5. We will keep you advised on it. Walt, that volcano should be about 30 degrees down and 20 degrees left of local vertical at 80 plus 57.

80 plus 57 and 30 degrees down and 20

degrees left.

CAPCOM Roger. Local - -

SC Garbled

Roger, 30 degrees left, 20 down and CAPCOM 30 left. Now belay that. 30 degrees down and 20 left of local vertical.

30 down and 20 left and 80 hours 57 min-SC utes.

CAPCOM Affirmative. (Pause) Apollo 7, Houston. APOLLO 7 COMMENTARY, 10/14/68, GET: 801330 (CDT 6:15P) 276/2

CAPCOM

One minute LOS. Mercury at 35.

SC

Roger, Mercury 35.

PAO We have had loss of signal now from Tananarive. The next station to acquire the spacecraft will be the tracking ship Mercury and we expect acquisition there in about 16 minutes. This is Apollo Control at 80 hours 21 minutes.

CAPCOM Apollo 7, Houston. Request biomed to position three. SC Roger.

CAPCOM 30 seconds LOS, Hawaii at 53.

Hawaii 53. What Islands are we going SC

by?

CAPCOM Roger, be going south of the Big Islands. SC Roger.

PAO This is Mission Control. We've had loss of signal now from the Mercury. You heard Wally Schirra, again mention the problem with moisture coming from the oxygen hoses from the suit supply. The initial assessment on that moisture from Cunningham was that it was condensate, and the feeling here in Mission Control Center is that it does represent condensation rather than any leak from the spacecraft. The crew was advised that they will be in good

APOLLO 7 COMMENTARY, 10/14/68, GET: 803630 (CDT 6:40p) 277/2

pAO position to view the volcano erupting on Hawaii. Now that is the volcano Kilauea and I don't vouch for that pronunciation. They will be coming up within - uh within range of the volcano approximately 80 hours 57 minutes elapsed time and it's predicted they will have a clear view of the area. This is Apollo Control at 80 hours 45 minutes. END OF TAPE

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APOLLO 7 COMMENTARY, 10/14/68, GET: 805430 (CDT 7:00p) 278/1
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This is Apollo control, 80 hours 54
minutes, we've just acquired the spacecraft from Hawaii and
we'll stand by for any comments from the crew or conversa-
tion on this pass.
                      Apollo 7, Houston, Hawaii, via S-band.
     CAPCOM
                      Apollo 7, Houston. Hawaii M&O VHF for
     CAPCOM
a bit.
                      Apollo 7, Houston.
      CAPCOM
                      Roger.
      SC
                      Roger, S-band volume up.
      CAPCOM
                      Roger, on S-band.
      SC
                      Roger, Hawaii of M&O VHF off now.
      CAPCOM
                      We re standing by this pass.
      CAPCOM
                      Apollo 7, Houston, I recommend terminate
      CAPCOM
battery charging on B.
                      Roger, terminate. I'd like to get a
report from you on how much we have in B if you get a
chance and also A.
                      Welco.
      CAPCOM
                      Roger, we got a good sweep down the
entire chain. The big island itself is pretty well clob-
bered with clouds and you don't actually see Kilauea.

CAPCOM Rog, that's a heck of a note.
      SC
                       It's the clearest we've ever seen it
out here over Hawaii though, we got very nice pictures of
the entire chain, we took them, but we don't know how good
they are.
                       Roger.
      CAPCOM
                       Apollo 7, Houston, 30 seconds LOS,
      CAPCOM
Mercury at 82 plus 10.
                       Roger, Mercury at 82 plus 10.
      SC
                       Houston, this is Apollo 7.
      SC
      CAPCOM
                       Houston from Apollo 7.
      SC
                       Say again.
      CAPCOM
                       garble.
      SC
      CAPCOM
                       Go.
                       We have lose of signal now, from Hawaii.
 The crew advised on that pass that they were not able to
 observe Kilauea, which is erupting at this time.
                                                        They said
 they did get a good view of the entire Hawaiian chain
 however and reported that weather in that area was unusually
 clear although the main island of Hawaii was apparently
 clouded over, blocking their view of the volcano there.
 We have a very long pass - dry period now before we come upon another station with voice communcation, that will be
 the tracking ship Mercury almost a full rev from Hawaii
 here, we'll acquire Mercury at 82 hours and 10 minutes
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APOLLO 7 COMMENTARY, 10/14/68, GET: 805430 (CDT 7:00p) 278/2

pAO ground elapsed time. This is one of the quitest passes during a - the days operations when the spacecraft is passing down over the southern part of the western hemisphere and missing a large part of the ground stations. At 81 hours 2 minutes, this is Apollo control.

PAO This is Apollo Control at 81 hours 39 minutes. At present time the spacecraft is approaching the southwestern coast of Africa, on what will be one of the revolutions with the smallest number of contacts with ground stations during the day. We will go from the station at Hawaii all the way back around the tracking ship Mercury off between Japan and the Phillipine Islands in the Pacific Ocean before we expect to acquire again. We will be passing north of the Tananarive station, but I do not expect that we will be within range to acquire at that station. At the present time the plotboards here in the Control Center show the S-IVB the second stage of the launch vehicle to be leading the command service module by approximately 1200 miles. The S-IVB at last report was in orbit 116 nautical miles by 147 nautical miles as compares with the orbit for the command and service module of 160 by 90 nautical miles. We will be acquiring the tracking ship Mercury at an elapsed time of 82 hours 10 minutes and we will be following the progress of events here in Mission Control Center until that time. At which time we will come up to follow any conversations between flight controllers here in the Center and the spacecraft. This is Mission Control at 81 hours 41 minutes.

pao This is Apollo Control, 82 hours 11 minutes into the flight. The spacecraft at the present time is approaching the tracking ship Mercury. Coming up near the end of a revolution which has had various force ground coverage. Our last station to be in touch with the spacecraft was the tracking station at Hawaii, and we are preparing now to put in a call to the crew from CAPCOM - our CAPCOM, Ron Evans, here in the control center. We'll stand by for any conversation that develops with the crew over the tracking ship Mercury.

CAPCOM Apollo 7, Houston through Mercury.

SC Roger -(garble)

CAPCOM Roger, loud and clear. SC We just left Hawaii.

SC I ended up with a fouled switch in the number 2 hand controller in pitch down. We discovered it in acceleration command. I will troubleshoot it when we get the computer back on the line after we power up.

CAPCOM Roger, a lot of static, Wally, say it again.

SC Okay, over Hawaii just as we went by the Big Islands, the number 2 hand controller fouled in the pitch-down direction. It accel command and pulsed.

CAPCOM Roger, copy.

I only got one pulse in pitch down, but I got (garble) pitch down command and accel command. i got to trying to trouble shoot that. We'll try it in rate command. So I will troubleshoot that in the computer bulb when we power up.

CAPCOM Roger.

SC Say, Ron, do you plan to give us a map update?

CAPCOM Roger, stand by. I'll get you one.
SC Okay, and have the doctors done any
talking down there about the possibility of one or all of us
having a cold and stopped up ears from reentry.

CAPCOM Rog. They've been thinking about it

and they will advise.

Okay, we've got something onboard here in a medical kit called antibiotic. I was wondering if we ought to be taking it, or what? So far, Wally's, I guess, about holding his own on his ears. Donn may be getting a little bit worse and I think my ears are still clearing up fairly well.

CAPCOM Roger. I think before antibotics, they're concerned about temperature. Or do you have a temperature, you know, before you go into the antibiotics.

SC I believe I'll start wearing the oral

thermometer a little bit and see where I stand, just for the experience. CAPCOM Roger. CAPCOM 7, Houston. SC Go ahead. CAPCOM Rog. We'd like you to proceed, with the waste water dump. SC Roger. We read 80 percent. What do you show? CAPCOM Rog. We read 82.9. SC Rog. We'll dump all waste after we LOS. CAPCOM Roger. And any further water problems out of the water hoses, there, or any results of the humid' v survey? SC We haven't had any more water coming out the hoses for about the last 40 minutes and we're pretty certain that when the water tank is full, water begins to condense out. CAPCOM Roger. SC (Garble) the last water we got out of here. SC Rog. Our last humidity reading. Are you ready to copy? CAPCOM Roger. SC At Wally's suit in the hose, (Garble) wet and dry 540-66. The unit to the cabin heat exchanger 58-68. At the condensate (Garble) we have a (garble) of 52. The wet ball for the area was 58. The dry ball for the area Over by the right-hand window we had 68-72, over. was 73. CAPCOM Roger, we copy. CAPCOM 7, I have your map update. Roger. CAPCOM Rev 52, GET node, 81 plus 52 plus 02, longitude 42.4 east right ascension, 05 plus 19. Roger. PAO This is Mission Control. We've had loss of signal now, from the Mercury. During that pass Walter Cunningham reported that they had a failed switch in the number 2 hand controller. This is one of two controllers used to control spacecraft attitudes, and he reported that they would plan to troubleshoot this the next time they have the computer back up on the line. The computer, at the present time, has been powered down. It was powered down after that SPS burn this afternoon. They also reported on the condition of the crew. As far as nasal congestion and physical condition is concerned, he reported that Commander Wally Schirra, appeared to be holding his own, and that Donn Eisele was perhaps getting somewhat worse. He did not copy his comments

in regard to his own condition. Flight surgeon requested

ture readings, and we would perhaps expect to see that information coming up on subsequent passes. We'll next be acquiring the tracking ship Redstone in the South Pacific. That acquisition is scheduled to occur at about 82 hours 42 minutes ground elapsed time and there's also a possibility of a very low angle acquisition as we pass Hawaii going off the - south of the Hawaiian Islands. Now we will be passing that point at 82 hours 29 minutes ground elapsed time, or about 10 minutes from now. This is Apollo Control at 82 hours 19 minutes into the flight.

APOLLO 7 COMMENTARY, 10/14/68, GET: 823300 (CDT: 8:40p) 281/1

This is Apollo Control 82 hours PAO 33 minutes into the flight. Now we've just had a brief acquisition from the Hawaiian tracking station. And we'll play back the tapes of the air-to-ground communications from that passing in their entirety now.

Apollo 7, Houston, Hawaii stand by. CAPCOM

(garbled) SC

Apollo 7, Houston, you're real weak. CAPCOM

Roger, read you loud and clear. SC

CAPCOM Roger.

(cut off) adjust our sleep cycle here SC this 5 and a half hours is not too appealing with burn 3 already out of the way.

CAPCOM Roger.

We would like to add an hour and a SC

half to each of our sleep cycles.

Go. May I copy that Wally. CAPCOM

Okay, that will give us each 7 hours so we'll stay on watch for an hour and a half here, and sack it out with Donn tomorrow or later.

Okay. CAPCOM

Very good. What we'll do is just add SC an hour and a half to each of our sleeping schedules.

So far it looks good down here. CAPCOM

SC Roger.

And that's LOS, loss of signal from PAO The next station to acquire is the the Hawaiian pass. tracking ship Redstone and we'll be picking them up in just about 8 minutes from now. This is Apollo Control at 82 hours 35 minutes.

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APOLLO 7 COMMENTARY, 10/14/68, GET: 824250(CDT 8:45 p) 282/1
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This is Apollo control at 82 hours 43 minutes and we've just put in a call to the crew, here's that conversation now.

CAPCOM Roger, we had it just about all fixed and then you guys used some over Hawaii.

Sorry about that. SC CAPCOM-It's all right.

Apollo 7, Houston, opposite OMNI. CAPCOM

CAPCOM

Apollo 7, garble. Why don't you see if Jack can pass us up SC a Lima Sierra update tomorrow afternoon sometime.

CAPCOM Say again, Walt.

Why don't you see if Jack can pass us

up a Lima Sierra update tomorrow afternoon sometime.

CAPCOM Welco.

SC It's completely dry underneath the suit

bag at this time.

Rog, that's good to hear that. I was CAPCOM a little curious of how it stayed in one place down there.

garble. SC

CAPCOM Missed that. Acsension at 08.

SC garble.

CAPCOM Rog, I understand.

garble. SC

PAO This is mission control, the spacecraft is now gone over the horizon and out of range of the tracking ship Redstone, the next station to acquire will be the station at Ascension and we'll be coming up there in about 19 minutes from now at 82 hours 51 minutes into the mission this is Apollo control.

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APOLLO 7 COMMENTARY, 10/14/68, GET: 890900 (CDT 9:12p) 283/1
                    This is Apollo Control, 83 hours and
     PAO
9 minutes into the flight. At the present time we are com-
ing up on the tracking station at Ascension and we'll stand
by as Ron Evans puts in a call to the crew.
                    Apollo 7 Houston through Ascension.
     CAPCOM
                    Roger, loud and clear
     SC
                    Roger, I have some data for you, if you
     CAPCOM
are ready to copy.
                    Go ahead
     SC
                    Roger, your total usable service module
     CAPCOM
RCS fuel is quad A, 48 percent, Bravo 57 percent, Charlie
48 percent, and Delta 57 percent.
                    What does that all total up to in pounds
Ron, do you have that?
                     Roger, for your chart up date its 687
     CAPCOM
pounds at 83 hours. I have your new red lines if you'd like
those totals also.
                     Forty eight percent usable, I'm not sure
     SC
that I know how much I have in that quad that's usable.
                    Walt, say that again.
     CAPCOM
                     (garbled) we also have to switch and I
     SP
don't think its 48 percent usable its (garble) percent.
                     Apollo 7, Houston, are you saying when
     CAPCOM
to switch to secondary?
                     We have switched to secondary at 43 per-
cent and I need to know an absolute percent in the quad, not
a percent usable if you have it.
                     Roger, we'll get it for you.
     CAPCOM
                     And the number for the chart you said
     SC
was 683?
                     687.
     CAPCOM
                     687, thank you.
     SC
                     And I have your battery total.
     CAPCOM
                     Go ahead with the battery.
                     Roger, Bat A 33.2, Bat B 30.8, Bat C
     CAPCOM
39.5.
                     Rog, you're giving a low, low there, I
hope you are still considering with the charts sometime
around six or so.
                     Rog, Walt, we're still evaluating this,
     CAPCOM
we're working very closely with the manufacturer and we
should have some information probably sometime tomorrow.
                     Roger, thank you
     SC
                     And be advised the voice quality of the
     CAPCOM
DFE is still good.
                     Roger, understand, thank you. Were you
      SC
giving me usable or a number to go on my chart when you gave
```

me the chart update?

APOLLO 7 COMMENTARY, 10/14/68, GET: 890900 (CDT 9:12p) 283/2

The chart up date is what you're going to chart with in the poundage, the percentage was the total usable, as calculated on the ground, not a correction factor for your gauges.

Roger, our chart includes 58 pounds unusable. Do we add that to the number you gave or did you

give us the number of the ordinate there?

The number for the ordinate. Apollo 7 Houston, we're reading about 84 percent on the waste water to quantity, just about LOS now.

Roger, we are going to commence some-SC

thing in five minutes.

Roger. We will pick you up at Mercury CAPCOM at 44.

(garbled) SC

Say again, what? CAPCOM

The last number we had was 808, looks

like somewhere I missed 20 pounds, less than 4.3. CAPCOM Roger, I understand

This is Mission Control, we've had loss of signal now from Ascension, the next station to acquire will be the tracking ship Mercury and we will be picking up the spacecraft there in about 29 or 30 minutes from now. This is Apollo Control at 83 hours and 16 minutes into the flight.

This is Apollo Control. The Apollo 7 PAO spacecraft is now 83 hours 45 minutes into its mission. We're coming up on the tracking ship Mercury about midway through a day side pass. Astronaut Donn Eisele is nearing the end of a seven hour sleep period at 84 hours ground elapsed time. The Commander, Wally Schirra, and Lunar Module Pilot, Walt Cunningham are scheduled to begin their sleep period. We'll stand by now as Cap Com Ron Evans puts in a call to the crew. We'll have overlapping coverage here from Mercury on through the tracking station on Guam.

Apollo 7, Houston, Mercury standing by. CAPCOM

Apollo 7, Houston through Mercury CAPCOM

standing by.

Roger, we read you loud and clear.

SC Roger, same here. CAPCOM

This is Apollo Control. Now we've had a very quiet pass till now, but we will continue to monitor PAO through Guam.

Apollo 7, Houston, 1 minute till LOS. CAPCOM

Redstone at 15.

Roger, we're just breaking down now SC for the sleeping period. Wally and I are going off here.

Roger. CAPCOM (garbled) SC

Say again, Walt. CAPCOM

I was just repeating we get off here. SC We've had loss of signal now with the

PAO Due to pick up again at the tracking ship Redstone spacecraft. in about 20 minutes. This is Apollo Control at 83 hours 56 minutes.

```
This is Apollo Control at 84 hours
     PAO
             The spacecraft has just gone into a night-side
pass and is coming up on the tracking ship Redstone. We'll
16 minutes.
standby here for a call to the crew from the CAPCOM Ron
Evans.
                    Apollo 7, Houston through Redstone.
     CAPCOM
                    Apollo 7, Redstone standing by.
     CAPCOM
                    Read you Ron.
     SC
                    Hey, good morning.
     CAPCOM
                    How are you?
     SC
                    Getting along great, yourself?
     CAPCOM
                    Oh just fine, I just got up and had
                    Wally and Walt are sacking out now.
a good nights rest.
                     Hey, good.
     CAPCOM
                     Apollo 7, Houston.
     CAPCOM
                     Go Ron.
     SC
                     Roger, I want to cycle the O2 tank 1
     CAPCOM
fans at this time. Turn them on and -- for five minutes and
then off.
                     Roger, I've got one on at the moment
     SC
              You want me to turn two on for a bit?
two are off.
                     Negative. We thought 02 tank 2 was in
auto, and 02 tank 1 fan was off. We would like to turn on
      CAPCOM
 tank 1 fan at this time.
                     Okay, but it's just the other way around.
      SC
                     Okay, stand by then.
      CAPCOM
                     Okay, Donn, let's go ahead and cycle
      CAPCOM
 2 fans on for five minutes and then off.
                     Roger. We've got a couple of reports
      SC
 for you.
                     Roger, go.
      CAPCOM
                     Roger, we had canister change number 7,
 at around 8230, and believed Wally and Walt checked the
 Command Module RCS temperatures at around 83 hours and they
                      All except 6A and that was 4.9.
 were all five volts.
                     Rog, copy.
      CAPCOM
                     Ron, we have a number of 687 pounds RCS
      SC
 Now is that total or is that just usable?
                      Donn, that is usable propellant.
      CAPCOM
                      Okay, so I can add for our chart up
      SC
 here I can add to 58 pounds then we have included in it?
                      That's affirmative.
      CAPCOM
                      Roger, in the future when you give us
 the totals would you please have the unusable added in because
 that's what we plotting on this little card we've got.
                      Roger, you want the ordinate when I give
       CAPCOM
                 Is that correct?
 you the data.
                      Roger.
       SC
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SC That makes us feel better we wondered what happened to all the fuel all of a sudden.

CAPCOM Okay.

CAPCOM Donn, I want to make sure you save three decongestents for use prior to reentry.

šc Roger, we got you on that.

CAPCOM Roger.

CAPCOM I've got about 1 minute to LOS Donn.

SC Roger, say it.

CAPCOM You might be interested to know that the little TV yesterday morning was much much better than any ground testing I had ever seen.

SC Is that right? Boy that's great. Did

you see it on the commercial?

CAPCOM Affirmative, and it was really great.

SC That's dandy.

PAO We've had loss of signal now at the Redstone. As you heard astronaut Donn Eisele has just gotten up from his 7 hour sleep period. And reported that he had a good nights sleep, but Wally Schirra and Walt Cunningham are now sacked out as he put it, beginning their 7 hour sleep period. They're schedule to sleep from 84 hours to 91 hours. The next station to acquire the spacecraft will be Ascension as we come up on the start of the 54 revolution at 84 hours 25 minutes this is Apollo Control

## APOLLO 7 COMMENTARY, 10/14/68, GET 844130 (CDT 10:45 p) 286/1

minutes into the mission we're coming up now on the Ascension tracking station, just at the beginning - at the end rather of a night side pass we'll be coming out at the spacecraft, we'll be coming out into daylight, probably before the Ascension pass is completed. During this pass we're scheduled, according to the flight plan to get an update to the onboard contingency landing information, this is information that is routinely passed up to the crew several revolutions ahead and would give them the necessary information should - should a deorbit become necessary while they were out of communications with one of the ground tracking stations. We'll stand by now for any conversation with the crew over the Ascension station.

CAPCOM Ascension standing by.
CAPCOM Apollo 7, Houston, opposite OMNI.

SC Roger.

CAPCOM Apollo 7, Houston, one minute LOS,

Mercury at 18.

SC Roger.

PAO We've had lose of signal now, with the spacecraft, from the Ascension tracking station, a very quiet pass there, we heard from Donn Eisele I think twice, bace at the beginning acknowledging the Capcoms initial acquisition report and then Roger at the end as we were about to lose was lock with the spacecraft. Here in mission control center we're in the midst of changing shifts. Flight director Jerry Griffin will be coming on replacing flight director Gene Kranz and we're looking toward a change of shift press briefing at the present time to occur at approximately eleven thirty. At 84 hours 52 minutes into the mission this is Apollo control.

PAO This is Apollo Control, 85 hours, 18 minutes, 25 seconds into the mission of Apollo 7. We are coming upon the acquisition point for the Mercury Tracking Ship this time. Let's standby for any conversation.

CAPCOM Apollo 7, Houston. SC Houston, Apollo 7.

CAPCOM Roger, Apollo 7, Houston, acquisition Mercury. I would like to brief you on a USB test. It involves a couple of switches.

SC Okay, go ahead.

CAPCOM Right. Just about time LOS Mercury, we would like power TMP to OFF. And the S-Band volume for that Guam pass. And this will be at about - 25 minutes, T-5 hours and 25 minutes.

SC Okay, will do. Power PMP to OX AND S-Band volume for pass.

CAPCOM Right and if the test doesn't work out, I will try and come back on VHF. Otherwise, at LOS Guam, you can put the power PMP back to normal.

SC Roger, understand.

CAPCOM Right. Apollo 7, we would like power PMP to OX, anytime now.

SC Roger. Houston, Apollo 7.

CAPCOM Go.

SC Roger. Would you confirm the H2 fuel cells purge that are in the flight plan?

CAPCOM Standby. Apollo 7, Houston, negative. We are updating that real time. You can disregard that entry.

SC Roger. That is why the Apollo heaters are off. I've got a couple of reports I would like to make.

CAPCOM Go.

SC Okay. When Wally went to sleep, it was about 84 hours, He took two aspirins and twenty clicks of water. And when I went to asleep about 77 hours, I took two aspirins and right to bed and twenty clicks of water.

CAPCOM Roger, understand. Wally at 84 hours, two aspirins and twenty clicks. Don, at 77 hours, two aspirins and one actifed and twenty clicks.

SC That is right.
CAPCOM Thank you. Apollo 7, Houston, I'll

have a block data at Redstone.

SC Roger, understand, block data at redstone.

CAPCOM Right. Apollo 7, Houston, 1 minute LOS GUAM, Redstone at 50. SC Roger, understand.

PAO This is Apollo Control, 85 hours, 30 minutes into the mission of Apollo 7. We have just lost acquisition with Guam Tracking Station. We are anticipating acquisition at the Redstone Tracking Ship at 85 hours, 50 minutes. During that pass, it was indicated by astronaut Eisele that the spacecraft commander Schirra and the LMP pilot, Cunningham entered a sleep period 84 hours into the mission. Schirra took two aspirins and twenty clicks of water and Eisele in his sleep period took before his sleep period took two aspirins, one actifed, and twenty clicks of water. At 85 hours, 31 minutes into the mission, this is Apollo Control.

This is Apollo Control, 86 hours, PAO 48 minutes into the mission of Apollo 7. We have - a tape of our Redstone pass which occurred at 8550 and following that just a very short tape at Ascension Islands, started at 8617. We will roll those now. Apollo 7, Houston. CAPCOM Houston, Apollo 7, GO. SC Roger, I have a block data when you are CAPCOM ready to copy. 'Go ahead, Bill. SC Roger. Before I start, we would like to CAPCOM confirm the PMP power back to normal. Power is normal. Okay, block data. CAPCOM Starting to read. SC 057-2 Alpha, plus 242, minus 0270, CAPCOM 08 niner, 0620, 3382, 58-1 Charlie, plus 200, minus 0600, 0 niner 0, 30, 41, 3332, 05 niner-1 Alpha, plus 270, minus 0640, 0 niner 2, 0654, 334 niner, 060-1 Alpha, plus 310, minus 0644, 0 niner 3432 niner, 340 niner, 061-1 Alpha, plus 306, minus 0645, 0 niner 5, 2000, 365 niner, 062-1 Alpha, plus 254, minus 0640, 0 niner 6, 5238, 2888. Read back, please. Roger. 57-2 Alpha, plus 242, minus 0270, 089, 0620, 3382, 058-1 Charlie, plus 200, minus 0600, 090, 3041, 3332, 059-1 Alpha, plus 270, minus 0640, 092, 0654, 3349, 060-1 Alpha, plus 310, minus 0644, 0934329, 3409, 061-1 Alpha, plus 306, minus 0645, 095, 2000, 3659, 062-1 Alpha, plus 254, minus 0640, 096, 5238, 2888. Readback is correct. CAPCOM SC Roger. Apollo 7, Houston. We are still showing CAPCOM real time on SM and - would you check PMP power normal again? Roger, I got it now. SC Right. Apollo 7, Houston, 1 minute LOS CAPCOM Redstone, sinking at 17. Roger, Houston. SC Apollo 7, Houston, acquistion sinking, CAPCOM standing by. Apollo 7, Houston, acquistion sinking, standing by. You're very better, Houston. Roger. scRoger, understand. Apollo 7, Houston, CAPCOM coming upon LOS Mercury at 53. This is Apollo Control, 86 hours, PAO 53 minutes into the mission. We're coming upon the Mercury Tracking Ship for a live pass. Let's standby.

CAPCOM

standing by.

Apollo 7, Houston, acquisition Mercury,

SC Roger, Houston, Apollo 7. Bill, could you get me the static vent update for our orbital map. CAPCOM Standby. Apollo 7, Houston. The GET

for the node crossing is 84 plus 49 plus 48.

SC Roger, understand, 84 plus 49 plus 48.

CAPCOM Right. And it will be 3.1 west.

SC Roger, thank you. CAPCOM And it is REV 54.

SC Roger that.

CAPCOM Okay.

PAO This is Apollo Control, 86 hours, 58 minutes into the mission. We will acquire Guam at 865941. This gives us another minute and that will be a very short pass of some 3 minutes. One point of interest is the television for tomorrow will be in the sixtieth revolution at 95 hours, 25 minutes, 55 seconds, ground elapsed time. That is 92840, central daylight time, roughly 29 minutes after 9 in the morning. Let's standby for any possible conversation on this Guam pass.

CAPCOM Apollo 7, Houston acquisition Guam.
I will have a flight plan update at Redstone and have sev-

eral items.

SC Roger, understand.

PAO This is Apollo Control, 87 hours, 2 minutes into the Mission. We are about 10 seconds away from loss of signal at Guam. We are anticipating acquisition at Redstone at 87 hours, 24 minutes. At that time we had an indication from astronaut Pogue, the CAPCOM, to astronaut Eisele that we would have an update for them on the flight plan. We are now - well into the fiftyfifth revolution, heading for South America. At 87 hours, 2 minutes into the mission, this is Apollo Control.

This is Apollo Control, 87 hours 24 min-PAO utes into the mission of Apollo 7. We're coming up on the Redstone tracking ship and just acquired. Houston, stand by. Wally will be with you in just one minute. Apollo 7, Houston. CAP COM Roger Houston, Apollo 7, Go. CAP COM Roger. Donn, I have a rather extensive flight plan update and what I'd like for you to do is just follow me with the flight plan and we'll go through here for about 88 hours right on through up to 100 hours. Apollo 7, Houston, opposite omni. Apollo 7, Houston, just let me know when you're ready to copy. Roger. Go ahead Bill, I'm ready. Donn, do you have the flight plan CAP COM there? SC Roger. CAP COM Okay. Roger, I've got it right in front of SC me. Right. I'd didn't want you to have CAP COM to write it on anything else. At 88 hours delete the reference to P-30. SC Roger. Okay, now on the next half of the page CAP COM from 88 to 90 you can delete everything on that page and there'll be two additions, so you can just draw a line through all of those if you want. Should be what? CAP COM We'll delete, cancel all the actions listed from 88 hours to 90 hours. Right, I've already got that. Okay. At 89 hours there'll be a GNC CAP COM powerup, program five. SC What time? CAP COM 89 + 00.Roger, 89 hours powerup? SC Roger. Add 89 + 30 you'll get an CAP COM update for RAD degradation test, there'll be a state vector and time of ignition. Okay. Are you ready for 90 hours? Ah, Bill, you're cutting in and out. I'm only getting about half of this. Okay, I'll say again. Did you get CAP COM those two additions? Did you get the one at --All I got was delete everything from

88 through 90 and then powerup at 89.

Roger.

an update for radiator degradation. Okay, at -- are you

Okay at 89 + 30 there will be

CAP COM

still reading? CAP COM

Roger. You want the whole G&N up at SC

that time or just the computer?

Well, let's see. Right, that's cor-CAP COM

rect, that's a complete powerup at 89 hours.

Okay. SC

And at 89 + 30 the update will be for CAP COM the radiator degradation test. Starting at 90 hours, you can delete everything on that page.

Roger. SC

And at 90 hours and about 10 minutes, CAP COM

you can put in there P-51.

Roger.

At 91 hours and 42 minutes, a P-52. CAP COM Wait a minute, 91 hours is in the SC

daytime.

91 42. Donn, we're getting ready for CAP COM

I'11 talk to you at Antigua. LOS here.

This is Apollo Control, 87 hours 33 minutes into the mission of Apollo 7. We have just lost acquisition with the Redstone tracking ship, ah, the updates of the flight plan will be completed probably when they have acquisition Canary Islands and that's anticipated to be 87 hours 54 minutes. So, at this point, the spacecraft Commander Schirra and LM Pilot Cunningham have been asleep over 2-1/2 hours. We're coming up on the beginning of the 56th revolution at 87 hours 33 minutes into the mission this is Apollo Control.

pAO This is Apollo Control 87 hours 54 minutes into the mission of Apollo 7. We're coming up on the acquisition point for the Canary Islands at which point Astronaut Pogue here in the Control Center will complete sending up the revised flight plan for the next few hours, so let's stand by for Canary Islands.

CAP COM Apollo 7, Houston. Apollo 7, Houston acquisition Canaries. Apollo 7, Houston we'd like to con-

tinue with the flight plan update when you're ready.

CAP COM Roger. I think we were talking about 91 hours and 42 minutes a P-52 and you were questioning nightime and the nightime is starting to move back a little bit because of the change in the orbit and that should be alright just after sunset.

SC Roger. I didn't get the data on that

91:42 a 52.

CAP COM Roger. That's right 91 + 42. Okay, on the second column on page 236, starting at 92 hours, at 92:25 we have an MCC up date. You can scratch through everything except the Go-No-Go. And at 92 + 35 add initiate radiator degredation test.

SC Roger. Say again that time for that.

CAP COM 92 + 35.

SC Okay, got it.

CAP COM Right, you can delete the P-thirty -all the references to separation for the burn of course you
can delete those. At 93 + 15 add H2 strat test (60 percent)
is what they'll estimate you have at that time. So that
will be at 93 + 15 H2 strat test 60 percent.

SC Roger, got it.

CAP COM And the cannister change does stay in.

SC Okay.

CAP COM At 94 hours, fuel cell 02 purge.

SC Okay.

CAP COM Next page. 94 hours + 30 unstow and

set up TV.

SC Roger.

CAP COM And of course you can delete the items in there about the radiator degredation test and H2 heaters are on at 95 hours.

SC Okay.

CAP COM At 95 + 25, TV on. That will be at Texas AOS, 95 + 25 TV on.

SC Rog, I got 'cha.

CAP COM Okay. On the next column, at 96 + 40 delete the reference to the ECS figure degredation test.

SC Roger.

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APOLLO 7 COMMENTARY, 10/15/68, GET: 875400 (CDT 1:57a)
                                                          290/2
                    At 97 hours, add End Radiator Degrada-
     CAP COM
tion Test. You will have started it up about 92:35.
                    Okay.
     SC
                    Also, at 97 hours, you'll receive
     CAP COM
update for scanning telescope star count. That'll be at
97 hours, update SCT star count.
                    Okay.
     SC
                    And for that, the sun line of sight,
     CAP COM
LOS will be 70 degrees.
                    Roger.
     SC
                    At 97 + 40, program 52.
     CAP COM
                    Roger, is that option three?
     SC
                    Stand by. Be at C-align time.
     CAP COM
98 hours, the test, the SCT star count will be performed.
                     At what time?
     SC
                     98 hours.
     CAP COM
                     98?
     SC
                     Affirmative.
     CAP COM
                     I don't understand that. That's right
     SC
in the middle of the night ... isn't it?
                     Yeah, but it continues into the day.
      CAP COM
                     ... that's going to be a little hard
      SC
to -- you realign at 97:40 and then do the test at ...
                     Roger, adjust on the further edge of
      CAP COM
     If you read, that is affirmative.
                     Roger.
      SC
                     This is Apollo Control 88 hours 2 min-
      PAO
                        We have lost acquisition. The next
 utes into the mission.
 contact will be with the Redstone tracking ship at 88 hours
 58 minutes into the mission, some 57-1/2 minutes from now.
 At 88:02 this is Apollo Control.
```

PAO This is Apollo Control, 88 hours, 58 minutes into the mission of Apollo 7. We have had a long dry spell here. We are coming up on the Redstone Tracking Ship. We should have acquisition in a very few seconds.

SC Roger, Houston, GO.

CAPCOM Roger. Acquisition, Redstone. I have one final item here on the flight plan update.

SC Ready to GO.

CAPCOM Roger. At 99 plus 30, we will have a G & N. N and SCS power down.

SC Roger.

CAPCOM Apollo 7, Houston, 1 minute LOS Redstone, Antigua at 17. And when we come upon Antigua, we would like for you to be in POO. We'll have a state vector for you at that time.

PAO This is Apollo Control, 89 hours, 7 minutes into the mission of Apollo 7. We are just now losing acquisition at Redstone. We're anticipating contact with Antigua at 89 hours, 17 minutes. At 8907, this is Apollo Control.

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APOLLO 7 COMMENTARY, 10/15/68, GET 891600 CDT 3:20 a 292/1
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This is Apollo Control, 89 hours 17 minutes into the mission of Apollo 7. Apollo 7 has just begun its 57th revolution around the earth. We're coming up in a very seconds to Antigua acquistion. Let's listen in. Apollo 7, Houston. CAPCOM Roger, go. Roger. We have a state vector to send SC CAPCOM to you if you could go to POO please. Stand by. SC Apollo 7, Houston. If you don't get your computer up here, it's all right. We can give this to you at Canary, but I do have a nav check I can give you when you're ready to copy it. Roger, stand by. I'm still on a 51 SC here. Okay. CAPCOM ... Houston, Apollo 7. SC Go. CAPCOM Roger. I'll take that update now if SCyou can send it up. Rog. CAPCOM Go to accept if you want to uplink. SC Rog. CAPCOM And now while it's coming up, I have CAPCOM a nav check here when you're ready to copy. Roger. SC Ready for your nav check, Bill. SC Roger. 092 05 00 00 - 1796 - 14661 CAPCOM Read back. 1566. 092 05 0000 - 1796 - 14661 Roger. SC 1566. Readback is correct. CAPCOM Apollo 7, Houston. About 1 minute LOS CAPCOM Antigua. Roger. And it will be Canary at 28. CAPCOM Rog. SC This is Apollo Control, 89 hours 23 minutes into the mission. We are about 20 seconds away from PAO loss of signal over Antigua. We have about 5 minutes to go for Canary Islands tracking station acquisition at 89 hours

END OF TAPE

24 minutes. This is Apollo Control.

APOLLO 7 COMMENTARY, 10/15/68, GET: 892800, CDT 3:30 293/1

This is Apollo Control, 89 hours PAO minutes into the mission. We're coming up on acquisition with Canary Islands tracking station. We'll join the conversation.

... Apollo 7, go. SC

Roger. We would like for you to tackle CAPCOM

the - Stand by.

Apollo 7, Houston. Which of your 02 CAPCOM

tank fans is off?

CAPCOM

Number 2 is off. SC

That's what Number 2 is off. Roger.

we thought.

We are through with Apollo 7, Houston. CAPCOM

the computer.

Roger.

SC Apollo 7, Houston. We'd like for you CAPCON to cycle your 02 tank 2 fans on for 5 minutes, then off.

Roger.

Apollo 7, Houston. One minute LOS CAPCOM

Canary. Carnarvon at 05. Hear this for a time hack, you can turn those fans back off about 38.

Roger. SC

This is Apollo Control, 89 hours 35 PAO minutes. We're looking for a pass over Carnarvon at 90 hours and 5 minutes. At 89 35 then, this is Apollo Control.

APOLLO 7 COMMENTARY, 10/15/68, GET: 900600 (CDT 4:20 a) 294/1

PAO This is Apollo Control 90 hours 6 minutes into the mission, let's join the conversation to Carnarvon.

CAP COM Apollo 7, Houston.

SC Houston, Apollo 7. Go.

CAP COM Roger. Acquisition Carnarvon stand-

ing by.

SC Roger.

CAP COM Ah, Donn, I noticed you were going through the malfuntion procedure there appeared to be just about the time we were losing you at Canaries, did you find out anything in that?

SC Roger. I found out whatever it was

went away, I think, at least up to now.

CAP COM Whatever it was went away, huh?

SC Right.

CAP COM Did you arrive at that just from going through this malfunction procedure? Is that how you did that?

SC Well, not totally.

CAP COM Okay.

SC Wait until Wally gets up here. He

may want to do it again.

CAP COM Okay.

PAO This is Apollo Control, 90 hours 09 minutes into the mission of Apollo 7. We have had loss of signal at Carnarvon tracking station and it's a matter of about 10 minutes before Honeysuckle Creek at acquisition so we'll just stand by. (pause) This is Apollo Control 90 hours 17 minutes into the mission of Apollo 7. It doesn't appear we'll have any further contact. We have about a minute and one-half of acquisition left at Honeysuckle but there will probably be no more voice contact. We are anticipating acquisition at Redstone tracking ship at 90 hours 32 minutes. At 90 hours 17 minutes this is Apollo Control.

PAO This is Apollo Control, 90 hours, 32 minutes into the mission of Apollo 7. We are coming upon the Redstone Tracking Ship now in the fiftysixth revolution. Let's listen in.

CAPCOM Apollo 7, Houston, acquisition Redstone, standing by. Apollo 7, Houston, 1 minute LOS, Redstone,

Antigua at 5 zero.

SC Understand, Roger. I gather you were in kind of a hurry to get us to work down there today.

CAPCOM We'll go a few things, Roger.

CAPCOM We'll go a rew things, Roger.

SC I suggest somebody for tomorrow get to work on the sleep plan because I've had an hour of sleep already.

CAPCOM Roger.
SC And three have colds, I asked for an actifed for each of us last night and that apparently was ignored. Houston, Apollo 7.

Roger, GO. We're just about to LOS.

PAO This is Apollo Control, 9 hours,

minutes into the mission of Apollo 7. We have just lost acquisiton - and our next acquisition point will be at Antigua at 90 hours and 50 minutes. It appears that space-craft commander is up at this point. And there was some conversation with CAPCOM on the amount of sleep that should be scheduled in the coming days of the mission. At 90 hours, 41 minutes in the fiftyseventh revolution, this is Apollo Control.

PAO This Apollo Control, 90 hours 50 minutes into the mission of Apollo 7. We're coming up in acquisition with Antigua tracking station. Let's stand by for conversation.

CAPCOM Apollo 7, Houston. SC Houston, Apollo 7.

CAPCOM Rog. I did check on the flight plan here regarding the wise query there over Redstone and I didn't get all of it, but it was something about the sleep cycle being shortened. And when I came on, the time line showed the Commander and LMP sleep cycle extended to 91 hours. Is that the way you understood it?

SC That's affirmative. It appears that someone moved the radiator test right in the middle of it. We got the radiator test initiated at 92 30.

CAPCOM All right, stand by.

Sc We're just gonna have to put on our headsets and go to work up here.

CAPCOM Apollo 7, Houston. We acknowledge the error on the ground here.

SC Okay, let's have the ground get to work and work up their sleep rest cycles. We had to initiate the request, as it was to get only 5 hours per shift sleep scheduled for this last night. I asked for an extension and got it. I want the rest of these work periods worked out now. We had burn 3 and we have to have a chance to get some sleep.

CAPCOM Apollo 7, Houston, understand.

SC Houston, Apollo 7.

CAPCOM Go.

SC Rog, Bill. Can you check - I think I'd like to go ahead and try to activate our primary water boilers before we commence the radiator degradation test. And then if we have any problems while doing the radiator degradation test, and our primary water boiler goes down, find out if it's okay to activate the secondary loop with a radiator bypass. Over.

CAPCOM Rog, stand by.

CAPCOM Rog, Walt. I have something here and I think it's pretty close to what you said. I'll go through a recommended procedure here.

SC Okay, Something I'll have to write down or not?

CAPCOM No, why don't you let me do it first. I think it could be just what you wanted there.

SC Roger.

Step 1, prior to test, reservice evaporator, if not already reserviced. Step 2, begin the actual test. Step 3, activate primary evaporator in auto mode. Step 4, if evaporator dries out, close back pressure control valve and wait 15 minutes.

5, then reservice evaporator and reactivate in auto mode. 6, if evaporator dries out again, close back pressure valve and shut down evaporator. tinue test. 8, if evaporator out count exceeds 80 degrees fahrenheit, activate secondary loop with radiators bypassed and continue test.

Only one question with that. SC degrees fahrenheit - the rule in the past has been activate secondary loop if the temperature of the glycol evaporator outlet exceed 60. Can you confirm that?

CAPCOM Stand by.

Apollo 7, Houston. Regarding the 80 CAPCOM degree count, they say they are willing to go that high if you activate the secondary lower than that, it compromises the test. I said that I thought we ought to go ahead and look, work it at 60 and they're checking into it.

Okay, Understand. I don't think there's any great big problem with letting it go a little higher, Ron. I think we've got a good chance of not having to activate it anyway, but that's just a suggestion now.

Okay. CAPCOM

Bill, I mean, sorry. SC Apollo 7, Houston. CAPCOM Roger. Go ahead, Bill. SC

Hey Walt, I have a TFE recording plan CAPCOM for this radiator degradation test and I'd like to pass it to you over Canary at a time that it would be convenient. It has to do with leaving it in a high bit rate for portions of the test.

This is Apollo Control, 90 hours, 58 minutes into the mission of Apollo 7. We have Canary Islands acquistion coming up at 91 hours, 2 minutes, which is 3 minutes from now. We'll join the crew at that time at Canary Islands. In the meantime, you heard Astronaut Schirra talking to CAPCOM Pogue here in the control center concerning the sleep cycle that has been shortened. Schirra indicates that 5 hours per shift schedule is not enough and he'd like a chance to get some more sleep. And the ground is gonna check into it. Astronaut Cunningham then talked about the procedures on the radiator degradation that is scheduled a little later on in the flight, some 92 hours 35 minutes. With about 2 minutes to wait until Canary Islands acquisition, this is Apollo Control.

This is Apollo Control 91 hours 02 min-PAO utes into the mission of Apollo 7. We are coming up inside of 25 seconds or so with Canary Islands acquisition. We'll stand by for further conversation. Apollo 7, Houston. CAP COM Roger Houston, go ahead. SC Roger. Acquisition Canary. CAP COM Roger. Did the O2 part compressor SC this morning about, ah, almost 33 minutes ago was 240 millimeters of mercury, ready to copy your recording update. CAP COM Houston, Apollo 7. SC CAP COM Go. Houston, Apollo 7. SC Apollo 7, Houston Go. CAP COM Roger. Wish to file report that the hand controller is GO. Rog. Hand control is GO. CAP COM That's affirmative. The anomaly has disappeared and I'm quite surprised you all weren't somewhat concerned about that, that wiped out our hybrid de-orbit for awhile. We were concerned. CAP COM You'll have to time this for me so I can get a clerical test. There was quite a lot of concern Rog. CAP COM down here. Takes a while to check those Roger. SC things out. Also --Rog. CAP COM Go. SC Okay, on the DSC recording for radia-CAP COM tor degradation test, ah, I'll read a few comments first for radiator degradation test spacecraft will be left in high bit rate. Spacecraft com system will be set up for high bit rate record, high command. At the following times, place the tape recorder forward switch to FORWARD for 3 minutes then to OFF. Ready to copy times? At 92 + 57, 93 + 37, 94 + 29, 95 + 08, 96 + 01, 96 + 33. Comment - do not use up telemetry command reset switch during radiator degradation Note: you can only record voice while tape is running as scheduled above.

SC Okay. I've got the times in and I'd like to repeat the last comment. The attention is to ah, I assume you are going to rewind and leave us with a fresh roll of tape to start with? And, we'll put it forward, I also understood you were going to leave it with my command here and I'll have to hit command reset switch at the start

SC of test, I will go to forward for 3 minutes and then to off at the following times: 92 + 57, 93 + 57, 94 + 29, 95 + 08, 96 + 01, 96 + 33. Over.

CAP COM Roger. The second time was 93 + 37

and also you do not go to command reset.

SC Okay. Understand you are going to have everything set up and all I will use is tape recorder closing switch going forward at those times.

CAP COM That's affirmative.

SC And we can record at the time the tape is running. Was there anything else in that last comment?

CAP COM Negative. That's correct. You can only record voice while tape is running as scheduled at

these times and you did get --

SC

Roger and I assume you got a plan to dump all that out and give us a fresh tape as soon as possible afterwards. Did you read my comment that 91 hours into the flight O2 partial pressure was 240 millimeters of mercury?

CAP COM Roger, at 91 hours 02 partial pressure 240 millimeters. Also, we're setting up for a 10 hour sleep

cycle for tonight.

SC 10 hours is (pause), how about 8? Bill, we can't do that, sleep five and work nine and ten the next. Try to get through an average of eight. We'll go for 8 we'll go for 8 ... 20.

CAP COM Okay.

This is Apollo Control 91 hours 11 min-PAO utes into the mission of Apollo 7. We have lost acquisition with Canary Islands. We are anticipating Carnarvon acquisition at 91 hours 37 minutes. During this last pass, we heard Schirra indicate that the number two hand controller That was a situation that occurred yesterday and that was at some 82 hours into the mission where they found that the pitch down on the number two hand controller was inoperative and now checking it with the command module computer we find that the number two hand controller is Go and that anomaly has disappeared Schirra indicates. Cap Com Pogue indicated that down on the ground here in the Control Center they had ironed out a 10 hour sleep cycle for tonight and spacecraft Commander Schirra came back with "No, we didn't need 10, would like to have 8". So it looks like that's what it will be. At 91 hours 12 minutes into the mission, this is Apollo Control.

PAO This is Apollo Control, 91 hours, 37 minutes into the mission of Apollo 7. We are now coming up into acquisition, just got acquisition with Carnarvon. Let's listen to the conversation.

CAPCOM Apollo 7, Houston, acquisition Carnarvon.

SC Roger, Houston.

CAPCOM Apollo 7, I have a couple of items. First, in reference to the secondary loop activation during the radiator tests, we have reconfirmed that 80% as evap out temp is an acceptable hardware limit. However, secondary loop may be activated before 80% F as physical comfort dictates. Two, in reference to the hand controller anomaly, we would like to know which check or test did you use to verify the acceptable performance?

Roger, we used the standard malfunction procedure starting with the C & CS Apollo update. After passed that test, went on with the reentry, It was on page 15. Page 7, item 2, item 14, and then the final was the trend itself in which the command would normally occur.

It did not occur there again.

CAPCOM Roger.

SC Zero. And there was a discrepancy with the malfunction of the fuel that only applied. This is a series where the controls are stuck on, where the malfunctioning occurred, the function did not occur.

CAPCOM Roger.

SC By the same tests there, the Apollo number one registered and the DSKY would be 75 for pitch down. It was stuck on 75 which add immediately; it does not show.

CAPCOM Roger.

SC Bill, do you want me to follow the procedure that was passed up the first time we reactivated the primary water valve I had several steps here. I think you were probably there when you passed it up even.

CAPCOM Standby a minute.

SC Do you recall a what?

CAPCOM Yes, we know, we want to confirm.

SC And when you get it, we can use a chart

update, please? CAPCOM

Roger. Apollo 7, Houston, have a chart

update.

C Go

CAPCOM 57 node at 89 plus 16, plus 24, 71.4 kg

west.
SC Roger.

CAPCOM Okay. Apollo 7, Houston. Yes, we would like for you to activate just as you did yesterday.

SC Okay. And if it checks down, you want

SC to wait 15 minutes again, right? CAPCOM Affirmative. Just for my own information, what is a 15 minute wait, if it shut down like that? Standby. Apollo 7, Houston, we will CAPCOM get that answer. It will take a few minutes. Okay, thanks, but you understand I just wondered why we wait 15 minutes before we try to reservice the thing. I don't quite understand it. Okay. Apollo 7, Houston. I've been CAPCOM informed that flash freezing is the reason for waiting 15 minutes. Roger, thank you. Is that any relation SC to Flash Gordon? CAPCOM Oh boy. The first oh boy for the flight. SC Right. Got me again. CAPCOM That's the first oh boy we've lost for SC I'm having bacon and toast and peaches and the flight. Apollo 7, Houston, coming up on LOS CAPCOM Carnarvon, S-Band volume up, please. Houston, Apollo 7. Apollo 7, Houston, GO. CAPCOM Roger. Do you have any preference on the antenna for the radiator degradation tests? Standby. Apollo 7, Houston, we are CAPCOM working on it. Apollo 7, Houston, the antenna for radiator degradation test will be on the Alpha. There may be possibly be a switch to Bravo. But now it looks like A is a good one. Roger, Bill. We've got some beautiful pictures of the great barrier reef in New Zealand this morning. CAPCOM How many frames roughly? All Good. right, disregard. SC It was about 5 frames, some frames 43 to 47. We weren't quite sure where we were until we got that chart update. There was between 38 - 43 to 47 on magazine F. Roger. Apollo 7, Houston, 1 minute CAPCOM until LOS, Texas at 19. CAPCOM Roger.

PAO This is Apollo Control, 91 hours, 53 minutes into the mission of Apollo 7. During that lengthy pass - from Carnarvon through Honeysuckle Creek, we heard about the radiator degradation tests. They are coordinating with astronaut Pogue at the Control Center on that. And on the number hand controller check and at the very last you heard the crew had beautiful pictures of the great barrier

APOLLO 7 COMMENTARY, 10/15/68, GET: 913700, (CDT 5:40a) 298/3

PAO reef in New Zealand, about 5 frames.
We are anticipating acquisition at Texas 92 hours 19 minutes into the mission. It is now 91 hour 54 minutes. This is Apollo Control

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APOLLO 7 COMMENTARY, 10/15/68, GET: 921900 (CDT 6:23 a) 299/1
                    This is Apollo Control 92 hours 19 min-
     PAO
utes into the mission of Apollo 7. We are just completing
the 58th revolution and we're approaching - should be at the
point of Texas acqusition. Let's listen in.
                    Apollo 7, Houston through Texas.
     CAP COM
                    Roger, Jack Go.
     SC
                    Ah, Roger, standing by. Donn, how are
     CAP COM
you this morning?
                    Fine Jack.
     CAP COM
                    Apollo 7, Houston.
                    Roger, go ahead.
     SC
                    Roger. We'd like to know whether you
     CAP COM
have shown any restarts on the computers since we last talked
to you at Carnarvon.
                    That's affirmative. We're now flying
     SC
attitude for the ... degradation. I loaded P-30 incorrectly
the first time, am loading P-30 - am trying to load it cor-
ectly. We ended up with an insoluable problem here and got
a restart on it.
                           Thanks Walt.
     CAP COM
                    Okay.
                    ... tabulate getting the attitude.
Why don't we give you a hack at the start time when we start
the radiator degradation test, it may be a few minutes after
92:35?
                    Okay, that's fine. (pause) Ah, Walt,
     CAP COM
we show two restarts here since we last saw you at Carnarvon.
     SC
                    Ah, so.
     CAP COM
                    We're still in the P-30 and we proceeded
to the end - ah, trying to proceed to the end of P-30 and it
still didn't light the answer and then we just reflected
through.
                    Okay, fine. (pause) Apollo 7, Houston.
     CAP COM
We're not receiving any biomed data, do you have the harness
hooked up?
                            We have (cut out) CDR connected
                    Roger.
and ... radiator test.
```

CAP COM Roger. Understand.
SC ... right now.
CAP COM Say again Walt?

CAP COM Say again Walt?
SC He'll be back on biomed in about ...

CAP COM Okay, we'll be standing by. (pause)

Apollo 7, Houston you have a go for 77 dash 1.

SC Roger. Go 77 one. We will be in attitude and starting the degradation test on time.

CAP COM Alright, copy. About to lose you over Bermuda, pick you up Canaries at 92:36.

SC Roger.

APOLLO 7 COMMENTARY, 10/15/68, GET: 921900 (CDT 6:23a) 299/2

pAO This is Apollo Control 92 hours 33 minutes into the mission of Apollo 7. We anticipate acquiring at Canary at 92:36, that's about three minutes from now. We will just stay up until we acquire at Canaries and go through the Canary pass and at the end of Canary pass we'll have a wrap up of the last eight hours of activity. At 92:33 this is Apollo Control standing by for Canary Islands.

CAPCOM Apollo 7, Houston through Canary.

SC (garble)

CAPCOM Roger, copy that.

SC The evaporator seems to be working for now. I wouldn't - I don't know how long we can count on it.

CAPCOM Roger.

CAPCOM Apollo 7, Houston. We would like tape recorder forward switched to off and then your DSE will be configured for this pass.

SC Tape recorder forward is off.

SC Jack, we have the water boiler operating, but it (garble) seems to be driving us against the (garble) here. Looks like it is going to cost us more than we had thought it would.

CAPCOM Roger.

CAPCOM Apollo 7, 1 minute LOS Tananarive,

Carnarvon at 9311.

SC Roger.

This is Apollo Control, 92 hours PAO 43 minutes into the mission. We are about 20 seconds away from loss of signal at the Canary Islands now. We will have a recap here of the night's activities for the last 8 hours. At 85 hours 18 minutes in revolution 54, it was indicated by Astronaut Eisele that he had taken two aspirin and one decongestant tablet at the time of his sleep cycle, and 20 clicks of water. That equals 10 ounces of water. The commander of the spacecraft, Schirra, and the LM pilot, Cunningham, entered the sleep period at 84 hours in the Schirra had taken two aspirin and 20 clicks of Again, that is 10 ounces. Then there was a very water. stable period on down through 89 hours 28 minutes at which time the CAPCOM, Astronaut Pogue here at the Control Center, went through an exercise on the O2 tank, the oxygen tank, There was no problem, it was just indicating which fans were on and which fans were off on the cycling. At Carnarvon, 90 hours 05 minutes, it was indicated by Eisele that the number 2 hand controller, which had given a little problem yesterday, pitched down position I believe, might be okay and that it would be checked when Astronaut Schirra woke up. They would check the input to the command module computer to see how the hand controller would operate during burn. At 90 hours 32 minutes, Astronaut Schirra awoke and indicated that he would like to have his sleep schedule ironed out. At 90 hours 49 minutes, CAPCOM Pogue talked to him again and Schirra indicated that 5 hours per shift of sleep was not really enough and that he would like a chance to get some sleep, more than 5 hours, and have the ground check on it. He also indicated that the number 2 hand

APOLLO 7 COMMENTARY, 10/15/68, GET: 923400 (CDT 06:38 a) 300/2

controller is go. It was green for go and that the anomaly had disappeared, so he had checked the hand controller. Pogue then indicated that 10 hour sleep cycles would go on for tonight in the flight plan. Schirra indicated that they didn't need 10 but they would like to get 8 hours of sleep. They then checked the procedures again at 91 hours 37 minutes for the radiator degradation test and the number 2 hand controller check that Schirra had indicated came out that the controller was go. Schirra indicated at that time that he had gotten beautiful pictures of the Great Barrier reef at New Zealand. That's about it for the evening. There wasn't too active a period, The spacecraft looks to be in good condition, we are in rev 59 right now. We have the TV schedule this morning for 60th revolution at 95 hours 25 minutes 55 seconds into the mission, which would be 92840 central daylight time and that's it. With everything looking good, this is Apollo Control.

APOLLO 7 COMMENTARY, 10/15/68, GET: 931045 (CDT: 7:20a) 301/1

PAO This is Apollo Control. 93 hours, 10 minutes into the mission. We are coming up on acquisition right about now with Carnarvon here in a very few seconds, so let's stand by and see what occurs.

CAPCOM Apollo 7, Houston.

SC Go Jack.

CAPCOM Okay, Walt, on your question on the fuel usage and minimum impulse, fuel usage is about .01 pounds for each engine that pulses, so if you are using 2 jets for each axis, it's .02 pounds every time it pulses.

SC A hundred pulses to a pound.

CAPCOM Yes, so you are going to get - you can

get 100 jets firings per pound.

SC Roger; understand. Thank you very much. We had 35 minutes worth at about 10 pulses; 9 to 10 pulses a minute.

CAPCOM Okay, copy that.

SC Now we are down to 2 to 4 pulses a minute.

CAPCOM Roger; understand. And we have got about

30 seconds till we lose you here; you want to turn up your

S band volume, and we'll pick you up over HSK.

SC Roger.

PRO
This is Apollo Control. We still have acquisition at Honeysuckle in Australia. The question that Astronaut Cunningham is talking to Astronaut Swigert here in the Control Center about, is one about RCS propellant; the amount being used. This has to be used because the RCS system is used during the radiation degradation test, which now is going on to keep the spacecraft in a steady mode. And that's why he refers to the 9 or 10 pulses per minute to begin with, and now at 2 to 4 pulses per minute and they are not concerned mightily, but they would like to know how much fuel, how much propellant that is now using. We will join them now at Honeysuckle again.

APOLLO 7 COMMENTARY, 10/15/68, GET: 932545 (CDT 7:35a) 302/1

PAO This is Apollo Control 93 hours 26 minutes into the mission - 27 minutes into the mission. We have just had loss of signal at Honeysuckle Creek. We're anticipating Guaymas at 93 49. At 93 27 this is Apollo Control

PAO And a good, good morning from the black team, which is back on duty in the Control Center, 93 hours 50 minutes into the mission. We have called up the crew from Guaymas and here is how that conversation is going.

CAPCOM Apollo 7, Houston through Guaymas.

SC Roger Jack.

CAPCOM Roger, you are fine.

SC Roger.

CAPCOM I would like to ask you how the H2 stratification test went.

SC We haven't done that test yet. If things get pretty well settled down, I will go ahead and run it, but it's not critical and I'm not at 50 percent yet on either gage.

CAPCOM Roger, understand. And also, I would like to verify the position of - that the hand control

power switch is at both.

SC That is correct.

CAPCOM Okay, fine.

PAO This is Apollo Control. We are in the midst of a radiator test and this test will continue for one full revolution. Essentially, the mode is tothere are two radiator - banks of radiators aboard Apollo 7 and they occupy about 130 degree strip around the command module. The radiator 1 bank is being isolated and pointed down toward earth, thus pointing radiator 2 on the opposite side out toward deep space. The test will - we will watch very carefully the performance, the ability of radiator 2 to take care of the load of keeping Apollo 7 cool enough during one full revolution around the earth. Here is some more conversation.

SC - inspected radiator 2.

CAPCOM Apollo 7, affirmative. We can verify

that, we are watching it.

Also, if everything is running nominal on this thing, we obviously don't have any battery degradation. Is there any reason for -

CAPCOM Say again, 7. You got cut out.

SC Stand by. Is there any reason for running it the full 4-1/2 hours if we find that the radiators are working good? It would be nice if we could save the fuel if we could draw conclusions earlier.

CAPCOM Roger, 7. If it's at all possible, when we look at this thing we will try to cut it off early.

SC Roger understand. You know what

SC Roger, understand. You know what I'm getting at, Jack.

CAPCOM Yes, I do.

Walt Cunningham discussing the radiator test. It is not a real concern, but the facts are that some 21 pounds of fuel are programed to continue to maintain this attitude for the radiator test. And that was what Walt Cunningham was referring to when he said "You know what I'm getting at." It was fuel usage, and his point was, if the radiator is operating satisfactorily, why go ahead and test full duration, and every indication is that it is operating quite satisfactorily. The crew is probably performing a fuel cell oxygen purge at this point, and as they move around on the Atlantic side, they will start to unstow their television equipment for a TV pass on the next revolution.

pAO

Apollo Control here. During this
quiet period, we might make mention of the fact that in the
course of the night, we received a telegram which reads as
follows: Hey, guys, first you steal my song Houston, and
now you steal my quote "Keep them letters and cards coming,"
and it's 10 to 1 when you land you will start drinking. P.S.
Like all Americans, I'm proud of you. Second P.S. I was
higher last night than you are now. Signed Dean Martin.

Apollo Control here. The weather story this morning goes like this. The west Atlantic, partly cloudy, easterly winds 20 knots, seas running to 5 feet, temperature in the mid-70's. In the eastern Atlantic, mostly clear, winds easterly 12 to 18 knots, seas 3 to 5 feet, temperatures in the mid-70's. In the west Pacific, the weather will be fair, partly cloudy, winds from the north to northeasterly at 12 to 15 knots, seas about 5 feet, temperatures range in the upper 70's. In the mid-Pacific, area is fair to partly cloudy, winds predominantly south at 15 knots, seas 5 feet, temperatures in the upper 70's or low 80's. Here is some more conversation.

APOLLO 7 COMMENTARY, 10/14/68, GET: 940100 (CDT 8:06a) 304/1

CAPCOM Apollo 7, Houston.

SC . Roger.

CAPCOM Roger, we would like to send you a new

state vector. Would you go to ACCEPT.

Okay, why don't we take a check. We'll turn the monitors up on it, but (garble). Jack, can you wait about 1/2 hour to play, we're using that 5 by.

CAPCOM Alright, I figured that, but what we

would like to do is to give you a -.

SC That's okay Jack, I'll turn loose because of this.

CAPCOM Okay. We can send this at Canary, if you would rather wait.

SC It's clear now.

CAPCOM Okay, coming up. Apollo 7, I'm ready to give you the NAV check pad when you are ready to copy.

SC Hold one.

SC We'll take it later.

CAPCOM Okay, just let me know when you are ready. Apollo 7, Houston, we are through with the update, the computer is yours.

SC Right.

CAPCOM Apollo 7, Houston, you can turn your 02 tank 2 fans off.

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APOLLO 7 COMMENTARY, 10/15/68, GET: 941100 (CDT 8:16a) 305/1
                    Apollo 7, Houston through the Canaries
     CAPCOM
standing by
                    Do you want tank 2 fans on for 5 minutes?
     SC
                    Roger, you can turn them off now. Did
     CAPCOM
you have them on for 5 minutes, Wally?
                    Negative. We haven't turned them off
    You want the tank 1 fans on for 5 minutes, right?
We have number 2 on now.
                    Okay, Wally. Number 1 should be in AUTO
     CAPCOM
and number 2 should be on for 5 minutes and then off.
                    We had number 2 on for 5 minutes.
                    Okay, then you can cut them off whenever
     CAPCOM
you are ready.
                    Do you want that ON or AUTO?
                                                  2 was in
     SC
AUTO. Do you want it on?
                    Okay, after 5 minutes, Wally, tank 2
     CAPCOM
fans should be OFF.
                    Apollo 7 Houston. We aren't reading
     CAPCOM
the CDR's biomed data. Would you switch to LMP? Oh, 7,
we just got CDR data.
                   Roger (garbled)
     SC
                    And I have this NAS check data pad to
     CAPCOM
pass up to you whenever you are ready.
                    Go ahead.
                    Go ahead, Jack.
     SC
                    Okay, the NAS check GBP is 094 plus 15
     CAPCOM
plus 00 00 plus 2310 minus 01215 0898.
                   Repeat the whole thing, will you please,
     SC
Jack?
                    Roger. GEP is 094 plus 15 plus 00 00
     CAPCOM
plus 2310 minus 01215 089.8.
                    Roger 094 15 4 balls plus 2310 01215 0898.
                    Roger, that's got it.
     CAPCOM
                    What's the outlook in Houston today?
     SC
                    Roger, we're about 30 seconds LOS
     CAPCOM
Canary, Tananarive at 94 plus 30.
                    Roger. Do you have news in Houston?
     SC
                    Oh, it was real fine this morning.
     CAPCOM
                    Garbled.
     SC
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APOLLO 7 COMMENTARY, 10/15/68, GET: 943000 (DCT: 8:36a) 306/1

This is Apollo Control Houston, 94 hours, PAO 30 minutes into the flight. We are about to acquire through the Tananarive Station, and let's monitor this conversation. The call has not yet gone out, but I expect it to momentarily.

Apollo 7, Houston through Tananarive. CAPCOM

(garble) SC

Roger; you're loud and clear. We monitored CAPCOM your fuel real closely during that first rev in the radiator degradation test, and we show a usage of approximately 5 pounds, and we are really watching it. We'll let you know. And l'11 let Gino read you the morning news.

Good morning up there. GINO

This is sure (garble) SC Roger.

GINO Wally, this is Gino. I've got a little news if you want to read - listen.

(garble).

7, this is Houston. GINO This is Apollo 7; go. SC

Walt, I gotta little morning news here GINO

if you would like us to send it up.

Go ahead Gino. Yeah, go ahead. SC

Okay, this morning the headlines have GINO starred your burn yesterday, your last burn as "perfect". However, it goes on to say there was a 9 minute burn.

Beautiful. SC

Randy Matson won an Olympic Gold Medal GINO in his shot yesterday and so did Houston's Jim Hines who won the 100 meter dash in 9.9.

That's (garble)

And the Astro's lost 4 ball players to CAPCOM the Montreal team in the expansion draft in the National Baseball League.

Who did they lose? SC

Stand by. We'll get that for you later; CAPCOM I'm not sure. One of the news services also picked Southern Cal as the number 1 college team in the nation, and I think Don will appreciate this next statement. Somehow when Ohio State managed to slip by the boiler makers last Saturday, they slipped into the second ranking.

Roger; I'm surprised they are not SC

first. I don't know how they won that Saturday. CAPCOM Hey, it looks like your cards and letters are coming in here real strong now over the past 24 hours, and your TV ratings on the Monday morning show are pretty high.

(garble) on the Today Show, or were we SC

on it? You are going to have a couple hundred CAPCOM million people standing by. As a matter of fact, with a little work, we have managed to book you for another week.

APOLLO 7 COMMENTARY, 10/15/68, GET: 943000 (CDT: 8:36a) 306/2 We've got our straw hats; we'll try to SC make a show. Okay, Wally; it was really a good show CAPCOM yesterday. The Astro's lost Bateman, Brand, Duke and Herrerra. (garble) catcher. The weather looks real - looks good today (garble) Roger, CAPCOM I'll do (garble) 40 nose, small hand just south of (garble). Roger, Wally. CAPCOM Small and similar to the (garble) type. SC Sounds like you guys are riding a real CAPCOM Cadillac up here; things have been going real good from where we sit. (garble) -comfortable suit (garble) You are 1 minute LOS Tananarive. We'll SC CAPCOM see you at Carnarvon. This is Apollo Control, Houston. will wrap up the conversation by Tananarive, the morning news passed along at 94 hours, 36 minutes into the flight.

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APOLLO 7 COMMENTARY, 10/14/68, GET: 944700 (CDT 8:57a) 307/1
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This is Apollo Control Houston, 94 hours,
     PAO
48 minutes into the flight. We're in contact with the crew
by Carnarvon and they're getting an update. The flight
plan for the next 1 hour shows just two items, unstow and
set up TV, which should have already been done according
to the flight plan. Then it has an item - TV on at 9525,
which is Texas acquisition. The LOS by Merritt Island is
shown on our flight plan as 9537, 9537. Let's listen to
the conversation.
                    Apollo 7, Houston through Caranrvon.
     CAPCOM
                    Roger. Jack, we were a little late on
     SC
that last 3 minute taped business. It shouldn't be that
tape, I don't think so.
                    Alright, copy that Walt.
     CAPCOM
                    Jack, can we have a chart update, please?
     SC
                    Coming up, standby.
     CAPCOM
                    Roger.
     SC
                    Okay, ready for your map update?
     CAPCOM
     SC
                    Okay, for Rev 60, the time of the mode
     CAPCOM
is 95 plus 11 plus 44, longitude 162.3 west, right ascension
of 05 plus 02.
                    Thanks Jack. In a call, that's real
great the way they come up with it in a hurry. I appreciate
it.
                    Roger.
     CAPCOM
                    Jack, we're going to need an update on
     SC
stateside so we can let Donn go to sleep for the next hour.
                    Okay, we'll figure that out Wally.
     CAPCOM
                    (garble) all (garble) up (garble) regroup
      At 10:00 am Cape time we're going to go to bed.
that.
                    Roger.
     CAPCOM
                     (gargle).
                    Okay.
     CAPCOM
                    Jack, do we have a TV pass today.
                   Right, you have a TV pass, Wally.
     CAPCOM
                    Okay, we'll be on top.
     SC
                    Okay, the time of TV will be about
     CAPCOM
95 plus 25, which is about - oh, about 45 minutes from
now. Apollo 7, Houston, do you want to turn up your S-band,
so we can pick you up over Honeysuckle.
                    Roger. This is Apollo 7.
     SC
                     Go ahead Apollo 7.
     CAPCOM
                     Roger, I'd use that gray tape that Paul -
tape that Bob (garble) together, that kept coming apart. It's
not that easy to tape the microphone together and the light
weight head set, which starts coming apart. The gray tape
is pretty good gear.
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Roger, copy that.

CAPCOM

APOLLO 7 COMMENTARY, 10/14/68, GET: 944700 (CDT 8:57a) 307/2

CAPCOM Apollo 7, Houston. SC Go ahead Houston.

CAPCOM Wally, on the sleep cycle there, we have 96 to 116 blocked out for a crew sleep cycle. This can be used in any way that the crew sees fit for sleeping arrangements.

SC Very good. Well Jack, good ole scene in sight here again. I have Perth at night. Houston, did you read? Houston, Apollo 7.

CAPCOM Apollo, Houston, copy that.

SC Roger. That's the home of Sloans Lager where they have that good beer these days.

CAPCOM Alright. Wally, they had an earthquake at Perth two days ago.

SC Oh really, that's terrible.

APOLLO 7 COMMENTARY 10/15/68, GET: 945700 (CDT 9:02a) 308/1

Apollo 7, Houston, we are about 1 minute CAPCOM from LOS honeysuckle, we'll pick you up at Huntsville at 95 17.

SC Roger.

Apollo Control Houston here. 95 hours even, and that wraps up the conversation from Australia.
We expect to acquire via the good ship Huntsville at - let's check that - 95 hours and 17 - 17 minutes from now. This PAO is Apollo Control Houston.

pao This is Apollo Control Houston 95 hours 16 minutes into the flight, and we are getting some carrier noise on the circuit out through the Huntsville. It has not put in a call yet to Apollo 7 nor have they attempted to reach us. Meanwhile, the Huntsville has confirmed now and Apollo 7 has been told that we are standing by. We have not heard from them. The radiator test meanwhile, continues. It will run on, presently scheduled to run through the Huntsville, according to my flight plan here. Well, at least through Pretoria 96 hours. Meanwhile, let's monitor the circuit going out through the Huntsville.

PAO That is capsule communicator Jack Swigert you are hearing right now. The other CAPCOM on the console is Gene Cernan.

PAO In general, this morning we planned to ask the crew to give us a good look around the spacecraft and show us a little of their intravehicular activities, the movements, the ease of movements from here to there. We will watch and see what comes out.

SC Jack, understand TV time now at 95 + 25, over.

CAPCOM Roger. Your TV time is 95 + 25.

SC Jack, if we start transmitting the
TV at 25, how soon do you people see that in the Center?

CAPCOM Walt, it has to go through the scan converter and it doesn't take too long. We get it fairly soon.

SC (garble)

CAPCOM l'couldn't get that, Walt. Huntsville isn't real good, but we will catch you at California.

SC Roger. Do our first TV transmissions go through Texas and then in the end we are transmitting through the Cape?

CAPCOM That is affirmative.

PAO This is Apollo Control Houston 95 hours 22 minutes into the flight. You have been listening to Jack Swigert update Walt Cunningham on the pass of the TV transmission and how we receive them here in the Control Center. The pass is to - we expect acquisition around 26, 27 minutes after the hour, that is of the television signal. Texas station should acquire 25 minutes, 9525. And if we have an open circuit, we will just continue to monitor.

PAO Apollo Control here. Of interest is the fact that Mrs. Eisele, the wife of the command module pilot is here in the Control Center this morning along with her parents. Harriet Eisele is from Gnadenhutten, Ohio.

APOLLO 7 COMMENTARY, 10/15/68, GET:951650 (CDT 09:22a) 309/2

pao This is Apollo Control at 9524. The people who maintain the Center have put the - put two large screens available upon our data board so all the flight controllers can get a big look at the pictures. And at this point, we are beginning to see a little snow. It's 9525, we are beginning to see a little snow as we did yesterday just prior to - the network just advised that he had a minor network problem with our station in Guaymas or we have covered it through the Goldstone, California station. It should not give us a problem on TV. We are seeing some snowy lines on the screen at this point. And Eisele has just put in a call "do you see anything yet?"

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APOLLO 7 COMMENTARY, 10/15/68, GET: 952500 (CDT 9:31a) 310/1
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PAO And Eisele has just put in a call do we see anything yet on the TV and we do not. Texas now has the carrier locked up and now we're beginning to see a little something that's coming through. Here we go. Lets have a look. It's a little lighter than yesterday. Now it's cleared up.

CAPCOM We're just getting - just starting to

pick you up now.

CAPCOM Okay, we're starting to pick you up. You're looking good. It's a good picture. We can see the straps in the center seat zero G.

SC Roger. Can you see me? I'm in the left

seat.

CAPCOM Affirmative.

SC Okay.

PAO That's Donn Eisele talking, now he's

holding up a sign.

CAPCOM "The lovely Apollo Room, high atop

everything."

SC That's right. Coming to you live from outer space, the one and only, original Apollo everything road show. Starring those great acrobats of outer space Wally Schirra and Walt Cunningham.

CAPCOM Just a minute Wally, let's see. Oh, it's a little message to Deke Slayton. A little bit closer, Wally. Kind of looks like something about "Are you a, are you a - " Looks like it says "Are you a turtle, Deke

Slayton?"

SC That's right.

SC You've got ace reading today, Jack.
CAPCOM Here comes another one. Walt, oh, that a way, that's the way to turn it. It says, "Paul Haney, are you a turtle?"

SC You'll get a gold star. Perfect score.
CAPCOM And there is no reply from Paul Haney,

here.

SC You mean he's speechless?

CAPCOM Apollo 7, Houston. Will you close the

back pressure valves and go to INCREASE?

SC Roger, stand by.
CAPCOM It's a real good picture.

SC Roger.

CAPCOM You might take us on a little tour of your capsule there, if you have a chance.

SC Okay, standby.

SC I think we can work that out. Let's take it off the bracket and pan the cockpit a little bit.

SC At this point we are looking across the cockpit and Walt Cunningham's couch toward Donn Eisele who

APOLLO 7 COMMENTARY, 10/15/68, GET: 952500 (CDT 9:31a) 310/2

sc is preparing the spacecraft for the radiator degradation test. There you see a pen cruising by and I need to make some notes, obviously. From there we concentrate on the left seat's attitude control. You can see possibly two of the instruments for attitude control over there. In the second panel we have the switches that the machine, that are complicated to fly, and we monitor our systems on this side. At this point Walt Cunningham is

pAO You will notice Walt Cunningham reached out and recovered a pencil floating there. A very positive demonstration of weightlessness. Apollo Control Here.

SC Looking across the cockpit to the right we have most of our electrical power controls, fuel cell controls. Then as we continue across the cockpit we'll come to the right side and that window where you can see the Gulf Coast outside and with the weather and winds we've got surf galore.

CAPCOM The outside doesn't show too well due

to the orb rate, Wally.

They are now going to work their way down into the lower equipment bay below the navigation station. Here you can see the heart of the navigation system of the Apollo spacecraft, the command module that is, the sextant and telescope, the near large object is a monacular type device is the telescope and adjacent to it, the small instrument is the sextant. We acquire a known star in the telescope and then acquire in the sextant where it can be marked on a rather carefully graduated gimbal to give us the exact position of the star.

SC I'm now panning over to Wally who is going to get the telephoto lens out of its stowage compartment and we'll attempt to do the out-the-window

photography.

CAPCOM Walt, the out-the-window doesn't

show up very well, Walt, due to the orb rate -

SC Do you want to skip the out-the-window?

CAPCOM We'd like you to keep it inside. The orb rate just makes it impossible to see much outside.

SC Roger understand. Okay.

CAPCOM Wally, this is Gene. Deke just called in and we've got your answer and we've got it recorded for your return.

Roger. Real fine. We'll now show you the lower equipment bay where we have the water control and oxygen control panels and one panel where we can also change the lithium hydroxide in flight, to change out when needed. I've just opened one of our food bays and when I pulled the switch down you'll notice that we have a real good package that is portable. This bay is so empty. We'll switch

to another bay, starting tomorrow. is an empty food bay with food rolled up rather tightly for the first 4 days of consumption. Our dietician, Rita Rapp, will appreciate how tightly we repackaged the empty packets of food. And now, we will rotate the camera around through the lower equipment bay back out towards the cockpit. I'm sure the spaghetti that you see, which is the coax cable, that I'm holding. Walt Cunningham is working with our exercise device. Using an (garble) motion to stimulate his cardio vascular system. You can take the same device in all the (garble) and use the arms in a curling motion to create exercise in the upper torso. I'm going to swing now to the other side of the cockpit, where you can see Donn is still rotating the attitude of rather a tight (garble) to prepare for our radiator degradation test. You can see we have our lighter moments. Have you got Haney's answer yet?

CAPCOM No, Haney isn't talking Wally.
SC Roger, and how much more time do you

want on this machine?

CAPCOM Somebody tells me he isn't talking, but

just buying.

SC He is buying, thank you very much. Very good. We will now take you down below the couches, to our storage area. This bottom opens up to be a sleep station. The (garble) below is a head rest swings off and stows. The large bulky bag that you see off the camera left is your (garble). Jack, do you still have the picture looking pretty well?

CAPCOM The picture quality isn't as good now after the handover to the Cape, but we can still make it

SC I'm going to take you through the area where the water is collecting. This is the area where water was condensing on the pipes, just below the Commanders left shoulder. You will notice that the panel here was refrigerated, and with the (garble) there is water condensation on the pipe. We vacuumed it off (garble) and it forms a large ball of about the size of a ping pong or golf ball.

CAPCOM Okay Wally, we've lost the picture now. We copied the water condensation and we saw the beginning of your transmission on the water condensation now.

SC Very good

CAPCOM That was a real good pass.

SC Say Jack, we've got the steam pressure up okay, but we don't seem to be able to put it back up in the boiling range and we are not boiling now.

CAPCOM Walt, we would like you to reservice

the primary evaporator.

APOLLO 7 COMMENTARY, 10/15/68, GET: 952500 (CDT 9:31a) 310/4

This is Apollo Control Houston, 95 hours, PAO 37 minutes into the flight and we brought the picture to an You can see the degradation as we moved out of the outer limits of the Merritt Island circle. We can thank Commander Wally Schirra for a tour of Apollo 7 cabin, and he held up a few signs with some questions on it, which were, I suppose, meant to elicit a certain answer. We did get some operational information on that pass, which was of interest here. He was trying to show us what the water condensation looked like on some of the machinery inside the cabin toward the end. You might have heard, the com was pretty rocky there, but you heard Jack Swigert confirm that we did understand he was trying to show us the water condensation. All in all, it was a very worthwhile pass. We should continue to hold lock here on out through the ship Vanguard for another 5 minutes. We'll keep the line There has been no conversation now open and monitored. for several minutes.

Apollo 7, Houston. One minute LOS CAPCOM Bermuda, we'll pick you up at Canary at 95 plus 46. That was a real good tour of your castle there.

Roger, welcome aboard. Hey Jack, does SC

that go out live?

That went out live. CAPCOM

Is Deke Slayton out of the press conference SC

now?

Deke isn't here right now, Donn, but CAPCOM Harriet's in the Control Room and watches all. Roger, understand. Tell her hello SC

for me.

You just did, she's nodding her head. CAPCOM

Okay. SC

APOLLO 7 COMMENTARY, 10/15/68, GBT: 954000 (CDT: 9:31a) 311/1

PAO This is Apollo Control Houston, 95 hours, 44 minutes into the flight. We have lost signal through the ship Vanguard; we should acquire for a very peripheral pass through the Canary Islands. And meanwhile we are continuing with the radiator test; that's the main flight planned item.

APOLLO 7 COMMENTARY, 10/15/68, GET: 955220 (CDT: 9:58a) 312/1

PAO This is Apollo Control Houston, 95 hours 52 minutes into the flight. We had a very brief conversation with Apollo 7 by the Canary Islands and here is how that conversation went.

PAO I am sorry; we do not have tape of it; it was simply a call up and an acknowledgement and that was that. My error. We expect to reacquire by Tananarive at 96 03 minutes after the hour, about 10 minutes from now. This is, on the TV pass, we clocked here in our tape facility, 11 minutes worth of television tape. Eleven minutes, which was 4 minutes more than we had yesterday. This is at 95 hours, 53 minutes. This is Apollo Control Houston.

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APOLLO 7 COMMENTARY, 10/15/68, GET: 960300 (CDT: 10:04a) 313/1
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This is Apollo Control Houston, 96 hours PAO and 3 minutes into the flight. We are going to try to advise Apollo 7 that we are standing by here in a moment, but the circuit sounds noisey this morning through Tananarive. One comment on the television tape which you might have missed. In looking at the tape carefully, and this came up in a conversation the second time we looked at it here in the Control Center, you begin to appreciate the true size of Remember the internal volume is nearly 4 times that of Gemini. 320 cubic feet versus 80 odd for Gemini. And the pilots, as they presented their Q cards and so forth in the opening sequence, were coming to us, they were floating out of an area under the Command Module's seat. Bisele was in the Commander's seat on the left side, and we saw Wally Schirra and then Walt Cunningham sort of staging from an area immediately under that seat and floating up and then across our field of view. Then of course Wally pointed the camera down into the lower equipment bay and he did a wonderful explanation of the optics. Now we have reached Apollo 7; let's listen.

We've got over 3 hours at the last of SC

this test that you were (garble) and expected.

Wally, we are not reading com very well CAPCOM

through Tananarive here.

(garble) SC

How do you read Apollo 7? Okay, Apollo CAPCOM

7 Houston.

Roger. We will (garble) when we have SC

a pass. Wally, we have been monitoring the fuel CAPCOM usage very closely. They find the fuel usage is nominal for this test. We would like to continue the test and use the secondary evaporator and it requires to lower the evap out temperature. Com is very bad here over Tananarive; we will have a real good pass with you through Carnarvon.

Roger. The primary evaporator is working SC

fine again.

Okay, copy that, Walt. CAPCOM

CAPCOM Apollo 7, you're 1 minute LOS Tananarive; we'll pick up ARIA 1 in about 2 minutes monitoring you there through Carnarvon.

Roger. (garble) SC

Roger; out. CAPCOM -

Hey Jack; this is Walt. Give me 30

clicks on the (garble) miles per hour.

How many clicks Walt? CAPCOM

30 -SC

Roger; 30 clicks. (garble) And 2 -CAPCOM

of CBS. (garble) for C and P APOLLO 7 COMMENTARY, 10/15/68, GET: 960300 (CDT: 10:04a) 313/2

SC (garble) This is Apollo 7.

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APOLLO 7 COMMENTARY, 10/15/68, GET: 962025 (CDT: 10:15a) 314/1
                     Apollo Control Houston here at 96 hours,
     PAO
20 minutes into the flight. We just acquired through Carnar-
von and here is how the conversation is going.
                     with the slide in place, excuse me, and
we made 4 shots there and probably 3 or 4 other ones through
the flight at random.
                     Okay, I copy that Walt.
     CAPCOM
                      Jack, go ahead with your updates.
     SC
                    Roger. Block data 11 063-4A plus 305
      CAPCOM
minus 1599 099 plus 36 plus 59 3402 064-4A plus 309 minus
1600 101 plus 13 plus 24 3578 065-4A plus 269 minus 1600 102
plus 46 plus 04 2888 066-3A plus 309 plus 1363 104 plus 04
plus 38 3403 plus 067-3A plus 306 plus 1362 105 plus 41 plus 04
3607 068-3B plus 261 plus 1344 107 plus 13 plus 10 2888.
                      Roger; that's complete, your block update
      SC
Jack?
                      Affirmative.
      CAPCOM
                      All right; read back as follows.
                                                          Did you
start with 62 or 63?
                      063-4A.
      CAPCOM
                      You're 063-4A plus 305 minus 1599 099,
      SC
3659 3402 064-4A plus 309 minus 1600 101 13 24 357.8 065-4A
plus 269 minus 1600 102 46 04 2888 066-3A plus 309 plus 1363
 104 04 38 3403 067-3A plus 306 plus 1362 105 41 04 3607 068-
 3B plus 261 plus 1344 107 13 10 2888.
                      Roger; that's correct.
      CAPCOM
                      Apollo 7, Houston. Did you purge 02?
      CAPCOM
                      I purged 02 at the regular scheduled time
      SC
which was 7 hours ago I think, wasn't it?
                      Roger; we copy.
      CAPCOM
                      Check the time on that will you Jack?
      SC
                      Roger; it should have been at 94 hours.
      CAPCOM
                      That's right; we purged at 94 hours.
      SC
                      Okay, thank you.
      CAPCOM
 SC We're going through a meal now and probably have a gripe; the cracker type food; chicken sandwiches; they are all crumbly and we have a lot of problem with crumbs
 all over the cockpit. We have been rejecting a lot of this.
                      Okay, Wally, we copy that. You are about
      CAPCOM
 1 minute LOS Carnarvon, and we won't get you again till Hawaii
 at 96 plus 45.
                      Roger.
```

END OF TAPE

SC

APOLLO 7 COMMENTARY, 10/15/68, GET: 963000 (CDT 10:25a) 315/1

Apollo Control Houston. We are now 96 hours 31 minutes into the flight and I think we are probably out of communications through the Australian circle, at least we are passing over the northeastern edge of the continent of Australia. Just before we came into Australia, you heard, if you were monitoring the release loop, some excellent commentary - communications let's say through the one of the aircraft - one of the KC135 flying radio state. tions which we are exercising during this mission. The aircraft was flying at about 40,000 feet in the mid-Indian Ocean and the atmospherics must have been very cooperative today, because that is the clearest communications we've Through an airheard in the 4 or 5 days of this mission. craft we could hear them and they said they could hear us quite well. At 96 hours 32 minutes into our mission, we now will have an out until the spacecraft is acquired by Hawaii, which acquisition should come at 96 hours 45 minutes. This is Apollo Control Houston.

```
APOLLO 7 COMMENTARY, 10/15/68, GET: 965356 (CDT 10:49a) 316/1
                    Apollo Control Houston. We are 96
hours 53 minutes into the flight. A few minutes ago, we
called Apollo 7 through Hawaii and here is how the conver-
sation has gone.
                    Apollo 7, Houston through Hawaii.
     CAPCOM
                    Roger. We completed all our data
recording through you. Are you going to be dumping that
tape now?
                    Apollo 7, Houston. We are going to
     CAPCOM
rewind the tape here. We will dump it over the States.
                    Roger and can we secure this test?
We will continue for 30 more minutes.
                    Okay, we are going to secure at 97
     CAPCOM
hours, Wally.
                    Roger.
     SC
                     Jack, this is Wally.
     SC
     CAPCOM
                     Go ahead.
                    This is really a thrilling flight con-
     SC
            One slow roll in an hour and a half.
trol test.
                     (Laughter) Roger, copy that.
     CAPCOM
                    Apollo 7, Houston.
     CAPCOM
                     Go ahead.
     SC
                    Walt, I have this daylight scanning
     CAPCOM
telescope star count pad to give you whenever you are ready
to copy.
                     Okay, the daylight scanning telescope
star count or the sextant star count, Jack?
                     Jack, how about giving me a little
more on that one, that is impossible to use. Houston,
Apollo 7.
                     Wally, we will give you a hack on
      CAPCOM
your fuel use on this - the fuel usage we have copied so
far has been between 17 and 18 pounds, which is right on
the nominal for this test.
                     Houston, Apollo 7.
      SC
                     Okay, Walt, stand by one.
      CAPCOM
                     Jack, on observing details we want
      SC
 to feel we've learned something up here in 5 days that
 somebody else hasn't learned yet.
                     Say again, Wally, I missed that.
      CAPCOM
                     Let's assume we have learned something
 up here in the last 5 days that we didn't know before we
 came up.
                     Okay, I have this daylight star count
      CAPCOM
 pad assessment.
                     Okay, we will take it.
                     Okay. GET of sunrise 98 + 15, roll
      CAPCOM
```

000, pitch 097, yaw 000. GET of sunset -1298 + 56, roll 000, pitch 327, yaw 000. Your key align will 98 + 15, and

APOLLO 7 COMMENTARY, 10/15/68, GET: 965356 (CDT 10:49a) 316/2

the only remark -CAPCOM

We have to do this key align for these SC

angles? We have our refs on that now.

Roger. The key align is for those CAPCOM angles. And the other change on this is that the shaft will be 90 degrees and a trunion 0 degrees.

Okay, 0 shaft 90. Donn has got some-

thing to report.

We did this test a couple of days ago, SC with a 120 degrees angle up and I just didn't see much point in it. Your ability to see stars is not so much the function of light transmission of the telescope as it is a matter of stray light you got coming in from loose particles flying around outside that look like stars and also in stray light that comes up from the earth and whatnot, distorting the telescope picture. Jack the point is I don't think you are learning a heck of a lot from this. We know already that the stars aren't (garble)

Okay, Donn. We've got real poor com. CAPCOM I can't quite copy. Let's wait until we get over the coast

and we will have a little better com.

Roger. SC

Apollo 7, Houston. CAPCOM

Go ahead. SC

Computer says that the evap-Roger. CAPCOM orator might be drying out again.

Darn right.

Jack, I ve been trying to tell you SC that with realignment, we lose fuel, get into a new attitude, fly two different attitudes to prove what we have already discovered in this flight, that you can't see stars in the telescope except just after sunrise or just after sunset, which we have been trying to tell the Project Office for about 5 years.

Roger, copy that. Wally, this test CAPCOM here has the telescope sunlight of sight off at 7 degrees, which is worst case and we would kind of like to get this

one in.

That's what I've been trying to tell With the best case we didn't doany good, but if you want us to do the test, we will do it. But we are kind of tired of arguing with people that produce this environment. I'm not talking about you, but the various things you don't know about telescopes.

We will try out the test Cape time. SC Is the radiator degradation test over SC

yet? Apollo 7, Houston. You can discon-CAPCOM

tinue the radiator degradation test.

APOLLO 7 COMMENTARY, 10/15/68, GET: 965356 (CDT 10:49a) 316/3 SC Roger.

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APOLLO 7 COMMENTARY, 10/15/68, GET: 970300 (CDT: 10:58a) 317/1
                    Right over us here today.
     SC
                    Go ahead Apollo 7.
     CAPCOM
                    Roger; we are looking at your pretty
     SC
white (garble) today.
                    That's affirmative.
     CAPCOM
                    We (garble) weather.
     SC
                    Apollo 7, Houston.
     CAPCOM
                    Go ahead Jack.
     SC
                    On, while you are taking photographs,
     CAPCOM
during this Stateside pass, or the next ones, if you can
fit it in, we would like to get a picture of Tucson and a
picture of a tropical storm which is presently just south
of Cuba.
                    Understand Tucson and a storm just south
     SC
of Cuba.
                     Roger; Tropical storm Gladis just south
     CAPCOM
of Cuba.
                    Which end Jack, south of Haitti or south
     SC
of the (garble)?
     CAPCOM
                    If you could give us latitude and longi-
     SC
tude that would help us.
                     Stand by Wally. Okay, the present
position of this storm is south of the eastern tip of Cuba,
and east-western tip of Cuba and east of the Yucatan Peni-
nsula.
                     (garble) up through the (garble) Islands?
Okay, we got a pretty good longitude on - (garble)
                     Next pass; it looks like you would be
     CAPCOM
in a little better position; it looks like you might even
pass right over it.
                     Roger. Jack at this time would you
let me check clicks on the water dump?
                     Roger; copy that.
     CAPCOM
                     Give Walt 15 clicks.
      SC
      CAPCOM
                     15 for Walt.
                     The star will take 20.
      SC
                     Okay. Apollo 7, we show you approaching
      CAPCOM
gimble LOX.
                     That's what you call skirting the issue,
      SC
 just going by the edge.
                             Jack, on that Tucson-Phoenix;
                     Roger.
      CAPCOM
did you want the panex or the 121?
                     Stand by.
      CAPCOM
                     We'll get you that by the next pass.
      CAPCOM
                     Roger; plenty of time.
      SC
                     Jack, on that tropical storm coming up
      SC
there, do you expect that to come up into the Gulf of Mexico?
                     Right now the forecast is past up into
      CAPCOM
 the west coast of Florida.
```

SC Jack, on that pass would you log the following pictures magazine S? Starting down around about 55, we got two good pictures of Houston, 2 of New Orleans, Mobile Bay, Pensacola. Wally got the Mississippi Delta, the Port Walter area and that was about it. The Cape was cloudy, patchy broken

CAPCOM Okay, copy that.

SC Jack, I would recommend for the next crew that they try to eliminate as much of the protein in the bite size food that's bothering all of us already.

CAPCOM Okay, we copy.

SC The hot one.

SC I thought the breakfast drink was going over very well, but we need a better type of fluid.

CAPCOM Okay, copy. (cut off) he hear. Wait

till I get my sheet out.

CAPCOM Apollo 7, Houston. Apollo 7, Apollo 7,

Houston.

SC Go ahead.

CAPCOM Apollo 7, Houston. Regarding this daylight scanning telescope star count, we're not going to be able to do it with the present revs MET because of a Gimbal lock problem. We understood yesterday, that we saw more stars then we anticipated at the 120 degree line of sight. We would like very much to get this test in at the 70 degree line of sight. Over.

CAPCOM Apollo 7, Apollo 7, Houston. Did you

copy?

Yes, we read you.

PAO This is Apollo Control Houston 97 hours 14 minutes into the flight with Apollo 7 out in the far eastern tip of Antigua acquisition circle. We're rather sure that will wind up the comm for this pass. This is Apollo Control in Houston.

APOLLO 7 COMMENTARY, 10/15/68, GET: 972755 (CDT 11:23a) 319/1

PAO Apollo Control Houston 97 hours 17 minutes, and through Ascension we've been having this interesting conversation.

CAPCOM Apollo 7, Houston through Ascension.

SC Roger.

CAPCOM Roger, you are 5 by. Do you copy our conversation on the scan telescope star count that we were giving you over Bermuda?

ŠC´ I got you, Roger.

CAPCOM Okay.

SC I've got some information for you. If you were in pitch and roll, if the stick is released it will it will follow a jet rapid direction exactly as in the simulator.

CAPCOM Could you go over that again, please? SC Okay, it's (garbled) mode, beta impulse.

CAPCOM Roger.

SC If one pulse in ready to roll out, the stick is released (garbled).

capcom Roger copy that.

SC It's the same as the sticks in the simulator, it's that unique.

CAPCOM Okay. The other thing we wanted to ask you is to do - you could do the H2 stratification test whenever you can fit it in there.

SC Roger, thank you. That's inside the

next half hour.

CAPCOM Okay, we'd like you to put your tape recorder forward switch to FORWARD.

SC Roger, are you through dumping?

CAPCOM Affirmative.

SC It is in forward.

CAPCOM Okay. The other thing we'd like to get is the general crew status with a status on each man. Could you give us a rather complete rundown on each man - how they're feeling today?

SC This is CDR. I still have a rather thick mucous nose cold. The three of us are coughing. We're very well rested although last night was rather a short night, and we'll take advantage of the longer hours tonight to catch up again. We've all had plenty to eat and drink, if not too much. The sight of the food is just too rich for us. I'm still on aspirin and I'm off Actifed at this time, and all of us are getting out of Actifed. We don't have enough left to keep taking it for the length of the mission. We'll use it prior to reentry.

SC This is the CMP. My only complaint is a head cold just like Wally. I find that my ears plug up now and then. I would take the Actifed except for running out of it. We're saving it for reentry in case we need it then.

APOLLO 7 COMMENTARY, 10/15/68, GET: 972755 (CDT 11:23a) 319/2

SC other than that I'm in good shape. I've had plenty to eat and drink, had plenty of sleep. No problems.

SC Are you still reading Jack?

CAPCOM Roger.

SC Okay, I'm in good shape. I've been sleeping a little better each night and my ears are just barely clear some mornings and sometimes not. I don't feel bad, I don't feel like I've got a cold. I just feel like I'm pretty well stuffed up and on the verge of getting one.

CAPCOM Okay, copied that. Apollo 7, have any of you had an indication of a temperature rise?

SC Negative.

CAPCOM Okay, fine. Sometime, no hurry on it, you might give us a count on your medication remaining. We sort of lost track here.

SC Okay. We've been logging it, and calling it down, Jim, if you haven't gotten a report on every bit of it. One interesting observation, with a head cold the mucous does not go down the throat and cause a lung problem. It stays stuffed up in the sinuses. This is due to zero gravity I'm sure.

CAPCOM Okay, copy that.

Ight P-52. How it happened, we rolled over so that we're pointed up to the stars. I did P-52 and pick a pair worked, so I lucked out. It turns out that you can in general see stars in the sextant provided it's not too close to the sun and provided all the optics will pull them in for you, but of course it's impossible to see anything through the telescope under these conditions.

CAPCOM Roger, copy.

SC (break into conversation) by the stars I marked on explicitly. I assume they are right because the star difference angles was proper.

CAPCOM Okay, real fine.

SC I wouldn't want to hang my hat on that if I were going to the moon, however.

CAPCOM Roger, understand.

SC I'd like to make the point, you can prove the two stars by the star angle difference like 4 balls 1.

CAP COM Okay.

SC And by the pick a pair.

CAPCOM Okay, Apollo 7, Houston. We show that one panel is still isolated, and we're about to lose you over Ascension. We'll pick you up at Tananarive here at 497 plus 38.

SC Roger. That's a good call down there, thank you.

PAO This is Apollo Control, houston. We're 97 hours 38 minutes into the flight, and via Tananarive we're about to acquire. Stand by.

CAPCOM Apollo 7, Houston through Tananarive.

SC I read you.

CAPCOM Roger, we're standing by.

PAO This is Apollo Control, houston, here in 97 hours, 40 minutes into the flight. In discussing the situation, the Flight Directors concluded that the comm circuit through Tananarive today is a bit too choppy so we will take it down.

```
APOLLO 7 COMMENTARY, 10/15/68, GET: 980030 (CDT: 12:03p) 321/1
                    This is Apollo Control Houston at 97 hours
     PAO
56 minutes.
             In the recent swing across the Indian Ocean we
tried without success to raise the spacecraft through an
ARIA aircraft over the Indian Ocean, and as I say, the, - we
were not successful but we have established com however through
Carnarvon and here is how it's going.
                    Apollo 7, Houston through Carnarvon.
     CAPCOM
     SC
                    Roger, Jack. I tried to put the pri-
mary evaporator back on the line and it didn't make it.
     CAPCOM
                    Okay, I was trying to reach you through
ARIA 1 to do that S band BTO for ARIA.
                    We didn't hear you.
     SC
                    Roger; I didn't hear you either. On
     CAPCOM
your question about the film over the Stateside pass for
the pictures of Tucson, the film to use is S0121.
                    Roger; thank you. Jack, out of curiosity
how many different kind of S band passes are there? I'll
give you time to figure that one out.
     CAPCOM
                    7, it appears to be about 20 or 30
different types of modes and conditions for S band communi-
cations kinds here.
     SC
                    Roger.
                    Apollo 7, Houston. On the primary
evaporators, did you reservice this before your attempts
to put it back on the line?
                    Sure did. We reserviced it over Canaries.
     SC
     CAPCOM
                    Okay, copy.
     SC
                    Temperatures are even running pretty
hot; can you confirm that both of my radiator panels are slowing
down?
     CAPCOM
                    Okay, copy.
     SC
                    Temperatures are even running pretty
hot; can you confirm that both of my radiator panels are
slowing now, the individual temperatures, please?
                    7, both of your red panels look good.
     CAPCOM
                    Roger, thank you. Houston, Apollo 7.
     SC
     CAPCOM
                    Go ahead Apollo 7.
                    I'll give you a medication count; there
are 3 categories; actifed, asprin and one more pill. (garble)
     CAPCOM
                    Apollo 7, I didn't copy that you are
going to give us the quantity remaining of the three
medications.
     SC
                    Yes, the quantity used to (garble)
     CAPCOM
                    Okay; go ahead with the quantity used.
                    Roger. CDR actifed 6, aspirin 17, loma-
     SC
til 2. CMP actifed 2, aspirin 2.
     CAPCOM
                    Copy.
```

LMP 1 actifed.

Roger; copy that. Thank you very much.

SC CAPCOM APOLLO 7 COMMENTARY, 10/15/68, GET: 980030 (CDT: 12:03p) 321/2

Roger. SC

CAPCOM Apollo 7, Houston. 30 seconds LOS Carnar-von; a short pass at Guam at 9807, Hawaii at 9818.

Understand.

Apollo Control here, 98 hours, 2 minutes, PAO into the flight and we are about to lose signal by Carnarvon.

This is Apollo Control Houston.

APOLLO 7 COMMENTARY, 10/15/68, GET 981150, CDT 12:14p 322/1 Apollo Control here 98 hours, 10 minutes PAO into the flight, and through Guam a few minutes ago we acquired, we really hadn't been expected, because the spacecraft is passing below Guam. But we're getting excellent Here's how it's going. Apollo 7. Houston through Guam. CAPCOM SC Roger. 7. We haven't had a window status check CAPCOM in a while, how are they doing? Roger. I think I would rather give you a report when there's daylight, Jack. Okay, Real fine. And the other thing CAPCOM I was kind of curious about, Wally, can you hear the thruster -- the RCS thrusters fire? Affirmative. SC Okay, real fine. CAPCOM Only when they light off we can't hear SC them when they're burning. CAPCOM Okay, Right now the main thing is you can hear SC a pause. It sounds like your hearing - as Donn describes it -- a water (garble) CAPCOM Roger. Copy. however, (garble) it seems to have almost It fluctuates back and forth on a sort a surge of power. of a cyclic beat, rather than a steady, smooth, application of power. Okay, copy. We're about 40 seconds from CAPCOM: LOS Guam. Hawaii at 9880.

Roger, copy.

Rog, how about passing this discription

END OF TAPE

on to John Healy.

```
This is Apollo Control Houston 98 hours
     PAO
             We're in touch with Apollo 7 through Hawaii.
25 minutes.
Earlier through Guam you heard Wally Schirra ask - relay a
message and the more understandable parts of the communication
was the name John Healy. John Healy is an engineer who
headed the management development team which worked on
Spacecraft 101, now called Apollo 7. He is an employee of
the North American Rockwell Company, and he was in the viewing
room and heard the transmission. We're not sure we understood
it fully and it's being listened to in very slow time and
transcribed for Mr. Healy's benefit. We have this communication,
however, by Hawaii.
                     Apollo 7, Houston.
     CAPCOM
                     That set of angles was very good this
     SC
time and we found the moon right in the middle of the tele-
                     Roger, copy. We would like to send you up
     CAPCOM
a NAV load and I'm ready with a NAV check when you're ready
to copy. Would you go to ACCEPT.
                     Let's have the NAV check.
                     Okay, coming up. The NAV check as
     CAPCOM
follows: 102 plus 30 plus 0000 minus 1154 plus 06596 1522
                     Roger, read back as follows: 102 30
4 balls minus 1154 plus 065961522. Over.
     CAPCOM
                     That's correct.
                     Jack, Did you get the impact of the
     SC
moon being in the telescope?
                     Roger, we're discussing that right now.
     CAPCOM
                     Yeah, you don't count stars when you
     SC
look at the moon.
                     Roger, we're scratching our heads.
     CAPCOM
                     (garbled) like we are.
     SC
                     Apollo 7, Houston, the load is in, we're
     CAPCOM
finished, the computer is yours.
                     Roger. That's getting up fast.
     SC
                     Houston, Apollo 7. We should be able
     SC
to hack the star count on the next pass. The G and N
(garbled) will not be in the next attitude.
     CAPCOM
                     Roger, we copy.
                     Apollo 7, Houston. We're all ready
     CAPCOM
for the keying test.
                     Take one on that keying test.
     SC
     CAPCOM
                     Roger.
                     I'11 go ahead and give you a keying
     SC
test. We're coming up on a photo shortly.
                     Roger, 7, could you stand by one, we
     CAPCOM
lost -
                     Okay, I'll stand by.
     SC
                     Are you ready on the keying?
     SC
```

APOLLO 7 COMMENTARY, 10/15/68, GET: 982523 (CDT 12:28P) 323/2

CAPCOM Not yet, we're still standing by.
CAPCOM Apollo 7, Houston, we're ready for

the keying test.

SC Roger Apollo.
SC Keying test over.

CAPCOM Roger.

CAPCOM Apollo 7, Houston. we are through with the keying test. You can reconfigure your spacecraft per the flight plan, and you only made two mistakes.

SC Yeah, I saw a couple of blips (garbled)

CAPCOM Roger.

SC Back to configuration.

CAPCOM Okay, cover.

PAO This is Apollo Control Houston. That keying test was a test of an emergency communication system. And the message is as follows: "This is a test of the emergency key." You heard the CAPCOM acknowledge two slight errors as Walt Cunningham sent that, but it was all together readable. So we've communicated by voice, by television, and now by telegraph key today.

```
APOLLO 7 COMMENTARY, 10/15/68, GET: 983600 (CDT: 12:38p) 324/1
                    (garble) through 67, (garble) magazine "O"
                    Okay, copy that.
     CAPCOM
                    We are now looking at the storm.
     SC
give us a map when you think we are adjacent to it.
                    Okay, will do Wally. You got a little ways
     CAPCOM
to go yet.
                    This is Apollo Control Houston. The crew
     PAO
should be passing over that large storm Gladys here very
shortly and perhaps they'll comment on it. The emergency key
transmission was done through the voice com push-to-talk key
for it was literally being pushed on and off like a telegraph
key.
                    Okay, looks like one big overcast about 12
     SC
o'clock.
                    That should be it. The tropical storm will
     CAPCOM
be south of your flight path here, your flight pass should take
you right over Cuba and the tropical storm will be south of
the western tip of Cuba.
                    Roger.
     SC
                    We'll take a step going into it; I would
     SC
suggest that.
     CAPCOM
                     Okay.
                    We've got one big stormy area out here Jack;
I don't pick up a characteristic tropical storm.
                    Okay, right now the wind speeds are about
     CAPCOM
45 knots - tomorrow sometime the winds are forecast to pick up
to 70.
                     (garble) up into the Gulf by tomorrow (garble)
      SC
                     Roger; there are a few other people with
      CAPCOM
the same problem.
                     Understand. I've got a minute, a chance
      SC
to get (garble)
                     I think you're right.
      CAPCOM
                     (garble)
      SC
                     I think that is part of the duties of the
      CAPCOM
support crew; we'll take care of it Wally.
                     I think (garble) Jack.
      SC
                     Jack, frame 68 was the call cover that
 (garble) not really a storm as (garble)
                     Roger; copy.
      CAPCOM
                     Could you get a rate (garble) there Jack?
      SC
                     Roger; stand by.
      CAPCOM
                     The pitching there now is not something I
      SC
 put in it; (garble) with that little (garble)
                     Wally, right now it looks like we've got
      CAPCOM
 a pitch rate of plus .3.
                     Roger; I don't really think we have anything
 to worry about on 1 or 2 pulses and the spacecraft is actually
 torquing - it's off it's pitch, that's all it's costing us earlier
 on the radiator degradation test. We think it's just the way it
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APOLLO 7 COMMENTARY, 10/15/68, GET: 983600 (CDT: 12:38p) 324/2 goes through an attitude at a certain surge affect, what little there is. Okay. CAPCOM That's a pretty good track on the (garble) SC there, most of the pulse in that direction in pitch. And you can see what happened. Okay, we'll get a little more accurate CAPCOM hack at it when we take a look at this strip chart. Right; let me know what you take note on it. Okay. CAPCOM Apollo 7, Houston. We'd like to have you CAPCOM turn your 02 fans, tank 2, on for 3 minutes. Roger. I finished the hydrogen On. SC stratification test and it's about like the first one, there was a slightly noticeable pressure decrease when I turn the fans on. On the order of maybe 2 psi, something like that, and it's stabilized out right here. Okay, real fine Walt. CAPCOM Jack, note the pitch rate right now. SC is decreasing yet I have not turned pitch (garble). And there are no thrusters firing. It's a good pass to make note what we're talking about. Okay, we got it; we'll look at it real CAPCOM close. Okay, there is no pitch (garble) SC I've made a note of this all during the flight and thought on this pass to get a record on it. Note the pitch rate is decreasing all the time. Okay, we'll really take a good look at CAPCOM it. Okay, this is what we had a heck of a time trying to explain to ourselves. It was pitching in the right direction so I wasn't going to take it out. I was going to There was no IVA during that either by the way. pitch zero.

Okay, copy that; it sounds like you got CAPCOM

a built in orb rate walker there.

Yeah, see there; it's almost zero pitch. I haven't done a thing to it. In fact, (garble) pitch than the 326.

Roger; that's what we're looking -CAPCOM (garble) That's 2 more. SC

- we didn't know what was heating us SC up during the radiator degradation test. We were going through these kind of attitudes, and had to work to get through. Copy. We still were nominal on fuel CAPCOM during that whole test. Understand but (garble) is about like (Garble) back to zero again. Roger. CAPCOM Jack, being nominal on that test, it SC come out 3 points (garble). Donn and I - on numerous tries the simulator ran well below the nominal fuel usage on that thing where there were no parts. That's real information, Walt. CAPCOM (garble) SC Houston, do you still read? SC Roger, we are still reading you, Wally. CAPCOM that's a zero reading several pulses. SC (garble) reading this one, over. CAPCOM Say again. (garble) reducing the data on this one. SC We have people busy on it, and we CAPCOM are watching it right here. That's it. Do you think it is going I'm back to zero again. (Garble) The to reach (garble). best exercise in rocket (garble). And it's back to zero again. (Garble) Canary in about 2 (garble) You might know it's not precise (garble) Canary is much more precise than it is (garble). CAPCOM Roger. (garble) give it to you. SC Well, (garble) from the flight plan SC that 60 percent hydrogen (garble) is nominally at 102 to 103 (garble). Are we running pretty much nominally or behind or what? We are about to lose you here over CAPCOM Antigua. We will pick you up at Ascension at 56. Apollo Control Houston here 98 PAO hours and 49 minutes into the flight. A most interesting pass. You heard Wally Schirra describe an unusual phenomena, apparently the crew has noted earlier in the flight, and at one point Schirra described it as almost an atmos-

pheric effect on the spacecraft. That's at 90 miles out, nautical miles, altitude and of course, that communication has triggered a lot of people to get busy and look charts and look at data. I can imagine they will be busy for some time trying to run the answer to that one down.

APOLLO 7 COMMENTARY, 10/15/68, GET: 984600 (CDT 12:48p) 325/2

PAO

This is Apollo Control Houston.

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APOLLO 7 COMMENTARY, 10/15/68, GET: 985630 (CDT 12:58) 326/1
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PAO This is Apollo Control Houston, 98 hours, 56 minutes into the flight and through Ascension, we expect contact any moment. We'll standby and keep the line open.

CAPCOM Apollo 7, Houston through Ascension.

Apollo 7, Houston through Ascension.

SC Roger.

CAPCOM Okay, your line is clear. Wally, on this pitch rate, it would help us out a little bit, we could get a little bit more data, if you would put your GDC on FPAI no. 1.

We're only locked into a dead band now, Jack. We're right about a fixed up at 090, straight up.

CAPCOM Okay, copy. We get better data on that pitch rate for - on telemetry, if we can put the GDC on FPAI no. 1.

SC I see, okay. Next time we send, we'll

do that.

CAPCOM Okay, and - .

SC It appears, that apparently, we had the Spacecraft pointed straight up, the command on the X-axis this morning, away from the earth on the radio.

CAPCOM You say that's when it occurred, when

the X-axis was pointed away from the earth.

SC That's the way it was this time, and that's the way it seems to be in the past.

CAPCOM Okay, real fine, that gives us a good

clue.

SC It's not vibrated around now. CAPCOM Okay, has it quit now Wally?

SC It's (garble) now about 140 degrees,

vertical.

CAPCOM Okay, real fine, and relative to Walt's question on the hydrogen usage, we figure you're about 1 lb. above nominal.

SC Roger, and we look like we are even better off with oxygen.

CAPCOM That's affirmative.

CAPCOM Apollo 7, Houston. One minute LOS

Ascension. Tananarive at 99 plus 13.

SC Roger, Jack. Did the Doctor ever say anything about using this antibiotic as a preventative medicine up here?

CAPCOM Standby. Okay Walt, on that question, there is really not any need to use - that is the antibiotic,

they don't feel that would help or cure a cold.

SC Well, so far, I've been able to resist getting one, but if there's someway I could hold it off, I would just as soon take the pill, or do you want me to

APOLLO 7 COMMENTARY, 10/15/68, GET: 985630 (CDT 12:58p) 326/2

SC go and catch it, then treat it.

CAPCOM Okay, we'll pick you up over Tananarive.

This is Apollo Control Houston, 99 hours,

minutes into the flight. You heard Walter Cunningham
asking about taking an antibiotic for himself in order to
prevent his getting a cold. At least that's the way we
understood it and the Doctor advised that would not help
prevent him from contacting the same cold that bothered
Donn Eisele and Wally Schirra today. This is Apollo Control
Houston.

APOLLO 7 COMMENTARY, 10/15/68, GET: 991655 (CDT 1:19p) 327/1

PAO Apollo Control Houston, we're 99 hours, 16 minutes. We had a brief chat with the crew by Tananarive a few minutes ago, and from the tone of the conversation with Walt Cunningham, it sounded to us like things were quieting down in order to let CMP Donn Eisele get to sleep. He's, according to the flight plan, about 1-1/2 hours to 2 hours into his sleep cycle. At this point, Cunningham did report that the Spacecraft was powering down and here's the way he reported it.

CAPCOM Apollo 7, Houston through Tananarive.
SC Roger, Jack, you're 5 by we're an hour

down in the drifting configuration.

Roger, copy that. We'll be standing by.

CAPCOM Roger, copy that. We in the sta SC We're going to activate the ...

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APOLLO 7 COMMENTARY, 10/15/68, GET: 993540 (CDT 1:37P) 328/1
                     This is Apollo Control Houston 99 hours
     PAO
             Over Carnarvon a few minutes ago we had this
35 minutes.
conversation.
                     Apollo 7, Houston through Carnarvon.
     CAPCOM
                     (garbled)
     SC
                     Roger, fine. We've been going over
     CAPCOM
some the results of the keying test we did over the states.
It leads us to two questions we would like to ask. One was
the PMP in AUXILIARY?
                     Negative.
     SC
                     And the next question, was the keying
     CAPCOM
done with the panel switch or the mike button?
                     I keyed with the mike button on my
     SC
control head.
                     Okay, thank you.
     CAPCOM
                     (garbled)
     SC
                     Go ahead.
     CAPCOM
                     You see, we powered down and (garbled)
                     Would you say again. We didn't copy,
     CAPCOM
Walt.
                     I said I've got the SPS powered down.
     SC
                     Roger.
     CAPCOM
                     The SPS logic button 3 data (garbled)
We've added to the rest.
                     Okay, stand by. We'll get you the
     CAPCOM
answer.
                     Roger, mark 15 clicks of water for the
     SC
CMP.
                     Okay, will do.
     CAPCOM
                     And Jack, when you get a chance would
     SC
you get an update on the RCS profile I have onboard?
                     Okay and work.
     CAPCOM
                     Thank you.
     SC
                     Walt, your RCS reading on your plot will
     CAPCOM
be 714.
                     Roger, 714.
     SC
                     Apollo 7 (both transmitting at once)
      CAPCOM
                     when we operate the DMP on AUXILIARY
we seem to be (garbled) pretty good check on that aren't we? CAPCOM I'm sorry, Walt, I was transmitting
something to you at the same time. Can you say again?
                     Roger. We have coming up over Carnarvon
      SC
CMP powered off fully with an S-band check. Are we already
satisfied for those by an earlier operation in AUXILIARY
                 (garbled) asking do you want to continue
for some time?
that (garbled) auxiliary and what were you saying when I
transmitted?
                     Okay, Walt. We do want to put the PMP
      CAPCOM
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That puts us in our PCM down on the FM.

to AUXILIARY.

APOLLO 7 COMMENTARY, 10/15/68, GET: 993540 (CDT 1:37P) 328/2

SC (CAPCOM talking also) a long time (garbled)

like that?

CAPCOM Walt, we'll hit you at Guam at 99 plus 39

and Hawaii at 99 plus 53.

SC Okay, and give me a call if you want

PMP powered AUXILIARY.

CAPCOM We want the PMP on AUXILIARY. That's

just the configuration for the test.

APOLLO 7 COMMENTARY, 10/15/68, GET: 993908 (CDT: 1:40p) 329/1

Roger; 55. We would like you to put CAPCOM your B power to OFF. I didn't copy that last one. Say again. Apollo 7, Houston; looks like we're getting SC about 2 by on the com here at Guam. After the pound test at Hawaii, we would like to have you comment briefly on the results of the scanning telescopes; star count. Star count. Apollo 7, Houston. I read your fly by CAPCOM Walt. And relative to Wally's question on a SCS logics bus, it will save us about two amps and you can turn that switch off if you like. Okay, we'll turn it off; it'll cool it down in here a little bit; it's been getting warm and sunny. Roger; copy. I said I would. Roger, CAPCOM copy that. You're 1 minute LOS Guam. Hawaii at 99 plus 53.

APOLLO 7 COMMENTARY, 10/15/68, GET: 995450, (CDT: 1:57p) 330/1

pAO And this is Apollo Control, Houston, 99 hours, 54 minutes. The first call has gone up to 7 through Hawaii.

CAPCOM Apollo 7, Houston through Hawaii.
CAPCOM Apollo 7, Houston through Hawaii.
PAO Apollo Control, Houston. We're - you

PAO Apollo Control, Houston. We're - you are getting an earful of why we are taking the circuit down. We'll try again when we get to California.

This is Apollo Control Houston. PAO have good com now and Schirra is going to give us a window report. The chaff that's on the perimeter is fogging around the perimeter. It's a (garble) impression about (garble) right now about 1/2 inch into the perimeter, that is on a good clear window. The APS window (garble) shortly after we had insertion into orbit. Large condensation now in the inner surface of the inner pane and the center of the window, a circle about 1/2 inch in diameter, looks like snowflake crystals all across it, actually opaque. Window number 4 (garble). Right around the edge. are the - inner surface of the inner pane - outer pane towards the -Z axis primarily, including from the edge (garble). Okay, Apollo 7, Houston. We lost CAPCOM you on the handover there, we will pick you up with the last half, starting with window 4, when we good contact with the Huntsville. (garble) SC Roger, we copy. Window 3, we caught CAPCOM all - (garble) to give us window 4. SC (garble) SC Do you read Houston? Okay, read you 5 by. We are ready CAPCOM to copy window 4. Okay, just to get it on the report, SC we just broke 100 hours. Roger, we got that. CAPCOM Okay. Window number 4 has started SC to cloud, it's on the edge and working its way inward. The worst spot now 3/8 to 1/2 -Okay, copy that. CAPCOM Okay (garble) photography. SC window to the side to starting to get some kind of a film on the inner surface of the outer pane, but you have to look pretty close to see it. It is still perfectly clear for photography. Okay, windows 2 and 4 are all sufficient for star work but the other ones are not. Okay, copy that. CAPCOM Jack, yesterday was the fifth anni-SC versary of the entry of D. Eisele and W. Cunningham into the program. CAPCOM We copy that anniversary. Is it safe to (garble) SC CAPCOM Say again. (garble) SC

We did't copy that, Wally, Could

CAPCOM

you give us window number 1 again? SC I think the window is getting worse, clouding the vision due to the over board dump. The particles depending on the spacecraft attitude seemed to bounce off the (garble) over. Do you read? Okay, got it. CAPCOM My question was, is Deke Slayton still in house? SC Okay, our comm with the Huntsville is CAPCOM deteriorated. We're not reading you too well. We'll pick you up over the States. Okay. SC Apollo 7, Houston. CAPCOM Roger, loud and clear. SC You're loud and clear too. Would you CAPCOM get your PMP switch to normal. And then we would like to have you configure for the relay mode. Roger. SC Would like you to read out GBC versus SC CMC. Apollo 7, Houston. Are you configured CAPCOM for the relay test here at Guaymas. Apollo 7, do you read? Roger, Apollo 7, do you read Houston? CAPCOM Houston, Apollo 7, over. SC Go ahead. CAPCOM We haven't configured yet Houston. SC Roger, copy. I understand you have CAPCOM not configured for the relay test. Roger, I haven't had the cue yet. Okay, we can put your PMP power switch CAPCOM to normal and configure for the relay test. Roger, confirm. Power PMP normal and is configured for relay test I ran out of it in order to get the contact with you agian. I'm at duplex A now and continue to relay. Roger, I understand Apollo 7, you're CAPCOM configured for relay test. We're now performing the relay test. Roger, Apollo, Houston, counting 1, 2, 3, 4, 5 -5, 4, 3, 2, 1 performing the relay test. Houston performing the relay test -1, 2, 3, 4, 5 - 5, 4, 3, 2, 1.

APOLLO 7 COMMENTARY 10/15/68, GET: 1000910 (CDT 2:14P) 332/1

This is Houston performing the relay CAPCOM test. 1, 2, 3, 4, 5, 6, 7, 9, 9, 8, 7, 6, 5, 4, 3, 2, 1.

CAPCOM Apollo 7, Houston

SC Roger, we copied your relay mode check.

How did it do?

Well, there is some question on it. Can CAPCOM you confirm that you were in the relay mode per your Com slide rule?

That's affirmative. Sc

Okay, fine, thank you. CAPCOM

Did it work or did it not? SC

Ground didn't copy the relay, so we had CAPCOM

some question there.

Roger we read you. SC

Magazine S is 69 west coast of Southern SC

Mexico.

Okay, copy that. CAPCOM

APOLLO 7 COMMENTARY, 10/15/68, GET: 1002100 (CDT 2:23p) 333/1

This is Apollo Control Houston, 100 hours, 21 minutes into the flight. Questions have risen from that last pass across the States, actually down through the Texas - the Guaymas, Texas, then Antigua area. The test being carried out there by our CapCom, Jack Swigert, here is a voice relay test wherein he broadcasted a count and several other things to the Spacecraft and then the voice transmission was to be immediately relayed back to earth. We're not just sure yet how successful or how unsuccessful the test was. We know it was at least particially successful, but the idea is in later flights when we are flying a lunar module, we would like to be able to set up this relay condition from - say pilots or astronauts in a lunar module. relay their com through the command module and back down to Earth, out at lunar distance, and we are interested in seeing just how well that routing works. We have no additional comm and this is Apollo Control Houston.

APOLLO 7 COMMENTARY, 10/15/68, GET: 1004700 (CDT 2:49p) 334/1

PAO This is Apollo Control, 100 hours, 47 minutes. Apollo 7, on the night side of this revolution coming up on the station at Tananarive now.

CAPCOM Apollo 7, Houston. Apollo 7, Houston through Tananarive. Apollo 7, Houston. Apollo 7, Houston.

Apollo 7, Houston.

CAPCOM Tananarive M and O, Houston CapCom,

are we getting out to you?

TAN M/O Houston CapCom, Tananarive M and O. Affirmative, they are copying you. They are very poor, very poor.

CAPCOM Apollo 7, Houston transmitting in the blind. We're trying to find a piece of the data for the radiator degradation test around 96 hours. This was when we were considering terminating the test and Walt can you confirm tape recorder ON at that time? Tananarive M and O, did you copy?

TAN M/O Tananarive did not copy. Houston CapCom.

Tananarive M and O, they Rogered.

SC (garble) right on the minute.

CAPCOM Roger, understand you did have it ON.

Thank you.

SC That's affirmative.

PAOCAPCOM Apollo 7, Houston. One minute LOS.

Mercury at 11.

PAO This is Apollo Control at 100 hours, 54 minutes. Tananarive has LOS now. Next station to acquire will be the tracking ship Mercury at 101 hours, 11 minutes.

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APOLLO 7 COMMENTARY, 10/15/68, GET: 1011130 (CDT 3:15p) 335/1
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PAO This Apollo Control, 111 hours and 11 minutes into the mission. Apollo 7 coming up on the Mercury now. Guam has overlapping coverage here, but Guam reports their unified S-band antenna is not operative this pass and Guam will have VHF capability only.

CAPCOM Apollo 7, Houston. Mercury standing by.

SC Roger. Say, Ron, I wanted to confer that we rechecked our switches at the relay mode and everything is considered appropriate (garble)

CAPCOM Apollo 7, Houston.

SC Apollo 7, Houston, do you read us?

CAPCOM I missed part of your comments there,

but the relay mode worked okay.

SC Oh, it did work okay? Jack indicated that the U S-band wasn't conclusive.

CAPCOM No, that was our mistake, it worked okay. SC Okay, and I understand we have the same

check coming up in a couple of hours?

CAPCOM Say it again. What check?

a new check over Hawaii in a couple of hours and I wanted to confer that we did turn on the tape recorder for all of the data points, and one of them we were 3 or 4 minutes late on the test, but the one in question that you asked about I believe we turned on right on the dot.

CAPCOM Okay, Rog. Thank you.

CAPCOM Apollo 7, Houston. (garble)

SC We're on the frame 75 magazine (garble) 0.

we're in the sunrise (garble)

CAPCOM Say it again, Wally. Not too clear there.

SC We're in 75 magazine back 0 (garble) 0 (garble) station at sunrise (garble) by ivory.

CAPCOM Roger, copy.

PAO Apollo Control at 101 hours 20 minutes Guam has LOS now. Hawaii will acquire in about 8 minutes.

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APOLLO 7 COMMENTARY, 10/15/68, GET: 1012840 (CDT 3:30 p) 336/1
     PAO
                    This is Apollo control, 101 hours 28
minutes, Apollo 7 at Hawaii now. There's overlapping cover-
age with the tracking ship Huntsville and then into the
California station and then into the Guaymas Mexico station.
We'll stand by for communication during these passes.
                    Apollo 7, Houston, one line flight plan
     CAPCOM
update.
                    Go ahead.
     SC
                    Roger, at 102 plus 20 delete CRYO test
     CAPCOM
at this time.
                    Roger, we did it earlier, at 50 percent.
     SC
     CAPCOM
                    Roger, we're estimating 60 - you'll have
about 60 percent 02 at about 134 hours something like that.
We'll update later on.
                    Roger, the O2 will be done later, you
mean.
     CAPCOM
                    That's affirmative.
     SC
                    Very well, we can just have a standing
flight plan item on that, it's supposed to be done at
60 percent so we'll just do it when it get to 60 plus or
minus 5.
                    Sounds good.
     CAPCOM
                    Can we have a chart update too?
     SC
     CAPCOM
                    Say again.
     SC
                    A chart update.
                    Wilco, standby.
     CAPCOM
     CAPCOM
                    Apollo 7, Houston, I have your map
update.
                    Go ahead.
     SC
                    Roger, rev 64, GET 101 plus 06 plus 52,
     CAPCOM
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longitude 106.8 east, right ascension 04 plus 54.

Roger, thank you. SC

CAPCOM Apollo 7, Houston, we found the data in question on the RAD test.

Roger, thank you.

Huntsville two way log signal, too CAPCOM weak for valid range.

Huntsville two way log, valid range. CAPCOM PAO Apollo control at 101 hours 37 minutes this is the point in the flight plan where the crew is photographing the windows in an attempt to record the deposits that are on the windows. We'll continue to stand by through this pass.

Houston, Apollo 7. SC

CAPCOM Houston, go.

This is CMP, (garble) the waters on, the SC LMP (garble).

Awful garbled, Walt, say again. CAPCOM

APOLLO 7 COMMENTARY, 10/15/68, GET: 1012840 (CDT 3:30 p) 336/2

This is the CMP, (garble). SC

I cann't read you here, we'll pick that

- pick you up in Guaymas in about 2 minutes.
PAO This is Apollo control 101 hours 39 minutes, flight director Glynn Lunney has left the control center now and we're estimating the news conference in approximately 10 minutes.

Apollo 7, Houston, say again your last CAPCOM

translation now. Roger, Ron, I was just having some water 15 clicks for LMP and 30 clicks for the - excuse me 15 SC clicks for the CMP and 30 clicks for the LMP. Roger, thank you. CAPCOM

APOLLO 7 COMMENTARY, 10/14/68, GET: 1014040 (CDT 3:45p)337/1

CAPCOM

Thirty seconds LOS Tananarive at 20.

APOLLO 7 COMMENTARY, 10/15/68, GET: 1022210 (CDT 4:25) 338/1

pAO This is Apollo control 102 hours 22 minutes, Apollo 7 is over Tananarive. There has been no conversation yet, Capcom Ron Evans put in a call a few moments ago and informed them we were standing by.

CAPCOM Apollo 7, Houston, 2 minutes to LOS,

Tananarive, Mercury at 43.

Apollo control at 102 hours 29 minutes, Tananarive has LOS now. We're in a quiet time in the flight plan, we had nothing to pass up to Apollo 7 during this pass and obviously they did not feel the need to communicate with us. The next station to acquire will be the Mercury at 102 hours 43 minutes.

END OF TAPE

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APOLLO 7 COMMENTARY, 10/15/68, GET: 1024400 (CDT 4:45 p) 339/1
                    This is Apollo control at 102 hours 43
     PAO
minutes and we'll monitor the Apollo 7 pass over the
tracking ship Mercury now.
                    Apollo 7, Houston, Mercury standing by.
     CAPCOM
                    Roger, loud and clear.
     SC
                    Roger, same.
     CAPCOM
                    Houston, Apollo 7.
     SC
                    Houston, go.
     CAPCOM
                    Roger, you can give Walt credit for
     SC
12 clicks of water and give me 3.
                    Wilco.
     CAPCOM
                    And the water's tasting very good, so
     SC
we'll chlorinate one more time and see how bad it gets, and
let that be the last dose.
                     I understand what you're saying.
     CAPCOM
                     Okay, thank you.
     SC
                     Apollo 7, Houston.
     CAPCOM
                     garble.
     SC
                     Apollo 7, Houston, you're unreadable.
     CAPCOM
                     Don't forget that we should chlorinate
     SC
every other day, so we'll see how that works out.
                     ARIA.
     CAPCOM
                     Is the ARIA in the relay mode.
     SC
                     Walt, thats affirmative, reconfigure
     CAPCOM
for relay modes prior to 103 plus 02.
                     Wilco. Okay we'll be on duplex A as
     SC
we go over the hill now.
                     Affirmative. And Walt, we'd like you
      CAPCOM
to cycle 02 tank two fans, on for five minutes then off.
                     Affirmative.
      SC
                     Apollo 7, Houston, opposite OMNI.
      CAPCOM
                     Ron, we just made a big discovery, I
      SC
 just turned the 02 fans number two down on and it started
by DET in the lower equipment bay.
                     Beautiful.
      CAPCOM
                     Did you read that, Ron.
      SC
                     Affirmative, DET in the LEB started
      CAPCOM
when you turned the fans on.
                     That's correct.
      SC
                     Always excitement up here. That lends
 credence to the theory that it does touch the spacecraft.
                     Say your last comment, Wally.
      CAPCOM
                     That lends credence to the theory that
      SC
 (garble) do all touch the spacecraft.
                     Roger, we we'll read it back on the
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Apollo 7, Houston.

Go ahead.

CAPCOM

CAPCOM

SC

tape, I still didn't get you.

APOLLO 7 COMMENTARY, 10/15/68, GET: 1024400 (CDT 4:45p) 339/2

CAPCOM Opposite OMNI.

APOLLO 7 COMMENTARY, 10/15/68, GET: 1025040 (CDT 4:52P) 340/1

Apollo 7, Houston, 30 seconds LOS. Hawaii CAPCOM at 02.

Roger. SC

Apollo Control at 102 hours 51 minutes. PAO The Mercury has LOS now. During the pass over Hawaii at 103 hours 02 minutes the voice relay test will be run again.

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APOLLO 7 COMMENTARY, 10/15/68, GET: 1030215 (CDT 5:05p) 341/1
                    This is Apollo Control at 103 hours
     PAO
            Apollo 7 is at Hawaii now. We'll monitor this
2 minutes.
pass.
     CAPCOM
                    Houston.
                    Roger, we read you loud and clear.
     SC
                    Rog. You're a little weak.
     CAPCOM
                   Apollo 7, Houston. Would you like to
     CAPCOM
               Do you read?
try it again?
                    Apollo 7, Houston.
     CAPCOM
                    Apollo 7, Houston.
     CAPCOM
     SC
                    Roger:
                    Roger. You're not coming back very well.
     CAPCOM
                   S-Band uplink inhibit.
Break Hawaii M&O.
                    Apollo 7, Houston for a backup voice
     CAPCOM
check. I'm trying to bring it up to you on 259.7. You should
be transmitting my voice back down to Hawaii on the U S-B
link.
                    Apollo 7 to Houston CAPCOM, transmitting
     CAPCOM
for a voice relay mode. Transmitting up to you on 259.7.
My voice should be coming back through the spacecraft and
back down to Hawaii on the U S-B.
     CAPCOM
                    Apollo 7, Houston request that telemetry
command to reset momentarily and in normal at LOS.
                    Roger, do you read Ron?
     SC
     CAPCOM
                    Affirmative. Loud and clear now.
     SC
                    Okay, you're transmitting okay. Did you
get a relay check?
                    I still haven't got a reading here yet.
     CAPCOM
I think it's okay.
                    Okay, we read you. I'll call. Hello.
     SC
                Hello this is Wally.
this is Wally.
                    Go ahead.
     CAPCOM
     SC
                    Dis you call us a COMSAT?
     CAPCOM
                    A time check?
                    No, did you call us a COMSAT?
     SC
                    I can't understand. Say it again, Wally.
     CAPCOM
                    Did you call us a COMSAT?
     SC
                    Rog. You are a COMSAT.
     CAPCOM
     SC
                    Roger.
                    I'm a little deaf.
     CAPCOM
                    Huntsville (Garble) down range.
     SC
                    Apollo 7, Houston. 1 minute LOS.
     CAPCOM
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APOLLO 7 COMMENTARY, 10/15/68, GET: 1031230 (CDT: 5:15p)342/1

CAPCOM Apollo 7 Houston, one minute LOS break, be advised voice relay quality was good. Apollo 7 Houston at Tananarive at five four.

pao This is Apollo Control at 103 hours, 13 minutes. The Huntsville has LOS now. That ship had overlapping coverage with Hawaii. The voice relay test was successfully conducted over the Hawaii station. This is the test that simulates transmitting to the LM, the lunar module through the command module. The voice relay quality was reported as good. The next station to acquire Apollo 7 will be Tananarive at 103 hours, 54 minutes. This is Mission Control Houston.

APOLLO 7 COMMENTARY, 10/15/68, GET: 1035450 (CDT 6:00p) 343/1

PAO This is Apollo control at 103 hours 54 minutes, Apollo coming up on the Tananarive station now, in its 66 revolution. We'll stand by to monitor this pass.

CAPCOM Apollo 7, Houston, through Tananarive,

standing by.

CAPCOM Apollo 7, Houston, standing by.

CAPCOM Apollo 7, Houston, through Tananarive.

CAPCOM Apollo 7, Houston, join Tananarive

through Mercury at 18.

PAO This is Apollo control, 104 hours and 2 minutes, Tananarive has LOS now. There was no conversation during that pass. The tracking ship Mercury will acquire at 104 hours 18 minutes. This is mission control, Houston.

APOLLO 7 COMMENTARY, 10/15/68, GET: 1041805 (CDT 6:20P) 344/1

PAO This is Apollo Control 104 hours 18 min-

utes and the Mercury has acquired Apollo 7.

CAPCOM Apollo 7, Houston. Apollo 7, Houston. Mercury M and O, Houston Capcom, are we getting out to you? Apollo 7, Houston. Apollo 7, Houston. Transmitting in the blind. Flight plan update at 106 plus zero zero O2 fuel cell purge. Apollo 7, Houston. Apollo 7, Houston. LOS Mer- Hawaii at 36.

PAO This is Apollo Control 104 hours 25 minutes. Mercury has LOS now. We were unable to establish voice contact with the Apollo 7 through this pass. However, we were getting good telemetry and it shows that the spacecraft looks good according to the flight controllers here in Control Center. Hawaii will acquire at 104 hours 36 minutes. This is Mission Control Houston.

APOLLO 7 COMMENTARY 10/15/68, GET: 1043600 (CDT 6:40p)345/1

PAO This is Apollo Control at 104 hours, 36

minutes and Hawaii is acquiring Apollo 7.

CAPCOM Apollo 7 Houston through Hawaii.

Apollo 7 Houston through Hawaii. Apollo 7 Houston. Apollo 7 Houston. Apollo 7 Houston.

SC This is Apollo 7, do you read me?
CAPCOM Rog, read you loud and clear now.
SC Okay, have you tried to contact the

Mercury?

CÁPCOM Affirmative.

SC Sorry about that, I didn't get back in

to the right configuration after that reel check.

CAPCOM Yeah, we were switching around there and were going to try that in the air to Hawaii if we didn't catch you. Okay, Wally, I've got a log data for you and also would like some onboard readouts. Apollo 7 Houston, do you read? Apollo 7 Houston. Apollo 7 Houston. Apollo 7 Houston. Apollo 7 Houston, we'll pick you up in the Mercury at 104, belay that, at 105, 52.

pao This is Apollo Control, 104 hours, 42 minutes. Hawaii has LOS now. We didn't have too much communication there, apparently for a while the spacecraft was still in that relay test configuration. We talked to them briefly but then we had some land line problems in the communications network. Apollo 7 now starts a long sweep where it will be out of voice contact. The next station to acquire that's capable of voice is the tracking ship Mercury at 105 hours, 52 minutes. This is Mission Control Houston.

APOLLO 7 COMMENTARY, 10/15/68, GET: 1050630 (CDT 7:10p) 346/1

PAO This is Apollo Control at 105 hours 06 minutes. Apollo 7 has just started its 67th revolution. We're out of range of tracking stations until we get to the Mercury. We will get some telemetry at Pretoria, but no voice capability there. We estimate acquiring at the Mercury at 105 hours 52 minutes. This is Mission Control, Houston.

APOLLO 7 COMMENTARY, 10/15/68, GET: 1053000 (CDT 7:30p) 347/1

This is Apollo control at 105 hours 30 minutes, Apollo 7 is over Africa on its 67 revolution. We've just ended the period set aside in the flight plan for the commander and the lunar module pilot to eat and the command module pilot is still in his sleep period. We've been out of voice contact with Apollo 7 since the Hawaii station. We'll acquire at Mercruy at 105 hours 52 minutes. This is mission control, Houston.

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APOLLO 7 COMMENTARY, 10/15/68, GET: 1055130 (CDT 7:55p)348/1
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PAO This is Apollo Control, 105 hours and 51 minutes, Apollo 7 coming up on the Mercury now. We'll listen to this pass.

CAPCOM Apollo 7 Houston through Mercury.

SC Roger, loud and clear CAPCOM Roger, the same, Walt

SC We're going to take the block data this

pass?

CAPCOM Roger, block data to follow. Zero 69 dash three Charlie, plus 190, plus 1300, 108 plus 47 plus 28, 2888, 070 dash Alpha Charlie plus 043 minus 0230, 109 plus 37, plus 434082. Zero 71 dash Alpha Charlie, plus 128 minus 0320111 plus 10, plus 333808, 072 dash two Alpha plus 255 minus 0270112 plus 48 plus 123484, 073 dash one Bravo plus 210 minus 0615114 plus 13 plus 043590, 074 dash one bravo plus 279 minus 0645115 plus 48 plus 123455, Houston over.

SC Roger, I read that. Can you get someone to check our main 02 rates?

CAPCOM Roger, we're standing by.

SC Okay, Roger, this (garbled) 69, 0693 Charlie plus 190 plus 13001084728, 1888070 plus Charlie plus 043 minus 230, 1093743, 4082071 Alpha Charlie plus 128 minus 0320111 plus 10 plus 333808, 0722 Alpha plus 255 minus 0270 11248123484, 0721 Bravo plus 210 minus 0615, 11413043590 0741 Bravo plus 279 minus 06451154812 (static)

CAPCOM Apollo 7 Houston, your read back is

correct, correct pressure now is 104.

SC Roger, I'll switch rings and give

another one.

CAPCOM 103

SC 103, we are GO on ECS readout and we've

just changed our cannister now.

CAPCOM Roger, and flight plan update lock and

fuel cell 02 purge at 106 plus 00.

SC Roger, are we coming up LOS?

CAPCOM Roger, about one minute to LOS. I can

give you a figure 3 dash 1 on your RCS update, if you want.

SC Go ahead

CAPCOM Roger, at 104 hours you have a total of 715, your SCS red line is 583 your damp red line 520, hybrid red line 247 and those are points to plot on your curve.

SC Very good (garbled)

CAPCOM Yeah, it's looking good. Be advised that quad A, as far as the quad red line, is just right on the SCS red line, all others are in good shape.

SC Rog, what happened to your transition of water? Did you break up on the land line?

APOLLO 7 COMMENTARY, 10/15/68, GET: 1055130 (CDT 7:55p)348/2

CAPCOM Affirmative. Broke up on the land line. SC Okay, standing by for Redstone. PAO This is Apollo Control at 105 hours, 58 Mercury has LOS now. We updated the crew on this minutes. pass with what they call the block up date. That's reentry information the flight crew would need if it should have to reenter during the next few revolutions when it's essentially off the tracking range. We gave them the information through rev 74. We also gave them a report on their total RCS propellant has 715 pounds remaining and that gives us plenty of capability for the backup modes of deorbit using the RCS system instead of the service propulsion system if that should be necessary. Wally Schirra reported that they had just completed changing the lithium hydroxide cannister there are two of these cannisters in the system, one is changed every 12 hours, the lithium hydroxide removes the carbon dioxide from the atmosphere. Apollo 7 will miss the Guam station this time also the Hawaii station. station to acquire is the tracking ship Redstone in the South Pacific, acquisition there at 106 hours, 24 minutes. This is Mission Control Houston.

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APOLLO 7 COMMENTARY, 10/15/68, GET: 1062400 (CDT 8:25 PM) 349/1
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Apollo Control at 106 hours 24 minutes.
     PAO
As Apollo 7 comes within range of the Redstone tracking ship,
Donn Eisele should be awake and perhaps eating breakfast.
Wally Schirra and Walt Cunningham should be beginning their
                  We'll stand by through this pass.
sleeping period.
                    Apollo 7, Houston through Redstone.
     CAPCOM
                    Roger, Houston, five by five.
     SC
                    Rog. (garble) Walt, I have some onboard
     CAPCOM
readouts I'd like to get.
                    Go ahead.
     SC
                    Roger. SPS fuel and Oxidizer quantity
     CAPCOM
and the oxidizer unbalanced, if any.
                    Our (garble) is not working I was told
so I haven't paid any attention to it, but I show the oxidizer
unbalanced reading of minus 300 or decreased 300 and it kinda
jumps around during during a burn, and I don't think it means
                 The SPS quantity is remaining 17.15 percent
anything at all.
oxidizer, 18.2 percent fuel. Over.
                    Roger, copy, and your service module
     CAPCOM
RCS propellant quantity.
                    And your bat C volts, while you're over
     CAPCOM
there.
                     (garble)
     SC
                     I missed it. Say it again.
     CAPCOM
                    Okay, the (garble) gage is about 51 per-
     SC
cent.
                     Roger.
     CAPCOM
                     Bat C, 56 parcent.
     SC
                     Rosera
     CAPCOM
                     Bat D, 62 percent.
     SC
                     Roger.
     CAPCOM
                     (garble) we don't count.
     SC
                     Still clear.
     CAPCOM
                     Your bat C volts and your systems test
     CAPCOM
meters 5 and 6A through D, when you get a chance.
                     Roger, Bat bus A is reading 36 volts;
Bat bus B is reading 36.2 volts; 5C is 5 volts; 5D is 5 volts
6D is 5 volts; 6C is 5 volts; 6B is 5 volts; 6A is 5 volts.
                     Roger, copy. All systems tests are
     CAPCOM
5 volts, and Bat C we still need.
                     Okay, Bat C coming. Bat C shows 36.3
volts and our present plans are not to heat the command mod-
ule RCS in our deorbit.
                     We concur, so far.
     CAPCOM
                     Any late breaking news in Houston, Ron?
     SC
                     Say it again.
     CAPCOM
                     What's the latest news in Houston?
     SC
                     I have Lima Sierra for you.
     CAPCOM
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Well, go ahead (garble)

SC

APOLLO 7 COMMENTARY, 10/15/68, GET: 1062400 (CDT 8:25 PM) 349/2

CAPCOM Roger. Lima Sierra, 072/061, and I have a Sierra Fox Trot at 075.

SC Sierra Fox at 075, (garble) Lima Sierra 072/061.

CAPCOM Roger. SC 6572/65.

CAPCOM Apollo 7 - Apollo 7, Houston, request

a cycle 02 fan for 5 minutes in auto

SC Okay. Ron, we've been reading every one in auto, is that yours too, Ron?

CAPCOM We started out the other way and then

Donn had it the other way,

SC It's in auto and the other one is cycled

on your callouts, right?

CAPCOM That's affirmative, so you have tank 1 in auto and tank 2 fans cycling now.

SC (garble) 5 minutes.

SC Purge on time.

CAPCOM Apollo 7 Houston (Garble)

CAPCOM 7, Houston. We have 1 minutes to LOS. Our 02 is about 63 pounds above the nominal flight plan at this time and the H2 is about a half pound above the nominal flight plan. So we're in good shape.

SC Very good.

This Apollo Control at 106 hours 31 minutes. The Redstone has LOS now. Obviously, the commander and the lunar module pilot have not settled down for the night yet, even though their sleep period started at 106 hours on the flight plan. The majority of this pass was devoted to updating and to getting onboard readouts of various systems including the SPS propellant quantities, the service module RCS propellant quantities and battery voltage readings. Next station to acquire will be Ascension. At 106 hours 50 minutes, this is Mission Control, Houston.

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APOLLO 7 COMMENTARY, 10/15/68, GET: 1065010 (CDT 8:55p) 350/1
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PAO This is Apollo control at 106 hours 50 minutes, Apollo 7 is approaching range at Ascension now, we'll stand by there.

CAPCOM Apollo 7, Houston, Ascension standing by.

SC Roger, thank you Evans any more local

news or any reports.

CAPCOM Roger, I can give you, just like the end of the mission now, predicted the word I have, 25 percent 02 up, and about 6.8 percent H2 up.

SC Roger, I understand, that sounds good.

It about what I predicted on earlier (garble) isn't it.

CAPCOM I think so. On the fuel cells performance is right down the middle, purging is turning out nominal, looks like we'll plan to purge 02 immediately prior to the SPS burn and this should improve the low charging characteristics between the fuel cell and the battery.

SC Roger, I understand and is the SPS the left

burn nominally what it is in the flight plan.

CAPCOM The SPS burns are still per flight

plans, yes.

SC Roger, thank you. Did they tell you the purging water carriage at SPS burn, too.

CAPCOM Say again, Wally.

SC I don't know whether you got the report or not but there's vast water collecting all over the plumbing on the ECS, and it forms rather large blobs that we're going to have to take off before getting a burn going again. That's it, Apollo.

CAPCOM Roger, I understand you want to collect all the water at one place.

SC Yeah, that on the aft bulkhead.

SC Burn check list. Did you get to see the TV picture where the wall-to-wall (garble) is kind of sharp today. CAPCOM Yes, we did, it came through real good.

SC Yes, how has that on board TV been showing up could you detect our motion or are we moving too fast or what?

CAPCOM No i's real good if you have a real fast movement, you get a little bit of a blur, but just in the floating movements it turns out real - real fine, it's amazing, it's much better than any thing I've ever seen in ground testing.

SC That's good. Is this being taped during the (garble) prepared as so we can see it.

CAPCOM Yea, it's taped.

SC Yea, okay.

APOLLO 7 COMMENTARY, 10/15/68, GET: 106510 (CDT 8:55p) 350/2

SC Donn said he (garble), but six years ago he got to me that way.

CAPCOM Missed that Wally.

SC Six years ago he asked me that question, only I had a tape on board and I was about three minutes out on an Atlas.

CAPCOM Okay.

SC You still there, Ron.

CAPCOM Affirm.

SC What's the status of our tape recorder,

have you dumped it recently.

CAPCOM Roger, the last two passes we had over the Mercury it wasn't quite as good, we're checking it out at Redstone now it was good up until that time.

SC Roger, how about a chart update if you

have time.

CAPCOM Roger. Put your tape recorder forward switch in forward.

SC It is.

CAPCOM Roger, and here's your flight plan update.

SC Go ahead.

CAPCOM Rev 68, GET is node 107 plus 01 plus

55 longitude 15.9 east right ascension 04 plus 47.

PAO We have LOS at Ascension, don't know whether all that last update got up there or not. During this pass we informed the crew of the predictions that at the end of the mission we'll have 25 percent of the oxygen left 6.8 percent of the hydrogen remaining. We also told them that the fuel cells were performing well. There was a discussion of the water condensation on the environmental control system plumbing, the crew pointed this out during the television transmission this morning, and there was considerable discussion of the quality of the TV and the crew seemed to want confirmation that it was being taped on the ground. They obviously want to take a look at it when they get back. Next station to acquire will be the Mercury at 107 hours 26 minutes. This is mission control, Houston.

PAO This is Apollo Control at 107 hours 26 minutes, and the tracking ship Mercury is about to acquire Apollo 7.

CAPCOM Apollo 7, Houston. Apollo 7, Houston

through Mercury.

SC Got you Houston, loud and clear.

CAPCOM Roger, I have battery status if you're ready to copy. Apollo 7, Houston, output on me.

SC Go ahead with the status.

CAPCOM Roger, you presently have three in

A 32.7, in B 30.2, in C 39.5 amber hours.

SC Roger.

CAPCOM For predeorbit, you will have an

A 24.8, and B 22.2, and C 39.5 for total of 86.5 amber hours.

SC Roger.

CAPCOM Predicted post finding time will be

35 hours.

SC Roger, understand Ron. The only thing we have on battery charge is supporting the batteries till your on a hydra deorbit.

CAPCOM Rog, we concur. You might be interested it's believed that we've had a slight change in the battery charger characteristics. As a function of altitude sets up the charging voltage that the battery terminals is about 2 to 3 tenths volts lower than normal, and this would account for the decreased charging current. We're continuing ground testing to better define this anomaly.

SC I thought this was done subsequent to

our lift-off.

CAPCOM Say again, Wally.

SC You say this was done after we took

off, Ron.

CACOM That's affirmative.

SC Yeh, it's good work to find it out.

CAPCOM Yeh, right. No additional battery charge is anticipated at this time. We recommend minimizing battery on time for all burns.

SC That's kind of hard to do, but we'll do it.

CAPCOM Roger.

SC (garbled) We're going to wake up and get down on watch shortly. He'll be with you on next go.
CAPCOM Roger, understand. Have a good night's sleep.

SC Good-night. Ron, did you have PF-5 system power up. We had it rendered here on the flight plan

APOLLO 7 COMMENTARY, 10/15/68, GET: 1072630 (CDT: 9:30p) 351/2 here. At about 107, 20. Roger, it's in there. We're checking CAPCOM on it right now. Can you hold off on it a little yet. If you do, you get it on Donn Eisele at the next Redstone. Roger, there's no problem there. It's CAPCOM just to run the State vector up. I guess I'd like to put the iron Yeh. on the fire of that battery charge status. Affirmative, we're still working on it. CAPCOM Okay. SC Walt, we've got the 101 backup batteries CAPCOM in Downey, and we're running tests on those tonight. Alright. CAPCOM Apollo 7, Houston, opposite OMNI. Hold off. Yeh, Ron tomorrow maybe you SC can add a Baker-tare update to that. CAPCOM Baker-tare? That's the other one I mentioned to you. Plus you gave me that for the Lima Sierra. That is after the slant. CAPCOM Oh. Oh, Ron how about the longitude SC on that chart update, we missed it. Roger, just a second. CAPCOM CAPCOM Rog, REV 68. Roger, GO. I mean - 107, 128255, what's SC longitude. Roger, longitude 15.9 east. CAPCOM Ascension 04 plus 47.

APOLLO 7 COMMENTARY, 10/15/68, GET: 1073838 (CDT 9:49p) 352/1

CAPCOM Right, Ascension 04 plus 47.

SC Ascenion 1070255 is the time, right?

CAPCOM That's roger, and request Bat C readout,

again. Missed it the last time.

SC Bat C is 36.1 or 2.

CAPCOM Roger 36.4.

SC 36.2.

CAPCOM 36.2, Roger.

PAO This is Apollo Control at 107 hours 38 minutes. During this pass, we got a rundown on the battery power. As you heard, we do not anticipate having to charge the batteries again. There is plenty of power through the remainder of the mission, plus the capability for 35 hours post-landing. The battery charger apparently is not charging quite up to specification. It is believed this may be the change in characteristics because of altitude, and a test to try to resolve this problem will be run tonight at the North American Rockwell plant in Downey, California. The next station to acquire is the tracking ship Redstone. At 107 hours 57 minutes, this is Mission Control Houston.

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APOLLO 7 COMMENTARY, 10/15/68, GET: 1075750 (CDT 10:00)353/1
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and the Redstone has just acquired Apollo 7. There is no activity scheduled in the flight plan at this time. We have indications that the pass at Guam that the - that Wally Schirra and Walt Cunningham were going to sleep. We'll stand by through this pass.

CAPCOM Apollo 7 Houston through Redstone.

Apollo 7 Houston. Apollo 7 Houston.

SC Hello Houston, Apollo 7, I'm reading you.

CAPCOM Rog. Good morning. SC Hello, how are you?

CAPCOM Now getting along in good shape. Donn, on this begin I think that Walt gave me that Bravo instead Charlie voltage last time, request Batt Charlie voltage.

SC Okay, stand by one minute.

CAPCOM Will, go. Okay, I wonder how much it would foul them up if they delayed eating until they were on TV

SC Ron, I read Batt C as 36 volts.

CAPCOM Rog, I understand Batt Charlie 36 volt. SC I think that's down a little, I believe

its about 37 since we got up here.

CAPCOM We concur. Apollo 7 Houston one minute LOS Ascension at 23

SC Roger, Ascension at 23 understand. This is Apollo Control at 108 hours, 6 minutes. Redstone has LOS. All of the transmissions that time were by command module pilot, Donn Eisele, indicating that Wally Schirra and Walt Cunningham have settled down for the night. Apollo 7 is about to enter its 68 revolution. The next station to acquire will be Ascension at 108 hours, 23 minutes. This is Mission Control Houston.

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APOLLO 7 COMMENTARY, 10/15/68, GET: 1082330 (CDT 10:25p) 354/1
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This is Apollo control 108 hours 23 PAO minutes into the mission. Ascension has just acquired Apollo 7. We haven't put in a call yet, but we'll stand by to monitor this pass. Apollo 7, Houston, Ascension standing CAPCOM by. Do you read, Houston. SCRoger, loud and clear. CAPCOM garble. SCI missed that Donn, say again. CAPCOM: Roger, 15 clicks of the water gone. SC Roger, got it. CAPCOM SC Okay. I just had a good, solid 8 hours sleep and I feel pretty good. I've got a physical head cold, but other than that every things going fine. Okay, sounds good then. CAPCOM My only concern right now is whats going SC to happen to my ears when we reentry, but I hope by then I'll get over it. We kind of feel that you will and we CAPCOM hope anyhow. I guess we'll cross that when we come SCto it. Rog. CAPCOM Apollo 7, Houston. CAPCOM Go. SC Rog, we've had a little concern about CAPCOM the voice quality on the DSE there the last couple of dumps and what we would like you to do is after this pass go ahead and talk into the tape recorder, mention the time on it and then give us a time at the next station area and we can play it back and check it out that way real good. Roger, you say you want me to record  $SC \cdot$ something on the tape and read the time on to it so you can check it next pass, is that right? Affirmative, and then give us a time CAPCOM that you were talking into it. Okay will do. Ron, I've got some results of a sextant star count we needed about 98 hours. Roger, ready to copy. CAPCOM Okay, at sunrise - first of all the SC Moon was in the field of view and thats tends to wipe out a lot of stars, but at sunrise I counted 12 stars at plus 4 two stars plus 8 one star and plus 12 three stars. Roger, I copy. CAPCOM Then they all went away, except a couple of bright ones right after sunrise, at sunset minus

12 4 minus 8 15 minus 4 30 and at sunset I saw 40 or more.

SC Of course, this was at the other attitude when the Moon was not in the field of view. I could see the constellation Sagittarius very plainly and all the other major stars in the telescope at that time.

CAPCOM Roger.

SC I recommend that we knock off the remaining star count on the basis that we don't need really need window shades up to get dark adapted because even if you are dark adapted if you look in a telescope infiltered with light, it ruins it anyway, and the best way to get dark adapted is to put your eyeball up there and leave it there for several minutes.

CAPCOM Okay, I see, so the window shades are not doing you any good, is what you're saying there, right?

SC I think so, yea, I don't think the

window shades would help that much.

CAPCOM Okay.

SC It's not the sunlight coming in the windows that keeps you from getting dark adapted anyway.

CAPCOM Roger.

SC I had roughfully the same sort of light pattern in the telescope that I had on the earlier test, there was a bright ring around the edge of it and a broad band across the middle of it, and this light pattern didn't disappear (garble).

CAPCOM All right.

SC In fact on that second check come to think of it there wasn't any band across the middle, it was pretty clean scope and I think it had to do just with the respect to the Earth, how close it is and the direction your looking.

CAPCOM I understand.

CAPCOM Donn. SC Yea.

CAPCOM We never got the sunset - the sunset part of that first star count thing there, if it's convenient in your log, we'll take that.

SC · Roger, I understand you did not get the data on the first one.

CAPCOM We got the sunrise part of it, but not the sunset part of it.

SC Roger, at sunset we had thinning going on and it wiped it out completely.

CAPCOM Oh, I see, Okay.

SC There are so many fireflys, snow flakes out there I couldn't see - tell the stars from the flakes.

CAPCOM I understand.

CAPCOM 30 seconds LOS, we'll pick you up at

APOLLO 7 COMMENTARY, 10/15/68, GET: 1082330 (CDT 10:25p) 354/3

CAPCOM Mercury on the hour.

SC Okay.

PAO This is Apollo Control at 108 hours, 32 minutes, very good voice quality that time. Apollo 7 split the ring of acquisition on ascension pass almost directly overhead at ascension. Don Eisele gave a very good report on the daylight start count, reported that he got a solid 8 hours sleep and that despite the head cold, he feels pretty good. The next station to acquire will be the Tracking Ship Mercury at 109 hours. This is Mission Control, Houston.

This is Apollo Control. We are now 109 hours into the mission. The spacecraft has just been acquired over the tracking ship Mercury and the Cap Com is putting in a call to the crew. (cut off) SC CAPCOM Roger, loud and clear. Well I put a short test recording on SC the tape about, well it was 108:44. Roger, copy. CAP COM That's give or take a few seconds. SC I think it was 108:33:40 actually. (pause) Apollo 7, Houston. CAP COM Roger. SCGo ahead. Rog, Donn. Do you have time to give CAP COM us a little run down where you found out the best place to sleep is. SC Yeah, we're still sleeping in the couch space and that seems to work out best. We've tried ... and tried keeping strapped down in the ... range and the latter seems to be better off. You can also sleep in the couches strapped down I guess but if there's more than one person you're kind of in the way. Another problem with sleeping under the couch at least on the right side, I haven't checked the left, but I know on the right it tends to get hot under there for some reason. Not hot, but a little warmer than the rest of the spacecraft. I don't think there's ... situation. CAP COM Rog, thank you Donn. We copied. Apollo 7, Houston. SC Hey, you did it. CAP COM Mr. Eisele. That's right. SC Donn, what's the word - what's the CAP COM configuration of your window shades when you have most of Do you have most of your window shades up? them asleep? Ah, negative. We haven't even pulled SC down a shade the whole flight. CAP COM Okay. If there seems to be a problem when SCyour asleep, you just bury your head under something down under the couch and you don't even notice the sunlight much.

CAP COM Okay. Let me ask you one other question, strike this out, what about with respect to that telescope and stars in the daytime, can you ascertain anything at all until you have passed the terminator out of the telescope?

SC No, we started out to, ah, you mean coming into sunset?

CAP COM Yeah, in other words doing a P-51

during daytime.

SC Roger. If you lucked out and happen to end up at the optimum position, that is in other words well away from the Earth and also well away from the Sun, I believe that, ah, say five to ten minutes from sunset or sunrise you'd probably could see it. Like last night, at that one setting, ... there I could have done an alinement but the problem of the P-51 is that we don't have an alignment to start with and you don't know how to place the setting.

CAP COM Yeah. Alrighty real fine.

SC ... got, ah, if you already had an alignment, you'd just rather do a fine align, we could do that okay. (cut out) and I asked the ... sextant daylight.

CAP COM Okay. (pause) Apollo 7, Houston

opposite omni.

SC Roger.

CAP COM Alright, LOS Redstone at 32.

SC Roger.

PAO This is Mission Control. We've lost contact now with the spacecraft as it moved over the horizon and out of range of the Guam tracking station. We had overlapping coverage at that pass from the Mercury and the station at Guam, spacecraft passing almost directly overhead both stations. We will be acquiring again in just about 20 minutes at the Redstone in the South Pacific. Here in Mission Control Center at the present time we're in the midst of a change of shift of Flight Director Gene Kranz who will be going off and who will be replaced on the flight director council by Jerry Griffin and at the Cap Com position we'll have Astronaut Bill Pogue taking over from Ron Evans. At 109 hours 14 minutes into the mission, this is Apollo Control.

This is Apollo Control at 109 hours, PAO I have just put in a call to the crew, and we 32 minutes. pick up conversations over the Redstone.

(garble) Is that better?

Say again, slower, I couldn't read you. CAPCOM All right, disregard. Apollo 7, Houston. How do you read? Loud and clear. SC

Okay, you're coming in loud and clear. CAPCOM Before we have some quiet targets, I would like to ask you a couple more of questions, Don. When you're in the local horizontal attitude, can you observe these horizons without the rendezvous windows below you?

You mean how far along the impact can SC

you see?

Yeah. CAPCOM

I don't know. I've never been precisely SC in that attitude to look. I don't believe you can though. Okay, well, let's -CAPCOM

Now in that stage, Tom, we have never SC really done any precise local horizontal maneuvers yet.

Okay, well, in the next day or so if CAPCOM you get a chance I wish you would do that so we can get our simulators calibrated. And also out the side windows, the one and side window when you're in local horizontal, if you will just make a pencil mark there, we can then get our simulators calibrated to that.

Okay, a good time to do that may be in the land mark tracking, 14 lined up local, horizontal anyway.

Okay, if you can just make a note of CAPCOM that and check because it will sure help us in getting these - you know these quad 30 datas for the simulators and also pass on to the other crews.

Okay, will do. Incidentally, the optics of the simulator are pretty realistic. The lines seen through these optics in here are almost identical with respect to star visability and so on.

Oh, Okay, we're suppose to picture with CAPCOM the telescope what we see in the telescope is about what you got there in flight, Don.

That's exactly right. You have to keep your eyeball on there for a while, you see before you can begin to see any stars.

CAPCOM I see.

Using the telescope. SC

CAPCOM Okay.

You can see out the windows. SC

Okay, that is even at night time too? CAPCOM

That's right. SC

SC Houston, Apollo 7. CAPCOM Apollo 7, Houston, GO.

SC Oh, Hi Bill. I just checked the command module RCS temperatures and all six of them are pretty good 50 plus.

CAPCOM Roger, understand. All the CM RC - CM

RCS temps are pegged 50 plus.

SC That's right.

CAPCOM Okay. Apollo 7, Houston, 1 minute LOS Redstone, ascension on the hour.

SC Roger.

This is Mission Control. We've lost PAO communications now with the spacecraft. The spacecraft has gone over the horizon and out of touch with the Tracking Ship Redstone. We continue to have very good communications on that pass as we have in the last several passes. All of them have been almost directly overhead. This one - a little off to the south, actually, of the tracking ship. The first part of that pass, you heard Don Eisele advise Tom Stafford who is sitting in at the CAPCOM position along with astronaut Bill Pogue here in Mission Control Center. He found the optics on the spacecraft to be very simular to what he experienced in the ground based simulators at Cape Kennedy and here in Houston. In the way of logistics information we expect that we will be having a change of shift press conference in about 10 minutes in the Building I news center. The next station that will be acquiring the spacecraft - will be the Ascension station and we anticipate we will be recording that pass and subsequent passes. We will play those back following the press conference. At 109 hours, 42 minutes, this is Apollo Control.

This is Apollo Control at 110 hours PAO 37 minutes. We've had a relatively quiet period here at the Mission Control Center since the Press Conference began. One short pass so far, that was over the tracking station on Ascension and we'll play that one back for you in its entirety now and stand by for conversation with the Mercury. The spacecraft just coming into acquisition at Mercury at this time.

Apollo 7, Houston through Ascension. CAP COM

Ah, Rog, Bill, Apollo 7. Apollo 7, Houston. SC

CAP COM Roger Houston, Go. SC

Rog, could you give us an estimate on CAP COM

the time the CDR and LMP went to sleep.

Yes, I'll look at the log here.

Say again please? CAP COM

I think it was 109 hours, 108 hours. SC

CAP COM Rog.

And that's the substance of communica-PAO tions with Astronaut Don Eisele over the Ascension tracking It doesn't appear that we are going to get acquisistation. tion from the tracking ship Mercury. That pass goes down, just touches the edge of the acquisition circle and we are apparently out of range of communications there. In that previous pass over Ascension, you heard Don Eisele advise that Commander Wally Schirra and Lunar Module Pilot Walt Cunningham went to sleep at about 106 hours into the mission, that would have been roughly 2-1/2 hours ago and we do anticipate that they will be able to get at least a full eight hours of sleep. The medic also reports that all of our biomedical instrumentation appears to be working well at this The next station to acquire the spacecraft will be the tracking ship Redstone and that acquisition is scheduled at 111 hours 5 minutes ground elapsed time, roughly 34 minutes from now. At 110 hours 39 minutes, this is Apollo Control.

PAO This is Mission Control Center at 111 hours, 6 minutes into the flight. The Apollo 7 space-craft is presently approaching a Tracking Ship Redstone in the midst of a night side pass during the end of the seventy first revolution. We'll standby for a call to the crew via the Redstone.

CAPCOM Apollo 7, Houston, through the Redstone.

SC Roger, Houston, Apollo 7.

CAPCOM It looks like we both have the night

watch.

SC Yeau, it works out that way, doesn't it?

CAPCOM Apollo 7, Houston. SC Roger, Houston, 7 GO.

CAPCOM See - I have a procedure here on this television operation which I just now passed up so you don't need to write it down. And it is pretty simple. It involves a technique to get the best TV picture and it sorta goes like this. When holding the TV during the next TV period, take a look at the position of the AL switch and report the position. That's probably before you start taking the television pictures. Then about one half way through during the period of television change the position of this AL switch. The AL stands for auto light although it is not automatic.

SC Okay, I got you.

CAPCOM And -

SC Using the AL out.

CAPCOM All right, they will be coordinated with you from the ground. Also, another point it takes the TV about 90 seconds to warm up, about a minute and a half to warm up.

SC I see. Okay, we'll keep that in mind. CAPCOM Okay, thank you. Apollo 7, Houston. We would like to turn the O2 tank to fans on for 5 minutes and then off. I'll remind you just about LOS. Apollo 7, Houston. I may have passed that up incorrectly. If I said off, it should be on. Turn them on for 5 minutes and then off.

CAPCOM Roger, I got you, keep going now.
Apollo 7, Houston. Say Don, we're not getting anything on the biomed. Have you changed anything?
SC All right, Roger, I'll have it on in a couple of minutes.

CAPCOM Okay, thank you. Apollo 7, Houston, opposite anomaly, please. Also, I have a little bit more information on that television. That AL stands for automatic light control. It is similar to automatic gain control electronic circuit apparently. And it presents a bright light source from sort of washing out the picture.

APOLLO 7 COMMENTARY, 10/16/68, GET: 1110600 (CDT 1:08) 358/2

SC Now I would like to GO...

CAPCOM Thank you. Apollo 7, Houston, coming up on LOS - Canary at 36.

SC Roger, read you.

CAPCOM And you can turn the - cryo two tank fan back off.

SC Roger.

PAO And we have lost of signal with the space-craft over the Redstone. The next station to acquire will be the Canary Islands in about 22 minutes from now. This will be the first contact over the Canaries in sometime as the spacecraft orbit begins to swing back toward the northern part of the western hemisphere and towards the - high coverage we got on our state side passes. At 111 hours, 15 minutes into the mission, this is Apollo Control.

```
This is Apollo Control 111 hours,
     PAO
36 minutes into the mission. The spacecraft is now coming
upon the Canary Islands Tracking Station coming out of dark-
ness and into daylight as the cremenator, the line that
separates the light and the day and the night periods on
the surface of the earth begins to move over toward the
states. And we'll be acquiring the spacecraft shortly from
Canaries. We'll standby for a call to the crew.
                    Apollo 7, Houston.
     CAPCOM
                    This is Apollo 7.
     SC
                    Roger. Through Canary I have a request.
     CAPCOM
I would like a reading on Pyro bat A, B, and bat C.
                    Roger. Bat C is 36.0.
                    36.0.
     CAPCOM
                     Standby for the pyros.
     \mathsf{SC}
                     Roger.
     CAPCOM
                     Dale, I'm reading 37.0 for both pyros.
     SC
                     Roger, 37.0. In what position are you
     CAPCOM
leaving the DC indicator?
                                     I usually leave it on
                     Oh, it varies.
one of the main bus voltages.
                     Roger, good. That is what we like, main
     CAPCOM
A or B.
                     Roger.
     SC
                     Thank you.
     CAPCOM
                     Hey, Bill.
     SC
                     Roger.
     CAPCOM
                    Ask the tower if they are going to rec-
     SC
ommend a type setting too.
                     Okay, will and you might check the switch
     CAPCOM
and throttle there.
                            (Laughter)
                     Roger.
                     When I shake the stick mobile, you've
      CAPCOM
got it.
                     It says use plenty.
                     Apollo 7, Houston, opposite anomaly.
      CAPCOM
                     Roger.
      SC
                                 Apollo 7, Houston, 1 minute
                     Thank you.
      CAPCOM
 LOS Canary, Honeysuckle at 23.
                     Roger, Honeysuckle at 23.
      SC
                     Roger.
      CAPCOM
                     Do you want me to stand up for that?
      SC
                     Roger. (Laughter) Stand up for that one.
      CAPCOM
                     Right.
      SC
                     This is Mission Control. The spacecraft
      PAO
 has now gone over the hill and out of acquisition from
 Canary Islands. The next station to acquire will be another
 one that we - haven't passed over for sometime. That will
```

be Honeysuckle on - the eastern part of Australia. As you

APOLLO 7 COMMENTARY, 10/16/68, GET: 1113600 (CDT 1:38) 359/2

pao heard in that pass, a bit of light hearted conversation between Don Eisele and the ground, Eisele, requesting a flap setting which of course refers to aerodynamic flight in the aircraft and the earth's atmosphere. Our indications here in Mission Control Center are that everything continues to function well with the spacecraft. There are no problems at this time. This is Apollo Control at 111 hours, 46 minutes into the mission.

PAO This is Apollo Control at 112 hours, 23 minutes into the mission. The Apollo 7 spacecraft has just crossed just over the northeastern edge of the Australian continent and is just barely within range of Honeysuckle. We don't anticipate any conversation with the crew on this pass. However, CAPCOM Bill Pogue is putting in a call. And we'll standby to see if we get a response from Don Eisele.

CAPCOM And it doesn't appear that we will hear PAO from the spacecraft on this pass over Honeysuckle. However, we should have very communications on the upcoming pass over the Redstone Tracking Ship. Here in Mission Control Center it has been a very quiet evening as it has also been aboard the spacecraft and very little scheduled on the flight plan for the next 4 hours as Commander Wally Schirra and LM pilot Walt Cunningham are now about 4 - 4 and 1/2 hours into their sleep period. The next major activity for the crew following breakfast will be actinese connected with a minimum impulse SPS service propulsion system burn. in about 6 hours from now, they should begin powering up some of the spacecraft equipment associated with that burn, such as the guidance and navigation system and the stabilization and control system with the burn scheduled about 2 hours after that. At 112 hours, 27 minutes into the flight, this is Apollo Control.

```
This is Apollo Control at 112 hours
     PAO
             The spacecraft is now coming upon the Redstone
39 minutes.
tracking ship in the South Pacific. This is in the middle
of the nightside pass and Cap Com Bill Pogue advises that
he anticipates most of this pass over the Redstone and the
subsequent pass over Antigua will be taken up by passing up
a flight plan update to Donn Eisele aboard Apollo 7. We
just put in a call to the spacecraft, we'll stand by.
                    Roger, Houston. Go ahead with your
                     Also would like ... update when you
flight plan update.
get through with this one.
                         I'll give you a nav. update as
     CAP COM
                    Rog.
soon as I get through with the flight plan.
                    Bill, would you log me 40 clicks with
the water pistol and 2 aspirins please?
                    How many clicks?
     CAP COM
                    Four-zero.
     ·SC
                    Rog. 40 clicks on the water and 2
     CAP COM
aspirins.
                    In four hours.
     SC
                    The flight plan update will start at
     CAP COM
115 + 10 CMC powerup.
     SC
                    Roger.
                    Okay. You can delete the reference
     cap com
to CMC powerup at 117 + 20. Roger, at 118 + 00, add fuel
cell 02 purge also unstow and set up TV. That's at 118 + 00
hours.
     SC
                    Roger.
                    Next item is at 119 + 04, TV on.
     CAP COM
                    Roger. TV on at 119:04, TV on.
you want us to turn it on 90 seconds before and let it warm
up or is that the turn on time you want.
                    Rog. That'll take care of it.
     CAP COM
Texas AOS is 119 + 06 and sorry to interrupt but we need
opposite omni.
     SC
                    Roger.
                    And Donn, you can let me know when
     CAP COM
you're ready to resume copy of flight plan update.
                    Roger. I'm all ready.
     SC
                    Okay, at 119 + 30 FCS attitude refer-
     CAP COM
ence check (previously scheduled at 89 hours 50 minutes,
89 + 50 minutes). That's just for information. And, we'd
like that SCS attitude reference check starting at 119 + 30
at 30 minute intervals up to the time of the burn.
                    Roger (garble)
     SC
                    So if you want to make a pick at
     CAP COM
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120 + 00 and 120 + 30.

Okay.

APOLLO 7 COMMENTARY, 10/16/68, GET: 1123900 (CDT 2:42a) 361/2

CAP COM Okay. The notation at 121 hours in reference to SPS burn four, the time is 120 + 43.

SC Roger, understand that you're going

to burn at 120 + 43.

CAP COM Roger, and over there in the box where it says two jet ullage, you can write in quads bravo and delta, quads B&D.

SC Rog, we got 'cha on that.

CAP COM Roger and you can delete the line in reference to initiate battery charging.

SC Okay, got that.

CAP COM Delete the half box in reference to the star count test there, the telescope star count test sun, light, sight, et cetera.

SC Roger.

CAP COM Under the line where it says MCC update, add for landmark tracking. You will receive an update for landmark tracking at that time.

SC Understand landmark tracking update.

CAP COM Rog, and at 121 + 20 P-52 option three.

SC Roger.

CAP COM At 121 + 40 state vector voice update.

SC You say state vector voice update?

CAP COM Affirmative.

SC What's that for?

CAP COM Stand by. That's for the landmark tracking, in case you need it. If required, that's in case you need it for the landmark tracking, it's not -- Ah, rog, in case anything happens during the landmark tracking you'll have a state vector to fall back on.

SC Oh, I get 'cha.

CAP COM Okay, you can delete the reference to the star count test three at 122 hours. Apollo 7, we're coming up on LOS Redstone. I'll pick you up at Antigua for the rest of the flight plan update.

SC Okay.

CAP COM Antigua at 58. Apollo 7, Houston if you're still reading, the map update is rev. 72, load 112 + 56 + 50, 74.9 degrees West.

pAÓ This is Mission Control. We've lost contact with the spacecraft over Redstone and will acquire again in about 10 minutes from the Antigua station. This is Apollo Control at 112 hours 49 minutes.

PAO This is Mission Control. The Apollo 7 spacecraft is now coming upon the Antigua Tracking Station at 112 hours, 58 minutes into the mission. We'll standby for the call up to the crew and the remainder of this flight plan update which CAPCOM Bill Pogue was in the process of passing up when we lost acquisition with the Redstone.

CAPCOM Apollo 7, Houston, through Antigua.

SC Go ahead, Houston.

CAPCOM Roger. I'll go ahead with the flight plan update. Before I start, did you read the map update? SC I got a Rev 72 and a 12 plus 56.

CAPCOM Okay. REV 72, 112 plus 56 plus 50, nodal crossing at 74, niner west.

SC Roger. 56 plus 50 and then 74. niner west.

CAPCOM Roger. And continuing with the flight plan update at 122 hours.

SC Roger, GO.

CAPCOM Roger, at 122 hours, delete the 3 references. H2 heaters on, telescope star count, and fuel cell purge. Add at 112 hours, 222 ORB NAV (except marks). At 112 plus 20, P23 update, star in gimbal angles.

SC Got you at 112 plus 20 you got a P plus a pack of 122, what did you say about the landmarks again,

I didn't get that.

CAPCOM Okay. That was not landmarks. Perhaps, it is sufficient just to say that at 122 hours P22 ORB LAV, and at 122 plus 20, P23 update.

SC Does that mean you want me to do a P plus - orbital navigation in 122.

CAPCOM Affirmative.

SC Now let's - okay. I don't get it. You want me to do a plan from 122 on sometime and also during that perod you are going to be reading updates to us - in this period?

CAPCOM Well, at 122 plus 20, there will be a

223 update staring gimbal angles.

SC • Okay. Don't you think that might be a better off a little later after we get done with my own little NAV.

CAPCOM Okay, let's talk about it in just a minute. Let me go ahead and go through the rest of the updates. At 123 hours, delete the reference to coas calibration. At 123 plus 30, add 223 star horizon sighting. You can delete the reference to the attitude control tests that occur at about 123 plus 45.

SC Roger.

CAPCOM At 124 plus 20, add G & N, SCS power down and delete the reference to P54 coas evaluation.

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APOLLO 7 COMMENTARY, 10/16/68, GET: 1125800 (CDT 3:01) 362/2
                    Roger, Bill.
     SC
     CAPCOM
                    Okay.
     SC
                    Go ahead.
                    At 125 plus 30, delete the reference to
     CAPCOM
P25.
     SC
                    Roger.
                    And that is the end of the update. Let
     CAPCOM
me check on this other thing.
                    Okay, how long does this pass of this
earth mass is suppose to be?
                                     The orb nav takes one
                    Okay, standby.
     CAPCOM
daylight pass.
                    All right, that is just what I thought.
     SC
                    Okay, and you are thinking that the
     CAPCOM
P23 update is going to catch you right in the middle there.
                    It shouldn't be too bad. Walt can
probably write it down while we're doing the rest of it.
                    Okay.
     CAPCOM
                    How come you move it up to 23 - up
2 hours, is that to get done so we can get to bed?
                    Affirmative.
     CAPCOM
     SC
                    I see.
                    We're coming upon LOS. And one other
     CAPCOM
quick item- we just want to - at the point at the rest of
the laboring point, Donn and Wally's, Correction Wally and
Walt's sleep period last until 116 plus 00 hours.
                    Roger, I got that.
     SC
                    Okay. We will have Canaries at 0 niner. Okay, I'll see you then.
     CAPCOM
     SC
                     Thank you.
     CAPCOM
                     This is Mission Control. We had lost
     PAO
of signal from Antigua. And we will be picking up the
Canary station in about - about 5 minutes from now. As you
heard the sleep period for commander Wally Schirra and
Walt Cunningham is scheduled to last through 116 hours.
And we have been advised that they began their sleep period
at about 108 hours, elapsed time which would give them a full
8 hours sleep. At 113 hours, 6 minutes, this is Apollo
Control.
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APOLLO 7 COMMENTARY, 10/16/68, GET: 1130800 (CDT 3:11a) 363/1

This is Apollo Control at 113 hours PAO 10 minutes. We'll be putting in a call shortly to the spacecraft over Canaries, let's listen in on that one.

CAP COM Apollo 7, Houston through Canary.

SC Roger Bill.

Apollo 7, Houston. Coming up one CAP COM Carnarvon at 46. minute LOS Canary.

SC Roger.

This is Mission Control. We had a PAO very quiet pass that time over Canaries which is typical of most of the contacts we've had this evening with the spacecraft. This mission continues to progress very well at this point and the next station to acquire will be Carnarvon, Australia and we expect that in about 30 minutes from now. This is Apollo Control at 113 hours 18 minutes.

APOLLO 7 COMMENTARY, 10/16/68, GET: 1134600 (CDT 3:48a) 364/1

PAO This is Mission Control. The Apollo 7 spacecraft is now a little more than one half way through its 72nd revolution, some 113 hours 46 minutes after liftoff and we're coming up on the Carnarvon tracking station. We'll listen for any reports from the spacecraft as we complete this Australian pass.

CAP COM Apollo 7, Houston through Carnaryon.

SC Roger Houston, Apollo 7.

CAP COM Apollo 7, Houston one minute LOS Carnarvon. S-band volume up at 53 for Honeysuckle.

SC Roger.

PAO This is Mission Control. We don't expect any further conversation with the spacecraft for about 2 more minutes while that covers the gap between the Carnarvon station and Honeysuckle so we'll return with that pass in about two minutes. This is Apollo Control at 113 hours 52 minutes.

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APOLLO 7 COMMENTARY, 10/16/68, GET: 1135400 (CDT 3:57a) 365/1
                    This is Apollo Control. We've just
     PAO
put in a call to the spacecraft over Honeysuckle.
                    Apollo 7, Houston through Honeysuckle.
     CAP COM
                    Roger, Apollo 7, read you.
     SC
     CAP COM
                    Bill, would you log me another 24
     SC
clicks of water please?
                    Roger, another 24 clicks.
                                                Thank you.
     CAP COM
Hey Donn, how you feeling?
                    Say again, Bill.
                    How you feeling today?
     CAP COM
                    Oh, pretty fair.
     SC
                    Good.
     CAP COM
                    I've got kind of a head cold but other
than that everything's fine.
     CAP COM
                    Rog.
                    Just sitting here doing my daily
     SC
dozen.
                    Oh, Good.
     CAP COM
                                             Those other
                    That's my only chance.
     SC
guys get up and they monopolize it.
                    Yeah, I saw 'em on television this
     CAP COM
morning.
                    Say again?
     SC
                    I saw 'em using the exerciser on tele-
     CAP COM
vision this morning.
                    Oh, is that right?
                    Rog. Rubber necking just like every-
     CAP COM
one else.
                    Right.
     SC
                    Apollo 7, Houston one minute LOS at
     CAP COM
Carnarvon, at 14, ah Redstone at 14.
                    Roger, Put me to ... around for me
     SC
... for a while.
                    That's a pretty good trick if you can
     CAP COM
pull it off. Might work for the other fellas though.
                     Ah, ...
     SC
                     This is Apollo Control at 114 hours
     PAO
and we've lost contact now with the spacecraft over Honey-
suckle and that was one of our more lively passes as far as
conversation with Donn Eisele who is the only crewmember
who's awake at the present time. Commander Wally Schirra
and Lunar Module Pilot Walt Cunningham are now into their
6th hour of sleep period which began at 108 hours elapsed
time and scheduled to end in about 2 more hours. You heard
Eisele report that he has consumed 24 clicks of water, that
figures out to just about 12 ounces since his last report
from one and one-half hours ago. Donn also reported that
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APOLLO 7 COMMENTARY, 10/16/68, GET: 1135400 (CDT 3:57a) 365/2

PAO he's feeling pretty fair with the exception of the headcold and also indicated that he gets his chance on the in-flight exerciser while his other two crewmembers are getting their sleep. We'll be picking up the spacecraft again in about 14 minutes, 13 minutes over the tracking ship Redstone at 114 hours 02 minutes into the flight, this is Apollo Control.

APOLLO 7 COMMENTARY, 10/16/68, GET: 1141400 (CDT 4:17a) 366/1

PAO This is Apollo Control at 114 hours 14 minutes. The spacecraft Apollo 7 is now about midway through it's nightside pass and coming up on the tracking ship Redstone. We'll listen in as the Cap Com Bill Pogue puts in a call to the crew.

CAP COM Apollo 7, Houston through Redstone.

SC Houston, Apollo 7.
CAP COM Apollo 7, Houston Go.

SC Ah, Rog, I was just looking over this flight plan for the eight hour active period. Looks like we're pretty well booked up. I guess ... and the burn is to be the event of the day and I think if we get behind or have any problems we'll probably drop some of these other things if we need to.

CAP COM Roger. (pause) Apollo 7, Houston,

one minute LOS Redstone, Bahama at 31.

SC Roger.

pAO This is Apollo Control. That completes our pass over the Redstone. The spacecraft is now off the horizon and out of range and we'll be acquiring at Bahama in about 10 or 11 minutes. The mission continues to go very well throughout the night and here into the morning hours and we'll expect activity to pick up within the next hour or two. Beginning in about the next 40 minutes, Donn Eisele is scheduled to start powering up the command module computer and at about 116 hours elapsed time, his two fellow crewmen, Wally Schirra and Walt Cunningham are scheduled to end their sleep period. This is Apollo Control at 114 hours 22 minutes.

PAO This is Apollo Control at 114 hours, 31 minutes. Apollo 7 spacecraft at the present time is passing over the isthmus of Panama and moving up toward the Bahama Tracking Station acquisition. We've been advised that that acquisition will probably be delayed about So we'll standby and pick up the call through the crew probably about 1 minute from now. The spacecraft is presently in an orbit with apogee of approximately 152 nautical miles and a perigee of about 89 nautical miles. It completes a revolution once every 89 minutes. We should be getting that call to the crew. Don Eisele who was on duty while Wally Schirra and Walt Cunningham completed their 8 hour sleep cycles. And we expect that call shortly from Bill Pogue who is CAPCOM here in the Mission Control Center.

CAPCOM Apollo 7, Houston, through Antigua.

SC Roger, Houston, Apollo 7.

CAPCOM Roger, Don. I'd like a readout on bat Charlie voltage.

SC Roger. ...36 volts.

taking a look at the flight plan. And it may look a bit crowded, but we think everything could be gotten in there in the normal course of events in getting ready for the burn. However, we have looked at a couple of things here that could be deleted without affecting anything. First off, if you start getting crowded you can scrub the photography entries. It sort of goes without saying. Second, you can scrub the SCS attitude reference check. And third, delete the P22 exercises associated with P52.

SC Roger.

CAPCOM You know if you get in a bind.

SC Yeah, I think we can get through it okay, Bill. I just wanted to point - we do get behind and if we do have any problems we will probably drop them.

CAPCOM Roger. The point is well taken. Apollo 7, Houston, 1 minute LOS Antigua, Canary 43.

SC Roger.

PAO This is Apollo Control at 114 hours, 39 minutes. We're about to lose contact with that station over Antigua. And we will be reacquiring in about 4 minutes at Canary Islands. We'll pick up again over Canary.

PAO This is Apollo Control at 114 hours. 53 minutes into the mission. We've just completed a pass over the Canary Island station and there was a small amount of conversation with the spacecraft on that pass which we will now play pack for you in its entirity. CAPCOM Apollo 7, Houston through Canary. SC Roger. **CAPCOM** Go. Instead of powering up at 115:10 and do SC a P23 ... check, I think I'd just as soon wait and do that at the time we do the start of horizon landmark business start of horizon navigation. CAPCOM Roger. SC In other words, I don't see any point in powering and maneuvering around to do one little check. CAPCOM Right. SC ... when it would be easier to do the same thing a little late - catch them all at the same time probably... CAPCOM Apollo 7, Houston. Regarding the power up at a later time just before the new state vector is agreeable here. SC Okay Boy. CAPCOM And we'll change our flight plan accordingly. SC Roger. Apollo 7, Houston. One minute LOS Canary, CAPCOM we'll have another minute at Madrid if you'll turn the

We can hear you talk.

SC Okay.

CAPCOM At Carnarvon at 18.

SC Roger.

END OF TAPE

S band volume up.

APOLLO 7 COMMENTARY, 10/16/68, GET: 1151800 (CDT 5:22a) 369/1

PAO This is Apollo Control at 115 hours 18 minutes into the mission. The spacecraft is due to be acquired shortly by the Carnarvon tracking station and here in Mission Control Center, activity is beginning to pick up a little bit after a very quiet night. We'll be shortly getting ready for the days activities and onboard the spacecraft we would expect that Donn Eisele would, within the next 25 or 30 minutes, begin powering up the command module computer in preparation for that fourth service propulsion system burn. And, Cap Com Bill Pogue now has just put in a call to the crew, we'll listen in.

SC Houston, Apollo 7.

CAP COM Apollo 7, Houston, Go.

SC Roger, would you log me another 30

clicks of water?

CAP COM Say again the number.

SC Three-zero.

CAP COM Roger, three-zero.

SC Rog.

CAP COM Apollo 7, Houston. One minute LOS Carnarvon. Honeysuckle at 26 so you can turn up your S-band volume in about one minute.

SC Roger.

PAO This is Mission Control. We've had a momentary loss of signal as the spacecraft moves out of acquisition from Carnarvon and will be reacquiring again shortly over Honeysuckle and we'll stand by for that reacquisition.

CAP COM Apollo 7, Houston. Request 02 tank two fans ON five minutes then OFF.

SC Roger, Houston.
CAP COM Apollo 7, Houston.
SC Roger Houston, Go.

CAP COM Donn, I'm not sure I'll have the full time on this pass because of the keyhole. I'll have a block data for you at Texas and we'll have Texas on the hour.

SC Roger.

CAP COM Apollo 7, Houston, coming up on LOS Honeysuckle. You can get the fans back OFF in about one-half a minute.

SC Roger.

PAO This is Apollo Control. We've had loss of signal now of the spacecraft over Honeysuckle. We'll be acquiring the station at Corpus Christi in about 26 minutes at 115 hours 35 minutes into the mission, this is Apollo Control.

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This is Mission Control 116 hours into
     PAO
the flight of Apollo 7. The spacecraft is presently approach-
ing the Texas tracking station at Corpus Christi. Will be
coming within range of that station and simultaneously will
be coming out of a nightside pass and into daylight.
be acquiring the spacecraft shortly and we would expect that
Wally Schirra and Walt Cunningham will also be ending their
sleep periods shortly having gotten about eight hours of
sleep this time. They're scheduled to be awaking shortly if
they are not already up. We'll stand by now as Cap Com Bill
Pogue puts in a call to the crew.
     CAP COM
                    Apollo 7, Houston through Texas.
     SC
                    Roger.
                    Rog, I have a block data update when
     CAP COM
you're ready to copy.
     SC
                    Stand by, Bill.
                                      (pause)
                                               Go ahead with
the update, Bill.
     CAP COM
                    Rog, block data, 075 dash one alpha
+ 311 - 0650 117 24 04 3443 076 dash 1 alpha + 302 - 0650
11900 11 3592.
     SC
                    Roger.
     CAP COM
                    077 dash 1 alpha + 238, - 0630, 120
33 36 2888, 078 dash 4 alpha + 310, - 1600 123 17 25 3410,
079 dash 4 alpha + 307, - 1600 124 53 43 3520, 080 dash 4
alpha + 263 - 1611 126 27 32 3137. Readback.
     SC
                    Roger. 075 dash 1 alpha + 311 - 0650
177 24 04 3443, 076 dash 1 alpha, I'll have to get the ...
again from you, the time was 11900 11 3592, 075 dash 1 alpha
+ 238 - 0630 120 33 36 2888, 078 dash 4 alpha + 310 - 1600
123 17 25 3410, 079 dash 4 alpha + 307 - 1600 124 53 43
3520, 080 dash 4 alpha + 263 - 1611 126 27 32 3137.
     CAP COM
                    Roger. On the first block the time
was 117 + 24 + 04.
     SC
                    Roger, I got that.
     CAP COM
                    Rog, and on the next block the lat
and long are + 302 - 0650.
     SC
                    0kay + 302 - 0650.
     CAP COM
                    Rog, and on the 4th block, 078 dash
4 alpha, the long is -1600.
     SC
                    Roger, -1600.
     CAP COM
                    Rog, readback is correct.
     SC
                    Okay then.
     CAP COM
                    Go. Apollo 7, Houston, you're Go for
92 dash one.
     SC
                    Roger, Go for 92 one.
                                            (pause)
Houston, Apollo 7.
     CAP COM
                    Apollo 7, Houston Go.
     SC
                    (garbled) log me one ...
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APOLLO 7 COMMENTARY, 10/16/68, GET: 1160000 (CDT 6:03a) 370/2

CAP COM Would you say again please?

SC Roger, about half hour ago I took one

lobo pill, (garbled).

CAP COM Apollo 7, Houston. I'm having difficulty reading you.

SC Roger, understand.

CAP COM Now you're very clear, would you say again please?

SC Roger, about 30 minutes ago I took one lobo pill, would you please log that?

CAP COM Rog, thank you.

PAO This is Apollo Control. We've had loss of signal now with the spacecraft moving out over the Atlantic Ocean toward the Canary Islands. During that pass you heard Cap Com Bill Pogue pass up the GO to the spacecraft for another days flight through rev. 92 and Don Eisele reported that he had taken another 30 clicks of water which makes his total now something on the order of about 20 ounces during the past several hours. We'll be acquiring the station at the Canary Islands, acquisition coming up at elapsed time of 116 hours 17 minutes, that will be about 2 minutes from now and we'll pick up the spacecraft again at that point. At 116 hours 16 minutes this is Apollo Control.

PAO This is Apollo Control. The spacecraft will shortly be coming into acquisition at Canary Islands, CAPCOM Bill Pogue just put in a call. We'll standby for any conversation from the crew.

CAPCOM Apollo 7, Houston, 1 minute LOS Canary,

Carnarvon at 52.

SC Roger.
PAO This is Mission Control. The spacecraft is now gone out of range of the Canary Island Tracking Station. And we will be picking the spacecraft up again in about - about 26 minutes from now at 116 hours, 52 minutes, ground elasped time over the Canarvon, Austrailia Tracking Station. At 116 hours, 25 minutes, this is Apollo Control.

This is Apollo Control at 116 hours. 45 minutes into the flight of Apollo 7. At the present time here in the Mission Control Center, we are in the midst of a shift change. The prime Flight Director, Glenn Lunney, is in the control center and will shortly be relieving Flight Director, Gerry Griffin. Also, our CAPCOM coming up will be Jack Swigert who will be replacing Bill Pogue at the CAPCOM position. During the night and into the early morning, the Apollo 7 mission continued to progress very It was almost a quiet and uneventful period. A short time ago, Gerry Griffin pulled the flight controllers here in the center and passed along a goal to the crew for 92-1, an additional 16 revolutions carrying them through an additional day. The major activity during the evening had the major commander Wally Schirra and LM pilot Walt Cunningham sleeping. Don Eisele was tending the store and passed up the flight update which will include a TV pass with acquisition expected at about 9:09 a.m. this morning. From the Corpus Christi site, the crew has been instructed to turn on the television some 2 minutes from that to give things time to warm up. A little later on at - about 120 hours, 43 minutes elapsed time, we have the fourth SPS service propulsion system burn scheduled. This will be a minimum impulse burn with an anticipated duration of about 1/2 second, imparting about 15 feet per second velocity additional velocity to the spacecraft. And shortly the crew will begin powering up the command module computer. And they are getting set up for that burn. We haven't yet heard from Wally Schirra and Walt Cunningham. They were scheduled to be waking up a short while ago. And we anticipate we will hear from them during the next spacecraft acquisition about 5 minutes from now and when acquire at Carnarvon. Don Eisele reported that he was doing - well. He said to report that he felt pretty fair. He said he still had a head cold, but otherwise was feeling fine and was doing his daily dozen in exercise on the inflight exerciser. crew all appeared to have gotten a good night's sleep. anticipate that Schirra and Cunningham got at least 8 hours and the same for Eisele. As far as the weather goes, we are continuing to watch tropical storm Gladys near the western tip of Cuba. Otherwise, the weather and all of the other recovery areas - all recovery areas and premature throughout the world appears to be pretty good at this point. We will be acquiring spacecraft now over Carnarvon coming up at 116 hours, 52 minutes, elapsed time. At 116 hours, 48 minutes, this is Apollo Control.

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APOLLO 7 COMMENTARY, 10/16/68, GET: 1165500 (CDT 6:58a) 373/1
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pAO This is Apollo Control Houston. I'm having a little trouble getting the plug in the right hole. At 116 hours 55 minutes into the flight, the crew seems to be waking up over Carnarvon. We have this conversation going on.

CAP COM Apollo 7, Houston through Carnarvon.

Apollo 7, Houston through Carnarvon.

SC Go ahead Houston.

CAP COM Good morning, Donn, how are you this morning?

SC Oh, just fine Jack except (garbled).

CAP COM Roger, Donn. Would like to get a Battery C voltage readout here at Carnarvon.

SC Roger, Battery C is showing 36.5 and

good morning, Jack.
CAP COM Good morning, Walt, and how are you?

SC Fine.

CAP COM And, we're going to be sending you a state vector and target load over Texas and I'll have the maneuver pad and nav check to pass up to you.

SC Roger. At the same time? Roger, at

the same time?

CAP COM Rog. And one other thing I wanted to discuss with you here at this time is the TV went over so well yesterday, would like to know if you could save one of your breakfast packages to demonstrate eating on television this morning?

SC We'll give them something interesting but we probably will mostly be through breakfast by then. If we have any food left, we will eat it for the audience.

CAP COM Okay, would appreciate it if you could

do it.

SC We're starting to eat our breakfast now Jack and we're not going to want to schedule things around that TV camera.

CAP COM Okay, understand.

SC What's the news this morning, Jack?
CAP COM I'm getting it summarized now. Will be passing it up to you in a little bit. We'll pick up Honeysuckle here, Walt, at 11700, you want to turn up your S-band.

SC 11700 turn up the S-band.

CAP COM Roger. Apollo 7, Houston. Looks like

your primary evaporator is drying out again.

SC
You know that thing has been working fine
all night long until you guys came on.

CAP COM Maybe it's me?

SC That started down during this pass

APOLLO 7 COMMENTARY, 10/16/68, GET: 1165500 (CDT 06:58) 373/2

SC didn't it?

SC Jack, about that, Walt just came on,

too.

CAPCOM Good morning Wally. Could we get you to set down the primary evaporator to go to decrease on the back pressure switch and do not reservice it at this time?

SC You want another increase, don't you?

I'm shutting it down now.

CAPCOM Excuse me. Increase on the back pres-

sure switch.

SC That could work. Whenever it dried out, I go ahead and close it up. You don't want it reserviced now?

CAPCOM That is affirmative.

CAPCOM What we would like to do is have the

reservice take place 117 + 15.

SC Roger, Ed. Is that to be over a sta-

tion or do you just want me to write it down?

CAPCOM You can do it on your own. SC Okay, I'll do it at 11715.

PAO This is Apollo Control Houston, 117 hours, 33 minutes into the flight. Among other things we have planned today, is the minimum impulse burn of the service propulsion engine. It will be on the order of one-half of a second, just a blip. The Delta-V is estimated at around 14 - 15 feet per second. The burn will be done in plane and it will have a very, very slight effect on the apogee/perigee, the resulting number should be something like 94 by 160. Here's the conversation that's going on with the crew by Guaymas.

CAPCOM Apollo 7, Houston through Guaymas. SC Roger, ready to copy that data.

CAPCOM Okay, the maneuver pad: SPS4, the minimum impulse, 12043, all ball plus 00129 minus all ball minus all ball 1563 plus 09010007829705 minus 085 minus 055, burn time 000421161321120000000 minus 3103 plus 096341417, roll, pitch, and yaw are all balls. Remarks, heads-up, SES, posigrade, the sextant star not visible after 120 plus 20 plus 00.

SC Roger, Jack, nice read on that. Read back as follows: SPS4 12043, 00129 minus all balls minus all balls, 1563 plus 09010007829705 minus 085 minus 055, 000421161321120, 2 balls, 4 balls minus 3103 plus 096341417, all balls on the attitude, heads-up, SES posigrade, the sextant star not visible after 120 plus 20, over.

CAPCOM That is affirmative. I have the morning

news for you.

SC Go ahead.

CAPCOM Apollo 7, before that, could we get you to go to ACCEPT, so we can send up your target load and state vector.

Roger, we're drinking our morning coffee.

CAPCOM
Roger, the Supreme Court acts of yesterday,
now assures that all 50 States will have 3 candidates to pick
from for the November election. The headlines this morning
says, "Apollo 7 Sails On," and there is a picture of Harriet
Eisele watching the TV pass from the viewing room here at
MCC. At the Olympics, Al Harter became the first athlete in
history to win a fourth gold medal. He has won the discus
event, and entered in the Olympics since 1966 and that's
about it from your friendly newscaster.

SC Thank you Jack, I appreciate that.

CAPCOM Roger.

SC It seems like Mr. Herter is a very good athlete.

CAPCOM He sure is. Apollo 7, Houston.

SC Go ahead Jack.

CAPCOM Roger, Guaymas had a visual siting of you as you passed over.

SC Good, we have a picture, we have a couple of visions of them.

APOLLO 7 COMMENTARY, 10/16/68, GET: 1173305 (CDT 7:37a) 374/2

CAPCOM Roger. Apollo 7, Houston. We have finished our update, the computer is yours.

SC Thank you, Jack.
CAPCOM Apollo 7, Houston, we're showing a

70 degrees yaw.

APOLLO 7 COMMENTARY, 10/16/68. GET: 1174300 (CDT 7:47A) 375/1

CAPCOM Apollo 7, Houston, 30 seconds LOS Bermuda, Canaries at 117 plus 51.

SC Roger.

This is Apollo Control Houston at 117 PAO hours and 50 minutes. I'm not sure it went out over the loop. but we got a report in the course of that pass from our Corpus Christi station that the television converter. a vital instrument that converts the signal received from the spacecraft to a seeable image, is down. It's in a red condition, and right now they're estimating it will take several - 13 30 is the estimate in GET, and we're showing 12 hours 54 minutes. That's about a - something on the order of 40 minutes to get it fixed. They are feverishly working and trying to fix it coming up on this next pass, which is programmed as the television pass, and of course it's from Corpus that we've seen such high quality pictures over the last two days. We'll watch this very closely and try to keep you informed. To recap, the converter at the Texas station is down, it is in a red condition, and technicians there are working feverishly to get it in shape to receive the television pass about an hour and a half from now. Their current estimate is that the set - the converter should be in a GO configuration in about 35 minutes. At 117 hours and 52 minutes into the mission this is Apollo Control.

```
This is Apollo Control Houston 117
     PAO
hours 54 minutes into the flight. And again this morning,
Wally Schirra notes that he is getting a slight pitch rate, a torquing effect, if you will, from the spacecraft without -
hands off the controls, he notes some unusual, very slight,
but unexplainable moments coming into the vehicle, just as
he reported yesterday afternoon. It is worth noting that
the spacecraft is at perigee. It is right over the Canary
Islands, just south of the Canary Islands. Here is how the
conversation is going.
                     Apollo 7, Houston through the Canaries,
     CAPCOM
standing by.
                     Roger, Jack. How come we don't have
     SC
our tape running?
     CAPCOM
                     Stand by.
     SC
                     Jack, while you are there, observe our
pitch rate at this time.
                     Okay, stand by. I don't have that
     CAPCOM
display callup, Wally. Just a minute.
                     This is one of those free pitch rates
again.
     CAPCOM
                     Roger.
                     I'm afraid we are all convinced that
     SC
this machine does not want to fly X-axis vertical, either
down or up.
                     Copy that.
     CAPCOM
                     And that's only because of this gimbal
locks in once in a while without even suspecting it, or
getting out of a rapid change of attitude. I think you can
see our pitch rate will start decreasing, it's in 4/10 of a
degree per second and no pitch in.
                     Okay, I'm watching it now.
     CAPCOM
     SC
                     All my channels are off. Now should
I go to - you want GET on number 1 ball, is that what it
is?
     CAPCOM
                     Affirmative.
     SC
                    Locate 1620, you can watch that.
     CAPCOM
                     Okay.
                     (Garble) pitch rate (garble).
     SC
     CAPCOM
                     Right. I can see that.
                     And I didn't do a thing to it. It's
not transferring to another axis, that's on another point.
                     Okay, copy that.
     CAPCOM
                     I could have blown a lot of fuel -
     SC
     CAPCOM
                     Roger, copy.
                     But it wasn't worthwhile that we ex-
     SC
plore this one on this mission. I'm getting pitch towards
0 per second.
```

Wally, your X-axis now is pointed

CAPCOM

## APOLLO 7 COMMENTARY, 10/16/68, GET: 1175420 (CDT 07:59a) 376/2

CAPCOM heads down toward the earth?

SC Generally towards the earth, that's right. We are - the S-IV - the big engine is ahead of us and our plus axis are trailing. You got the angles down. Now you notice the rates are almost stopped and I haven't done anything to the spacecraft.

CAPCOM Okay.

SC Can you give us a chart update when you get a chance, Jack?

CAPCOM Roger. Walt, I have the chart update.

SC Go ahead.

CAPCOM Okay, for rev 74, the time of the node 117 + 23 + 02 - longitude 143.1 degrees west, right Ascension of 04 + 34.

SC Jack doesn't know this, 0 yaw rate,

0 pitch rate.

\* SC - magazine S. Ground formation over the western end of Africa.

SC You read, Jack?

CAPCOM Roger, Walt. We are about 15 seconds LOS Canaries. Tananarive at 118 + 11.

APOLLO 7 COMMENTARY, 10/16/68, GET: 1181100 (CDT 8:15a) 377/1

PAO This is Apollo Control, 118 hours, 11 minutes into the flight. Earlier we mentioned the converter problem at our Corpus Christi station. Corpus now estimates the converter will be up and running in about 20 minutes. In other words to support the pass. We are about to contact through Tananarive; there goes the first call.

SC This is Apollo 7, and we read you.

CAPCOM Roger. Wally, we have been doing some - looking into this torque business; there have been some calculations made that show that there is a 5 tenths of a foot pound torque possible going through perigee when your broadside - going through perigee broadside to the direction of flight. This produces a possible rate of .03 degrees per second in pitch due to drag. I would like to ask you if this torquing rate that you have experienced exists throughout a complete revolution or is it more pronounced - noticeable at perigee only.

SC We have (garble) at perigee; we were thinking here last night perhaps (garble) engine on the lower right lost perigee, torquing right back - was most of the time.

CAPCOM Okay, copy. We do have some more information on your secondary switch over.

SC Go.

CAPCOM Okay, our best data for your onboard gage readings for secondary tanks switch overs are as follows; are you ready to copy?

sc Go.

CAPCOM Okay. Quad A 46 percent. Quad B switch with tank Quad D, Quad C, 54 percent, Quad D 49 percent; and at present Quad C is the closest to switch over; the predicted switch over time should be approximately 140 hours GET.

SC Roger; and I need a reading for 46, to go to D, 54 and 49 percent; Quad indicating that (garble); over..

CAPCOM That's affirmative 7.

SC Thank you. Hey, Jack, has that correlation between onboard readings and actual quantities been fairly consistent (garble)?

CAPCOM That's affirmative Walt. We think the numbers we have passed you are pretty good numbers right now.

SC Thank you. (garble) will be complete in 8 seconds.

CAPCOM Apollo 7, about 20 seconds LOS Tananarive; Carnarvon at 118.26.

This is Apollo Control Houston 118 hours PAO 27 minutes into the flight. We have acquired via Carnarvon reading data out of the spacecraft through that station The flight plan activities for the next hour right now. or so looks like this: they'll do an inertial measuring unit and realinement - that's a platform realinement - between Carnarvon and Hawaii; they'll run through their minimum impulse thruster program, run it through the computer; they are to take some land photography from the New Mexico area, of the New Mexico area and the Bahamas; and our first television is scheduled at Texas acquisition, which will be 119 hours and 6 minutes, and our charts show that we should lose signal via Mila, east of Mila, at - or Merritt Island, at 119 hours 17 minutes. Immediately out over the eastern edge of Bermuda the biomed harness and switches to give us data on Donn Eisele, the command module pilot. We have no conversation at Carnarvon. Let's monitor the loop for any thing that might develop.

This is Apollo Control Houston again PAO The Corpus Christi site has changed 118 hours 29 minutes. out several parts of their converter system and without any success. I say again the Corpus converter is still They were estimating it would be up and ready about They are going to continue to work on it. this time. still have about 35 minutes, and I'm sure they will work very hard. If for some reason we do not have that real time converter capability, the Texas station of course will record the signal. We'll have the tape flown to Houston and then we will see it later today. We will go ahead with as much television as we can program through the Merritt Island station, and just to recap, we have not ruled out the Texas station yet, but it does not look good. Two units of the converter were changed out in the last 35 minutes, and apparently there is something else At 118 hours 31 minutes into the flight we are standing by with the spacecraft over Carnarvon.

CAPCOM Apollo 7 Houston 1 minute LOS Carnarvon. Would you turn up the S-band for contact with Honeysuckle?

SC Roger.

SC Houston, Apollo 7. Over.

CAPCOM Go ahead.

Roger. I've got 4 balls 5 for triangle difference Rigel - I've got 5 balls, excuse me, on Rigel and Sirius and you're reading with 4 T angles now.

CAPCP Affirm. We followed you all the way

through 52 there, Donn.

This is not the regular navigator.
CAPCOM Okay.

APOLLO 7 COMMENTARY, 10/16/68, GET: 1182725 (CDT 8:37 A) 378/2

SC This is the alternate navigator.
CAPCOM Roger, copy.

CAPCOM This is Apollo Control Houston 118 hours PAO 39 minutes into the flight. And according from the last reading from our Texas station at Corpus Christi they will not be able to support the TV pass. They are still working feverishly to get their converter fixed, but it's been without any major success at this point. Thus they have to suggest that they will not be able to support the pass. However, they will be watching and recording the inbound signal at Corpus, they will be describing it to us on a separate loop; and by voice at least we will try to relay what - at least something of the quality of the picture and the state of the action as is seen from Corpus, and we should be able to see a picture at Merritt Island acquisition at which time is not yet posted, but we'll have it for you very shortly. The spacecraft has lost signal now via the Honeysuckle station in eastern Australia, and we'll come back to you at the ship Huntsville in about 15 minutes.

APOLLO 7 COMMENTARY, 10/16/68, GET: 1185320 (CDT 8:58a) 379/1

PAO This is Apollo Control Houston, 118 hours, 53 minutes into the flight and we just received word from Corpus Christi that the balky converter down there this morning is green and go, it has been fixed. There are saying now they will be able to support a TV pass over Corpus on this up coming Rev across the States. We have not yet acquired through the Huntsville, we will come back to you when we do, in about 5 minutes. This is Apollo Control Houston.

And we are standing by here in the Con-PAO trol Center, set to acquire any moment now. 119 hours and the crew is now asking if we are receiving their program and we are not. The screen is black. The screen is still black. There are some light patterns moving back and forth across it. Elapsed time 119 hours 05 minutes and we should be getting a solid signal from Corpus just any second. reported earlier, we have had trouble with that converter this morning and we have got our fingers crossed. reported about 20 minutes ago, they were up and ready. Now we are seeing some white lines across the screen which is the kind of thing which preceded the transmissions in the past 2 days. Donn Eisele just asked "are you picking up anything," and now Texas has acquisition, spacecraft acquisition. Still no picture, some snow. Donn Eisele reported that the crew commander has a sign which is getting heavy. Obviously in jest. Now we are beginning to see glimpses of a picture, but it's a large, washy kind of a thing with no definition of the forms.

of the forms. Now, we're checking antenna patterns, still no readable picture. We're now alerted, the crew is holding a sign of some sort. Guaymas has done a handover to the Texas site for data purposes, which is coming in fine. The EECOM says we should switch antennas, that might help. Picture very washy and unreadable. Just white smear through center of dark screen. We're not just sure of whether it is the converter or not, but we have had as yet no readable picture, no readable picture in the Control Center, 119 hours, 8 minutes. Among the more anxious viewers is Flo Cunningham, the wife of Walt Cunningham, and Walt's brother Bill, who is visiting here from Alaska. Now, we're getting a picture. Let's all have a look.

SC Jack, do you see the picture now?

CAPCOM We're receiving the picture, it's a little bright. Could you bring it in a little? Roger, the lovely Apollo Room, high atop everything.

SC Roger, this is your Captain speaking on this flight, and you can unfasten your seat belts and relax and we hope we can make this flight enjoyable for you. At this time, we would like to demonstrate one of our minor problems here, in fact, I should tell you what time it is. Just one moment and we'll get a computer on the line here. Okay, we'll reset that.

CAPCOM He's getting GET to you.

SC And now we have that time, Captain. was 119 hours, 9 minutes and some odd seconds into the flight. One of our problems at this time is making note of the small arrow here, we're not sure what it means, in that up is not necessarily up or down, but we will discuss that at a later time. What you just observed was a fumbling attempt to get the keyboard working on our DISKY, hich is our display keyboard, and the numbers you are reading is the time (garble) from the onboard computer. And now you see Walt Cunningham preparing some of our food at our food I'll bring you in closer to show you what our station. food stations have. We have two buttons, the upper button is COLD, the lower is HOT; and there is a spout, that Walt is now uncovering. When we depress the button, with the appropriate container over the silver spout, we deliver 1 ounce of water, be it hot or cold. At this time, Walt will get some of the food. One of the nicer features of the food preparation on this (garble) is a nice feature about the food, is that we have hot water and this makes the food much more enjoyable and quite palatable. We use surgical shears to cut open the upper portion of the plastic bag and we pry open the spout, which was interfaced in the top. At this point, Walt is applying it to the tap.

SC We will use cold water to reconstitute some fruit juice. You see him depress the button, and each depression supplies 1 ounce of cold water. This water is quite delightful. It's cold, about 50 to 45 degrees Fahrenheit. At first, we were adding chlorine to the water daily to be sure there were no contaminants or bacteria that was developing in the water. This left a rather bad after taste. We are now adding chlorine approximately every other day.

PAO That's Wally Schirra doing this running

commentary.

You will notice the bubbles that are in SC There's a little bit of gas in the water, this the bag. does not cause too much problem. If you get a lot of gas, it does, and we have to clean the gas out of the tank again. Fortunately, this has not happened too often. Then, the next step is to knead the bag, this mixes the powder concentrate with the water and then we end up with a complete drink. We may have a zero g demonstration available for you here, where we can spin the bag and you will notice the bubbles are sort of breaking and falling apart. They do not form a solid mass of bubble, but you can see in the center a rather interesting formation of bubbles. I'd like to pass the camera now to Donn Eisele. I'd like to try to show you the problem we have with the water condensation underneath, on the water panel. Here goes the camera to Donn. While Wally is getting under the couch to demonstrate the suction that we use to clean up the water that has been accumulating on the cold pipes, I'll describe the system that we do have. We have an overboard dump hose, which dumps the liquid we have in the Spacecraft overboard through a heated vent, that hose has been passed to Donn, and he has a purge fitting attached to the end of it. I'm now going to go to the dump position on the waste management system, and Wally will be back cleaning up some water while Donn and I throw light on it.

CAPCOM Apollo 7, Houston. Could you give us the position of the switch on the TV camera?

SC ALC is out.

CAPCOM We would like to switch that position to ON, to the ALC position.

CAPCOM It's a good picture, we're trying to improve it a little.

SC Roger. We return to show you a picture of a plumbing fitting that has a lot of water on it, clinging to it. Do you see the water on the fitting? Can you see the water on the fitting, Jack?

CAPCOM We're looking - don't quite see it. SC Okay.

APOLLO 7 COMMENTARY, 10/16/68, GET: 1190700 (CDT 9:11a) 381/3

SC Could you see the fitting?
CAPCOM Affirmative. Could you go back to the
OFF position?

SC It's always worked better in the OFF position. Maybe you will see it when he starts sucking it up. Okay, now he's going to suck up with the water with the vacuum line we have. It's a very, very small vacuum, but so far it seems to have worked pretty well at taking water overboard. It's a pretty good size blob of water that's - yes - takes quite awhile. Are you observing that, Jack?

CAPCOM Affirmative, we got you 5 by. We've got about another minute and a half of picture here.

SC Okay. Okay, this is part of our regular preparation for a burn now, is to clean off what water we can see because after an SPS burn it seems to end up on the aft bulkhead. This water is formed by condensing on the cold glycol lines. John we'll finish out the run by showing you the MDC in rfont of the Commander's station. Go ahead and talk Donn.

SC All right. this is the Commander's station, the left seat driver controls the attitude of the spacecraft and also the operation of the main control system. This instrument in the middle is the heart of the whole thing really, it is called our Flight Director Attitude Indicator which is comparable to the artificial horizon in an airplane, it is just that it operates all 3 axes instead of just two. These various switches control the configuration of the manual attitude control system. We can hold an attitude or we can free drift, we can have 2 or 3 modes to use the hand controller. This is the hand controller that you use to slide the spacecraft around various attitudes manually. These switches here control the electronics and whether or not the signals get from the hand controller out to the little jets to fire them.

PAO There, we are LOS the spacecraft almost over Bermuda. We have lost the picture, but we saw a most interesting demonstration of space-age plumbing. Here's some more commentary.

APOLLO 7 COMMENTARY, 10/16/68, GET: 1191800 (CDT: 9:22a) 382/1

pAO And the TV lines have been turned down which will end our television activities for another day and we are going to have a full discussion of the light setting and some other conditions relative to the television pass. There may be additional commentary; we'll just leave the line open.

pao Well, all in all, we would have to say the television reception today was not up to the past 2 days and as yet, we can't put our finger on any one thing; whether it was a ground station problem or if so, where. We did see some major changes in the picture quality with the automatic light control system that was referred to as ALC was brought up and frankly I had the impression that the picture quality was better with the automatic light control button operating although we spent most of the pass with it turned off. We are only a minute from LOS through the ship Vanguard. Now we do have some commentary; let's go back.

SC Thank you Jack. Jack, could you get a

view of that water blob down there?

CAPCOM We couldn't pick up the water itself very closely but we saw approximately what you were vacuuming. SC That's one of the areas; a number of them where they collect. There is one right inside where the steam conducter is; I'm in there now; there's a real big blob of water.

CAPCOM Roger; copy. We'll see you at Tananarive.

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APOLLO 7 COMMENTARY, 10/16/68, GET: 1200015 (CDT 10:04a) 383/1
                    This is Apollo Control Houston 120
     PAO
hours into the flight of Apollo 7. Through Tananarive we
had this conversation.
                    Apollo 7, Houston through Tananarive.
     CAPCOM
                    Roger Houston.
     SC
                    We are standing by.
     CAPCOM
                    This is Apollo 7.
     CAPCOM
                    Go ahead, 7.
                           (garble)
     SC
                    Roger.
                    Walt, the com is real bad here at
     CAPCOM
Tananarive. I could hardly make you out. Could you say
again?
                    Okay. It's a question on putting the
     SC
water boiler back on the line.
                    Stand by.
     CAPCOM
                    Apollo 7, Houston. Bring back the
     CAPCOM
water boiler back on the line. We will take a look at it
over Carnarvon at 120 + 00.
                    Roger.
     SC
                    That concluded Tananarive. We are
     PAO
about to acquire through Carnarvon. Let's listen.
                    ARIA 2, go remote.
     COMM
                    This is Apollo Control Houston. For
     PAO
those of you in the news center, building 1, the auditorium
area, we are feeding the tape from the Corpus - the Merritt
Island pass yesterday to the news center. You can see it
on your monitors over there right now. It's a far sharper picture
than the one you saw in the live, real time situation.
                    Houston, Apollo 7.
     SC
     CAPCOM
                    Go ahead, 7.
                    Roger. I've got the shaft at 115.33
     SC
and the trunnion at 31.707 for the sextant star check.
                    Roger, we copied that. And Walt, we
     CAPCOM
would like your 02 fans, tank 2, on for 3 minutes.
                    Apollo 7, Houston. Your sextant star
     CAPCOM
check is go and we would like to remind you to have the bat-
teries off as soon as possible after the burn.
                    Okay.
     SC
                    Jack, we did a - skipped that prior
     SC
request at SEF attitude reference check at 119 hours and
30 minutes. I did that the other day and gave you 1 hours
15 minutes comparison. That should be better than the
check we've had a call for.
                    Okay, we copy that.
     CAPCOM
                    It's not that I didn't want to do it,
     SC
but we did it - so free that we had a good chance to do it.
```

Okay.

That should be it.

CAPCOM

SC

APOLLO 7 COMMENTARY, 10/16/68, GET: 1200015 (CDT 10:04a) 383/2

CAPCOM Apollo 7, 1 minutes LOS Carnarvon, Hawaii at 120 + 25.

SC Roger. The water boiler looks like it's ticking along okay, Jack. I think we can leave it on.

CAPCOM We concur. Looks good here.

APOLLO 7 COMMENTARY, 10/16/68, GET: 1202720 (CDT 10:33A) 384/1

PAO Apollo Control Houston here 120 hours 27 minutes into the flight and we have acquired through Hawaii and here is what it sounds like.

CAPCOM Apollo 7 Houston through Hawaii.

SC Roger.

CAPCOM Wally, we saw - as you went over the hill we saw you looking at Noun 54. Your Rl and R2 will be zero in that Noun, because the F-4B and CSM speed vectors that we uplinked a while back are the same. The CSM state vector is a good state vector.

SC Roger.

CAPCOM And we would like to have you turn 02 fans tank 01 off for the burn here.

SC Tank 01 off and tank 02 off. Is that

correct?

CAPCOM That is affirmative.

SC Okay. I'll turn tank 01 off now.

CAPCOM Apollo 7, all your systems and everything looks real good here on the ground.

SC Roger we go.

SC Jack, on this we have flight plan seat

assignment.

PAO You heard Schirra advise a moment ago that the seating was per the flight plan, that would be Donn Eisele in the left couch, Walt Cunningham in the center, and the commander, Wally Schirra in the right couch. They are prepped and ready for the minimum impulse burn to be performed at 120 hours 43 minutes, about 13 minutes from now, which burn should take place over the states. Standing by.

SC Houston, Apollo 7, over.

CAPCOM Go ahead 7.

SC Roger. I forgot to give you a reading.

I had 246 mm of 02 partial pressure this morning.

CAPCOM Okay, copy that.

PAO This is Apollo Control 120 hours 30 minutes. It obviously is going to be pretty quiet until we get over the states. We will come back up to you then.

```
APOLLO 7 COMMENTARY, 10/16/68, GET: 1203930 (CDT: 10:44a) 385/1
                    This is Apollo Control, 120 hours, 39
     PAO
minutes into the flight. In about 3 minutes we expect the
minimum impulse burn; it will be a burn with a duration of
.4 seconds. Four tenths of a second. It is to impart a
differential velocity of about 13 feet per second. The flight
plan shows it at 12.9. The burn will be done in plane and
the result in orbit should be 90 by 156 nautical miles.
Presently in about 89 by 156. Schirra is advising the atti-
tudes are all set up; let's tune in on some of that conversa-
tion.
                    Apollo 7, Houston. I'll give you a time
     CAPCOM
                    5, 4, 3, 2, 1, mark. T minus 2 minutes.
hack at 2 minutes.
                  (garble) 5 by 5 (garble) S band normal.
Thrust 00 (garble)
                    That's Wally Schirra calling off the items
     PAO
on the check list and Don Eisele responding to the check list.
Schirra is over in the right seat, Cunningham in the center,
Eisele on the left, and Eisele will manage the burn. Space-
craft is over Arizona.
                    (garble) on; and 22nd (garble)/ Roger
     SC
I read you (garble)
                    Our charts down here show that the ullage
maneuver at 20 seconds worth is being performed using Quads
B and D 4, 3, 2, 1 - and we have here a shout which would
indicate we had a burn.
                    (garble) off. Okay, we've got 10 seconds
                   Roger. (garble) essentials minus 2.24,
with the (garble)
4 balls on it (garble).
                    All in all it sounds like a good burn.
     PAO
                    The (garble) is open. Roger; motor
     SC
circuit open and coming through the powers - fuel pump (garble)
coming off. Regress now into the side near (garble)
                    Roger; copy.
     CAPCOM
                    Did you copy my (garble) the 1F?
     SC
                    Affirmative.
     CAPCOM
                     D mode still open still (garble) To
     SC
          Both controls are locked; (garble) off, minus 7.7.
control.
                     Roger; copy that.
     CAPCOM
                     We are doing 15.3 I guess.
     SC
                     Roger.
     CAPCOM
                     Saw all 4 control valve.
     SC
                     Roger; say again Wally.
     CAPCOM
                     All 4 valves rolled but that is a surprise
in that short burn.
                     Okay.
     CAPCOM
                     As you can hear, it is all quiet in the
loop after that successful burn. The spacecraft is right
```

Houston, I just checked all file batteries

over New Orleans coming up on the Cape.

and both are 30 second modes.

APOLLO 7 COMMENTARY, 10/16/68, GET: 1203930 (CDT: 10:44a) 385/2

CAPCOM Roger; thank you.

SC Jack, did you ever drive those little Houston Park cars; those bumper things?

CAPCOM Say again.

SC Those little scooter things when you try to pass you bump off the ground rails and crash into each other? That's the closest thing we can think of for that particular burn; like surging head on into somebody like an amusement park scooter.

CAPCOM Okay, roger. Copy that. We got a commanded

on time down here of .51 seconds.

SC Roger.

CAPCOM Wally, how long has it been since you have been to an amusement park and done that?

SC I'm not going to tell.

CAPCOM Roger.

SC It's really been about a couple of days

ago.

PAO Perhaps it was a little hard to understand that transmission; Schirra has likened that little blip burn we just did to the impact that one gets at an amusement park in operating the little dodging cars - the kind that operate from an electrical source and bump into each other. A pretty good - brisk bump as I recall. He was asked when the last time he had operated one of those cars and he - his memory failed him. We'll keep the line open.

SC Jack, (garble) pumps only 1 day watch and

then turn it back off.

CAPCOM Wally, we couldn't copy that; could you

say again?

SC We are doing a (garble) couch seats are

(garble)

CAPCOM We still couldn't get it Wally.

SC We are going to put the crew back into

their original seat assignments.

CAPCOM Roger; copy.

APOLLO 7 COMMENTARY, 10/16/68, GET: 1203122 (CDT: 10:35a) 386/1

SC (garble) testing is OFF.

CAPCOM Roger.

SC Rate fuel also. To go on pitch, roll

and yaw. Pitch (garble) start. (garble)

CAPCOM Huntsville LOS.

APOLLO 7 COMMENTARY, 10/16/68, GET: 1204930 (CDT 1054A) 387/1

PAO The flight dynamics officer has computed the orbit resulting from that little blip burn a few minutes ago and he presently reads it at 90.3 by 157.5 nautical miles. 90.3 by 157.5.

CAPCOM Apollo 7, Houston, you are 1 minute LOS Bermuda, we'll pick you up at Ascension at 121 plus 03.

SC Jack, (garbled) landmark track update

data.

CAPCOM Roger, We'll - we have landmark track pad,
I'll pass it up to you at Ascension. Your orbit now 90.3
by 157.5.

SC Roger.

SC Hello Air Boss, Hello Air Boss. This is Apollo 7. Do you read?

AIR BOSS Roger, read you loud and clear LD.

Overhead and doing well.

PAO Air Boss, Air Boss, Apollo 7. Over.
This is Apollo Control. Donn Eisele apparently spotted the carrier Essex, which is cruising off the southeast coast of Florida. He just put in a call and raised the carrier using the call sign AIR BOSS, and we're getting one half of the -

SC Hello Air Boss, hello Air Boss. Apollo 7,

do you read?

PAO Well, with the spacecraft out in the far edge of the Antigua area I'm sure that's the last we'll hear of it until it reaches Ascension and we won't know just how well they received the AIR BOSS - the call sign AIR BOSS, which is the carrier Essex operating about a thousand miles southeast of the coast of Florida. At 120 hours 56 minutes into the flight this is Apollo Control

This is Apollo Control Houston 121 PAO hours 05 minutes into the flight. Through Ascension, we have been talking to the crew and Wally Schirra cleared up the mystery of that broadcast to the - to AIRBOSS, which is the code name for the primary search and recovery airplane operating off the carrier Essex, that the crew hopes to see in a business way on about next Tuesday morning. Apparently, the recovery people were having a practice run this morning and were using all the call signs. Unbeknownst to them, Apollo 7 was overhead, heard it's name called, and answered the call, so they had a brief chat. Here is the tape from Ascension.

Apollo 7, Houston through Ascension. CAPCOM

Roger Jack.

Roger, 7. Walt, we would like to have SC CAPCOM you switch your 02, tank 1, fans to AUTO.

Roger, done. The bottle temperature was all the way down to 34 degrees and steam pressure was about .07 or .08.

Roger, we copy that. We would like to find out what cyclic water accumulator you are operating on CAPCOM now.

AUTO off and manually cycling the SC water accumulated three or four times.

Okay, copy that. Did you switch AUTO CAPCOM

accumulators lately, Walt?

Unless the last time anybody used the manual water accumulators, maybe they turned OFF and flipped back to a different one. But I switch it regularly every day and have done a component check.

Okay, real fine. We copied some calls down to AIRBOSS. I think some of the conversation was that of the recovery forces. They were conducting an exercise in the Atlantic.

Roger, understand that. We actually jumped to interrupt their conversation being switched from Apollo 1 to Apollo 7.

(Laughter) Roger. I am ready with CAPCOM this landmark tracking pad whenever you are ready to copy. Okay, Surgeon, what do you want? Surgeon? Wait, EECOMM what did you make of that?

Jack, this is Donn. Go ahead with SC

your landmark update.

Okay. Landmark ID 10 south. Next landmark 67 on track. Third one, 141 south. GET, first CAPCOM landmark, 122 + 14, 122 + 24, 122 + 35.

Roger, understand. First landmark is 10 south, number 2 is 67 on track, number 3 is 141 south. The times are 122 + 14, 122 + 24, 122 + 35.

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APOLLO 7 COMMENTARY, 10/16/68, GET: 1210500 (CDT 11:10a) 388/2
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That is correct.
     CAPCOM
                    Roger, we got you.
     SC
                    Apollo 7, would you switch your BIO-
     CAPCOM
MED to CMP.
                    Will do. We changed around so much
     SC
we lost that one.
     CAPCOM
                    Copy.
                    We mean he has a signature now, hey?
     SC
                    Affirmative.
     CAPCOM
                    Hev Jack.
     SC
                    Go ahead.
     CAPCOM
                    You ought to send our pulse rate
     SC
reports up here these days.
                    Stand by.
     CAPCOM
     SC
                    Okay.
                    Apollo 7, Houston. The pulse rates
     CAPCOM
for CDR run 60 to 70, the CMP 75 to 90, with 118 during
the burn, and LMP has been running around 80.
     SC
                    Report looks good, very good.
                    Okay, we are just about to lose you
     CAPCOM
over Ascension, Tananarive at 121 + 19.
                    Roger, Jack, ask the medics to save
that strip of chart for Donn at the burn start.
a nice souvenir for him.
                    Will do, Wally.
     CAPCOM
     SC
                    I still have the ones (garble).
                    This is Apollo Control Houston. Wally
     PAO
Schirra demonstrated an extraordinary interest in medical
matters this morning. He asked for the pulse rates of all
three crewmen and he suggested that, inasmuch as we had
caught Donn Eisele on the chart plugged in, got a pulse
rate of 118 at the start of that burn, which he was operat-
ing, that the doctors should save the chart indicating the
pulse rate and give it to him as a souvenir after the
        It will be done. At 121 hours 11 minutes into
the flight, this is Apollo Control.
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This is Apollo Control at 121 hours
     PAO
34 minutes into the flight. During this recent swing
across the Indian Ocean we had some remarkably clear
communication with the spacecraft on the S-band channel
via an ARIA aircraft. Remarkably clear - it was clear
here on the ground, it was clear in the spacecraft. First
let's take the tape from Tananarive, then we'll follow
through the aircraft pass. Here it goes.
                    Apollo 7, Houston through Tananarive.
     CAPCOM
     SC
                    Roger. (garbled)
     CAPCOM
                    And 7 you might be interested in that
tropical storm Gladys is now officially a hurricane. It's
present position is approximately over Havana. You'll
be able to see it your next rev. You'll pass almost over
it.
     SC
                    Roger.
     SC
                    Houston, Apollo 7.
                    Go ahead Apollo 7.
     CAPCOM
                    Roger. We're scheduled for a P-52
     SC
(garbled) I wonder how critical that is. We're not in the
proper attitude for it and (garbled)
                    Apollo 7, could you say again?
     CAPCOM
through Tananarive is pretty poor.
                    Roger. Regarding the P-52 alignment at
this time, I would prefer not to do that. Over.
                    Okay, copy, standby. Apollo 7, we
     CAPCOM
concur, negative P-52.
     SC
                    Roger, thank you.
                    Apollo 7, we've got about 1 minute LOS
     CAPCOM
Tananarive. We would like to try an S-band contact through
ARIA 2 at approximate 121 plus 30.
                    Okay, we'll do that.
     SC
     PAO
                    Then at Carnarvon, we had this conversation.
                    Apollo 7, Houston through ARIA 2.
     CAPCOM
Apollo 7, Houston through ARIA 2.
                    Go ahead, Houston.
     SC
                    Roger, 5 by through ARIA 2.
     CAPCOM
                    Very good, best ARIA we've had yet.
     SC
                    We thought this is about the best comm
     CAPCOM
we've had through ARIA, Wally.
                    (garble)
     SC
                    I think maybe we ought to use S-band
     CAPCOM
through all of our ARIA aircraft when we try ARIA.
                    I reckon it's better than the word we've
had with Tananarive.
     CAPCOM
                    I agree.
                    How long can we work this burn, Jack?
     SC
                    We'll pick up Carnarvon here at 121 plus
     CAPCOM
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33.

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APOLLO 7 COMMENTARY, 10/16/68, GET: 1213400 (CDT 11:39a) 389/2
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Roger, do we overlap with ARIA? SC Affirmative, they will cut us off CAPCOM ARIA, at that time and I have a P-27 voice pad to give to you at Carnarvon. Roger, we'll standby. Just the same, SC Jack. I'm doing this here at (garble). It's about pitched to about 26 degrees. We're not getting the torquing effect we had before. Okay, Good enough. CAPCOM Roger, we are getting some more water out SC of the suits and hoses and it maybe (garble) to the burn to clean the water up, but obviously we're getting it. Okay, copy. CAPCOM Apollo 7 Houston through Carnaryon. CAPCOM Roger, loud and clear (garbled) SC It's on the subject of water, Wally. CAPCOM Through the TV pass over the states we didn't copy two we showed that you were missing two cycles on the water accumulators there. You might have picked up some excess water due to that. I don't think so. It's a bigger deal than that. We've been cycling off and on extra, it's been cycled initial - whether or not you know, every 10 minutes, we can't watch it every 10 minutes. We've been cycling extra tests, and we've done as much as two to three per hour extra. Okay, copy that. CAPCOM It might be worthwhile to have somebody SC watch it. We are in AUTO at this time. Roger, I understand, and ready on that CSM NAV vector whenever you're ready to copy. Stand by. Go. Coming up. SC CSM NAV 71 122 plus 00 plus 00 Okay. CAPCOM 21 01605 00001 74611 57774 13503 367773 04434 02252 52655 65527 66107 55530 11372 22031 minus 5170 25200. check 121300000 minus 3049 plus 07891 1515. Roger, read back follows: CSM Verb 71 122 plus 00 plus 00 2101605 00001 74611 57774 13503 36773 04434 02252 52655 65527 66107 55530 11372 22301 05170 25200 Over. Roger Copy. CAPCOM NAV check read back: 12130 4 balls minus SC 3049 plus 07891 1515. Over. Apollo 7 Houston 1 minute LOS Carnaryon, CAPCOm Guam at 121 plus 47. Roger. We've got some stars in sight. SC We may do a 52 after all. Roger. CAPCOM And that wraps up the Carnarvon pass, and the spacecraft is proceeding due north of Australia

in a northeasterly direction, and we should pick up in

APOLLO 7 COMMENTARY, 10/16/68, GET: 1213400 (CDT 11:39A) 389/3

PAO Hawaii at 59 - 129 hours 59 minutes, 17 minutes from now. This is Apollo Control Houston.

This is Apollo Control at 121 hours, PAO Through Guam a minute or so ago we had this 53 minutes. communication.

(cut off) to Houston, loud and clear. SC

CAPCOM

Standing by.
Thank you. Jack, would you log CMP SC

for 10 clicks on the water gun?
CAPCOM CMP 10 clicks. CAPCOM

Rog. SC

Apollo 7, Houston. CAPCOM

Go ahead. SC

It appears that your SM OX TB switch is CAPCOM on, is that affirmative?

Negative it is off. (garble) are on. SC

Roger, I understand. CAPCOM

Jack, this is LMP give me 10 clicks on the water gun, and when you get a chance can you give us a map update please?

Roger, I'm working. CAPCOM

We're just about to lose you over Guam, CAPCOM

Hawaii at 12159 that update then. Very good.

```
APOLLO 7 COMMENTARY, 10/16/68, GET: 1220000 ((CDT 12:04p) 391/1
     PAO
                    This is Apollo Control at 122 hours
even into the flight of Apollo 7. Hawaii is about to ac-
quire. Let's listen.
                    Roger, loud and clear.
     CAPCOM
                    Okay. I have your map update.
     SC
                    Go.
     CAPCOM
                    For rev 77, the node 121 + 49 + 18.
Longitude at 148.8 degrees east. Right ascension of 04 +
28.
                    Roger. Jack, we haven't been using
any of the right ascensions, so you can drop those unless
we ask for them, if you will.
     CAPCOM
                    Okay.
                    Jack, this is CMP.
     SC
     CAPCOM
                    Go ahead.
                    Roger. How many of these landmarks
do you have real time coverage for?
                    Stand by.
     CAPCOM
     CAPCOM
                    Apollo 7, Houston. We are covering
the first two landmarks real time.
                    Okay.
     SC
                    Houston, Apollo 7.
                    Go ahead, 7.
     CAPCOM
     SC
                    Roger. We've been up here trying to
deliberate whether to look at the hurricane or the second
landmark. I suspect the second landmark is socked in by
the hurricane, is it not?
     CAPCOM
                    Negative.
     SC
                    Okay.
                    Apollo 7, Houston.
     CAPCOM
     SC
                    Go ahead.
     CAPCOM
                    Roger. I have this mid-course navi-
gation pad to pass up whenever you are ready to copy.
     SC
                    We will do it later. Pretty well
tied up this right now.
     CAPCOM
                    Okay, no problem. I'm just standing
by.
     SC
                    Go ahead, Jack. I'll copy it.
                    Okay. GET start 123 + 52, 124 + 04.
     CAPCOM
Star 37, star 45, roll 000001, pitch 356306, yaw 001001,
shaft 019355, trunnion 018014, end.
     SC
                    Apollo 7, do you read?
     CAPCOM
                    Apollo 7, we read you now. Did you
copy the mid-course navigation pad?
                    124 + 04, stars 37 and 45, 000001,
356/306, 001/001, 019/355, 018/014, over.
                    Roger. I didn't get your readback
     CAPCOM
```

That should be 123 + 52.

of the first time.

## APOLLO 7 COMMENTARY, 10/16/68, GET: 1220000 (CDT 12:04p) 391/2

Apollo 7, Houston. Did you copy that? CAPCOM I didn't copy anything after I gave SC you the readback. Okay. Walt, I didn't get the readback The first GET was 123 + 52. CAPCOM on the first time. Concur. SC Okay, real fine. CAPCOM Jack, mark the LMP 10 clicks of water. SC Copy that. CAPCOM Hey Jack, this is Donn. SC **CAPCOM** Go ahead. That first landmark you gave me must SC be within the field of UA optics at zero roll angle. Roger, copy that. CAPCOM

```
APOLLO 7 COMMENTARY, 10/16/68 GET: 1221500 (CDT: 12:19p) 392/1
                    Apollo 7, Houston. Apollo 7, Houston.
     CAPCOM
Apollo 7, Houston.
     SC
                    Go Jack.
                    Okay, Don, on this second land mark, we
     CAPCOM
can give you a shaft to help you out here; shaft will be 008
and your trunion will be 031; this will occur when your
pitch down 10 degrees and in orb rate.
                    Roger; understand, thank you. Jack, I'm
going to try to (garble); it turns out that my field of view
in the telescope is only 38 degrees anyway, so I might as
well go ahead and use the rockets.
     CAPCOM
                    Okay, real fine.
                    I think that last time I wasn't aware
     SC
that I needed to roll the spacecraft; I was with it to the
south but it was found out that it was out of view.
                    Okay, copy that.
     CAPCOM
                    Got some nice weather down there now Jack.
     SC
     CAPCOM
                    Weather was pretty good when I came in
Wally.
     SC
                    Looks good from here. There's just a solid
overcast for a hurricane.
     CAPCOM
                    Roger.
                    There's a little bit of vortex way out
      I'll take one shot as we're going into it.
                    Just moving north toward Florida.
     CAPCOM
                    Frame 89, frame 88 was approaching Houston,
     SC
frame 89 is approaching the hurricane just now.
     CAPCOM
                    Roger, copy.
                    Magazine TO". Houston, Apollo 7.
     SC
     CAPCOM
                    Go ahead.
                    Roger; could you give us the shaft and
     SC
trunion for the third land mark as well.
                              Shaft 040, trunion 031.
     CAPCOM
                    Will do.
                    Roger. There's some high cirrus way
     SC
high in the forms of vortex sweeping from our left to our
right and then coming back around to the north, which of
course is the characteristic pattern and some solid stuff
you can almost see the eye in the center of it. I'm trying
to get a picture of that now,
     CAPCOM
                    Roger.
     SC
                    It's definitely a circular pattern here.
Going over the eye in about another, oh I'd say, in another
4 or 5 seconds.
     CAPCOM
                    Copy.
                    I'll try to give you a pretty good eye
     SC
           Stand by; mark; that's the eye. That's a real
location.
```

Roger Wally.

tight report on you -

CAPCOM

## APOLLO 7 COMMENTARY, 10/16/68, GET: 1221500 (CDT: 12:19p) 392/2

SC Good weather from here.

CAPCOM Apollo 7, Houston.

SC Go ahead Jack.

CAPCOM Roger; at the time you read out the mark, we got the latitude and longitude and we have passed it on to the Hurricane Center.

SC Roger (garble) first on mark of hurricanes.

CAPCOM Roger.

SC Fair weather. Jack, tell the Center to

center it away from that boat base.

CAPCOM Roger; will do Wally.

SC Tell them to get out of the way next

Tuesday.

CAPCOM We'll do that too.

SC Roger.

APOLLO 7 COMMENTARY, 10/16/68, GET: 1222500 (CDT 12:29p) 393/1

PAO This is Apollo Control Houston, 122 hours, 29 minutes. In the course of that pass, you heard Wally Schirra marking the hurricane Gladys with great accuracy. He went right over the eye of the hurricane and seemed to take a little understandable pride in this Manned Weather Satellite function, which the crew assumed riding right over the top of a hurricane. We'll be back with an Ascension acquisition in about 3 minutes.

APOLLO 7 COMMENTARY, 10/16/68, GET: 1223800 (CDT 12:43p) 394/1

PAO Apollo Control Houston. We should have Apollo 7 by Ascension any moment. Let's listen.

CAPCOM Apollo 7, Houston through Ascension.

SC (garble)

CAPCOM Roger, it appears that the evaporator

is dried out again.

SC Houston, Apollo 7. CAPCOM Alright, go ahead.

SC Are we going to have a tape when we lose

you here?

CAPCOM That's affirmative, Wally. How did the

last two landmark tracking points come out?

SC Terrible.
CAPCOM Roger, copy.

SC On the second one, I relied on all optics to bring it in when it got within 38 degrees, and the thing never moved off center, so at that point I attempted to go for it manually and by the time I got over to it - I recognized it, and it was going so fast that high speed resolve wouldn't catch it, it got away from me. I finally picked it up just as it went outside the field of view, but it was too late to get any marks. On the third one, I loaded in the date of the landmarks up here, and when I went down on optics, it indicated that the target was completely outside the field of view to the north. After awhile, I saw the thing a little bit to the south, I think, with, relative (garble).

CAPCOM Roger, copy.

SC Now, the next time we do, I'm going to stick to the (garble) mode, as we originally planned and see if that works out better.

CAPCOM Okay.

CAPCOM Apollo 7, Houston. One minute LOS

Ascension. Tananarive at 122 plus 54.

APOLLO 7 COMMENTARY, 10/16/68, GET: 1225407 (CDT 12:57P) 395/1

Apollo 7 Houston through Tananarive. CAPCOM

Roger loud and clear. SC

Roger. CAPCOM

Apollo 7 Houston 1 minute LOS Tananarive, CAPCOM

Carnarvon at 123 plus 09. Roger. SC

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APOLLO 7 COMMENTARY, 10/16/68, GET: 1231500 (CDT 1:20P) 396/1
                     This is Apollo Control Houston 123 hours
     PAO
15 minutes into the flight. A few minutes ago over Carnarvon
we heard some interesting observations on meal planning,
and on the taste of the meals, the caloric comments, and some
very pungent comments from Walt Cunningham. Let's listen.
                     Apollo 7 Houston through Carnarvon.
     CAPCOM
                     Roger, loud and clear.
     SC
                     You are loud and clear.
     CAPCOM
                      (garbled) pitch down. Jack, do you
     SC
put the PDC in Ball number 01?
                     Stand by.
     CAPCOM
                      (garbled) perigee by any means.
     SC
about 40 minutes away from perigee.
                      Affirmative. Apollo 7 Houston, affirmative.
     CAPCOM
We'd like PDC on ball 01.
                      Roger, you've got it.
     SC
     CAPCOM
                      Roger.
                      Do you have all bands or TDC?
     SC
     CAPCOM
                      TDC.
                      TDC.
     SC
                      Jack, this is Walt, I've got a comment
     SC
on this food you might pass on to Frank or those guys. This
high calorie stuff that's got everything all hiked up with
calories is just really doing something to us. In order to
get a lot of calories in a small way everything has been hiked up and it's all got a sweet taste. You think something tastes real good, but by the time you get to the end of the
bag you can't really look it in the eye very well.
                      Roger, I understand that.
     CAPCOM
                      (Garbled) and as a result the food was
raised in caloric count and it's all sweet (garbled)
      CAPCOM
                      Roger.
                      You also might pass on that crew,
Jack, in case they haven't selected their menu yet, I had
a tendency to pick out a menu with individual items listed
that I liked a lot out of the samples. If I had it to do
over again I would try to make sure I had a wider variety
of acceptable foods.
                      Okay, copy that, Walt. We are about
      CAPCOM
30 seconds LOS Carnaryon, Guam at 12 plus 19.
                      Do you want to leave this on GDC ball 01?
                      Affirmative, we'll pick it up at Guam.
      CAPCOM
      SC
                      Okay.
                      Wally, is it about the same torque that
      CAPCOM
you've observed previously?
                      No, we've got(garbled) just wanted to
```

see if we can get some data, then we'll go back and realine

Roger.

CAPCOM

the GDC.

```
APOLLO 7 COMMENTARY, 10/16/68, GET: 1232000 (CDT 01:25p) 397/1
                    This is Apollo Control Houston 123
     PAO
                   We should be acquiring via Guam just any
hours 20 minutes.
second.
                    The Guam data has just flashed on
     PAO
              The television displays here, I notice the
our screens.
cabin out there is running 69 degrees today.
                    Roger. Walt, I would like to have
     CAPCOM
you turn your S-band OX tape switch off.
                    Off.
     SC
                    Roger. Wally, we noticed that the
     CAPCOM
tailoff value that is presently loaded into the -
                    What was the answer, Jack, to your
reading our TV switch on a while back when it was off?
you find out about that?
                           Walt, it was the tape switch
                    Roger.
     CAPCOM
that we observed on telemetry on the ground and we thought
it was the TV switch.
                    Okay, understand. Did our transponder
     SC
secondary completely flop?
                    Stand by. Apollo 7, on the secondary
     CAPCOM
transponder, that's not definite yet, but we don't want to
reselect at this time.
                     Understand.
     SC
                     Okay and something else that we would
     CAPCOM
like to discuss here. The tailoff value that is presently
loaded in the computer for CMC is not large enough for what
we have observed on your burns. We would like to load a
new value into the computer with the following procedure.
Are you ready to copy?
                     Wait one.
      SC
                     Roger, Jack. Go ahead with your pro-
      SC
 cedure.
                     Okay. Verb 21, noun 01, enter, 3003,
      CAPCOM
                   That's it.
 enter, 74 enter.
                     Roger. Is that it?
      SC
                     That's it.
      CAPCOM
                     (garble)
      SC
                     Could you say again, Donn. You were
      CAPCOM
 cut out there just as you gave it.
                     Roger. Verb 21, noun 01, 3003 then
 74.
                     Roger, that is correct.
      CAPCOM
                     Jack, (garble)
      SC
                     Say again, 7.
      CAPCOM
                     Okay, no strain.
      SC
      CAPCOM
                     Roger.
                      Jack, this is CMP.
      SC
                     Go ahead, Donn.
      CAPCOM
                     On these landmarks tomorrow I see
      SC
```

APOLLO 7 COMMENTARY, 10/16/68, GET 1232000 (CDT 01:25p) 397/2

SC we've got three passes scheduled,

don't we?

CAPCOM Affirmative.

SC Okay. I would like to suggest that we devote one pass, or at least part of a pass to doing some unknown landmarks. I found that up here in flight that it is fairly easy to track any given object on the ground once you see it. The trouble with these known landmarks is that they are damn hard to bring in in the first place, because either the auto optics doesn't work or they are outside the field of view sometimes. I have found that you can track with the sextant fairly easily. So how about running that around with the G&N people and see if they are agreeable. We don't have anything in the flight plan at all about checking up on landmark performance.

CAPCOM Roger, copy that. We will toss it

around here and let you know.

CAPCOM Apollo 7, Houston.

SC Go ahead, Jack.

CAPCOM Roger. We would like to zero some attitude errors by taking the B main switches and going to rate 2 momentarily, and then back to add 1, rate 2.

SC We are not getting much torquing this time, so there is not much sense spending - there isn't any input on this particular area.

CAPCOM Roger. We just thought we would watch

it as you went through perigee.

SC Yes. I think what we will do is try to give it to you on the rest pass where we are tracking, because we are going to go back through it again.

CAPCOM Roger.

SC But we are going to face up to peri-

CAPCOM Roger, copy that. You got 1 minute LOS Guam, Hawaii at 123 + 34.

APOLLO 7 COMMENTARY, 13/16/68, GET: 1233500 (CDT 1:40p) 398/1 This is Apollo Control, 123 hours, PAO Through Hawaii, we're having this conversation. 35 minutes. Apollo 7, Houston through Hawaii. CAPCOM Aloha. SC Roger, we would like to - if you're CAPCOM not busy with the computer, we would like to send you an update. Wait, hold it a second. You Go ahead. SC have got it. Okay, coming up. I'm ready with it now, CAPCOM check when you are ready to copy. Go ahead. SC 128300000 minus 0266 minus 12 CAPCOM Roger. niner 400 niner, niner, niner. Roger. 128300000 minus 0266 minus 129400999. Right, and on that - the procedures that CAPCOM we gave you for loading a different Delta-V tailoff in the computer. After you get that done, I'd like you to read it out, Donn and check it and if you need the procedures to do that, I have it. Roger, Jack. This is a standard erasable I'11 do it when you get that uplinking. update. Okay, there's no hurry on it. CAPCOM Jack, I would like to make a comment or two regarding this star horizon business. Okay, go ahead. CAPCOM SC Well, I've examined the horizon in the telescope and sextant and - alternate light conditions varying from bold darkness to broad daylight, with the sun overhead, and I can find no reliable line or band or anything in air that's repeatable at all distance sun angles. Furthermore, I know that stars generally are not visible during the daytime. About the only way you can see it, is to get all of the optics to pull one into the sextant for you. Obviously, if you're doing P-23 you can't use auto optics to pull the star in there, so the chances of this thing ever working out are

Roger, copy that. CAPCOM

Roger, I suggest that we try one run of this just to prove that it won't work and then regroup and plan to do some star to lunar landmark business a little later on in the flight somewhere.

Roger, we copy that. CAPCOM

It's kind of insulting to realize that the same light bands and horizons are there that we reported back in Mercury days.

CAPCOM Roger.

pretty slim, I guess.

Jack, do you know your update? SC Our assembly computer is the same as CAPCOM Apollo 7, Houston.

Go ahead. SC Donn, on this star horizon citing here. CAPCOM If you're at the roll, pitch, and yaw attitudes that we gave you and have the trunnion and shaft values that we gave you The horizon should be visible in the landmark also set in. line of sight and the star visible in the star line of sight. And Apollo 7, as we lose you here over Hawaii, we're going to try ARIA on S-band. Do you want to turn up your S-band volumn up. I think we may have better comm with ARIA than Huntsville. ARIA 3, go remote. COMM Apollo 7, Houston through ARIA 2. CAPCOM Apollo 7, Houston through ARIA 2. Apollo 7, Houston. This is 7. SC Donn, we lost you just over Hawaii, did CAPCOM you copy my remarks on the star horizon check? (garble) SC Apollo 7, Houston. CAPCOM Go ahead. SC You're loud and clear. Donn, we had CAPCOM an LOS through Hawaii. Did you - were you able to copy my remarks on the star horizon check? It's all here, Jack. SC Okay. CAPCOM We read you. SC Real fine. CAPCOM Wally, we lost - LOS Hawaii. Were you -CAPCOM did you get my comments to turn up S-band. We were trying to get ARIA 3 on S-band. Negative, we missed that. I did hear you just before this last call. You tried to talk to Donn again and came up on S-band. Okay, ARIA works so good down there in CAPCOM Australia on S-band that we were going to try and use ARIA instead of Huntsville, to get a little better comm. Roger, we'll try that a couple more times. SC Okay, real fine. CAPCOM What's the next time? SC We will have ARIA 3 the next pass over -CAPCOM in between - about the same place.

I agree.

```
APOLLO 7 COMMENTARY, 10/16/68, GET: 1234700 (CDT: 1:52p) 399/1
                    We got our entry in the flight plan Roger.
     SC
                    Hey Jack, we are approaching perigee and
     SC
I ought to give you GDC on fall number 1.
                    Roger; copy.
     CAPCOM
                    We're not pitched up too much; local
vertical; it's about 33 - 34 degrees.
                    Okay.
     CAPCOM
                    This is a long pass; they might get upset
     SC
with this thing. You've got local vertical on GDC under
(garble)
                    Copy that.
     CAPCOM
                    And you can make note of the pitch
     SC
thruster is working.
     CAPCOM
                    Roger.
                    Tight dead band to get this DTO done.
     SC
                     Roger.
     CAPCOM
                    With limit cycle on. (garble)
     SC
Apollo 7.
                     Go ahead 7.
     CAPCOM
                     (garble) on that experiment.
     SC
                     I stopped (garble) there Jack.
     SC
                     Roger, Wally.
     CAPCOM
                     (garble) are off.
     SC
     CAPCOM
                     Okay.
                     (garble) pulling up into a (garble) to
     SC
climb and see what happens here soon. Watch the pitch rate.
                     Roger; 1 minute LOS Texas; Tananarive at
     CAPCOM
134 plus 27...
                     At 123 hours and 55 minutes we have a
     PAO
loss of contact with the spacecraft over Honduras, and I
would say in Central America. Of increasing interest as
we near the midpoint of the mission is the retro fire clock.
All the while it has been counting and it now reads 135 hours
43 minutes to retrofire. Almost as large a number as our
elapsed clock at 123 hours, 56 minutes. This is Apollo
Control Houston.
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APOLLO 7 COMMENTARY, 10/16/68, GET: 124:27:00 (CDT 02:33p) 400/1
                    This is Apollo Control Houston 124
     PAO
hours 27 minutes into the mission. We are on the 78th rev-
olution around the earth and we are about to tag up with
Apollo 7 via Tananarive. Our orbital elements are thusly:
perigee 90.2 miles, apogee 157.3. The orbital period is
89 minutes 04 seconds.
                    Donn, we would like to wait until
     CAPCOM
Guam to get your comments on the P23, on the results of P23.
                           How soon is that?
                    Okay.
     SC
                    Guam acquisition is 124 + 54, unless
     CAPCOM
you are going to be asleep then.
                     (garble)
                    Okay. Why don't you give them to us
     CAPCOM
now, then? We don't want to interfere with your sleep
cycle.
                     (garble) get a little tape and dump
     SC
it.
                     Okay, that is fine.
     CAPCOM
                     (garble)
     SC
                     Okay Wally. We are having a hard
     CAPCOM
time reading you here at Tananarive. Perhaps you could
put your comments on the torquing as you went through peri-
gee on the ESE tape, and we will dump that too.
                     (garble)
     SC
                     I couldn't pick that up. We will dump
      CAPCOM
that at the next possible time.
                     Roger.
      SC
                     Apollo 7, Houston.
      CAPCOM
                     Go ahead.
      SC
                             On the tape that is presently
                     Roger.
      CAPCOM
 there, do you have any high bit rate recordings on it?
                     Negative.
      SC
                     Roger, copy that. We will be dumping
      CAPCOM
 starting at Mercury and Guam and to Hawaii if needed.
                     Roger. When do we line S-band up for
      SC
 the ARIA call?
                     The S-band with ARIA will be after
      CAPCOM
 Hawaii.
                     Roger.
      SC
                                         One minute LOS
                     Apollo 7, Houston.
      CAPCOM
              The Mercury at 124 + 51.
 Tananarive.
                     Okay Jack, we will talk to you then.
      SC
                     Roger. I'm going off duty. I'm going
      CAPCOM
 to give you to Ron.
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(garble)

It was a good shift today, a good show.

END OF TAPE

SC

CAPCOM

APOLLO 7 COMMENTARY, 10/16/68, GET: 1245300 (CDT 2:58P) 401/1

This is Apollo Control 124 hours 53 minutes PAO and we're in touch with Apollo 7 at the Mercury now. Here is how it sounds.

Apollo 7 Houston through Mercury. CAPCOM

Good evening, Ron. SC

Good evening. CAPCOM

I was talking to Jack about this perigee SC I think that's probably a good name for it. torque problem. And we'd gone across the - well, I'll tell you about the west coast going down over Mexico south. That's over the Panama Canal Zone on the last pass.

CAPCOM Roger.

We're set up for a star horizon check. We're locked up pretty tight on 356 degrees inertial zero SC degrees pitch. The dead band was real tight, this was in the SCS (cut out) (then repeats) The dead band was real tight, this was in the SCS attitude Hold band and I'm in dead band lowerage limit cycle on. As soon as the test was terminated I turned all SCS channels off to conserve fuel, and then I had no pitch rate, no hold rate, no yaw rate on the needles. Then about - I'd say 10 minutes - we went to perigee, it was actually to a 121 hours and 51 minutes I think it was - 123 hours 51 minutes. We start pitching up to about 3/10 of a degree per second as we approach perigee, and then it would start pitching down, and action went back down to zero again in rate. And when we actually went to drifting flight the pitch was about 35 degrees up, pitch up local vertical, it went down to about minus 40 degrees or (garbled) 20 degrees local vertical. That's where the rate stopped and then it started back up slightly. During the pitch, torque was just in pitch in that case. During the pitch, torque was just in pitch in that case.

Roger, we copy. CAPCOM That's a new one that I've never heard SC of before. We suspected something like that with the S-IVB and even with the Agena, but this really showed it to us.

Rog. Sure did. CAPCOM

Another interesting thing we saw as we went SC down through South America, we'd seen the hurricane earlier today, with that over sight. You'd could see the eye of it as a little depressed dip in the center of the hurricane.

Roger. CAPCOM Paul, we viewed the thunderheads as we SC went over South America and the flat tops are rather large ones, and they had little depressions in the center, just like the hurricane, and then we reversed the flow pattern on the flat tops, which you would expect in the southern latitude, the reverse coriolis effect.

That is interesting. CAPCOM

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APOLLO 7 COMMENTARY, 10/16/68, GET: 1245300 (CDT 2:58p) 401/2
                    I'd never heard of that effect before
you know, on the top of the thunderstorms.
                    I hadn't either.
     CAPCOM
                    All of Donn's experiments bombed.
     SC
                    Roger.
     CAPCOM
                    If the horizon is as good as everybody
says it is, well we'll know (garble) the storm's center is
exactly the way it is right now. I'm sorry to define the
star to horizon check didn't work. The landmark optical
tracking didn't work. We tried to use all the optics and
they did not bring it in. Tomorrow we'll try (Too much
static to be heard)
                    I missed your (garble) star horizon
     CAPCOM
didn't work, and everything after that, Wally.
                    This is Apollo 7.
     SC
                    Apollo 7, Houston, Go.
     CAPCOM
                    Rog. Did you get the last?
     SC
                    Negative, I missed everything after
     CAPCOM
Donn's horizon not got and the star horizon didn't work.
                    That's correct and the program 23 did
     SC
not work and I want Donn to work on the recorder and parti-
cularly on the sun test. We want that plan on the ground and
I think they want it up here.
                    Roger.
     CAPCOM
                    There's always a question of using up
     SC
fuel on it. We're going to try tomorrow unknown landmarks,
known landmarks did not work, the little optics did not
bring them in and they're hard to find. Particularly in
the earth orbit position.
                    Roger, we're working up the chart now,
     CAPCOM
for you for tomorrow.
                    Very good. How was the day back in
     SC
Houston?
                    Not my day here.
     CAPCOM
                    Very good, what so bad?
     SC
                    Apollo 7, Apollo 7, Houston opposite
     CAPCOM
OMNI.
                     Roger. We spend our quiet evenings in
uh, at this time, preparing our next TV show and we'll have
one for you tomorrow.
                     Very good.
      CAPCOM
                     Have you finally got the chart updated?
      SC
                     Roger, stand by. And Walt, biomed to
      CAPCOM
your position.
                     Roger. We have been watching the water
boiler pretty close. We had it going dry on us, numerous
```

times for several days, and it seems to happen over a period

of about 4 seconds (garble)

APOLLO 7 COMMENTARY, 10/16/68, GET: 1245300 (CDT 2:58p) 401/3

CAPCOM Roger, you say it seems to happen over a period of 4 seconds?

SC Oh, about 40 seconds time, if you go from operating normally to a low on the steam pressure zero.

CAPCOM Roger, we'll keep a close eye on it then.
CAPCOM Apollo 7, Houston, about 30 seconds LOS
Hawaii at 09. Leave your map updata and block data at that
time.

SC Roger, and we won't need the right ascension Ron. We really don't have any use of it so, unless we ask for it, why don't we just skip those (garble)

CAPCOM Oh, Rog. I concur.

PAO This is Apollo Control. 125 hours 1 minute. Guam has LOS. During the passes at the Mercury and Guam, Wally Schirra discussed the - what he termed perigee torque. That's the pitch moments that the spacecraft seems to get at perigee. In the discussion of that, he described some of the weather near the hurricane. He reported the star horizon sightings didn't work, and indicated that the crew would spend a little time this evening planning tomorrow's TV show. The next station to acquire Apollo 7 will be Hawaii. At 125 hours 9 minutes, this is Mission Control, Houston.

APOLLO 7 COMMENTARY, 10/16/68, GET: 1260000 (CDT 4:03P) 402/1 This is Apollo Control at 126 hours. We have the tape from the Hawaii and the Huntsville pass. We'll follow that with the Tananarive pass. We'll play the tape now. Apollo 7, Houston, Hawaii CAPCOM Roger, Ron. 1 m ready for the copy of SC the update. Roger, your map update. rev 79, GET: CAPCOM 124 plus 47 plus 02. Longitude: 103.3 east. Roger, ready to copy block data. Roger: Apollo 7, Houston, block data CAPCOM number 14 081 dash 3 alpha plus 312 plus 1360 127 plus 45 plus 113382 082 dash 3 alpha plus 302 plus 1360 129 plus 21 plus 343524 083 dash 3 bravo plus 253 plus 1340 130 plus 53 plus 562856 084 dash charlie charlie minus 076 plus 1700 132 plus 33 plus 151858 085 dash alpha charlie plus 072 minus 0220 133 plus 19 plus 174077 086 dash 2 charlie plus 184 minus 0250 134 plus 53 plus 553706. Houston, over. I didn't copy the last three. Will you SC go through that again? Roger. Area 086 dash 2 charlie plus CAPCOM 184 minus 0250 134 plus 53 plus 553706. Over. Roger. Reads as follows: 081 dash 3 alpha SC plus 312 plus 1360 127 plus 45 plus 113382 082 dash 3 alpha plus 302 plus 1360 129 plus 21 plus 343524 083 dash 3 bravo plus 253 plus 1340 130 plus 53 plus 562856 084 dash charlie charlie minus 076 plus 1700 132 plus 33 plus 151858 085 dash alpha charlie plus 072 minus 6220 133 plus 19 plus 174077 086 dash 2 charlie plus 18 didn't get the last number minus 0250 134 plus 53 plus 553706. Over. Year latitude for area 086 dash Rogott CAPCOM

2 charlie is plus 184. SC

Roger. Plas 184. Wally's got a failure to report on his harness. He's got one lead coming loose He put it together the last time and taped it to keep it there and apparently it's now in a state of failure down where it goes into the body connector at (garble) conditioner, and he wants to know can they receive data on him with only his three main sensors on it

Roger. What's the color of the signal CAPCOM conditioner that there's a plug that it's going into? The white one or the yellow one?

It's the lower external lead. SC

Roger, stand by. CAPCOM

It's the blue signal conditioner. SÇ

Guams signal LOS. CAPCOM

Apollo 7, Houston. Roger. Real weak, CAPCOM Walt, we can work up a swap of the signal conditioners or the leads going to the signal conditioners and we'll try to pass

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APOLLO 7 COMMENTARY, 10/16/68, GET: 1260000 (CDT 4:03P) 402/2
                    that up to you over Tananarive.
     CAPCOM
                    Okay, thank you.
     SC
                     Sorry, about that.
     CAPCOM
                    Roger, thank you.
     SC
                    This is Apollo 7. How do you read me,
     SC
Ron.
                    Apollo 7, Houston. We're reading you
     CAPCOM
through Huntsville now. We had ARIA just between Hawaii and
Huntsville. When you were reading back on the block data
and it was good at that time.
                     (Too much static to be heard)
                     Apollo 7, Houston. Did you call?
     CAPCOM
                     Take it, Roger, (garble)
     SC
                     Roger. About 1 minute to LOS now at
     CAPCOM
Tananarive at 01.
                    Roger. Did you catch our TV pass today?
     SC
                     Affirmative, and a good one again. The
     CAPCOM
quality wasn't quite as good as it was the other 2 days.
I've got some dope on that ALC switch I'll try to back up to
you sometime this evening.
                     Okay, it never seems to work as good with
     SC
the ALCS.
                     Apollo 7, Houston through Tananarive.
     CAPCOM
                     Roger, Ron, how do you read?
     SC
                     Not too bad this time, Walt. Have a
     CAPCOM
little question on the chlorination. Have you chlorinated
yet?
                     No, and it's not our intention to chlor-
inate today, we chlorinated yesterday. You don't have any
objections to chlorinating every other day, do you?

CAPCOM Rog. I understand you're intent on the
thing. Do you still have a bad taste in it? Is this the
reason?
                     It's just now trying to (garble) about
     SC
cold and the water has tasted horrible (garble) you know like
trying to drown the cold by drinking it (garble) and when
we chlorinate the taste of it afterward is very bad for
several hours and it's not really good for a bad cold.
                     Okay, we understand, and do not chlorinate
      CAPCOM
today. We'll pass it today and chlorinate tomorrow.
                     Okay, very good, I think that's about
(garble) we'll catch it and chlorinate tomorrow. Got two
questions for you Ron, and that's about it.
                     Say it again.
      CAPCOM
                     What is the precise inclination about
a secondary reactivator charge update and for RCS deorbit
onboard?
                     Roger. What is the precise inclination
      CAPCOM
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of your orbit? Is that what you said?

APOLLO 7 COMMENTARY, 10/16/68, GET: 1260000 (CDT 4:03P) 402/3

Right, and Wally would like to hear the (garble) biomed sensors (garble) shoot it up again.

Roger, we'll get your inclination on CAPCOM your biomed sensors. Walt, your inclination is 31.25.

Roger. SC

And on your biomed sensors, Walt, we want CAPCOM to use - or use the two good ones in the middle of your chest and those two good ones will have to be connected to the blue signal conditioner, which I believe we're going to have to switch to wires that go into the signal conditioners.

Okay, you want the two center leads to

go to the blue signal conditioner, right?

Yeah, that's affirmative. CAPCOM

Okay, that means Wally will have to connect SC the connector of the other signal conditioner and he will have (garble) to the two.

That's affirmative. That's affirmative. CAPCOM

Okay, He'll try it. SC

(Garbled) SC

That's affirmative. CAPCOM

Okay, he'll try, if that doesn't work SC we will just have to write it off, because he has been trying to piece that thing together for the last 126 hours. We tried.

Roger. Apollo 7, Houston. One minute CAPCOM

LOS. Mercury at 24.

And as soon as you can get it, we would

like an update for onboard RCS chart.

Wilco. We will have it available at CAPCOM Mercury

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APOLLO 7 COMMENTARY, 10/16/68, GET: 1262400 (CDT 4:25p) 404/1
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This is Apollo Control at 126 hours, 24 PAO minutes. Apollo 7 coming up on the Mercury now. This is a quiet time in the flight plan, no activities are scheduled. Apollo 7 just coming out of the night side as it acquires at Mercury. Mercury has acquisition now, we'll stand by for a call.

Apollo 7 Houston through Mercury. CAPCOM

Roger, Ron SC

Okay, I got your RCS update for figure CAPCOM three dash one.

Roger, go with it.

Roger, at 126 hours total is 688 pounds CAPCOM SCS red line 601, DAP red line 536, HYBRID 263 and be advised that quad A is still right on the SCS red line, the rest of them are above.

Quad A, I thought quad C were the first one we were going to be switching.

Rog. stand by, Wall. CAPCOM

Okay, Ron, but I was given some numbers SC today that what the onboard meters should read before they switch to secondary. Is that going to be open loop and when I get down to that reading I switch or will you be giving me later dope on switching.

We're keeping track on it, Walt, and CAPCOM will probably be giving you later dope on it but those are

the figures we have at this time.

Roger, and I was told to see when it was SC getting closest to getting on the secondaries.

That is affirmative. As far as your on CAPCOM board reading is concerned its 54 percent for C, 49 for D, Delta, and A its 46 percent.

Roger SC

Apollo 7 Houston, request you cycle 02 CAPCOM tank two fan on for five minutes and off.

Roger, sir.

This pass when you get a chance you can CAPCOM read out your service module RCS propellant quantities and your system test meter 5A through D and 6A through D.

Roger, and I'll give you the queries right now before I forget it, can you have them standing by when we are coming over Hawaii to check Wally's biomed readout.

CAPCOM

Okay, A through D reading 51 plank 55 SC

plus 58, over.

Roger, copy CAPCOM

Can I check in the number for my chart? SC Roger, the total for your chart is 688. CAPCOM

APOLLO 7 COMMENTARY, 10/16/68, GET: 1262400 (CDT 4:25P) I will give you the Roger, 688. Copy. test meter readouts. Roger. CAPCOM For five three is five volts. Okay. SC Six dog five, six Charlie four Five three is five volts. point eight. Six Baker five, six Able five. Over. Roger. You have five Alpha. CAPCOM Okay, five Alpha is one point seven. SC Say again. Which should be on the order about 70 -CAPCOM SC we will be staring at, I believe. Roger, was that one point seven? CAPCOM That is affirmative. One point seven. SC Roger. And I have your ground computer CAPCOM to usable RCS propellant remaining if you would like those. Okay, go with them. Oh Roger. It will be 46 percent, 50 per-CAPCOM cent, 45 percent and 52 percent A through D. 46 50 45 52. Roger. CAPCOM How did you ever get Baker to be 50 and SCDog to be 52? I am not quite sure, but it works out that CAPCOM way. (Garbled) SC LOS (garbled) CAPCOM This is Apollo Control 126 hours 32 minutes into the mission. Mercury has LOS. During this pass we updated the spacecraft with ground computed reaction control system propellant quantities and we got a readout from the onboard RCS quantities. This is the sleep period for the command module pilot, Donn Eisele. Hawaii will acquire at 126 hours 43 minutes. This is Mission Control Houston.

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APOLLO 7 COMMENTARY, 10/16/68, GET 1264300 (CDT 4:45 p) 405/1
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This is Apollo control at 126 hours
43 minutes into the mission, Apollo 7 coming up on the
                 The Huntsville tracking ship has over-
Hawaii station.
lapping coverage here, we'll stand by through this pass.
                    Apollo 7, Houston, through Hawaii,
     CAPCOM
standing by.
                    Roger, we read you loud and clear.
     SC
                    Roger, loud and clear.
                    Hey, Ron, log the CMP with how many.
     CAPCOM
     SC
                     Say again.
     CAPCOM
                     Apollo 7, Houston, say again.
                     Would you log CMP with about 50 clicks
     CAPCOM
     SC
for the last 5 hours.
                     50 clicks you say in the last 5 hours?
     CAPCOM
                     Affirmative.
     SC
                     Roger.
     CAPCOM
                     And CDR 30.
     SC
                     Roger.
     CAPCOM
                     LMP 15.
     SC
                     Roger.
      CAPCOM
                     How's Sir John doing with my biomed?
                     Roger, looks like you're getting the
      SC
      CAPCOM
 auxiliary, the ones under your arms there going into the
 blue signal conditioner which is okay, we can do - we can
                     That's what you're trying for isn't it?
 do with that one.
                     Not quite, but that's okay. With what
      SC
      CAPCOM
 we're trying (cut off).
                     I'll bet you'll have the (garble) to
 go into the black and the two auxiliary into the blue.
                     No, we thought the broken wire was from
      CAPCOM
 the two external ones (cut off).
                      I think the low external is broken.
                      Okay, okay, I see what you're saying
      SC
      CAPCOM
 the lower external is broken, but what we're trying to do
 was kept the two external ones to go into the blue signal
 conditioner.
                      That's how they were originally.
                      Yea, right, but we wanted to switch the
      SC
 pieces of wire that go into the signal conditioner, the
       CAPCOM
  auxiliary wires that go into the signal conditioner - into
  the black signal conditioner we wanted to use that lower
  piece of the wire and hook that piece of the wire to the
  center sensors.
                      I won't have you change my spark plugs.
                      It's working okay the way it is, it's
       SC
       CAPCOM
  fine.
```

Okav.

SC

```
APOLLO 7 COMMENTARY, 10/16/68, GET 1264300 (CDT 4:45 p) 405/2
                    The good doctors say, thank you.
                    Roger, you know Wally, anything for the
     CAPCOM
     SC
doctor.
                    Say, I've kind of lost track, is this
     CAPCOM
     SC
                     I have to, wait, Walt - I got a time
day 8 or day 9.
hack to end of mission, if you'd like that.
                     I was trying to think of how to get a
     SC
big clock to count down.
                     (laughter).
      CAPCOM
                     Roger, stand by for 132 hours and 51
                     Go ahead.
      SC
minutes. 5, 4, 3, 2, 1, mark 123 hours and 50 minutes.
                     Beautiful, is that drogues or mains.
                     That's to GETI burn 8.
      SC
      CAPCOM
                     Oh, we got more to go.
      SC
                     What's the 6 to 8 forecast on hurricane
      CAPCOM
      SC
 what's it's name.
                      Apollo 7, Houston.
                      Apollo 7, Houston, Huntsville (garble)
      CAPCOM
      CAPCOM
 am I getting through to you.
                      Affirmative.
      HTV
                      Apollo 7, Houston.
                      Apollo 7, Houston, how's (cut off)
       CAPCOM
       SC
  END OF TAPE
```

APOLLO 7 COMMENTARY, 10/16/68, GET: 1265300 (CDT: 4:55p) 406/1

Apollo 7, Houston. Apollo 7, Houston. CAPCOM

Huntsville, let me know, Houston, is Apollo 7 reading us.

Houston, Huntsville. Apollo 7 answered

once from down-link S-band, and we haven't heard him since. Roger. CAPCOM

Houston, Huntsville. They are now HTV

answering you on S-band down-link.

Roger, Wally, be advised on Gladys. We're not sure whether to move your boat or move your landing

point yet. Huntsville, LOS. HTV

This is Apollo Control at 126 hours PAO The next station to acquire will be Tananarive 54 minutes. at 127 hours 36 minutes.

```
APOLLO 7 COMMENTARY, 10/16/68, GET: 1273600, (CDT 5:40p) 407/1
                    This is Apollo Control at 107 hours 36
          Tananarive is acquiring Apollo 7 now in its 81st
minutes.
revolution.
                    Apollo 7 Houston through Tananarive.
     CAPCOM
                    Roger, Ron.
                         I have your present battery status.
     SC
                    Rog.
     CAPCOM
A half hour's remaining.
                    Rog. Read it.
                    Roger. Alpha 31.4, Bravo 29.0, Charlie
     SC
     CAPCOM
39.5.
                    Roger, I'll make a note on my report.
way those numbers change, I which we could get the statisticals
a bit earlier sometime.
                     I missed that, say it again.
     CAPCOM
                     Roger, I'll give you our numbers.
     SC
                     Roger.
     CAPCOM
                     (garble) to Tananarive (garble) dumped
the waste water there. (garble) disconnect. It failed to
a 2B setting over by the waste water control panel, and
when we dumped the waste water, a large quantity of water
 formed there. (garble) run that and it performed pretty good
 (garble) only (garble)
                     Apollo 7, Houston, I can't make too much
      CAPCOM
               There was a large puddle of water by the water
 out of that.
 tank, waster water disconnect.
                     Roger, affirmative, and Walt was putting
 a different type (garble) by the water control panel to (garble)
 the leaking there (garble).
                     We'll play back our tapes. Maybe we can
      CAPCOM
 read it off the tapes. I couldn't read you that time.
                     Ron, we got a very nice picture as we
 went over (garble) today, but we got there about (garble)
                     Roger, that's good.
      CAPCOM
                     The magazine was 97 to negative (garble)
      SC
                     Roger.
      CAPCOM
                     Apollo 7, Houston, Did you receive my
      CAPCOM
 comments on Hurricane Gladys?
                     Roger, I understand it's in the Gulf.
      SC
                     Roger. In reality, it's due to hit Tampa
      CAPCOM
 at 1800 Z tomorrow, on Thursday.
                     How's the Houston weather, Ron?
      SC
                      Apollo 7, Houston 1 minutes LOS Mercury
       CAPCOM
 at 59.
                      This is Apollo Control at 127 hours 43 min-
 utes. Very noisy circuits on that pass. CAPCOM, Ron Evans,
       PAO
 passed up the battery status to the crew, gave them the amount
 of ampere hours remaining in their batteries. Walt Cunningham
 gave a report on the continuing water problem inside the cabin.
 Much of it was unreadable, but we did copy it that there is
```

APOLLO 7 COMMENTARY, 10/16/68, GET: 1273600 (CDT 5:40p) 407/2

PAO a puddle of water by the fitting of the waste water disconnect. Walt also reported getting several good pictures of the West Coast of Chili. The tracking ship Mercury will acquire Apollo 7 next. That will be at 127 hours 59 minutes. This is Mission Control, Houston.

This is Apollo Control 127 hours The Mercury has acquired Apollo 7. There is 59 minutes. no overlapping coverage at Guam on this pass. We'll stand by through the Mercury.

Apollo 7, Houston through Mercury. CAPCOM

Roger, loud and clear. SC

Roger, same here. I have a one line CAPCOM

flight plan update.

Go ahead, Ron. SC CAPCOM

At time 130 plus 00 an oxygen fuel

cell purge. SC

Roger, at about half way mark go to

fuel cell purge.

Roger. And Wally if you want to go CAPCOM back to Walt on the biomed that'll get us squared away on the flight plan again.

Okay. You got it. SC

Roger, copy. CAPCOM

Go ahead. One more bag failure, orange SC juice reconstitable bag. I think Walt was trying to add some prune juice to it. It was the kind of thing in my dinner too.

You didn't quite get the PT then, did CAPCOM

you?

Oh, very good. You're fighting back. SC Apollo 7, Houston. We've got about CAPCOM 70 knots of wind in the eye of Gladys.

Roger. SC

Apollo Control 128 hours 6 minutes. PAO The Mercury has LOS now. We passed up a flight plan update asking them to have an oxygen purge in a fuel cell at 130 hours. And Walt Cunningham reported failure of an orange juice bag. The next station to acquire will be Hawaii at 128 hours 17 minutes.

APOLLO 7 COMMENTARY, 10/16/68 GET: 1281700 (CDT 6:20p) 409/1

This is Apollo Control at 128 hours and 17 minutes and Apollo 7 has just been acquired by the Hawaii station. We'll monitor this pass.

Apollo 7 Houston, Hawaii standing by. CAPCOM

Roger SC

Roger, we read you. CAPCOM

Hey, Ron, is there nothing to be done to SCcome up on the check on the next pass over the Mercury, okay?

Rog, that's fine. CAPCOM

Okay, we are trying to eat dinner now. SC

Roger CAPCOM

One minute to LOS Restone at 34. This PAO is Apollo Control 128 hours and 23 minutes. Hawaii has LOS. Walt Cunningham reported that he and Wally Schirra were eating dinner and would postpone the environmental control system redundant component check until over the Mercury on the The Redstone will acquire Apollo 7 very briefly next rev. on this revolution. The maximum elavation in the Redstone range is a degree and a half. That'll give us about three minutes worth of acquisition time. Redstone due to acquire at 128 hours, 34 minutes. This is Mission Control Houston.

APOLLO 7 COMMENTARY, 10/16/68, GET: 1283400 (CDT 6:35 p) 410/1

PAO Apollo control at 128 hours 34 minutes and Apollo 7 is tagging up at the Redstone now.

CAPCOM Apollo 7, Houston, Redstone standing by.

SC Roger. CAPCOM Roger.

SC Hey, Ron, can you give us a read out on

our 02 manifold pressure on my mark.

CAPCOM Wait, Wally, I don't have it yet - Walt we've got kind of a low signal strength we're trying to get high bit rate now.

SC garble.

CAPCOM Rog, I'll let you know if we get it.
Apollo 7, you want to try opposite OMNI - Rog, we're reading 105 now.

SC garble.

CAPCOM Wait, Wally, we've lost it again. Is that one minute to LOS, we'll pick it up over Mercury next time.

minutes and Apollo 7 is beyond Redstones range. Coming up on the end of the 81 revolution. Apollo 7 will miss the Ascension station and Tananarive station this time, that makes the next station to acquire the tracking ship Mercury in the western Pacific at 129 hours 33 minutes. This is mission control, Houston.

PAO This is Apollo Control at 129 hours 33 minutes. Apollo 7 coming up on the tracking ship Mercury now after a long spell of not being in contact with the station. Mercury has acquisition, we'll stand by.

CAPCOM Apollo 7, Houston through Mercury.

SC Roger, Houston.

CAPCOM Rog, loud and clear.

SC Want to make a read-out of our manifold

pressure.

CAPCOM
Rog, stand by. We have no data yet.
7, Houston. Looks like we've got a
processing problem here for a little bit. I've got the results
of what we feel on the evaporator, if you would like to hear
it?

Roger, I'd be very interested. SC Roger, when we're operating under low CAPCOM cycle heat loads - cycling heat loads as we have been doing, the evaporator will dry itself out. This is basically caused by the evaporator boiling more water under low heat loads than is being supplied to it. The end result is drying of If the evaporator is left in auto the the evaporator. back pressure valve remains open and completely evacuates the evaporator. When the water valve is now opened either automatically or manually , the first water that goes into the evaporator flash freezes, this stops any more water from getting into the evaporator unitl it thaws out. Now a couple of more comments. We feel boiler will work normally should it be called upon to take the entire heat load. Since the radiator had demonstrated that they could handle the heat load should the evaporator foul up again, it should be reserviced and turned off until it is needed.

Roger, Ron, there's only one comment I have to add to that - that makes sense I assume with high heat load then we wouldn't have any problem. We do notice the difference in temperature in the spacecraft when the evaporator running or not, but it seems like it runs a little bit all the time when it's on the line. The glycol evaporator outlet temp is regulated down under 45 most of the time. In the drop line completely (garble) and the glycol evaporator outlet temp of 50 to 52 and sometimes a little higher.

CAPCOM Roger, we copy that.

SC So next time it shuts down we will service it and we will stand by on it.

CAPCOM Roger.

SC Have any data yet?

CAPCOM I got a little bit right - we're sending on Have the Command pilot stand by.

APOLLO 7 COMMENTARY, 10/16/68, GET: 1293400 (CDT 7:40p)

Okay, looks good. We're reading 104 CAPCOM

now.

Roger, what are you reading now? SC

103. CAPCOM

Roger, the evaporator check is A-okay. SC

Roger, wow. CAPCOM

He's close to being fired, Ron. How SC

do I get rid of him?

This is Apollo Control 129 hours The Mercury has LOS. Guam does not acquire on PAO this the 82 revolution. The next station to acquire will be the tracking ship Redstone at 130 hours 5 minutes. We have two clocks from the Control Center supper imposed on the world map on you television monitor in the news center. one at the top is the elapse time since lift-off. The one at the bottom is counting down to the de-orbit burn. two clocks should read out the same at 129 hours 50 minutes. About 9 minutes from now both clocks should read 129 hours 50 minutes. The mid point between lift-off and SPS burn number 8, the de-orbit burn. The mission will continue for another 25 or 30 minutes after that de-orbit burn for the re-entry phase. But we are rapidly coming up on the mid point between lift-off and de-orbit. At 129 hours 42 minutes this is Mission Control, Houston.

end of tape

APO This is Apollo Control 129 hours 49 minutes 37 seconds, coming up on the mid-point between lift off and the nominal deorbit burn. Mark 1295000

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APOLLO 7 COMMENTARY, 10/16/68 GET: 1300400 (CDT 8:05p) 413/1
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This is Apollo Control at 130 hours, 4 minutes coming up on five minutes which will be the nominal point in the mission from lift-off to splash. Apollo 7 The best estimate at about to be acquired at Redstone now. present is that the reentry time from de-orbit burn to splash will be approximately 30 minutes. It can't be figured precisely at this time due to atmospheric elements and dispersion that might occur in the de-orbit burn but it will be on a order of thirty minutes; so we are at the mid-point now for lift-off to splash. Apollo 7 has been acquired now, although there has not been a call go up yet, we will stand by through this pass at the Redstone.

Apollo 7 Houston, Redstone. CAPCOM

Roger SC

Apollo 7 Houston, we would like to cycle CAPCOM 02 tank 2, turn it on shortly and then we would like to see the off before we complete this pass.

Was that the 02 fan, Ron SC

I'm sorry, 02 fan CAPCOM

Rog. I'm running a DTO now, the one for SC 60 percent on the cryo tank. I've got both fans, both heaters off. I'm assuming when I finish this run of it, that DTO is complete. Can you verify it for me?

Rog. Let me get my light on the fan CAPCOM switcher and we'll verify that chart. Apollo 7 Houston.

Go ahead That does complete the 60 percent Rog. CAPCOM but we still have one more at the low end prior to reentry where it doesn't work out, doesn't conflict.

The onboard copy of the DTO which I see you have there shows only 90 plus minus 5 and 60 plus minus 5 or last day.

Roger, we'll check on it now. Walt, it CAPCOM looks like on the DTO there "or last day" should have been "and last day."

Okay, I'll give you a hack on how long it takes to run this and we ought to find out if we can't work it in the last day, we'll see.

Oh Roger, thank you. CAPCOM

I started it at about 129 hours and 45 SC

minutes, I guess.

Roger CAPCOM Ron, do you have time to give map update? ٠SC Roger. Apollo 7 Houston, you ready to CAPCOM

copy? Go ahead SC

Roger, Red 82 GET 129 plus 13 plus 13, CAPCOM longitude 35.1 east.

APOLLO 7 COMMENTARY, 10/16/68 GET: 1300400 (CDT 8:05p) 413/2

Roger, you cut out, could you try it SC

again? Roger, GET 129 plus 13 plus 13, longitude CAPCOM

35.1 east, rev 82.

Rog, I got it. SC

Apollo 7 Houston 30 seconds LOS Ascension CAPCOM

at 31. This is Apollo Control, 130 hours, 13 minutes Redstone has LOS. The next station to acquire will be Ascension at 130 hours, 31 minutes, Apollo 7 completing PAO its 82 revolution now.

APOLLO 7 COMMENTARY, 10/16/68, GET: 1303100 (CDT 8:35P) 414/1

This is Apollo Control at 130 hours Apollo 7 is in its 83rd revolution of the earth PAO 31 minutes. now, and coming up on the Ascension Island tracking station. We'll stand by through this pass. Apollo 7, Houston through Ascension. CAPCOM Apollo 7, Houston. CAPCOM Apollo 7, Houston. CAPCOM Apollo 7, Houston. CAPCOM Apollo 7, Houston. CAPCOM Ascension M&O, Houston CAPCOM. CAPCOM Apollo 7, Houston. CAPCOM Voice Control, this is ·ASN Apollo 7, Houston. CAPCOM Apollo 7, Houston. CAPCOM Apollo 7, Houston. CAPCOM Apollo 7, Houston transmitting in the blind. CAPCOM We have fuel cell 02 flow line. This is Apollo Control at 130 hours . PAO

PAO

Inis is Apollo Control at 130 hours

39 minutes. Ascension has LOS now. A network problem during
this pass prevented us from establishing voice contact with
the spacecraft. We were unable to get the circuit restored
prior to LOS. The next station to acquire will be the tracking
prior to LOS. At 132 - stand by - 131 hours 07 minutes, this
is Mission Control, Houston.

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APOLLO 7 COMMENTARY, 10/16/68, GET: 1310700 (CDT 9:10p)
                                                         415/1
                    This is Apollo Control at 131 hours
7 minutes into the mission. Apollo 7 is in it's 83 revolution
and is approaching the tracking ship Mercury in the western
Pacific. Mercury has acquisition now, we'll stand by.
                    Apollo 7, Houston through Mercury.
     CAPCOM
                    Roger.
     SC
                    Roger, read you.
     CAPCOM
                    Roger.
     SC
                    7, Houston. Got a couple of onboard
     CAPCOM
read-outs I would like to cut.
                    Go ahead.
                    Roger, pyro battery voltages and
     CAPCOM
Bat C voltage.
                    Yeh, Ron. We read the pyro battery
     SC
voltage a little earlier this evening. We pass it down.
guess it was before your shift. They were both reading
37 volts.
                    Roger. I missed it, sorry.
     CAPCOM
                    Battery C is 36 volts.
     SC
                    Roger, copy. And could you check your
     CAPCOM
02 flow or 02 purge switch on fuel cell 2.
                     Thank you, Ron. Okay, Ron, what are
you guys reading now for the 02 tank pressures?
                     O2 tank pressures.
      CAPCOM
                     Right, I've got the heaters band on.
      SC
                     Apollo 7, Houston. We're reading 846
      CAPCOM
on tank 1 and 827 on tank 2.
                     Roger, thank you.
      sc
                     7, Houston. The O2 flow looks good now
      CAPCOM
 on fuel cell 2, and you can continue with 3. And we could
 use a general run down on your crew health, the medication
 and the amount of sleep, what have you.
                     Well, this is the LMP.
                                             I had another
 Actifed. let's see night before last. That makes two I've
 had. My ears are getting more difficult to clear than they
 have been. Sometimes I can clear one, sometimes I can't.
 feel very good otherwise. I'm a little bit concerned about
 the lack of any nose drops since there's aspirin onboard.
 to me if we had something like that we'd be able to at least
 make a stab, and let my ears get cleared on reentry.
                     Roger, copy that. Opposite OMNI,
      CAPCOM
 Apollo 7.
                     Roger, we just got a feeble lines on
 frame 97, 90 degrees clear. That is a 1310, with 11
 minutes 30 seconds.
                     Roger.
      CAPCOM
                     Yeh, Ron. My sleep last night I got
      SC
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APOLLO 7 COMMENTARY, 10/16/68, GET: 1310700 (CDT 9:10p)
oh, about 7 hours of sleep which is good sound sleep
                                                        The
best I got since coming up here, I guess.
                    Roger.
     CAPCOM
                    We ve all been averaging good sleep
        Donn's been sleeping much better. He's the one
     SC
who's way behind on sleep. And because we switched his day
to go to bed at night at 4 o'clock which is pretty clever
for anybody to try.
                    Right.
                    And he is finally acclimated to that
     CAPCOM
           And all three of us have varying forms of cold -
     SC
various forms of cold. Mine is still a head cold, and it's about
my problem. I'm off pills these days.
                     Roger.
                     What do the Doctors have in mind for
     CAPCOM
     SC
head clearing on re-entry?
                     We're counting on three actifed.
     CAPCOM
                     You mean three per man.
                     Negative. One each, Donn.
                     Why don't you suggest to 'em that they
      CAPCOM
 do as flight surgeons for airplane drivers, I haven't seen
                     Roger. We could use a hole in the
 that work yet.
      CAPCOM
 helmet probably, couldn't we?
                     I think that's what you're going to
      SC
       We're putting in with our helmets off.
 find.
                     Roger, we will advise.
      CAPCOM
                     You could try. How's that for a B52
      SC
                     Apollo 7, Houston. I've got a couple
 status report?
      CAPCOM
 of comments on TV.
                      Go ahead.
                      Roger. On the ALC switch.
      CAPCOM
                      (garbled)
                      Roger. On the ALC switch have it out,
      SC
 ALC out when the windows or fluid lights are in the field
 of view or when your handing across the spacecraft.
 will give a better picture of the darker areas.
                      Roger.
                      And of course have it in when light
       SC
       CAPCOM
  sources are not in the field of view.
                      Go ahead.
                      And when the flash light - down there -
       SC
  when the flash light shines directly on an area this area
  only shows up as a white blob. So it's good for pointing, but
  it doesn't help the picture at all.
```

APOLLO 7 COMMENTARY, 10/16/68, GET: 1310700 (CDT 9:10p) 415/3

SC Okay. We'll follow you up and - on

our screen transmitting tomorrow morning.

CAPCOM Roger. Walt, the doctor recommends

one more actifed prior to sleep tonight, if you feel necessary.

SC I don't feel like it's going to do

me a bit of good.
CAPCOM Roger. We still feel it'll probably

help a little though.

SC We had two or three days, and then after that we had to do it all over again. We don't have that much onboard. We've got it for pain and sea sickness and stuff like that, but nothing for colds.

CAPCOM Roger. We're kind of in the same

position down here also when you get a cold.

SC Rog, that's right.

APOLLO 7 COMMENTARY, 10/16/68 GET: 1311100 (CDT 9:20p) 416/1

Apollo 7 Houston, one minute LOS Redstone CAPCOM at 39

the East China Sea.

Say that again, I missed that. CAPCOM

The (garble) I recorded are just off the SC

East China coast

CAPCOM Roger

This is Apollo Control 131 hours and 19 PAO Guam has LOS now. That was a fairly long pass minutes. over the Mercury and the Guam. We got some onboard readouts on the battery voltages and gave the crew some oxygen tank pressures at their request. It's pretty good communication this time. I'll hit the high spots however of their health The lunar module pilot, Walt Cunningham, reported he has taken two decongestant tablets to date in the mission - the last one was the night before last. He voiced the wish that he had some nose drops onboard with him. Said he got about seven hours sleep last night, sound sleep, he thought it was the best sleep he'd had yet. Wally Schirra, the commander, said he believes all of the crewmen have been averaging good sleep lately. He reported he still has his head cold, that he's off pills and he indicated that the crew may reenter with their helmets off so that they will be able to relieve the pressure on their ears if their ears are still stopped up at the time of reentry. There was also a discussion, we passed up some advice to them that may enable better TV pictures. Persons in the Houston area will have a choice to make. Tomorrow morning they can either step outside and attempt to see the spacecraft pass over in the Houston or they can stay in and watch the television. television is due at 7:15 AM Central daylight time that is the same pass on which Apollo 7 may be visible. The S-IVB, the second stage of the launch vehicle may also be visible from Houston tomorrow. The S-IVB will approach from the Southwest at 7:10 AM, reach a maximum elevation of 27 degrees due South at 7:14 AM and disappear over the horizon due East at 7:17 AM. Apollo 7, the command and service module will approach from the Southwest at 7:16 AM, reach maximum elevation of 30 degrees due South at 7:20 AM and leave due East 7;23 AM. The next station to acquire will the Redstone at 131 hours, 39 minutes. This is Mission Control Houston.

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APOLLO 7 COMMENTARY, 10/16/68, GET: 1313900 (CDT 9:45P) 417/1
                    This is Apollo Control at 131 hours
     PAO
             Apollo 7 coming up on the Redstone now. We'll
39 minutes.
listen.
                    Apollo 7, Houston. Redstone standing by.
     CAPCOM
                    Roger,
     SC
                    Roger. Loud and clear.
     CAPCOM
                    Apollo 7, Houston. We'll log about now
     CAPCOM
for a completion of your stratification tester.
                    Roger.
                    The good old U.S.A. got another gold
     CAPCOM
                Tommy Smith in a 200 meter race, in a time
medal tonight.
of 19.78.
                    My gosh, they're a new (garble)
     SC
     CAPCOM
                    We just got another one. Bob Seigrew,
     CAPCOM
in a pole vault with a height of 7 feet 8-1/2 inches.
                    Say things are at a new (garble) down
  · ŚC
there?
     CAPCOM
                    Rog.
                    Apollo 7, Houston.
                                         1 minutes LOS Redstone
     CAPCOM
at 04, and Wally
                    Roger, will that be too much panic,
thank you.
                    Roger. You can rest in peace tonight.
     CAPCOM
The Chronicle described the flight of Apollo 7 to date as
high quality.
                    Wow, boy, we ought to put one on their
     SC
head.
                    We're over the hill on the half way any-
way, and that's a good sign.
                    That's affirmative.
     CAPCOM
                     Apollo Control at 131 hours 47 minutes.
     PAO
The Redstone has LOS as Apollo 7 nears the end of its 83rd
revolution. The next station to acquire will be Ascension.
At 132 hours 04 minutes, this is Mission Control, Houston.
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APOLLO 7 COMMENTARY, 10/16/68, GET: 1320400 (CDT 10:10p)418/1
                     This is Apollo Control, 132 hours, 4
     PAO
minutes. Apollo 7 in its 84th revolution now. Ascension has
acquired, we'll stand by.
                     Apollo 7 Houston through Ascension.
     CAPCOM
                     Roger, Ron, good morning.
     SC
                     Good morning. How's the night's sleep?
     CAPCOM
                     (unreadable)
     SC
                     Say again, Donn.
     CAPCOM
                     We were just wondering who were the
     SC
lastest gold medal winners down in Mexico.
                     Roger, like to check a couple of switches
     CAPCOM
there first and then I'll pass it up to you. These secure
02 tank one and two heater switch to the auto position.
                     Auto, one in auto and two OFF.
                     Roger, are those heaters or fans.
     CAPCOM
                     Fans
     SC
                     All right, those are - fans are correct.
     CAPCOM
                     Right.
     SC
                     How about the heater switch? Are they
      CAPCOM
both in auto?
                     Auto ON
     SC
                     Negative, we want them in the AUTO posi-
      CAPCOM
tion. Donn, we had a couple of gold medal winners down there tonight. Bob Secru, Seagren, I'm sorry, won at pole vault
at 17 feet, 8 and a half inches.
                     Pretty tall reach.
                     Rog. And Tommy Smith won the 200 meter
      CAPCOM
 in 19.78.
                      (garbled)
      SC
                      Roger, and opposite omni
      CAPCOM
                     Hello, Houston to Apollo 7.
      $C
                      Houston, go
      CAPCOM
                      Roger, regarding the antibiotics and so
 forth, one of the reasons we don't have a temperature up here
 our thermometer is broken. We can't get it to go over 94,
 so we don't know if we've got a fever or not.
                      Rog, understand. Apollo 7 Houston
      CAPCOM
                      Rog. Go.
      SC
                      Rog. Be advised on your CMC power up,
      CAPCOM
 we'll update you a little later, but what we are going to try to
 do is to power up over one station and then power it down
 over the other station so we can take a look at some of the
 bits in there.
                      Rog, understand.
      SC
                      And we got a pretty good idea of the
      CAPCOM
 other two guys health. Can you give an account of your
 run down, health, medication and sleep?
                      Rog, I just woke up. I got a good solid
      SC
```

APOLLO 7 COMMENTARY, 10/16/68, GET: 1320400 (CDT 10:10p)418/2

eight hours sleep and Walt and Wally are both in the sack. And I don't know, I think they may have called earlier with theirs.

CAPCOM Yeah, we have theirs, but we didn't get

yours.

SC Okay, at 132 hours they each had two aspirins and LMP recorded fifteen clicks of water.

CAPCOM Roger.

SC And - I haven't had a drink yet and I haven't taken any medicine lately.

CAPCOM Roger.

SC Well, also the commander had twenty clicks of water at 13130.

CAPCOM Roger. About 30 seconds LOS Mercury at

41.

SC Roger.

CAPCOM Apollo 7, Houston, you might try center position anomaly.

SC Center position of what?

CAPCOM Biomed switch.

PAO This is Apollo Control at 132 hours, 13 minutes, ascension LOS. That was the command module pilot, Don Eisele in this pass over ascension. He's just up from his sleep period. He reports that Wally Schirra and Walt Cunningham have got into their sleeping bags, settling for 8 hours. He reported they - each took two aspirins at 132 hours elapsed time. That is the time their sleep period started. He reported he had gotten 8 solid hours of sleep, and that he has taken no medication lately. Also he reported that the therometer is broken so they can't tell whether they have fevers or not. The next station to acquire will be the Mercury at 132 hours, 41 minutes. This is Mission Control, Houston.

This is Apollo Control at 132 hours PAO 41 minutes. Apollo 7 is at Mercury now.

(garble) when we got into altitude at the (garble) and everything (too much static to hear) at the horizon and such in the sextant. The fixed line of sight was very interesting. In fact it was pretty hard to pick out anything that you could use. There was one line that might pass for a repeatable line, but it was pretty tenuous. Subsequent to that, I did a T-52 auto optics check and found that the star was up there, but it was at a slightly different shaft and trunnion angle. That was the reason we didn't pick it up.

Roger. CAPCOM

So the gist of it all was that I don't SC think it was a too worthwhile or realistic way to perform that program or it wasn't designed to be used that way so I suggest , that if we have any time or fuel to play at this angle, we try to use the lunar landmarks and stars.

Roger. CAPCOM

Houston, Apollo 7. SC

Houston, go. CAPCOM

Roger, you were making some comments a while ago regarding power up and power down on the computer. Rog. CAPCOM

When did you want to do that? Are you talking about the normal power up for the next sequence of activity?

The CMC updata is about 135 Negative. CAPCOM

hours, somewhere around there.

Oh yeah. Okay. We could do it now and power down over the Canarys.

Rog. Stand by. CAPCOM

Rog. Donn, you can go ahead and power it CAPCOM up now. We'll power it up over Guam and then power down over Redstone.

Okay. Well, that's cute. We got a re-SC

start light.

That's normal. Rog. CAPCOM

This is Apollo Control, 132 hours 49 minutes. Guam has acquisition now. We'll continue with this

Apollo 7, Houston, 1 minutes to LOS CAPCOM

Redstone at 13.

Roger. SC

And you passed the half-way mark while CAPCOM you were asleep, there.

. Yeah, that's great. Do you want me to power down the computer now or wait?

APOLLO 7 COMMENTARY, 10/16/68, GET: 1324100 (CDT 10:45 PM) 419/2

CAPCOM

Negative. Let's wait until we get to

Redstone.

SC

Okay, I'll just let it simmer.

CAPCOM Roger.

PAO This is Apollo Control, 132 hours 54 minutes. Apollo 7 over the horizon at Guam now. The Redstone will acquire at 133 hours 13 minutes.

APOLLO 7 COMMENTARY, 10/16/68, GET: 1331300 (CDT 11:15p) 420/1

PAO This is Apollo Control 133 hours 13 minutes into the mission of Apollo 7. We now have acquisition at the Redstone tracking ship. Let's listen in.

CAP COM Apollo 7, Houston through Redstone.

SC Roger Houston.

CAP COM Roger, loud and clear. Apollo 7, Houston you can power down anytime of the CMC and just prior to LOS sometime.

SC Okay.

CAP COM Apollo 7, Houston, opposite omni.

Apollo 7, Houston.

SC Roger, Houston Go.

CAP COM Rog, looks like your back pressure valve is open now. Would you manually close the back pressure control valve?

SC Roger, close it.

CAP COM Wait 15 minutes then re-service it and leave it off the line.

SC Okay. Would you log me ... water gun and two aspirin, please?

CAP COM Missed the clicks, say again.

SC 30 clicks on the water gun and 2 aspirin.

CAP COM Roger.

PAO This is Apollo Control 133 hours 21 minutes into the mission of Apollo 7. We're leaving Redstone acquisition and we're anticipating Canary Islands at 135:17, correction, Canaries 133:45. During this pass, Eisele indicated he had taken 30 clicks of water which is 15 ounces and 2 aspirin and at 133 hours 21 minutes, this is Apollo Control.

APOLLO 7 COMMENTARY, 10/16/68, GET: 13345100 (CDT 11:48) 421/1

PAO This is Apollo Control, 133 hours, 45 minutes into the mission of Apollo 7. We have indicated that - at 13345 we would have acquisition at Canary Islands but it appears the ground tract is too far south for such acquisition. Therefore, we have another long dry spell. The next acquisition point will be the Redstone Tracking Ship at 13447. At 13346, this is Apollo Control.

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APOLLO 7 COMMENTARY, 10/17/68, GET: 1344700 (CDT 12:49a) 422/1
                    This is Apollo Control 134 hours 47 min-
     PAO
utes into the mission of Apollo 7. We are approaching the
Redstone tracking ship once again, we should have acquisition
in a very few seconds. Let's stand by.
                    Apollo 7, Houston.
     CAP COM
                    Hello dere.
     SC
                    Rog, this is Captain Moho from deep
     CAP COM
in the trenches of the MOCR. I've got a block data update
for you Donn.
                    Okay, sure (laughing)
     SC
                    I'm a big TV fan of yours now, Donn.
     CAP COM
     SC
                    Say again.
                    I say I'm a big TV fan of yours.
     CAP COM
even had my wife wake me up this morning to watch it.
                    Oh, is that right? Well, go ahead
with your update, trench man.
                    Rog. 087 dash 2 alpha +266 -0270 136
     CAP COM
29 19 3483, 088 dash 1 bravo +230 -0600 137 54 53 3591.
089 dash 1 alpha +292 -0622 139 30 06 3430, 090 1 bravo
+314 -0620 141 06 07 3386, 091 dash 1 alpha +291 -0622 142
42 26 3541, 092 dash 1 alpha +224 -0630 144 16 25 3073.
Standing by for readback.
                    Okay 087 dash 2 alpha +266 -0270 136
     SC
29 19 3483, 088 dash 1 bravo +200 - is that 20 or 230.
                    +230
     CAP COM
                    Roger, can't read my own writing.
     SC
+230 -0600 137 54 53 3591, 089 dash 1 alpha +292 - 0622 139
30 06 3430, 090 dash 1-bravo +314 -0620 141 06 07 3386,
091 dash 1 alpha +291 -0622 142 42 26 3541, 092 dash 1 alpha
+224 - 0630 144 16 25 3073.
                    Readback is correct.
     CAP COM
                    Okay, could you give me a nav update
and also a star chart update?
                    Rog, stand by. Apollo 7, Houston I
     CAP COM
have the map and star chart updates.
     SC
                    Roger, go ahead.
                    Rev. 85 NODAL crossing 133 + 39 + 58.
     CAP COM
33.0 West, for the map right ascension is 414.
                    Roger, understand. Say again the
speed rate ascension.
                    4:14.
     CAP COM
                    Roger, I got 'cha, thank you.
     SC
                    Okay. (pause) Apollo 7, Houston,
     CAP COM
opposite omni please.
                    Roger.
     SC
                    Apollo 7, Houston, one minute LOS Red-
     CAP COM
stone, Canaries at 17.
```

Okay.

SC

APOLLO 7 COMMENTARY, 10/17/68, GET: 1344700 (CDT 12:49a) 422/2

PAO This is Apollo Control 134 hours 55 minutes into the mission of Apollo 7. We've just lost acquisition at Redstone tracking ship. We're anticipating Canary Islands at 135 hours and 17 minutes. This is Apollo Control.

PAO This is Apollo Control, 135 hours, 17 minutes into the mission of Apollo 7. We're beginning our eighty sixth revolution. We're coming upon Canary Island acquistion in a very few seconds. Let's listen in.

CAPCOM Apollo 7, Houston, through Canary.

SC Roger.

CAPCOM Say, Donn, I have rather extensive information regaring this landmark tracking. I'd like to start pass it up. It's a lot of verbage - but I don't know how else to do it.

SC Okay, standby. Go ahead, Bill. CAPCOM Right. I guess when I get through here all the talk is going to result in about - only two changes in the procedures. I would like to go through it so you get an idea of the thinking that has been going here.

SC Okay, go ahead.

All right. First point, tomorrow we CAPCOM will perform landmark tracking on the three REVS scheduled in the flight plan. That is on 90 - 91 and 92. And second point, on yesterday's or today's - it depends on how you look at it, landmark tracking the following problem resulted in auto optics not acquiring on all three landmarks. Or to say another way, this is the reason auto optics didn't work. The trunnion will not drive until the computed trunnion is less than 38 degrees. The shaft is driving at this time which gives the impression that it is acquiring. And apparently you started out with zero optics and with zero optics when the less than 38 degree trunnion occurs, the optics have then approximately 38 degrees to drive in trunnion to acquire the landmark. Now this 38 degrees plus a possible overshoot results in a thing hunting and the auto optics not acquiring.

SC Okay, Bill. I know all that. What happened yesterday is that it never came out of zeros as I could tell. Maximum target got to the 38 degrees and did not appear to drive. And also on one of the landmarks, it was beyond the 38 degree limit the whole time. It was just

laying off to one side.

CAPCOM Roger. Okay, I was afraid of that.
SC You see I don't know how it is supposed
to work. It didn't because the - one landmark had an effect
on two of them. It was beyond the field of view.

CAPCOM On two of them it was beyond the field

of view.

SC

I know what happened. It never moved off center even when it got from within 38 degrees. Right now it is supposed to drive up and pick it up when you get within 38 degrees of it.

CAPCOM Okay, I got the picture. Two of the

landmarks given to you - were acts beyond CAPCOM the limits. And one of them even after you got it within the 38 degrees, it never went off the stops in trunnion. Well, that's what it appeared to me, SC

yeah. Sorry I didn't mean Okay, thank you. CACCOM

to belabor that point.

No, that's okay, I understand what you My point about it not working - it doesn't do you any good. I guess that is the point.

Okay, if it doesn't work, this procedure CAPCOM I was getting ready to go through is not going to be any good either. But - let me standby and take another look at this before I occupy your time.

That is okay, go ahead and read it up

first.

Okay, they - the next point was the CAPCOM first landmark may have been too far out of plan. ently that's correct in what you said. On the second landmark you may not have waited until the less than the 38 degree constraint was met before - starting. Apparently, this is the time it would have come off zero.

That's not true. Now wait a minute. waited until Walt said he saw the thing out the window and then I went for it manually and by that time it was almost up to the center of the radio antenna. Or well within the 38 degrees and I did attempt to get on the track but I thought it was so close to center by then - the optics couldn't keep up on it.

Okay. CAPCOM

It never did drive out there automatic-SC

ally to pick it up.

Roger, that's the point -CAPCOM Zero with a shaft rolled around. SC

Okay, well that's the point you are CAPCOM On the - on the third landmark, you just making, okay. keyed in a plus sign on the latitude. What that means is that maybe there was a wrong algebraic sign.

Okay, that was my que. That was also beyond the field of duty and also had to go over and work

manually and it was still -

Okay, that was another one that was CAPCOM

beyond -

Also, the thing outside the window on that SC one also.

Okay, thank you. CAPCOM

What was accomplished - apparently when these guys stay in the south - the relay south which means they got rolls pitching 15, 20 degrees for you to see it

SC which is little bit far because that

put it way out in a strange weak angle.

CAPCOM That - okay, one more item. The following changes to procedures should result in successul auto optics. A, is - I am sure you already doing this Donn. I am going to go through it anyway. To provide earlier acquisition time revise step 5 in the procedure which I doubt you are even using to get to get the spacecraft equal to 10 degrees versus 23 degrees. And I think you said down at the Cape you were using 10 degrees.

SC That's what we have been using all along,

yeah.

CAPCOM I didn't check in the checklist and that is my goof. Okay, and also I guess the point that is a little bit different here - I hadn't - I didn't know about it. When you call up - before you call up P22, mainly, - let me get this. Call P22, execute procedure through onboard checklist except mainly position shafts zero trunnion 35 degrees prior to enter.

SC Standby.

CAPCOM Apollo 7, Houston. We are coming upon LOS. We'll pick you up at - S-Band volume up at Honeysuckle. SC Okay.

PAO This is Apollo Control, 135 hours, 25 minutes into the mission of Apollo 7. We have just lost acquistion at Canary Islands. Our next acquisition point will again be the Redstone Tracking Ship at 13621. We're now in our eighty sixth revolution. You heard astronaut Eisele talk to CAPCOM Pogue here in the control center at some length concerning the auto optics. And the reason yesterday they did not function on the landmark tracking problems as they should have. Seemingly, centering around trunnion problems and landmarks being beyond the limits of auto optics system. At 135 hours, 25 minutes this is Apollo Control.

APOLLO 7 COMMENTARY, 10/17/68, GET: 1362100 (CDT 2:24a) 424/1

PAO This is Apollo Control 136 hours 21 minutes into the mission. We now have voice acquisition at Redstone tracking ship. Let's listen in.

CAP COM Apollo 7, Houston through Redstone.

SC Roger, Houston, Apollo 7.

CAP COM We<sup>T</sup>11 try to carry on with this, ah - finish up the little blurb I have here on landmark tracking. SC Okay, go ahead.

CAP COM Okay. This involves a suggested change in the procedure. At step 6 in the check list which is the Perform Auto Optics Position code, code 11, and it is a suggested change prior to the inter following that code 11. The idea is that after this Step 6, before you hit the inner button, manually position shaft zero trunion 35 degrees, trunion 35 degrees.

SC Okay. They need to put a CNC.

CAP COM Yes, affirmative. That's correct and then optic mode to CNC and then enter.

SC Okay, I think I see what you're driving at.

CAP COM Right.

SC Do it that way.

CAP COM Rog, it sets the trunion to a better initial value to minimize the auto optics acquisition time. SC Okay.

CAP COM Let's see. Couple more items here. If unable to acquire target, then track unknown landmarks such as coast lines, et cetera.

SC Ah, roger, that's a good deal.

CAP COM
After landmark tracking, we want to perform a sextant star observation with approximately 35 degree line of sight to the Sun. The scanning telescope test data correlates well with what was predicted and we are satisfied with that data. After this test, the Star Count Test, will be closed.

SC Roger. Say again, you want to do what now?

CAP COM After landmark tracking, we want to perform a sextant star observation with approximately 35 degree line of sight to the Sun.

SC Oh, I see what you mean. Okay.

CAP COM We will update that in the flight plan and by the way that flight plan update I'll start over Antigua. SC Rog.

CAP COM One final item. We are considering star lunar horizon sightings for later in the flight.

SC Roger. You better make it pretty soon. That Sun is going lower each day. It's receding toward the

APOLLO 7 COMMENTARY, 10/17/68, GET: 1362100 (CDT 2:24a) 424/2

SC East and there isn't much left now.

Much space between it and the Sun I mean.

CAP COM Rog. Okay.

SC I was thinking perhaps, Bill are you

still there?

CAP COM Rog, Go.

SC After the last landmark pass, on that night pass, following that if we perhaps could do the sextant check then, sextant er I mean the lunar landmark check.

CAP COM We'll take a look at that. Sounds like

a good idea.

SC Bill, I've been watching it come up and it's in a good position. I can use any one of about three stars plus I think I can either get a landmark or the lunar or the limb of the Moon either one, but it's receding toward the East and if we wait another day or two, I'm afraid we're not going to have any nightime left with the Moon up.

CAP COM Well, that's a good point there. Those

three stars you mentioned there, are those Apollo stars?

SC Yeah, there's Alpheratz and Procyon and ah, there's one other one I'll have to look - oh, Regulus except it's a little too close.

CAP COM Okay, thank you.

SC ... Denebola.

CAP COM Donn, would you turn the O2 tank two fans on for about three minutes.

SC Sure will. (pause) Houston, Apollo 7.

CAP COM Go.

SC Roger, I've got a comment relative to that star count. I hope the daylight star people are not reading too much into these results we're getting. The fact is unless you can see 40 or 50 stars out there, you can't see enough to really say what part of the sky you're looking at.

CAP COM Okay, I've got it written down.

SC (cutting out) hard to identify even though you can see goodly numbers sometimes, you don't know what they are.

CAP'COM Right. (pause) Apollo 7, Houston, one minute LOS Redstone. You can turn those fans back off and we'll have Antigua at 39.

SC Roger.

PAO This is Apollo Control 136 hours 29 minutes into the mission of Apollo 7. We are completing our 86th revolution going into our 87th revolution very shortly. Anticipating contact with Antigua at 36 hours 39 minutes into the mission. That pass you heard Astronaut Pogue in the Control Center and Astronaut Eisele in the spacecraft have a

APOLLO 7 COMMENTARY, 10/17/68, GET: 1362100 (CDT 2:24a) 424/3

PAO conversation concerning landmark trackint, sextant star observation, they're considering star lunar horizon sightings later on in the flight, had some conversation concerning that. Eisele also indicated that the stars are hard to identify. At 136 hours 30 minutes into the mission of Apollo 7, this is Apollo Control.

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425/1
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This is Apollo Control, 136 hours, PAO 39 minutes into the mission of Apollo 7. We're coming upon acquistion with Antigua Tracking Station, beginning our eighty seventh revolution. Let's listen at it. Apollo 7, Houston. Apollo 7, Houston CAPCOM I have a flight plan update when you get through Antigua. ready to copy. Standby a minute. SC CAPCOM Okay, standing by. Go ahead, Bill. SC Roger. We'll be starting on page 2-48 CAPCOM at about 140 hours. And over there in the box where it says Go no go 106-1, the next item is state vector and - let's see we'll be passing that up at 14243. That's your time tag? That's your time tag, excuse me. That's CAPCOM correct. Okay. SC CAPCOM And delete the reference to the W matrix. And for the landmarks, we have a T align of 141 plus 14. Roger, understand. T aline 141 plus 14. SC Affirmative. And at that time you'll CAPCOM also get landmark ID updates. SC Okay. On next page at 140 hours, add set up CAPCOM TV. Say again time. SC CAPCOM 140 hours. Roger, set up TV. SC At 141 plus 12, add TV on. This is CAPCOM 2 minutes before Texas acquisition. Roger. TV on at 141 plus 2. SC Affirmative. At 141 plus 30 add fuel CAPCOM cell 02 purge. Okay, fuel cell purge at 30 for oxygen. SC Affirmative. At 142 plus 35, replace CAPCOM the - 3 by 3. On the P22 orb nav there is a parenthetical insertion there 9 by 9, make that 3 by 3. All right, I don't understand. don't do that onboard, do you? CAPCOM Negative. I understood that that meant -SC Okay, okay, forget it, sorry. Okay, now CAPCOM at 143 plus 40 add state vector update P52 permitting. that means is they'll give you a state vector update and if it doesn't interfere with the P52. Okay. What time is that - 14330? SC

143 plus 40.

Okay, very good.

CAPCOM

SC

And we need opposite anomaly. You still CAPCOM reading me, Apollo 7.

SC

Roger, go ahead. Okay, I thought maybe we had lost you CAPCOM there. At 145 plus 20, state vector update P52 permitting and again that means if it doens't interfere with P52.

Okay. ŠC

At 146 hours, replace that box over CAPCOM there, scanning telescope star count and make that sextant star count.

Okay. SC

Now at 146 plus 40, we put a P23 in CAPCOM there for mid course and that's the one you were just talking about I think. We just added that.

Can you say that one again?

At 146 plus 35 or 40, somewhere right CAPCOM along in there.

What are you going there.

P23 mid course. CAPCOM

Oh, okay. SC

We just stuck that in there in response CAPCOM to your remarks.

Okay. SC

We're coming upon LOS. I'll pick you CAPCOM

up in Canary.

This is Apollo Control, 136 hours, PAO 47 minutes into the mission. We had a series of flight plan updates in that pass as we heard. In 140 hours, they'll set up a TV; 141 hours, 12 minutes the TV will be turned on which be 2 minutes before Texas acquisition tomorrow or rather this morning. We have several minutes to wait before the pass at Canary Islands, 2 minutes to be exact. we'll standby for conversation at Canary Islands.

Apollo 7, Houston, through Canary. How CAPCOM

do you read?

Loud and clear. SC

Very good. I'll continue on with this CAPCOM thing. At 147 hours, in your flight plan, there is a telescope star count and - with the sun line of sight and Just make that coentry there a sextant star count so forth. and that's it.

Okay. SC

Okay, at 148 hours on the - page 2-51, CAPCOM 148 hours G & N and also SCS power down.

Roger. SC

Delete the entry down at 149 plus 30 CAPCOM hours where it says that G & N power down and SCS power down just scratch through that.

SC Roger. APOLLO 7 COMMENTARY, 10/17/68, GET: 1363400 (CDT 2:42) 425/3

CAPCOM And right above at 149 plus 10, delete P23 star horizon sightings.

SC Roger. Delete star horizon sightings.

CAPCOM Move over to the next column at 150 plus

05 H2 heaters on and at -

SC Okay.

CAPCOM And at 150 plus 25 fuel cell H2 purge.

SC Got it.

CAPCOM Okay, that's the end of the update. Have a relative listing of priorities which are probably well familiar to you. I'll pass them on up anyway. In order of priority most important first, the P22, a minimum of 2 successful REVS and three landmarks each REV. The P52's, two of them during the night pass between the P22's and then third and lowest priority of the sextant star count.

SC Roger, got it.

CAPCOM Okay, that is the end of the update.

SC Okay.

PAO This is Apollo Control, 136 hours, 58 minutes into the mission. We have lost of signal at Canaries. We will pick up Canarvon at 13727. One interesting thing that has been indicated to Flight Director, Griffin on this shift is that the S4-B stage, Saturn Booster, should reenter at 166 hours ground elapsed time. That's the seventh day into the mission. At 136 hours, 59 minutes, this is Apollo Control.

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APOLLO 7 COMMENTARY, 10/17/68, GET: 1372700 (CDT 3:30a) 426/1
     PAO
                     This is Apollo Control 137 hours 27 min-
utes into the mission of Apollo 7. We're coming up on Carnar-
von at this time, we should have acquisition shortly, let's
listen in.
     CAP COM
                     Houston, through Carnarvon.
     SC
                     Roger, Houston.
     CAP COM
                     Apollo 7, Houston, LOS Carnarvon in
about one minute.
                    You can turn your S-band volume up in
about three minutes for Honeysuckle.
     SC
                     Roger, Bill.
PAO This is Apollo Control 137 hours 33 minutes into the mission of Apollo 7. We're standing by through
the Honeysuckle pass for some - another some seven minutes.
It does not appear that there will be any more voice conver-
sation but we'll stand by anyway.
     CAP COM
                     Apollo 7. Houston through Honeysuckle.
     SC
                     Roger, Houston, Apollo 7. Houston,
Apollo 7, go.
     CAP COM
                     Rog, I was just announcing acquisition
Honeysuckle.
     SC
                     Roger, come in fine this time.
                     Good, I'm reading you five by two.
     CAP COM
                     I just took some neat pictures over
Australia. At least I hope they turn out neat.
                     Good. Do you have a frame number or
     CAP COM
anything.
     SC
                     Yes, stand by, I'll get it squared
away and ... for you.
     CAP COM
                     Okay. How are you feeling today?
                     Oh, pretty good.
Did you sleep pretty solid last night?
     SC
     CAP COM
                     Yeah, sure did. (pause) Okay, ...
frames 116 through 123.
     CAP COM
                     116 through 123.
                     Roger, the time was 137 hours 30 min-
utes through about 34 minutes.
     CAP COM
                     Roger, 137 + 30 through 137 + 40.
     SC
                     Negative, 34.
     CAP COM
                     34, I understand.
                     About a 4 minute period there.
     CAP COM
                     Roger, understand 4 minute period.
How's the camera working?
                     It's holding up real well.
                     Thought I heard Walt say something
     CAP COM
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trouble with it.

SC Well, we were earlier in the flight.
Seemed to be gummed up.

there about it not working right or you were having some

APOLLO 7 COMMENTARY, 10/17/68, GET: 1372700 (CDT 3:30a) 426/2

Good. CAP COM

But Wally took some - there was some old grease in there real gummy stuff, took that out of there, scwe put a little light oil that we had in our medical kit, that nose cream.

Rog. CAP COM

It's been working pretty well ever SC (pause) Bill, log me another 20 clicks of water since.

please?

Roger, 20 clicks. Also, Donn, have a CAP COM question regarding the ah - when you make a water dump, how you know you reported that it effected the optics for a period of time and a question, how long does it affect your ability to see through the optics when you make a dump?

Rog, well what happens is anytime you dump fluids ... permits it they turn to ice crystals, the sun reflects off of them and its millions of 'em out there. ... during a water dump or urine dump why it will persist for oh three or four minutes anyway like somebody's ...

CAP COM Rog.

... know once in a while when your SCdriving the optics ... to see little flakes of something come out on account of that I don't know what the source of that reflection is.

Okay, but from the time you first see -CAP COM this stuff, these crystals, it takes three or four minutes for them to disperse enough so that the optics are usable

again. Is that a correct assumption?

At least that long, it may be longer SC than that. What usually happens you're either in complete darkness or complete daylight within that three or four minute period so I really couldn't say if you were in deep space how long it would take for those to disburse.

Okay. CAP COM

... say on the translunar operation you would not want ah to be dumping water anytime here before SC your optics operations.

Okay, I've got that copied down. Also, CAP COM while I'm bugging you I've got a question here from the medic

he wants to know if you coughed about two minutes ago. (laughing) Matter of fact I did. I

SC was drinking a drink of water and there was some gas came out of the water gun.

Okay, and did you turn your head? CAP COM

(laughing) No I did not. SC

This is Apollo Control 137 hours 42 min-PAO utes into the mission. We're anticipating Redstone tracking ship at 137 hours 56 minutes. At 137:43 this is Apollo Control.

APOLLO 7 COMMENTARY, 10/16/68, GET: 1375600 (CDT 3:59) 427/1

PAO This is Apollo Control. We're coming upon Redstone with Apollo 7. Let's listen in.

CAPCOM Roger, Houston. Apollo 7, Houston,

1 minute LOS Redstone, MILA 12.

SC Roger, 12 for MILA.

PAO This is Apollo Control, 138 hours,
and 2 minutes into the mission of Apollo 7. We're now
losing acquisition at Redstone Tracking Ship. The next
contact will be the MILA facility at Cape Kennedy, Florida,
138 hours, and 12 minutes, 10 minutes from this time. At
13802, this is Apollo Control.

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APOLLO 7 COMMENTARY, 10/17/68, GET: 1381200 (CDT 4:15) 428/1
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PAO This is Apollo Control 138 hours 12 minutes into the mission of Apollo 7. We're coming up on acqui-
sition of Mila and Florida. Just acquired, let's listen in. CAP COM Apollo 7, Houston through Mila.
      SC
                       Roger, Houston, Apollo 7.
      CAP COM
                       Rog, Apollo 7, request BAT C voltage
please.
                        (garbled)
      SC
      CAP COM
                       Would you say again, Donn.
      SC
                       36.0
      CAP COM
                       Rog, 36.0.
                       Okay.
      SC
      CAP COM
                       Apollo 7, Houston, one minute LOS
Antigua, Canaries at 25.
                       Roger, understand Canaries at 25.
      SC
                       This is Apollo Control 138 hours
21 minutes into the mission. We're anticipating contact
with the Canary Island station at 138:25. This is Apollo
Control.
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PAO This is Apollo Control, 138 hours, 25 minutes into the mission of Apollo 7. Judging from our last couple of passes, we do not anticipate any startling conversation on the Canary Islands Pass, but let's join the conversation.

CAPCOM Apollo 7, Houston, through Canary.

SC Roger, Houston, Apollo 7.

CAPCOM Apollo 7, Houston, 1 minute LOS Canary.

We have about 1 more minute that we can use on the - through Madrid. I want to give you a call in about a minute and a half just to see if it is working.

SC Okay, go ahead.

CAPCOM And you won't need your S-Band volume

up.

SC Roger, understand that.

CAPCOM Apollo 7, Houston, transmitting through

Madrid. How do you read?

GODDARD VOICE Madrid air to ground.

CAPCOM Apollo 7, Houston. How do you read? PAO This is Apollo Control, 138 hours,

33 minutes into the mission of Apollo 7. At last communications try with Madrid, did not produce an answer that we heard. We're anticipating Carnarvon at 138 hours, 59 minutes. At 13834, this is Apollo Control.

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APOLLO 7 COMMENTARY, 10/17/68, GET: 1385900 (CDT 5:02a) 430/1
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PAO This is Apollo Control 138 hours 59 minutes. In the 88th revolution of the Apollo 7 flight we're now approaching Carnarvon and in a few seconds should have acquisition. Let's stand by.

CAP COM Apollo 7, Houston through Carnarvon.

SC Roger, Houston, Apollo 7, Go. CAP COM Roger, acquisition Carnaryon.

SC Bill, I think I'm going to power up a little early and try to get P-51 done on this night pass.

CAP COM Okay. You're going ahead - you'll

do it in about 10 minutes?

SC Rog. CAP COM Okay.

SC Calls for it at 30 minutes after the hour. Think I'll go ahead and do it now.

CAP COM Okay. I'm changing my flight plan accordingly.

SC Rog.

PAO This is Apollo Control 139 hours 5 minutes into the mission. We just heard Astronaut Eisele indicate to Cap Com Pogue here in the Control Center that he was powering up a little early to get the P-51 Program in a night pass and he was doing it at that time at 139:59. The P-51 Program is inertial measuring unit orientation and he is now in the middle of that program and we probably will have little voice contact but we'll stand by through this pass.

CAP COM Apollo 7, Houston. Coming up on LOS

Carnaryon, S-band volume up for Honeysuckle.

SC Roger:

CAP COM Apollo 7, Houston, Go. SC Alright Houston, Apollo 7, Go.

CAP COM I'm sorry Donn I thought you called

me.

SC No. I'll give you a S-band here.

CAP COM Yeah. (pause) Apollo 7, Houston, one minute LOS Honeysuckle, Texas at 41.

SC Roger.

CAP COM Apollo 7, Houston. We'll have a nav vector for you at Texas.

SC Roger.

PAO This is Apollo Control 139 hours 16 minutes into the mission of Apollo 7. We've lost acquisition at Honeysuckle, we are coming up the pike to Texas. We're anticipating Texas acquisition at 139:44. At 139:16, this is Apollo Control.

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APOLLO 7 COMMENTARY, 10/17/68, GET: 1394100 (CDT5:44a) 431/1
                    This is Apollo Control 139 hours 41 min-
     PAO
utes into the mission of Apollo 7. We're coming up now on
the acquisition point for Texas. We should acquire in a very
few seconds, let's join in.
                    Apollo 7, Houston through Texas.
     CAP COM
                    Roger, Houston, Apollo 7.
     SC
                    Alright, Donn, I've got quite a bit of
     CAP COM
coolie work for you to do here, have a landmark update, a
P-27 manual pad and a nav vector to pass up when you're
ready.
     SC
                    Houston, stand by.
     CAP COM
                    Rog.
     SC
                    Go ahead.
                    Apollo 7, Houston, let me know when
     CAP COM
you're ready to copy.
                    Okay, I'm ready which one you want
     SC
first.
     CAP COM
                    Do you want to take the landmark first?
                    Okay, just a minute.
     SC
                    Well, if you have the other one I'll
     CAP COM
go with it, I just didn't know which one you got.
                    Okay, I'll take the landmark.
     CAP COM
                    Right. The T-align you already have
141 + 14. Okay I'll give you the three landmark first ID is
8/South, GET is 142 + 47, shaft 140, trunnion 300. Second,
ID is 37/North, GET of landmark 142 + 54, shaft 490, trun-
ion 3 - I'll have to give you the trunnion on the second land-
mark in just a minute, I'm going on to the third, landmark
ID is 209/South, GET 143 + 09, shaft 100, trunnion 310.
                    Rog, I don't understand the shaft
angle is that in tenths of degrees or what?
     CAP COM
                    It must be, let me check.
     SC
                    Okay.
     CAP COM
                    Donn, could we have accept please and
we'll go ahead and send up that nav vector.
                    Rog, got it.
     SC
                    Rog, Donn, you don't need that shaft
     CAP COM
and trunnion angles, I shouldn't have sent those up.
                     That's okay, I like to have them.
                    But, you're right its one decimal place.
     CAP COM
And the trunnion on the second landmark was 36.0.
                    Roger.
     CAP COM
                    Okay, I have a P-27 update when you
are ready to copy.
                    Roger, go ahead.
Rog. This will be for CSM nav vector.
     SC
     CAP COM
Verb 71, 142 + 43 + 00, index 21, 01605 00001 76332 41236
```

14021 22711 04330 14421 51621 42274 71220 62676 11564 11455

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APOLLO 7 COMMENTARY, 10/17/68, GET: 1394100 (CDT 5:44a) 431/2
                    06077 33520. I have a nav check.
     CAP COM
Nav check 142 13 0000 -3070 +11887 1438.
                                          Standing by for
readback.
                            CSM Verb 71 142 43 00, index 21
                    Roger.
01605 4 balls one 76332 41236 14021 22711 04330 14421 51621
42274 71220 62676 11564 11455 06077 33520. Nav check 142
13 00 00 -3070 +11877 1438.
                    Readback is correct. And the computer
     CAP COM
is yours.
                    This nav check goes with this state
     SC
vector right?
                            That's in case you need to
                    Right.
     CAP COM
fall back on it.
                    (garble) (pause) Ah, Bill.
     SC
                    Yes.
     CAP COM
                    I don't understand this shaft angle
     SC
                    If the target's to the North how can I
up in second star.
have a shaft angle 49 degrees.
                    Stand by, I'll check on it. Apollo 7,
     CAP COM
Houston.
                    Roger.
     SC
                    Hey, Donn, you are right.
                                                That should
     CAP COM
be 311, 311 degrees. In other words, that was a minus 49
there.
                    Oh, I get it. Bill, I gather
     SC
then these shaft and Sun angles mean that with the ...
angle that's where the target will be ...
                    That is my impression and I'll get
     CAP COM
that straightened out, too.
     SC
                    Rog.
                    Yes, I've been told that's correct.
     CAP COM
                    Okay, fine.
     SC
                    Apollo 7, Houston --
     CAP COM
                    Got a little range on that second one.
... pulling in a little closer.
                    I'm sorry Donn, I cut you out.
     CAP COM
again please.
                    Roger, disregard.
     SC
                    Right, Apollo 7, Houston you have GO
     CAP COM
for 106 dash one.
                             Stand GO for 106 dash one.
     SC
                     Roger.
                     Rog. Apollo 7, Houston coming up on
     CAP COM
LOS, Canary at 59.
                     Roger, understand.
     SC
                     This is Apollo Control 139 hours 55 min-
     PAO
utes into the mission of Apollo 7. We will be acquiring at
Canary Islands at 139:59, about four minutes from this time.
Ah, during this last pass, we had passed up to the crew
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APOLLO 7 COMMENTARY, 10/17/68, GET: 1394100 (CDT 5:44a) 431/3

PAO through CAPCOM Pogue the GO for 106 dash one. That is GO for 105 orbits at 139:55, this is Apollo Control.

PAO This is Apollo Control, 139 hours, 59 minutes into the mission of Apollo 7. We're coming up now in acquisition with Canary Islands Tracking Station. Let's listen in.

CAPCOM Apollo 7, Houston, through Canary.

SC Roger.

CAPCOM Apollo 7, Houston. You're still in

ACCEPT; you can go to block if you wish.

SC Roger, block.

CAPCOM All right, thank you.
SC This is Apollo 7, over.
CAPCOM Apollo 7, Houston, GO.

SC Roger. Could you give me the astral dome for the sextant star count later on today? I don't understand why we're doing that.

CAPCOM Would you say again, please?

SC In the sextant star count scheduled for about 127 hours, I just wondered why we were doing it since we have already done the star count.

CAPCOM Okay, standby one. Apollo 7, Houston.

We'll get back with you on that one.

SC Okay. Sextant in the daytime.

CAPCOM Apollo 7, Houston, opposite omni.

Apollo 7, Houston. We're still not reading you. Would you select another omni for maximum strength, please?

SC Roger, this is channel four.

CAPCOM Right. Apollo 7, Houston, coming up

LOS Canary, Carnarvon at 33.

SC Roger.

PAO This is Apollo Control, 140 hours, 6 minutes into the mission of Apollo 7. We have lost our signal at Canary Island Tracking Station at this time. Our next acquisition point will be Canarvon at 14033, At 14006, this is Apollo Control.

PAO This is Apollo Control, 140 hours, 15 minutes into the mission of Apollo 7. We'll have a wrapup of the activities for the past 8 hours or going on And we will start back at revolution 84, 133 hours, 13 minutes into the mission. It was at a time when astronaut Eisele indicated that he had 30 clicks of water or 13 ounces and two aspirins. He had some contact with the ground. Schirra and Cunningham were in their sleeping bags and sleep mode. Things were very quiet through this night They gave at 133 hours, 47 minutes the current cryogenic quantities were given in the form of plus 66 pounds of oxygen. In other words, 66 more pounds of oxygen than had been planned for, plus 1 pound of hydrogen up to that point in the mission. Information came in that the S-IV reentry - that's the S-IVB stage of the Saturn launch vehicle that is in orbit presently - should be 166 hours. That's the seventh day of the mission it should reenter the earth's atmosphere. They have updates on the flight plan. At 135 hours, 17 minutes, astronaut Pogue, the CapCom, indicating that landmark tracking would occur during revolutions 90, 91, and 92. Landmark tracking - of yesterday wasn't so good because the optics didn't out too well. There was a trunnion problem. Eisele indicated at 136 hours, 21 minutes, in looking for stars they were hard to identify even if there was a star field with several stars apparent. stars themselves individually were hard to identify. At revolution 87, 137 hours, Eisele indicated he just took some neat ~ pictures of Australia. And he also indicated going back a bit that he had slept well. He also said that harkening back to a problem with their camera - the camera was working well. And again told about taking out the gummy grease as he called it and putting nose cream - applying nose cream to parts of the camera. And now it was operating very nicely. He also indicated at that time twenty more clicks of water. That's 10 ounces. And in a conversation with Pogue here in the Control Center, we've talked about water dumps interfering with the optics operations. In that interference - it seemed to be the water dump turns to an icy crisp - or turns to icy crystals after the dump. And for 3 or 4 minutes at least, the optics are sort of unusable. And then they are usable again after the ice crystals clear Things were very quiet - up through Carnarvon. 138 hours, 59 minutes in revolution 88 when Eisele indicated he was powering up a little bit early to get the P51 program which is the inertial measuring unit - going in a night pass. He wanted to get it operational in the night pass and he was doing it at that time. At 139 hours, 41 minutes, there was a landmark update. And had a GO for 106-1 which means 105 revolutions. The flight plan update

PAO for today - indicates that for the most part we have orbital navigation, landmark trackings, sextant star counts, and we have synoptic weather photography S006 photography, a synoptic weather of the south Atlantic and of North Africa and we have terrain photography, synoptic terrain photography, S005 experiments, taking pictures of Lake Chad area in North Africa and the southwest coast of The command module computer will be powered up but the spacecraft positioning will be controlled by the astronaut's use of the manual attitude hand controller, for such attitudes that they should have. That update goes through 152 hours of the mission. We are now at 140 hours, 21 minutes. The television schedule for today, Thursday, is 7:15 am. They will unstow, or have unstowed, and set up the TV at 140 hours into the mission, or 22 minutes ago, and they are scheduled to power up the camera at 141 hours, 12 minutes into That will be about 2 minutes before Texas the mission. acquisition. We have on the sighting table for this morning on the 17th of October, for the S4B stage, it will approach from the southwest at 7:10 am, Central Daylight Time, maximum elevation 27 degrees due south at 7:14 am, Central Daylight Time, and it will leave us here in Texas going due east at 7:17 am, and it should be visible. The command and service module approached from the southwest at 7:16 am maximum elevation 30 degrees due south at 7:20 am and will leave due east 7:23 am. At 140 hours, 23 minutes into the mission, this is Apollo Control.

APOLLO 7 COMMENTARY, 10/17/68, GET: 1403300 (CDT 6:37a) 434/1

pao This is Apollo Control at 140 hours 34 minutes into the mission. At the present time the space-craft is coming up on the Carnarvon, Australian tracking center and we anticipate that the crew would be having breakfast at this time. Wally Schirra and Walt Cunningham having completed their sleep cycles and we'll stand by here as CAPCOM Jack Swigert prepares to put in a call to the crew over Carnarvon. At the present time here in the Control Center, we are undergoing a change of shifts with flight director Glynn Lunney's team coming on to replace that of flight director Gerry Griffin and our CAPCOM at the present time is Astronaut Jack Swigert who has just put in a call to the crew. We'll pick up that conversation now over Carnaryon.

SC Okay, go ahead. What do you want?
CAP COM Okay, first we'd like to put the DC indicator switch to either Main A or Main B.

SC Okay, it's on Main A.

CAP COM Okay and then on panel five, we'd like to open the following circuit breaker, the BAT relay buss at A circuit breaker.

SC Stand by. Roger Pan relay buss BAT

A going open now.

CAP COM Okay, and we're going to leave it open here to get some time data. We'll close it just before LOS Honeysuckle.

SC Okay.

CAP COM What we'll do is we'll repeat the following procedure for Battery B over the states.

SC Okay.

CAP COM And, Donn, on the question you had on the sextant star count, what we had done before was the scanning telescope star count. This is a little different, we get a 37 degree LOS with the Sun.

SC Rog, I understand. I thought the sextant count was to be used in case the telescope count didn't pan out and since we did get, we did succeed in getting star counts on two lines of sight there I don't understand why we have to do it again. I've already verified that you can see stars in the sextant in the daytime.

CAP COM Okay, stand by. Donn, it's the line of sight that they feel that's important. We haven't done

anything quite that close to the Sun before.

SC Rog, we'll discuss it and call you back later. That's eating into my sleep time for one thing so I guess Walt can do it then.

CAP COM Okay. This is the last test we're

going to do on that, Donn.

APOLLO 7 COMMENTARY, 10/17/68, GET: 1403300 (CDT 6:37a) 434/2

SC Yes, okay.

CAP COM Donn, could you place your 02 tank

2 fans ON for three minutes and then OFF.

SC Roger, 2 going ON. (pause) Houston

Apollo 7, over.

CAP COM Good morning, Walt.

SC Roger. Morning reports seem to indicate that we're not ... in this cabin. Partial pressure 02 is still 245 millimeters.

CAP COM roger, copied that. Apollo 7, Houston, we got about one minute LOS Carnarvon. You want to turn up your S-band volume for Honeysuckle.

SC Roger.

PAO This is Mission Control. We'll have a brief dropout of signal now as the spacecraft passes out of range of the Carnarvon station. We'll be acquiring again in about one minute as we come back in range of the Honeysuckle station over in eastern Australia. During that pass over Carnarvon, you heard Donn Eisele comment with the flight controllers on the ground pertaining to the use of the sextant for star count and the ground advised that they would like to do another sextant star count at a different side angle. We also heard reference to recycling of the upper two oxygen cryogenic tank fans. This is a procedure that apparently is working quite well in preventing momentary overvoltages on the AC busses. We also heard their problem. Walt Cunningham for the first time since he began his sleep cycle, over 8 hours ago, still haven't heard from Commander Wally Schirra at this point, and Cunningham advised that the partial pressure of oxygen in the cabin is now up to 245 mm of mercury. That is well above the partial pressure or oxygen content that we have here at sea level. So that enrichment process of the cabin atmosphere is continuing and will continue throughout the mission, probably never reaching pure 02 in the cabin. We would expect to have a small amount of nitrogen left in the cabin at reentry. will stand by now as the spacecraft moves to within range of Honeysuckle and we should be reacquiring again in just a few seconds from now.

CAPCOM Apollo 7, Houston. You can close Batt relay buss, batt A circuit breaker now.

SC Good morning, Jack.

CAPCOM Good morning, Wally, how are you?

SC Very good. Did we just go over Penney's home stand.

CAPCOM Kind of looks that way.

SC Yes, it was up loud and clear, sitting there it was very pretty.

CAPCOM Roger. Did you copy the closure of battery buss A?

APOLLO 7 COMMENTARY, 10/17/68, GET: 140330 (CDT 06:37a) 434/3

(garble) SC Okay, real fine. CAPCOM We can see Sydney, Melbourne, Canberra, SC they stood out clear as a bell in the coastal area. Roger. CAPCOM That's dark. SC I can even see the Southern Cross at SC this time, so Penny can feel pretty good about the flag up in our office. Roger. CAPCOM Jack, do you have a map update handy? SC They are doing one. CAPCOM Okay, Walt, here is your map update. CAPCOM Go ahead. SC Okay. For rev 89, a GET of the node CAPCOM is 1410355, longitude 146.7 degrees west. We are pretty close to LOS Honeysuckle, pick you up at the Huntsville at -Evidently the spacecraft has passed out of range of the Honeysuckle station. You heard CAPCOM Jack Swigert advise the crew that we will be reacquiring over the tracking ship Huntsville in about 18 minutes. The spacecraft will continue to pass on up across the Pacific and on over the Guaymas, Mexico tracking station. We are scheduled to acquire at Texas, the Corpus Christi station, at 141 hours 12 minutes ground elapsed time for that television pass over the United States this morning. That will be about 7:15 am Houston time. At 140 hours 51 minutes into the mission, this is Apollo Control.

PAO This is Apollo Control at 141 hours 8 minutes into the mission. The Apollo 7 spacecraft at the present time is coming up south of the tracking ship Huntsville in the western Pacific. We should be acquiring there shortly. We've just shown that we do have acquisition and we expect a call to go in to the crew from CAPCOM John Swigert momentarily. Coming up on our stateside pass with the television transmission this morning, and we anticipate we will be acquiring at the Texas station, Corpus Christi, Texas, about 3 or 4 minutes from now. We'll stand by now for the CAPCOM to put in a call to the crew over Huntsville.

PAO We have been advised that the converter from the Texas site, the one that gave us a little trouble yesterday, appears to be working well this morning. We're getting a signal from the station, a test pattern on our screens, we just now put in a call to the crew. We'll pick up conversations from the Huntsville.

PAO We have just gone out of range of the Huntsville, we'll be reacquiring at Guaymas, Mexico shortly. The spacecraft ground track on this pass over the southern part of the North American continent will actually take us down below Baja, California, and out on across the central part of Mexico. We'll cross over about a third of the way down into the Gulf of Mexico and continue on across the Gulf and out over the upper part of the Florida peninsula into the Atlantic. Here is the call now to the crew through Guaymas.

CAPCOM Could I verify that the 02 tank 2 fans are off now?

SC We'll check it.

SC Give us a call, Jack, when you pick up the picture, will you?

CAPCOM Will do, Walt, and what we would like to do is get an open circuit check on battery B now and while we're going across the states now could we put the DC indicator switch at main A or main B and then pull the better relay bus bat B circuit breaker?

SC I pulled the circuit breaker in battery bus B bat relay bus.

CAPCOM Okay, fine Walt. We'll give it about 10 minutes and I'll ask you to close it.

SC Okay.

PAO The crew aboard Apollo 7 at the present time carrying out some last minute functions before we begin this television pass. They should have the TV camera on and warming up at the present time. Now we're just a little over a minute from acquisition at the Texas site and first resumption of those television pictures.

PAO And we are starting to get the first flickering of the picture. It fades in, and we have the picture dropping out again. There we have a good solid picture

PAO and we'll take a look at that.
CAPCOM We've got the picture now Walt.

SC Roger and good morning. We are with you today while passing over the states to give you our daily ritual.

SC Walt, would you please go over and dolly up the camera. I wonder what time it is. I'll call up the computer clock time and take a look.

CAPCOM Okay, the picture isn't the best right

at this time, Wally.

This is where we stand and you'll note it's just about the time (garble) time, I'm not sure which way you look at it, we have our situation completely solved. We now know what our orientation is. Now if you'll toss the camera now, I'll continue the tour of the cockpit for the people.

CAPCOM Apollo 7 Houston, opposite omni.

PAO We're going to switch antennas here to

try and improve the picture a little bit.

(break in on talk) you'll see out. That is a new picture of the camera crew today. They're looking from the commander's seat over to the number 01 window. And you see the sun just starting to come into the window and it gives out a bright glare, and you may notice there is some of the collection of deposit on the window as I zoom in this morning. This window has given us some trouble in that it is near our dump system and it caught some of the debris on Next to the window is the optical site which we use for accurate alinement for the window. We come over to the number 02 window with the markings on it. These markings are used to orient the spacecraft if we have no other guidance system available and it gives us the pitch angle in relation to the visible horizon of the earth and it has numbers such as 05 10 15 20 25 30 and a line at the top which is our retro attitude, the attitude we're in to decelerate the spacecraft out of our orbit. Coming over to the center window or the hatch window, we have some lines that were added to it to give us attitude reference for reentry. lines describe a 55 degree bank to the left, a 55 degree bank to the right, and two 90 degree banks either left or right.

CAPCOM Apollo 7 Houston, that's a good picture

of the hatch window. We can clearly see the lines.

CAPCOM Apollo 7 Houston.

CAPCOM Apollo 7 Houston, we're losing your

voice description.

SC Okay, Walt, why don't you take the camera back and you can show the over head section above the couches.

CAPCOM Okay, Wally, we've got your voice back now.

SC Roger, How's the picture, Jack?

CAPCOM The picture is very good, very good.

SC What I had shown you there were the two windows, the commander's reference window for pitch attitude, and the center hatch window for bank attitude for reentry if

we lose other guidance systems.

CAPCOM Roger, we copy the center window.

SC (break in talking) for the LMP, this
is where he sleeps. It's also where the command module
pilot sleeps during his sleep cycle. Under the third
couch we can see that there is absolutely no space left
available. We have a suit stowage bag which is now stuffed
completely full with three suits. These suits came off about
6 hours into the flight and we've been very comfortable
ever since. Passing back to the commander he will describe
the other couch for us.

This area here is the area under the command pilot couch and we're showing the stowage of some of our loose equipment, the large long bag is the temporary stowage bag. At the far end is the helmet bags where we have our helmets stowed for the duration of the flight till we put on our suits again and at this point Donn is frisking a sleep station bag. It looks like some little camp area sleeping bag as it comes toward the lens.

SC That is affixed to the overhead structure

that you see now -

CAPCOM Apollo 7, opposite omni.

SC (break in talking) is a spring system to secure.

SC When this is properly secured we have the sleeping bags restrained and we in essence are not in contact with any area of the spacecraft except the bag itself. Donn Eisele's had a rather hard day, so we'll let him turn in early and give you an idea of what the sleep station looks like with one of the crew in it.

SC One of the things to get used to up here was sleeping in a position when you are completely

free floating.

SC At this particular point you can see some of the sunlight coming in. We find that when we get as tired as we are at the end of the day here we will cover our heads with the sleeping bag material and the sunlight does not affect us. Houston, are you still reading us?

CAPCOM Roger, 5 by, Wally.

SC At the far end of the stowage above the couches here we have the helmet bags stowed for the commander on his side, and the lunar module pilot on his side

sc in the temporary stowage bag. You are looking here at two of the six umbilical hoses running from the environmental control system to the suits when the suits are on, and to provide circulation when the suits are off. Hose on your right is the cold air hose bringing cold air into the suit and the one with the screen on your left is the return hose from the suit. It is used also to clean the air with that screen when it's off the suit.

PAO
And we appear to be having trouble maintaining a good lock on this picture now as we've gone out of range of the Corpus Christi station, and over the station at Mila, the CAPCOM Jack Swigert, has now asked the crew to change antennas and they were back again with pictures.

SC Okay, we have the Hasselblad camera being held by Wally Schirra now, whoops, he let go of it.

Did you see that Jack?

CAPCOM Roger, we copied that. A real good

demonstration of zero g.

SC And we might add for everybody's benefit coming up later on in these flights that there is to be absolutely no problems with getting around in zero g as long as you're out of those suits. The work done is almost zero, and you can move any place you want to very freely and you certainly don't need strong handholds to take care of it. And you can generally jam your feet - you find you end up using your feet an awful lot more than you do in 01 g, kind of like a monkey moving around in his cage. You just took our picture. How's it going, Jack?

CAPCOM It's going real fine. We're kind of locked up on a midframe here, but we're getting a good

recording of this.

SC Okay, here is a pencil demonstration. Notice how Wally can control that pen just with his breath. He can blow on me and probably do the same thing.

CAPCOM Roger, saw that, Wally.

SC Okay, we have this 16mm camera sitting back on the wall there just above my head. This camera too has the wide angle lens and we'll have some color movies of some of our home activities, as we've already labeled the movies, naturally, our home movies.

CAPCOM We're just about to lose it now, Wally.
SC Roger, and we do remember to remove the

lens cap. and I just did.

CAPCOM Roger.
SC When we take pictures out the window we always focus at infinity.

CAPCOM Roger, we've lost the picture now.

APOLLO 7 COMMENTARY, 10/17/68, GET: 1410800 (CDT 7:11A) 435/5

as you heard CAPCOM Jack Swigert advise the crew. We had a very good picture early in that pass from Texas, and also excellent communications from the spacecraft on across the United States. We appear to have some problems with the scan converter at the Mila site, and we would anticipate that we got quite good recordings of that transmission, although the live play back left something to be desired with a little bit of trouble getting the frame rate properly centered. We'll continue now to monitor the crew conversations as they continue out on over the western Atlantic toward the northern part of Africa.

CAPCOM We didn't see the arrow on the aft bulkhead.

SC Well, it blew the whole bit.

CAPCOM We could see the lines on the hatch window very clearly, but not the lines on the rendezvous window.

APOLLO 7 COMMENTARY, 10/17/68, GET: 1412600 (CDT: 7:29a) 436/1

CAPCOM Lines on the hatch window very clearly but not the lines on the rendezvous window.

SC I see; very good.

SC Do you see the debris on my number 1

window.

CAPCOM No, we couldn't make that out and we lost your voice just about the time you were describing the just after you described the description of the hatch window lines.

SC I see.

CAPCOM 7, we are 1 minute LOS Bermuda; Canaries at 141 plus 33.

SC Roger.

PAO And this is Mission Control; we show that we have lost our acquisition with the spacecraft from Bermuda. We will be reacquiring in about 3 minutes from now over the Canary Islands. This is Apollo Control at 141 hours, 29 minutes.

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APOLLO 7 COMMENTARY, 10/17/68, GET: 1413500 (CDT 7:38a) 437/1
      PAO
                     This is Apollo Control at 141 hours,
              The Spacecraft has been acquired now over the
35 minutes.
Canary Island tracking station. The crew, at the present
time, is scheduled to be involved in weather photography
over the south Atlantic and on over the northern part of the
African continent and we'll listen in now for the conversations
between the crew and Mission Control Center.
     CAPCOM
                     Apollo 7, Houston through the Canaries.
Roger, I have some targets of opportunity that you can add
to your synoptic training photography list.
     SC
                     (garble)
                     Standby Wally, we've got a loud tone here.
     CAPCOM
     SC
                     Tell him, he can take the day off.
     CAPCOM
                     Apollo 7, Houston, are you reading now?
     SC
                     We read you loud and clear.
     CAPCOM
                     Okay, we had a loud comm there, which
cleared itself up.
     CAPCOM
                     Apollo 7, Houston, are you reading now?
     SC
                     We read you loud and clear.
     CAPCOM
                     Okay, we had a loud comm there, which
cleared itself up.
                     There are five targets of opportunity,
which you can add to your training photography.
     SC
                     Okay, how are you blocking those, by
time.
                     No, we're just giving you the targets,
     CAPCOM
and just letting you use your own judgement, fieldwise and
everything, to photograph them when you come over.
                     If you will give me a time hack, I could
put them on the flight plans faster.
CAPCOM Okay, standby. Wally, we may not get back to you with the GET of all five targets before Canaries.
then we'll pick you up at Tananarive at - .
                     (garble), we'll pick it up later.
     CAPCOM
                     Okay, we have Tananarive at 141 plus 52.
     SC
                     Okay. Okay. Houston, Apollo 7.
     CAPCOM
                     Go ahead 7.
     SC
                     Give me the five targets and we can look
them up ourselves.
     CAPCOM
                    Okay. Okay Wally, number one is the
volcano in the Galapagos Islands.
     SC
                     Galapagos, okay.
     CAPCOM
                     Number two is the Kilauea volcano in
Hawaii, and numer three is the Elat volcano in Luzon, in the
Philippine Islands.
                    Roger, I got that.
     CAPCOM
                    And number four is Mt. Areno in Costa
Rica, and that is 9 degrees north, longitude 84 degrees west.
```

Standing by for (garble).

And number five is Fort Bliss area in

CAPCOM

APOLLO 7 COMMENTARY, 10/17/68, GET: 1413500 (CDT 7:38a) 437/2

El Paso. CAPCOM

Roger, I think (garble) yesterday. SC Okay, and the number three - the Elat CAPCOM volcano in the Philippines, the lat is 14 degrees north,

longitude 120 degrees east.

120, Roger. Okay, we're going to do that SC area today and a few landmarks and all of that good stuff, so you'll have a chance to (garble).

Roger. Wally, we've got a sixth one they / Africa, between 10 degrees north, 25 degrees CAPCOM just handed me.

east to 15 degrees north, 25 degrees east.

Okay. (garble) Africa pretty hard, because that (garble) - as you can see right now, the daylight. Okay, fine. Could we get that Bat Relay CAPCOM

Buss - Bat B circuit breaker closed now?

Done. Jack, what are the emphasis we need (garble) 15 to 20 minutes (garble) to stay near him. Roger. CAPCOM

This is Mission Control, we have had PAO LOS from the Spacecraft over the Canary Islands. Spacecraft now passing over the northern part of the African Continent and we will continue on down across Central Africa and out across the Madagascar Republic where we will acquire at the Tananarive station. Present - this is Mission Control at 141 hours, 40 minutes into the flight.

## APOLLO 7 COMMENTARY, 10/17/68, GET: 1415400 (CDT 07:57a) 438/1

PAO This is Apollo Control at 141 hours 54 minutes, coming up on Tananarive and we will listen for the conversation with the crew.

CAPCOM Apollo 7, Houston through Tananarive, standing by.

SC Apollo 7.

CAPCOM Apollo 7, Houston. One minute LOS Tananarive, Carnarvon at 142 + 08.

PAO This is Mission Control. Apollo 7 is now out of range of the Tananarive tracking station and we will acquire the spacecraft next as it goes over Carnarvon. During this rev, the Apollo 7 crew will be searching out a number of targets of opportunity for their synoptic weather and terrain photography, including volcanoes in the Hawaiian Islands and the Philippines. At 141 hours 59 minutes, this is Apollo Control.

APOLLO 7 COMMENTARY, 10/17/68, GET: 1421000 (CDT 8:14a) 439/1

This is Apollo Control at 142 hours 11 PAO minutes. Our CAPCOM Jack Swigert has just put a call into the crew over Carnarvon and we'll pick up the conversation.

Oh, two thirds of the way, or half the way through, and we've got it on tape and we are trying to replay it - to where it's not locked on a mid frame. We lost voice just about the time Wally started describing the middle hatch there and to where you picked it up right after that. Walt, this land mark number 37; it's 78 miles north of ground track.

And could we get the biomed switch to CAPCOM

CDR?

Done. SC

Apollo 7, opposite OMNI. Apollo 7, Houston. CAPCOM We are 1 minute LOS Carnarvon. We pick up HSK here; do you want to turn your S band volume up?

Okay. Jack, log the LMP temp of the water

on the water (garble) would you please?

in a single series of the contract of the cont

Roger; will do. CAPCOM

This is Mission Control. That appears PAO to be about all we'll get from the crew over Carnarvon. We'll pick up again in a few minutes as the spacecraft comes into view of the HSK station.

PAO This is Apollo Control at 142 hours, 37 minutes into the mission. We've acquired the spacecraft over Hawaii, and are in communication with the crew.

CAPCOM Apollo 7, Houston through Hawaii.

SC Aloha.

CAPCOM Roger, Wally, you're coming through

loud and clear.

CAPCOM Go ahead.

SC Log the CMP 20 clicks on the water gun.

CAPCOM Will do. Hey, Donn, on this second landmark. This is going to be a very difficult one to acquire. You'll probably have to roll up to about 30 degrees right to acquire it, and there's some cloud cover up there. We're saying near seven tenths. If you do have any problems getting it go ahead and acquire on an unknown landmark and track that.

SC You say the second one, that's (garble),

right?

CAPCOM Yes sir..

CAPCOM It's very likely we won't get it and we (garble) check out of the (garble) landmark.

CAPCOM Okay; understand.

PAO This is Mission Control; we'll have a brief dropout in communications here as the spacecraft crosses between acquisition at Hawaii, and is picked up again by the

Tracking Ship Huntsville. We'll stand by.

pAŌ We have had no conversation from the crew yet over Huntsville; we will have a pretty solid contact with the spacecraft now on across this Stateside pass. At the present time, the spacecraft is in an orbit 153 miles at his high point, with a perigee, or a low point, of just about 90 nautical miles. Now the orbital weight of the vehicle is 29 580 pounds at the present time.

CAPCOM Apollo 7, Houston. Apollo 7, Houston.

Apollo 7, Houston.

SC Go ahead.

CAPCOM Roger; we have a small correction to the location of landmark 37, the second landmark.

SC Go ahead.

CAPCOM Okay, that's 78 miles south - south of ground track, which means you are going to have to roll that

SC That's about 150 miles.

CAPCOM Small - which means you are going to have to roll left to hit it. I'm sorry about that.

SC (garble) Thank you. (garble)

```
APOLLO 7 COMMENTARY, 10/17/68, GET: 1424700 (CDT 08:50a) 441/1
      SC
                      Four marks in so far.
      CAPCOM
                      Apollo 7, Houston.
      SC
                      We've got five marks in that first
 landmark.
      CAPCOM
                      Okay, real fine. We have a - well.
 we changed that 78 miles from north to south.
                                                  That is
 going to change our shaft that you should be reading. Your
 shaft for the second landmark will be 049 degrees, same
 trunnion.
      SC
                      Roger.
      SC
                      (garble) updates. Are you reading
 these. Jack?
      CAPCOM
                      Affirmative, Donn. We are copying
 them.
      SC
                     Okay, I'11 just (garble) on that.
                     Houston, vector is good at all marks
 or better, or else it's not working.
      CAPCOM
                      Roger, copy that.
      SC
                      Roger.
      SC
                     Boy, you can really tell who is
 burning fires down there today.
      CAPCOM
                      Roger, Walt.
                     There is one place, there is a smoke
      SC
 curl of about 160 miles. It obscures the whole area.
      CAPCOM
                     Copy that.
                     The pollution ought to get up here
      SC
some time.
      SC
                     At 142 hours 51 minutes 34 seconds,
Wally took a picture of the scene with the large smoke trail off of it.
      CAPCOM
                     Copy.
      SC
                     Starting to roll left.
      SC
                     Here is a target location update.
                     Hey Walt, that place is under water.
      SC
      SC
                     Jack, what is that trunnion angle
and shaft angle for this target?
                     The trunnion is going to be 049 and
      CAPCOM
the shaft is going to be 03 - rather the shaft is going to
be 049, trunnion 030.
      SC
                     Okay.
                            That's with the roll angle in?
      CAPCOM
                     Negative. That is not with the roll
angle in.
                     Okay, so we can subtract the roll
angle a little there, somewhat.
      CAPCOM
                     Affirmative.
                     Pictures 127 to 130 were taken at
Houston and the area north of Dallas and Dallas.
     CAPCOM
                     Roger.
```

APOLLO 7 COMMENTARY, 10/17/68, GET: 1424700 (CDT 08:50a) 441/2

SC But we are socked in right off the

Gulf coast.

SC (garble) we might be through in 10

more minutes (garble).

CAPCOM Roger.

SC Jack, whereabouts is Guaymas this

morning?

CAPCOM Stand by. I'll get you lat and long.

Wally it looks like -

442/1

APOLLO 7 COMMENTARY, 10/17/68, GET 1425500 CDT 8:57a

CAPCOM Wally, it looks like it's just west

and the second of the second of the second of the second

of Fort Meyers.

SC Right, Walt has it right now. It's

to the south of us.

SC Jack, next pass if we don't have a landmark right around this same area, we can get a beautiful picture of that hurricane.

CAPCOM Okay, sounds good.

SC The weather is too bad to see Tyndal.

SC Hey, Jack. CAPCOM Go ahead.

SC Apollo 7. Houston, Apollo 7.

CAPCOM Go ahead.

SC Roger, Jack. That isn't enough time

between landmarks.

CAPCOM Roger (cut off)

SC I have to get my book to the next landmark, and check booth squared away, and load in new data. Plus accept all the results of the first one. You just can't get it all done in 7 minutes.

CAPCOM Okay, I copy that Donn.

SC I didn't get an (unreadable) mark either because it was just too late getting on the scope. Also, I was trying to find out - and we - a good place to practice landmarks is right here. (cut off) JT.

CAPCOM Roger, understand.

CAPCOM You understand, we never did get land-

mark training with our simulator, it did not work.

CAPCOM Rog, I knew that.

```
APOLLO 7 COMMENTARY, 10/17/68, GET: 1430000 (CDT 9:02) 443/1
                    Houston, Apollo 7.
                    Apollo 7, Houston, GO.
     CAPCOM
                    Roger, when I transmit the pulse to
     SC
self command, it is much more difficult than it is in the (garble).
I have to pull the switch very rapidly to avoid a break
command pulse.
                    Roger, copy that.
                                       Wally -
     CAPCOM
                    That's the only abnormality I've seen in
     SC
the system, other than the fact that the pulses are much
smaller than they are in the simulator.
                    Okay, copy that. We do have the information
     CAPCOM
on the first landmark for that next P-22, during the next Rev.
If you're ready to copy.
                    I think we'll use the (garble) with the
     SC
(garble).
     CAPCOM
                     Okay.
                    Wait a minute, here it comes. Go ahead.
                    Okay, this will be landmark 18, it's north
     CAPCOM
of ground track, 28 miles north. The GET is 144 plus 23.
You 11 have a shaft of 343 and a trunnion of 31.
                    The 14423 was the GET landmark, right?
     SC
                     Affirmative.
     CAPCOM
                     How about landmark number and
     SC
give me the GET again.
                    Okay, it's landmark 18 28 miles north of
      CAPCOM
ground track.
                     Landmark 18 28 miles north, 144 plus 23,
shaft rate 343 and trunnion of 31.
                     Roger.
      CAPCOM
                     We, re trying to find a second one for you
      CAPCOM
that gives you enough time in between sightings, and if not,
we'll give you - let you have an unknown landmark exercise.
                     Okay.
      SC
                     And Donn, on the second landmark for this
      CAPCOM
next Rev, we can't find a suitable landmark that is clear at
 this time, so it's an unknown landmark exercise, it's your
                     Okay, fine. If there are too many clouds,
 I'll just use a cloud bank.
                     Real fine.
      CAPCOM
                     This is Mission Control at 143 hours,
             We have completed that stateside pass now, and
 4 minutes.
 have lost acquisition with the station at Antigua.
                                                     The next
 station to acquire will be the Tananarive station.
                                                      The Space-
 craft will pass north of Ascension. We don't anticipate any
 conversation with the crew over Ascension. This is Apollo
```

Control at 143 hours, 4 minutes.

APOLLO 7 COMMENTARY, 10/17/68, GET: 14327 (CDT: 3:30a) 444/1

PAO This is Apollo Control at 143 hours, 27 minutes. At the present time the Apollo 7 spacecraft is coming up on the Tananarive Tracking Station. Flight plan calls for the crew to be involved in photographing the southwest coast of Africa at the present time; and we have a call in to the spacecraft.

CAPCOM Don.

SC That's 5 points on it (garble) and it's (garble) landmark (garble). I think it's (garble) for the landmark.

CAPCOM Don, you started out real good and then you faded out; we'll catch you over Carnarvon on that report. We copied that the update to the state vector were all zips.

PAO This is Apollo Control. We are having some difficulty getting good communications with the space-craft during this pass over Tananarive. We'll stand by and pick up the loop again if any conversations develop.

## APOLLO 7 COMMENTARY, 10/17/68, GET: 14343 (CDT 9:46A) 445/1

PAO This is Apollo control at 143 hours 43 minutes. We're standing by now to pick up the spacecraft over the Carnarvon, Australia tracking station. We've just put in a call to the crew.

CAPCOM Roger. I have a couple of questions for

Walt, here.

SC I'm listening.

CAPCOM Okay, the gurgling sound that we heard yesterday, Walt, when we were on AUTO 01 then. Did you hear the same gurgling sound in AUTO 02?

SC It came back at several different times. It's also gone away. It seems to be associated with higher community time. AUTO 01 and AUTO 02 are both working on the segment accumulators.

CAPCOM Okay, fine.

SC We have a theory, Jack, that where we provide g on a burn we start disturbing water that may be in the lines and get it started out of the pipes.

CAPCOM Okay, copy that. You are still stroking

manually a little bit, too?

SC Yes, we hit it a couple of times. I'm not sure that had anything to do with clearing it up or any thing. It seems to me it kind of runs its course and it's occurred after burns every time.

CAPCOM Okay, and then we had some garlbed transmissions. We didn't get too much of the transmission when you reported a leak yesterday at the water panel. Did

this occur when you were dumping waste water?

SC Every time we've dumped waste water the place where the PUD attaches to the waste water panel is a what do you call it - a swaged fitting - and there is no 0 ring in it, and we tightened it up and it leaked. I tightened it up again as much as I think we ought to on that small line with the wrench we have and it still forms a big bubble every time you dump. You get a - oh, 4 or 5 ounces of water in one big bubble right there on the waste water panel after you've finished dumping a waste water tank.

CAPCOM Okay, copied that.

SC Just to make the point clear, Jack, that same fitting is used as a GFE fitting on the spacecraft prep period there at the Cape, and they used a Voishant washer in there, but we can't do it that way. They're going to redesign that fitting for later flights or put a solid mount in.

CAPCOM Okay, real fine, real good description here. And the other thing is I have - we've got another land mark on this next pass that is - allows you to do some unknown land mark tracking in between. We'd like to pass you some data on a second land mark on this next pass.

```
APOLLO 7 COMMENTARY, 10/17/68, GET: 14343 (CDT 9:46A) 445/2
                    Okay, go ahead.
     SC
                    Jack, on this next pass, we'd like to
     SC
make a run on that hurricane instead of an unknown.
get unknowns all around the world.
                    Okay, we concur on that, Wally.
     CAPCOM
like for you to send up a state vector here at Carnarvon.
Could you go to ACCEPT?
                     You've got it.
     SC
                    Okay, coming up. Okay this land mark
     CAPCOM
                It's 68 miles south of ground track.
is number 225.
                     Okay, Jack, hold it. Donn's doing a
little thing here.
                     All right start again, Jack. I'm sorry.
     SC
                     Okay. Land mark 225 68 miles south
     CAPCOM
of ground track, GET 144 plus 56 shaft 037 trunnion 033.
                     Okay. Land mark 225 68 miles south
14456 the time, 037033 shaft and trunnion.
                    Okay, this will be a real marginal
     CAPCOM
land mark since it's quite close to the terminator there.
                     Okay.
     SC
                    Okay, and I'm ready with your NAV check
     CAPCOm
pad when you're ready to copy.
                     All right, stand by. Go.
                     Okay GET 143470000 minus 2613 plus 11802
     CAPCOM
1502.
                     Roger. 14347 4 balls minus 2613 plus
11802 1502.
                     Roger, and we're through with the computer.
     CAPCOM
                     And Wally, would you like an update
     CAPCOM
for the telescope for watching the hurricane or do you
intend to do that visually?
                     Visually.
     SC
                     Okay, we copy.
     CAPCOM
CACOM Okay, Wally, the present position of the hurricane is about 100 miles due west of Tampa.
                     Roger.
     SC
                     I'Il give you part of the news. The
     CAPCOM
front page headlines this morning on the mission says, "Big
Storm tracked by Apollo 7" and describes the spacecraft
as a manned weather satellite.
                     The witch is out, Finley.
     SC
                     We're about 1 minute LOS Carnarvon, we'll
     CAPCOM
pick you up at Hawaii at 144 plus 07.
                     One day we're time sat and now we're
     SC
nav sat.
     CAPCOM
                     Roger.
                     Our navy boys, they're just worried
about being unsat.
```

This is Mission Control. We've lost

acquisition now at the Carnarvon station, and we'll be

APOLLO 7 COMMENTARY 10/17/68, GET: 14343 (CDT 9:46A) 445/3

PAO reacquiring the spacecraft again at Hawaii. During that pass you heard Wally Schirra describe a small leak that they encountered. As he described it, it was on the water panel during a dump of waste water. He said they get about 4 or 5 ounces of water which apparently comes out as one big bubble when the waste water is dumped. He said they had tightened the fitting in an effort to cut down the leakage, but they were still getting about 4 to 5 ounces in that bubble. This is Apollo Control at 143 hours 52 minutes into the mission.

This is Apollo Control at 144 hours PAO 07 minutes into the mission. At the present time, the spacecraft is coming up on Hawaii and the crew, during this pass, will have an opportunity to view one of those volcanoes that we understand is active on the island of Hawaii, the volcano Kilauea. Later on in this pass, they are scheduled to attempt two more landmark trackings, one of these sites is the city of El Paso and the other in south Africa on the western coast, will be Walvis Bay. During the first two tracking exercises that - actually three were scheduled, the crew successfully carried out two of them. The third site was covered by - obscured by clouds. This landmark tracking, of course, will be of value to a subsequent mission to the moon, where the astronauts would be able to update their orbital information in lunar orbit, from onboard information, and supplemented by ground tracking updates. We now have acquired at Hawaii and we will be putting a call to the crew shortly. We will stand by for that.

CAPCOM Apollo 7, Houston through Hawaii. SC Go ahead.

CAPCOM Apollo 7, Houston. I have your block 16 data whenever you are ready to copy.

SC Go ahead, Jack.

CAPCOM Okay. 093 dash 4A, able + 310 - 1620 146 + 58 + 143420094 dash 4 able + 305 - 1619, 148 + 34 + 163452095 dash 4 able + 257 - 1630150 + 09 + 203350096 dash 3 able + 313 + 1339151 + 25 + 413430, 097 dash 3 able + 299 + 1339, 153 + 01 + 353455, 098 dash 3 charlie + 206 + 1419154 + 38 + 443101 end.

SC Roger, readback as follows. 093 dash
4 able + 310 - 1620146 + 58 + 143420094 dash 4 able + 305 1619148 + 34 163452095 dash 4 able + 257 minus 1630150 +
09 + 203350, 096 dash 3 able + 313 + 1339151 + 25 + 413430
097 dash 3 able + 299 + 1339, 153 + 01 + 353455098 dash 3
charlie + 106 + 1419154 + 38 + 443101 over.

CAPCOM Roger. That is correct.

APOLLO 7 COMMENTARY, 10/17/68, GET: 14417 (CDT: 10:20a) 447/1

Huntsville AOS. Huntsville AOS. CAPCOM

Garble. Hey, Jack, do you have much this SC pass because we're going to be pretty well tied up doing cameras back and forth.

Nothing except the morning news which I CAPCOM can read when ever you are able to -

We'll wait.

Fine. CAPCOM Garble SC

We are having a relatively quiet pass over the United States at this time. The crew indicated they PAO would be quite busy taking photographs and we expect that they will be attempting shortly to get some additional pictures of Hurricane Gladys as they move out over the Gulf of Mexico and across the Florida penisula. We will continue to monitor for conversations.

```
APOLLO 7 COMMENTARY, 10/17/68, GET: 14427 (CDT 10:30a) 448/1
                    Apollo 7, Houston opposite omni,
     CAPCOM
could you tell us which one you will be on when you switch?
                    Able.
                    Roger, understand able.
     CAPCOM
                    (garble)
     SC
                    Say again, Wally.
     CAPCOM
                    We are watching in on the eye of the
     SC
hurricane.
                    Okay, real fine.
     CAPCOM
                                       Say, that's really
                    It's south of us.
a spinner.
     CAPCOM
                    Copy.
                    We are getting a very good definition
     SC
here. You can see the start of it right below us now.
going over the beginning of it. It's wide open to the west.
                    It's a very spectacular view. The -
there are a lot of broken clouds around the edge of it, but
it tightens up in the center. A real tight vortex and we
are spotting a few - quite a few thunderstorms about 100 miles
outward - 150 miles off the center. There is a wide blue
area and then it tightens up in the center and reaches a peak
just like the thunderstorms we described in South America.
                    Roger, copy that.
     CAPCOM
                    Stand by for a mark. We are due south.
     SC
Stand by, mark.
                    Wally, was the mark right over the
     CAPCOM
eye?
                     That's affirm. The eye is south of us
     SC
about 200 miles, 150 miles.
                     Okay.
     CAPCOM
                     Jack, on that run, we ran the 16mm
     SC
movie camera at 1 frame per second, for a strip back from
the west coast through the hurricane. We ran the panatomic
 film with red and green filters from the west coast through
El Paso. We ran the S021 from El Paso through the hurricane,
 including Houston. The chief landmark tracking on El Paso,
 I'll have Donn fill you on that.
                     Okay, real fine, Wally.
      CAPCOM
                     Right now, we are doing nothing.
      SC
                     You should have seen it up here, it
      SC
 looked like squirrels in a cage.
                     Roger.
      CAPCOM
                     Log this, Jack. Frame 142 is where
      SC
 we completed taking pictures of the hurricane at this time,
 I can't quite read - at 31, and just prior to that, we took
 three or four shots of the Houston area, which is wide open,
 the whole area down there. Everything stood out like a
 bell.
```

Okay, copy that.

CAPCOM

```
Magazine F. That's been one of our
                     It almost made us homesick.
 best passes today.
                     Roger.
      CAPCOM
                     We plan to drop in in a few days.
      SC
                     Roger, understand.
      CAPCOM
                     Jack, I ended doing an unknown land-
 mark. The auto optics brought it in the sextant but
 I got behind it, it was moving so fast, and never did get
 a mark on the runway. You really got to get on it in a hurry
 because it's whistling by, so I ended up taking a little spot
 out in the desert and did an unknown landmark instead.
                     Okay, copy that, Donn.
      CAPCOM
                     Incidently, the tracking pass itself
 in general is fairly easy to do if you get on it fast enough.
 The - I guess the hard part for me is in the procedural
 aspects of flipping switches and going through the program
while the target is whistling by.
                     Apollo 7, Houston.
      CAPCOM
                      Go ahead.
      SC
                      Roger. We would like you to switch
      CAPCOM
 to the secondary tanks in quad charlie, give us a mark when
 you do it.
                      You want the main off first or second-
      SC
 ary on first?
                      Secondary on first.
      CAPCOM
         Roger. Stand by. All right, charlie Primary charlie is coming off, mark.
                      Okay, we are about to lose you over
      CAPCOM
 Bermuda here. We will pick you up at Ascension at 144 + 39.
                      Roger.
      SC
                      Apollo 7, Houston.
      CAPCOM
                      Go ahead.
      SC
                      Walt, did you put any high bit rate
      CAPCOM
 in the DSE this last rev?
                      Yes, sir.
      SC
      CAPCOM
                      Roger, copy.
                      We put it on when Donn was getting
      SC
 his state vector update.
                      Okay.
      CAPCOM
                      Would you like to hear what we have
      SC
          It probably screws up your dump schedule, doesn't
 put on?
 it?
                      I've got a nod down here on that ques-
      CAPCOM
 tion.
                      Okay, we will try and do that -
      SC
```

APOLLO 7 COMMENTARY, 10/17/68, GET: 1443700 (CDT 10:40a) 449/1

SC It will probably screw up your dump schedule if it does it.

CAPCOM I have a nod down here on that question.

SC Okay, we'll try to do that.

CAPCOM Walt, on the landmark tracking, about all we need to get is low bit rate.

SC Understand all you need is low bit rate for the landmark tracking.

CAPCON Okay and we're going to lose you here at Ascension at 14445.

This is Apollo Control. We've had LOS now of the Spacecraft from Antigua. A very active and interesting pass there on the latter part as Wally Schirra gave us a birdseye view from space, of hurricane Gladys, which he described as a real spinner and a spectacular He seemed to have been especially impressed with the tight vortex of the storm. Eisele also commented that, as you heard, on how busy things were in the cabin at the time. Describing he and his fellow crewmen as looking like a bunch of squirrels in a cage, and of course, we'll look forward to seeing some of the photos that the crew referred to and they apparently got some good ones on that pass, both still and motion picture of the Houston area and out on across the Gulf getting some good views of hurricane Gladys. We'll be picking up the Spacecraft again over the Ascension tracking station. Acquisition due there in about 6 minutes. This is Apollo Control at 144 hours, 40 minutes into the flight.

APOLLO 7 COMMENTARY, 10/17/68, GET: 14445 (CDT: 10:48a) 450/1

PAO This is Apollo Control at 144 hours, 45 minutes and the spacecraft is coming up on the Tananarive or rather the Ascension Station at this time, and we have just acquired CAPCOM Jack Swigert, he has put in a call to the crew.

SC Go ahead.

pao Shortly after this pass over Ascension is completed, the crew will be scheduled to conduct another land mark tracking exercise as they move over Southwest Africa. They will attempt to acquire Walvis Bay in the scanning telescope and once they have picked it up there, they'll transfer to the sextant and attempt to track and feed mark inputs into a computer. This information can then be used to determine their orbital parameters.

CAPCOM Apollo 7, Houston; we are 1 minute LOS

Ascension. Tananarive at 145 plus 01.

This is Apollo Control. The spacecraft has now gone over the horizon and is out of range of the Ascension Tracking Station. We'll acquire next at Tananarive and that's scheduled to occur in about 8 or 9 minutes from Flight surgeon Dr. Hawkins reports that the crew conditions appear to be improving; the crew reports that they are getting caught up on their sleep, the water in-take is good, and he says that Schirra and Eisele both report their colds are now somewhat improved. Walt Cunningham continues to report that there is some congestion, but says he feels The space flight meteorology group said this morning that weather conditions for the flight of Apollo 7 will continue to be satisfactory over the next 24 hours, and in the West Atlantic landing areas, the weather will be partly cloudy with a few showers. In the East Atlantic skies will be fair to partly cloudy and in the Western Pacific landing areas the weather will be mostly cloudy with a few showers. In the Mid Pacific area, weather will be fair to partly cloudy, and as we heard, the astronauts again this morning, got a good look at Hurricane Gladys as the storm moves across the west coast of Florida. But later this afternoon it is anticipated that they will get a good view of Tropical Storm Gloria, located in the West Pacific. The spacecraft is due to pass almost directly over that storm. At 144 hours, 54 minutes into the flight, this is Apollo Control.

APOLLO 7 COMMENTARY, 10/17/68, GET: 14503 (CDT: 11:05a) 451/1

PAO This is Apollo Control at 145 hours, 3 minutes. The spacecraft has just passed from daylight into darkness crossing the terminator, and CAPCOM Jack Swigert has put in a call to the crew. We'll pick up there.

CAPCOM Apollo 7, Houston through Tananarive.

Standing by.

SC This is Apollo 7.

CAPCOM Go ahead 7.

SC We got (garble) from that last one.

(garble) calls for an update (garble) comes down.

SC (Garble)
SC (Garble)

CAPCOM · Apollo 7, Houston; we are close to LOS Tananarive; we'll have ARIA on S band at 145 plus 12.

SC (Garble)

page acquisition of the spacecraft over Tananarive. The communications on that pass were not too good, as the spacecraft was passing well south of the tracking station. Just barely clipping the end off the acquisition circle. You heard the crew advise that they had gotten, been able to acquire the land mark on the southwest coast of Africa in the scanning telescope and had gotten 5 marks on it as they passed over through the sextant. The next station to acquire will be one of the 5 ARIA aircraft; that's scheduled at 145 hours, 12 minutes. Following that we will have a pass over Carnarvon, and on up just barely catching Guam over the Hawaiian Islands. At 145 hours, 7 minutes, this is Apollo Control

APOLLO 7 COMMENTARY, 10/17/68, GET: 14515 (CDT 11:18A) 452/1

PAO This is Apollo Control at 145 hours 16 minutes. We'll be coming within range of the station at Carnarvon shortly as the spacecraft passes just parallel to the northwestern Australian coast and out over the Pacific Ocean. We'll stand by now for the call to the crew from CAPCOM Jack Swigert.

CAPCOM Apollo 7 Houston through Carnarvon.

SC Roger, Houston.

CAPCOM Apollo 7, Houston. Opposite omni.

SC Say again, Jack.

CAPCOM Opposite omni, please.

CAPCOM Apollo 7, Houston, 1 minute LOS Carnarvon.

I'll pick you up at Guam at 145 plus 28.

SC Roger.

PAO This is Apollo Control. We're about to lose acquistion with the spacecraft over Carnarvon. We'll be acquiring next from the station at Guam. Coming up on this pass the Apollo 7 crew is scheduled to attempt another star count in daylight with the onboard sextant. The flight plan calls for that activity to occur as they pass over their upcoming stateside pass from Guaymas, Mexico, and out over the site at Mila. At 145 hours 25 minutes into the flight this is Apollo Control.

PAO This is Apollo Control at 145 hours 42 minutes. We recently completed a pass over Guam and we'll play that back for you in it's entirety, and then pick up with the pass over Hawaii.

CAPCOM Apollo 7, Houston through Guam

SC

Say again. and 7 we'll have a state vector update CAPCOM to send you over Hawaii.

SC (garble)

CAPCOM Apollo 7, Houston.

SC Go ahead.

CAPCOM Okay, I have a pad on this landmark tracking test that you're going to do here over pass beginning Hawaii.

SC Go ahead, partner.

CAPCOM Okay, The first landmark 10 it's south of ground track 65 miles, GET 145 plus 56 shaft 043, trunion 34. The weather's clear at this landmark. Second landmark 142 18 miles north of ground track GET 146 plus 17 shaft 347 trunnion 31, looks like it's about three tenths covered.

SC Roger, We just got two to track, Jack? CAPCOM Affirmative.

SC I see. I'll try to squeeze in an unknown one in the middle somewhere.

CAPCOM Okay, good. Walt, could we get you to switch the S band OX TV switch band off?

SC That's a good idea.

CAPCOM We pick up Hawaii at 145 plus 41.

SC Roger.

The last of the news that I didn't finish CAPCOM this morning. The National Institute of Health announced today that they have a development of a vaccine to prevent German measles. Tommy Smith won a Gold Medal in the 200 meter dash with a world record time of 19.8. Bob Seagren picked up the United State's sixth Gold Medal by winning the pole vault, with a world record of 17 feet 8 1/2 inches. George Foreman, of Houston, won a split decision in the opening round of the Olympic Boxing.

Sounds like the home team is doing Okay SC

down there.

CAPCOM It sure is.

SC Jack, that hurricane is really a doozey. I haven't seen anything like that ever.

It's moving north, Wally, it should hit the coast of Florida, around Tallahassee.

SC What are the highest winds? (garble) CAPCOM Apollo 7, Houston through Hawaii.

APOLLO 7 COMMENTARY, 10/17/68, GET: 14542 (CDT: 11:45a) 453/2

SC Go ahead.

CAPCOM Roger; we would like to send you astate vector update whenever you're ready.

Go man.

CAPCOM Okay, coming up 7, and I'm ready to read you the nav check whenever you are ready to copy.

Go ahead Jack.

CAPCOM Okay, GET 144 plus 50 plus 0000 minus

0936 minus 00891 1013.

Is your update in now?

CAPCOM Affirmative; the update is in; the com-

puter is yours.

Here's your read back Jack.

did you copy the read back?

Negative. I didn't copy the read back. CAPCOM

SC It's on the DISKY.

CAPCOM Roger. Copy the read back.

SC Readback, hey?

CAPCOM Roger.

CAPCOM Apollo 7, Houston. Opposite OMNI.

**CAPCOM** Apollo 7, Houston.

```
APOLLO 7 COMMENTARY, 10/17/68, GET: 14552 (CDT 11:55a) 454/1
                     Jack, 3H143 and 144 are San Diego.
     SC
                     Roger, copy that.
     CAPCOM
                     Loud and clear, you can see all the way
     SC
to North Island and Miramar, the whole scene.
                     Wally, I have this sextant star count
pad that I can give you anytime.
                     I would like to finish this one landmark.
     SC
                     Okay, in no hurry.
     CAPCOM
     SC
                     Roger.
                     Got 5 marks.
     SC
                     Houston, Apollo 7.
     SC
                     Go ahead 7.
     CAPCOM
                     Roger, are you getting the data off of
     SC
the computer?
                     Affirmative.
     CAPCOM
                     Roger, this is the alternate navigator
     SC
doing the marking.
                     Roger.
     CAPCOM
                     And we again got all 0's on the Delta-R.
Delta-V updates, and we have some changes to the landmark
location on the lat - long and latitude. That point is
3600 feet under water.
     CAPCOM
                     Okay, let's copy that.
                     We took (garble)
     SC
                     The weather looks good on the Gulf,
     SC
(garble) a little bit of scattered (garble) and that's just
about it. Nothing west of you. (garble) over Freeport,
clear as a bell.
                     Wally, we're trying to save some Cal
     CAPCOM
25 weather for you.
                     Yes, I would like to get some of that.
Same feeling here. Got a pretty big (garble) out now. Thanks for getting that storm out of the way, I appreciate
that.
                     Okay. Let me know when you are ready
     CAPCOM
to copy that sextant star count pad? And Wally, something
else that you might note here, we didn't copy any canister
change or of the 02 purge which was about 4 hours ago.
                     Yes, we've made the canister change and
the 02 purge.
                     Okay, I understand they are both complete.
     CAPCOM
                     Four optical on the O2 purge?
     SC
                     Roger, that was the one at 14130.
     CAPCOM
                     When you check that off, we owe you
that one, the canister was changed.
                     Okay, copy that.
     CAPCOM
                     Roger. we were busy TVing about purge
```

doing it. Roger, that's why we thought we would just CAPCOM ask.

time. Yes, we were on camera then, you know we weren't

SC

APOLLO 7 COMMENTARY, 10/17/68, GET: 14552 (CDT 11:55a) 454/2

SC Oh, you're sneaky. Very good. Now, you know why we don't like the TV cameras. Ready on the update.

CAPCOM Okay, this is star 23, roll 352 -

```
APOLLO 7 COMMENTARY, 10/17/68, GET: 14202 (CDT 12:05p) 455/1
     CAPCOM
                     Okay, this is star 23, roll 352,
pitch 041, yaw 006. Star 31, the same roll, pitch, and yaw
settings. This will get you within - these stars are within
35 degrees of the sun LOS.
                             GET of sighting?
                     Roger.
     CAPCOM
                             147 + 31.
                     Roger.
                     Same number for both of them?
     SC
     CAPCOM
                     Roger, that is the same number for
both.
     SC
                     Houston, Apollo 7.
     CAPCOM
                     Go ahead, 7.
     CAPCOM
                     Go ahead.
     SC
                     Roger. I was wondering if we could
get an update for these 23 lunar landmark star -
     CAPCOM
                    Okav -
                    Like some attitude to fly to and the
approximate time to do it. I could find it by myself but
it might help a little if we had some ideas to what - I
mean, what roll angle or pitch angle we will be in.
     CAPCOM
                    Okay, in work.
                    Okay.
     SC
     SC
                     Jack, frames 145, 146, and 147 were
taken at 03, 03 minutes.
     SC
                    Houston, do you copy?
     CAPCOM
                    Roger, copy that.
     SC
                    Roger.
     SC
                     178 to take in the time the zero
switch will stay off.
     CAPCOM
                    Roger.
     SC
                     I've got that magazine full up.
     CAPCOM
                    Copy.
                     (garble) 9150 to take in that 0735
engine (garble) 10 seconds.
     CAPCOM
                    Copy.
     SC
                    We must be doing more tracking today.
     CAPCOM
                    Say again, Wally.
                    Did we do perigee?
     SC
                    You are just passing perigee now.
     CAPCOM
     SC
                    Okay. Our pitch rate changed for
nothing.
     CAPCOM
                    Okay, copy.
     SC
                    (garble)
     CAPCOM
                    I didn't copy that last, Wally.
                    That was pitch down 30 degrees, and
it came right back up, almost to SEF. I had to stop it.
     CAPCOM
                    Okay, copy.
```

We've got an outside station coming

SC

in beautifully right now. (garble)

APOLLO 7 COMMENTARY, 10/17/68, GET: 14202 (CDT 12:05p) 455/2

Roger, understand. CAPCOM

(garble) SC

Roger. We are stable now right at SC

the perigee attitude.

Roger, copy. We are about 1 minute LOS Antigua. We will pick you up over Ascension at 146 + 19. Roger.

This is Apollo Control. We have just SC lost contact with the spacecraft over Antigua as the spacecraft moves down over the northeastern coast of the South American continent, just parallel to the coast. You heard Wally Schirra note a phenomenon they had noted before on this mission, what appears to be a very small amount of aerodynamic drag the spacecraft encountered at perigee. Schirra reported that they were in a 30 degree pitch down attitude and for no apparent reason, the spacecraft pitched back up into the horizontal attitude. At the present time, the spacecraft is in an orbit about 153 nautical miles at its highest point and slightly under 90 nautical miles at the low point. This is essentially the orbit that we have been in since that third service propulsion system burn. We have noted a slight decrease in the apogee since that The perigee following the burn was 90 miles, essentially the same as it is now. Apogee immediately following the burn was about 160 nautical miles, so we have lost about 7 nautical miles in apogee, but perigee has remained essentially the same. We will acquire the spacecraft again at Ascension and acquisition there is scheduled to occur at 146 hours 20 minutes, or about 7 minutes from now. Apollo Control at 146 hours 13 minutes.

## APOLLO 7 COMMENTARY 10/17/68, GET: 14620 (CDT 12:24P) 456/1

pAO This is Apollo Control at 146 hours 20 minutes, and we have just put in a call to the crew over Ascension. We'll pick that up now.

SC And the thing came into view about a minute and a half earlier than the time you gave us. It was away off to the north, more than just 18 miles, in fact we had to yaw 20 degrees to be able to see it, and anyway Donn was able to get two marks on it before we lost it, and we've got three new updates for DELTA-R DELTA-V, but we've got some huge changes on the land mark coordinants.

CAPCOM Okay, we copied that, Donn.

SC It's conceivable he could have marked on the wrong point, but I don't think he could have been that far off.

CAPCOM Okay, we have some information on this

P-23 moon star sighting.

SC Okay, stand by.

FLIGHT FAL FLIGHT, I'm still standing by for

your reply.

CAPCOM Attitude

SC Roger, go ahead with your update, Jack.

CAPCOM Okay, Donn, at a GET of 146 plus 00 plus 00 a roll of 347 pitch 097 yaw 011 should be the land mark line of sight on the moon.

SC Roger, Stand by Jack, my pencil crapped

out.

SC Roger, I've got 146 on the hour, is

that right?
CAPCOM
No sir, 146 plus 40 plus 00, the roll
347, pitch 097, yaw 011 will put the land mark line of
sight on the moon.

SC Okay.

PAO This is Apollo Control. We've had loss of signal now from Ascension. The next station to acquire will be the tracking station at Tananarive. At 146 hours 26 minutes, this is Apollo Control.

APOLLO 7 COMMENTARY, 10/17/68, GET 1461911, CDT 12:23p 457/1

Dead air.

```
APOLLO 7 COMMENTARY, 10/17/68, GET: 14636 (CDT: 12:39p) 458/1
     PAO
                    This is Apollo Control at 146 hours, 36
minutes.
          Apollo 7 is crossing the southern tip of Africa and
coming up on the station at Tananarive. We'll stand by for
a call to the crew from CAPCOM Jack Swigert.
     CAPCOM
                    Apollo 7, Houston.
     SC
                    Go ahead.
                    Apollo 7, Houston.
     CAPCOM
     SC
                    Roger.
     CAPCOM
                    Don, we are poor com; we are over Tananarive;
like to give you an updated GET for this moon star sighting
of 147 plus 00 plus 00.
     SC
                    The (garble) is up Jack (garble)
     CAPCOM
                    Roger, that's E23 moon star sighting, time
should be 147 plus 00 plus 00.
     SC
                    Little (garble) on that.
     CAPCOM
                    Okay.
                    (garble) through the hole, Dave.
     SC
     CAPCOM
                    Roger, copy.
     SC
                    (garble)
     CAPCOM
                    Copy.
     SC
                    Hey Jack, while we (garble) flight, (garble)
today is (garble).
     CAPCOM
                    Walt, I didn't copy that; com is pretty
poor here over Tananarive, because of a low elevation angle
on the antenna. We would like you to switch your PMP power
to OX for this com test that we are going to do over Guam.
     SC
                    Roger; when do you want me to switch?
     CAPCOM
                    Right now Walt.
     SC
                    Okay, done.
     CAPCOM
                    Roger.
     CAPCOM
                    7, we are about 1 minute LOS Tananarive;
we have a real low angle pass at Carnarvon 146 plus 52.
                    This is Mission Control. We had a very
difficult communications on that pass over Tananarive; the
spacecraft passed the station just about on the horizon and
will be acquiring at Carnarvon, Australia, in about 10 minutes
from now and also that will be a low elevation pass, and we
would expect rather brief and perhaps difficult communications
through that station also. At 146 hours, 42 minutes, this
is Apollo Control
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APOLLO 7 COMMENTARY, 10/17/68, GET: 14652 (CDT 12:55p) 459/1

PAO This is Apollo Control at 146 hours, 52 minutes and we've just acquired the spacecraft at Carnarvon. We'll pick that up for you here.

SC Donn and Walt are trying to con me out of my ham and applesauce by offering me a whole meal for it. (garble).

CAPCOM Apollo 7, Houston.

SC Roger.

CAPCOM Roger, we just got you in the middle of your transmission Donn, could you say again?

SC We were just recording some comments on our food up here.

CAPCOM Okay.

SC We were saying that Wally and I were trying to give away our butterscotch pudding, but no one wants it. Walt likes to collect cocoa, so we can give our cocoa to him, and both of them were trying to con me out of my ham and applesauce. Walt offered me a whole meal for one dip. I guess, the message is, that we get a little tired of the various sweet things and we still go for the meats, fruits, and salads.

CAPCOM Okay, copy that.

SC I tried to call you before over the last station. I had a corn chowder bag failure, the second one of this type. It failed down where the spout comes out. It's failed down, right down where, it goes into the bag itself and the meal comes out some other hole.

CAPCOM Okay, copy that.

SC And it always happens to my favorite food.

CAPCOM Roger. This is about the best comm we've

Is there an elevation angle -

CAPCOM We're 1 minute LOS Carnarvon, we'll pick you up at Guam at 147 plus 01.

SC Thank you.

pao This is Apollo Control, we've lost acquisition with the spacecraft at Carnarvon as you heard on that pass. Crew apparently having lunch at this time. In a short while, CMP Donn Eisele is schedulds to begin his sleep period. We will be reacquiring the spacecraft over Guam. That acquisition scheduled at 147 hours, 1 minute or about 6 minutes from now. At 146, 56 minutes, this is Apollo Control

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APOLLO 7 COMMENTARY, 10/17/68, GET: 14701 (CDT 1:05 P) 460/1
                    This is Apollo Control at 147 hours
     PAO
           Now we are just about to put in a call to the
spacecraft over Guam. Let's listen in.
                    Apollo 7 Houston through Guam.
     CAPCOM
                    Roger.
     SC
                    Walt, will you turn up your S-band volume.
     CAPCOM
We'll start this comm load check.
                    S-band volume up.
     CAPCOM
                    Okay.
                    Guam M and O Houston CAPCOM.
     CAPCOM
                    Guam M and O Houston CAPCOM.
     CAPCOM
                    Go CAPCOM.
     GWM
                                          Would you disable
                    Roger Guam M and O.
     CAPCOM
VHF key?
                    VHF disabled.
     GWM
                    Roger
     CAPCOM
                    Apollo 7 Houston.
     CAPCOM
                    Roger Houston I'm reading you loud
     SC
and clear.
                    You are loud and clear also.
     CAPCOM
up over Hawaii we're going to have a state vector and DAP
load update for you - to send you.
                    Roger.
                    And after the DAP data load we'd like to
     CAPCOM
get a verification of Noun 47 and Noun 48.
                                             This is -
                    You'd like verification of what?
     SC
                    Noun 47 and Noun 48 in the DAP data
     CAPCOM
      This is in preparation for burn 05 tomorrow.
                     Roger, understand so we'll go to ACCEPT
on your call over Hawaii.
                     Okay, real fine.
     CAPCOM
                     Walt, if you're ready I can give you
     CAPCOM
the NAV check for this update over Hawaii - I can give it
to you now.
                     We'll pick it up at Hawaii while you are
uplinking us.
                     Okay, no problem.
     CAPCOM
                     Houston, Apollo 7.
     SC
                     Go ahead 7.
     CAPCOM
                     Go ahead Apollo 7.
     CAPCOM
                     John, Donn's turning his S-band up.
     SC
He want to give you his data.
                     Houston, Apollo 7.
      SC
                     Go ahead.
      CAPCOM
                     Roger. I don't know if you can read
this on the computer. I've got P-23 up and I've got Alfine
placed on land mark 05 on the moon, and these are the shaft
and trunnion angles. do you read them down there?
```

Roger, I'm copying them.

CAPCOM

APOLLO 7 COMMENTARY 10/17/68, GET: 14701 (CDT 1:05P) 460/2

Okay. I'll tell you that was one SC whale of a lot easier than that crazy earth horizon business.

Roger, copy. CAPCOM We're going to leave it here and do it

SC again so the other guys can have fun with it.

Guam M and O Houston CAPCOM. Do you CAPCOM

want to enable VHF key?

Guam M and O Houston CAPCOM. CAPCOM

Guam go. GWM

Roger, would you enable the VHF key. CAPCOM

VHF enabled. GWM

Apollo 7 Houston, 1 minute LOS Guam, CAPCOM

Hawaii at 147 plus 16.

This is Mission Control. We've lost contact with the spacecraft over Guam. Our flight controllers here in Mission Control have been consistently pleased with the high quality of the unified S-band communications system, especially when we've have a high elevation pass such as this one on Guam where the spacecraft passed almost directly over head the station. We will acquire the spacecraft again over Hawaii, at 147 hours 17 minutes, that will be about 7 minutes from now. At 147 hours 11 minutes this is Apollo Control.

```
APOLLO 7 COMMENTARY, 10/17/68, GET: 14717 (CDT 01:20p) 461/1
     PAO
                    This is Apollo Control at 147 hours
17 minutes. The spacecraft is approaching Hawaii. We will
have acquisition shortly and we will stand by for a call to
the crew.
     CAPCOM
                    Apollo 7, Houston.
     SC
                    Roger, 5 by.
                    Okay. If you will go to accept, we
     CAPCOM
will send you a nav load and then a DAP update.
                    Houston, can we wait on this pass?
We've got a DTO going here and we need the computer for it.
                    Okay, that is fine.
     CAPCOM
                    I'll take the pad for the nav check.
     SC
     CAPCOM
                    Okay. GET 154^{2} + 30 + 0000 + 1486 +
032741368.
                    Roger, Jack. We will take your update.
We are in accept.
                    Okay, coming up.
     CAPCOM
     SC
                    Okay, readback follows.
                                             15430. 4
balls, + 1486 + 032741438 over.
     CAPCOM
                    Negative on the last one, Walt. 1368.
                    1368. Sorry.
     SC
     CAPCOM
                    Apollo 7, Houston.
                    Go ahead.
     SC
                    Okay, Wally. We are gradually picking
     CAPCOM
up an increase in CO2 there. You may have gotten a bad
canister at that last change.
     SC
                    Roger.
     SC
                    We've had this particular test here,
by the way, this very brilliant star count test. Has us
right up in the perigee torque area. We are going to really
hnose the fuel out.
                    Okay, copy that.
     CAPCOM
     SC
                    Now this one is on the experiment,
too. We are going to have some right interesting comments
to make about celestial navigation when we get back.
                    I - there are going to be a lot of
     CAPCOM
people who are going to be interested.
                    Jack, we are reading 1 mm, shouldn't
we go ahead let this thing hang in here until it gets up
close to 76.
                    Roger. We are just trying to give
     CAPCOM
you a little bit of hack ahead of time, so you will know
what to look for.
     SC
                    Well, our criteria is 76, so we have
```

not been concerned. It's just turned out to be the first one we've ever seen over 1, that's all.

May we have the computer?

Roger, 7. We would like to verify

Roger.

CAPCOM

SC CAPCOM APOLLO 7 COMMENTARY, 10/17/68, GET: 14717 (CDT 01:20p) 461/2

CAPCOM the DAP data load. Not at this time, but some time later on.

CAPCOM We would just like a verification on noun 47 and 48 and a DAP data load, prior to tomorrow's burn. The computer is yours at this time.

PAO This is Apollo Control at 147 hours

PAO This is Apollo Control at 147 hours 24 minutes. We have gone beyond range now of the Hawaiian station and we will come back up with any conversation that develop between the crew and the ground over the Huntsville and from the Guaymas station.

## APOLLO 7 COMMENTARY, 10/17/68, GET: 14730 (CDT 1:35p) 462/1

This is Apollo Control at 147 hours, PAO 31 minutes. The spacecraft is now passing over Baja, California, and will be going down across the Mexican Continent, rather the country of Mexico and over the South American Continent. Coming up, the start of Rev 94. We just put in a call to the spacecraft from the Corpus Christi station, we'll join the conversation there.

Apollo 7, Houston. I have your map CAPCOM

update.

Go ahead, Jack.

SC Roger. Rev 93, time of the node 146 plus CAPCOM 58 plus 58, longitude 122.4 east. We are about 1 minute LOS. We'll pick you up at Tananarive at about 148 plus 0 niner. This is Apollo Control at 147 hours, 37 minutes. We've had LOS now with the spacecraft. next station to acquire will be Tananarive, off the southeast coast of Africa, and we'll pick up the spacecraft there in about 25 or 30 minutes. At 147 hours, 37 minutes, this is Apollo Control.

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463/1
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## APOLLO 7 COMMENTARY, 10/17/68, GET 1472157 CDT 1:25p

SC Houston, Apollo 7. Go ahead, Apollo 7.

SC Roger, (garble) 47 plus 2 balls 164

plus (garble)

CAPCOM Apollo 7, Houston.

SC Roger, Jack, did you read down 47. CAPCOM Negative Walt, you got it just as

we were handing over stations here. Could you say it again?
SC Can you read our DSKY? Can you read our

DSKY, Jack?

CAPCOM Negative right now walt.

SC Okay, down 47 plus 2 balls 164 plus

2 balls 551 plus 29560 down 48 minus 3 balls 76 minus 3 balls 47 plus 02110, over.

CAPCOM Okay, we copy that. Could you place

your PMP power now to normal?

SC It's in normal.

CAPCOM Copy.

SC Hey, Jack, somebody write down and leave it on my desk so when I get back I can see how many different comm modes they've checked out on this flight.

CAPCOM Okay, we'll get it to you.

SC (garble) LOS.

SC Hey, Jack, do you have time for a map

update?

CAPCOM Map update in work.

```
APOLLO 7 COMMENTARY, 10/17/68, GET: 14809 (CDT 02:13p) 464/1
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This is Apollo Control at 148 hours
     PAO
             The spacecraft is now crossing the southern
09 minutes.
tip of Africa and are in the middle of a nightside pass.
We will be acquiring at Tananarive shortly. At the present
time, the crew should be involved in completing power down
of the guidance and navigation system and the stablization
and control system aboard the spacecraft. Command module
Donn Eisele is well into his sleep period, according to the
flight plan. We will stand by now for acquisition at Tanana-
                    Apollo 7, Houston through Tananarive.
rive.
     CAPCOM
                    Roger, Jack. Read you loud and clear.
     SC
                    Wally, I would like to ask if you
     CAPCOM
powered down?
                    Affirmative.
     SC
                    Okay, thank you.
     CAPCOM
                    In our suit - decrease, left about a
suit temperature of about 64 degrees just before power down,
and held there for a while after power down. Surely we've
got more (garble) power up plus holding real great for 4 to
5 zeros (garble) pretty hot. We (garble) very easily.
Read that?
                            You were a little bit garbled
                     Roger.
      CAPCOM
but I think we've got most of it.
                     Okay. On the star check, two stars
called up by the program were seen, no others, with the
 sextant.
                     Roger, understand.
      CAPCOM
                     Here comes Canary (garble)
      SC
                     Go ahead.
      CAPCOM
                     (garble)
      SC
                      (garble)
      SC
                     Roger, we copy. We are digesting that,
      CAPCOM
 Wally.
                     Say again.
                     We copy all that.
      CAPCOM
                     We ran all that back today and it
 looked awful (garble) I didn't want to do it before our
 first turn but it can foul up our time lines considerably.
                      Roger, copy.
      CAPCOM
                      Roger.
      SC
                      (garble)
      SC
                      Apollo 7, Houston.
      CAPCOM
                      Go ahead.
      SC
                      Wally, is the suit temperature or
 cabin temperature getting a little more comfortable now that
      CAPCOM
 you have powered down?
                      (garble) we are down to about 58
```

SC

degrees right now.

APOLLO 7 COMMENTARY, 10/17/68, GET: 14809 (CDT 02:13p) 464/2

Okay, copy. CAPCOM

Roger. SC '

Jack, (garble) but you should try to SC avoid burnout at SCS or PVS at more than 20 degrees after perigee, over.

Okay, I copied that, Wally. CAPCOM

Very good. (garble) SC

(garble) on the fuel and the attitude. SC Okay, understand. We are getting CAPCOM

pretty close to LOS Tananarive. We will pick you up at Guam at 148 + 36.

Roger. SC

And Mercury at 148 + 33. **CAPCOM** 

This is Apollo Control at 148 hours PAO We had some garble on the communications that 18 minutes. time over Tananarive. We did copy Schirra's comment that the temperature of the gases flowing into the cabin, I believe that would be the suit inlet temperature reading, since the crew is not wearing suit at this time, but that still provides the reading for the gas flow into the cabin and he said it had gotten up to 64 degrees during the time that the spacecraft was fully powered up. Now that the guidance and navigation system has been powered down, along with the stablization and control system, Schirra noticed that the cabin temperature had dropped down to about 58 degrees. A 64 degree reading is still low within the comfort level for airflow into the cabin, the 58 is a little bit more nominal, however. Our next acquisition of the spacecraft will be over the tracking ship Mercury and we will have overlapping coverage there from Guam, scheduled to pick the spacecraft up next at 148 hours 33 minutes, about 14 minutes from now. This is Apollo Control Houston.

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APOLLO 7 COMMENTARY, 10/17/68, GET: 1483300 (CDT: 2:37p) 465/1
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This is Mission Control just a little
     PAO
more than half way through the 94th revolution.
                                                   The space-
craft is coming up on the tracking ship Mercury. We have
been advised that the unified S band antenna at Mercury
is down temporarily; they expect to have it back in operation
within about an hour, but we will not have unified S band
coverage over Mercury. However, that will be for a relatively
short period of time and we move on across the Philippines
and out toward Guam; we'll pick US band coverage from Guan.
We'll stand by now for a call to the crew.
                     Apollo 7, Houston through the Mercury.
     CAPCOM
                     Roger; read you loud and clear.
     SC
                     Roger; read you also.
     CAPCOM
                     (garble) about 25 minutes.
     SC
                     Garble
     SC
     CAPCOM
                     Jack
     SC
                     Go ahead Walt.
     CAPCOM
                     Okay, I guess we'll clean that water
     SC
today; 39 percent -
                     Okay, your - Wally, your about 2 by here;
     CAPCOM
you're pretty garbled. We might have a little bit of luck
over Guam, which is coming up here.
                     Okay; we will chlorinate water today.
     SC
                     Okay; we understand.
     CAPCOM
pAO Communications rather garbled there, using the VHF system in the absence of S band from the Mercury.
Schirra advised that the crew would chlorinate the space-
craft water tonight, at least that's the way we copied it
here, and we can expect communications to clear up somewhat
as we move over Guam.
                     Apollo 7, Houston.
     CAPCOM
                     Apollo 7, here.
     SC
                     Roger; go ahead Apollo 7.
     CAPCOM
                     We have a chance to rest up after our
today's operations.
                     Understand you want to get a present
     CAPCOM
fuel status?
                     Not big concern; any time.
     SC
                     Okay, we are summarizing that now; we'll
     CAPCOM
probably have it up to you over Hawaii.
                     Very good.
     SC
                     Apollo 7, your fuel number for your
      CAPCOM
onboard chart is 666.
                     Roger; read like 666.
      SC
                     Apollo 7, 1 minute LOS Guam; Hawaii at
      CAPCOM
148 plus 51.
      SC
                     Roger.
```

APOLLO 7 COMMENTARY, 10/17/68, GET: 14843 (CDT 2:47P) 466/1

pao This is Apollo Control. We are about to lose contact with the spacecraft over Guam. During that pass Wally Schirra requested a status report on the service module RCS propellant quantity and was advised he has 666 pounds remaining. We'll pick up the spacecraft again over the Hawaiian tracking station. Acquisition is scheduled there at 148 hours 51 minutes. At 148 hours 43 minutes this is Apollo Control.

```
APOLLO 7 COMMENTARY, 10/17/68, GET: 14851 (CDT: 2:55p) 467/1
                    This is Apollo Control at 148 hours, 51
     PAO
          We have just acquired on the spacecraft and estab-
minutes.
lished contact; here is the conversation.
                    Message for you here.
     CAPCOM
                    Walt's off com right now. Do you want
me to relay or should I get him up?
                    Okay, Wally, are you in the right seat?
     CAPCOM
                    Say again.
     SC
                    Can you get in the right seat to do some
     CAPCOM
readings of a couple of gages here?
                     Stand by. Go ahead.
                    Okay Wally. Prior to this 02, fan tank
     CAPCOM
02 tank fan cycle that we are going to give you here, we
would like to read out phase A, B and C on AC bus 2.
                     Roger; phase A is 150.5 B 115.5 and C
     CAPCOM
115.
                     Okay, now Wally we would like to turn
     CAPCOM
02 fans tank 2 on now, and then read out A, B, and C again.
                     Fans 2 on now. Phase A is (garble) about
     SC
116, B is 115.7, and C is still 115.
                     Okay, Wally; after 3 minutes of fan on,
     CAPCOM
we would like to have you be reading AC2 phase B when you
turn the fans off.
                     Prior to, or subsequent?
      SC
                     Right during the switch operation, when
      CAPCOM
you turn the fans in tank 2 off, be reading phase B.
                     Okay.. (garble)
      SC
                     I didn't copy that Wally.
      CAPCOM
                     That's a good job down there of sacking
      SC
out that AC (garble) problem.
                     Roger; thank you.
      CAPCOM
                     Kinda crank when it first happened.
      CAPCOM
                     I don't blame you a bit.
      CAPCOM
                     I like to feel direct-direct coming home.
      SC
                     Hey, Jack, you with me?
      SC
                     Roger Wally; go ahead.
      CAPCOM
                     Did you ask someone in the support room
 how many frames per foot there are in the 16 mm camera?
                     Okay, we'll get it.
      CAPCOM
                     Thank you.
      SC
                     Jack?
      SC
                     Go ahead.
      CAPCOM
                     Okay, we just ran the switch valve test
 and Walt looked at the phasing light on the switch (garble)
 about a quarter of a volt to half a volt.
                      Okay - thank you very much Wally. I have
      CAPCOM
 some RCS redline data for you.
                      Stand by.
      SC
                      Go ahead
```

SC

```
CAPCOM
                     Okay, for service module, for an SCS
service module RCS de-orbit the value is 581.
                     Okay.
     SC
     CAPCOM
                     Okay, for adapt RCS de-orbit the value
is 5 through 0, and the value for HYBRID de-orbit the value
is 223.
     SC
                     Roger
                     Okay, we show quad A is just a smidgen
     CAPCOM
under the SCS redline but has ample margin for adapt R de-
orbit.
     SC
                     Roger. Jack, on these land marks sight-
ing that you call up to us for targets of opportunity.
     CAPCOM
                     Roger
     SC
                     If you all could keep book on that we
missed Luzon this last pass we might have had our (garbled)
on it (garbled)
     CAPCOM
                     Okay, you are a little bit hard to read
we'll pick it up on the recorder here.
                     On the land mark passes?
     SC
     CAPCOM
                     Yeah, go ahead.
SC Maybe you can give us the time before they come up whenever they supposed to figure right on the
flight plan.
     CAPCOM
                     Okay, real fine. After we hand over to
Huntsville - to - we get through to Huntsville here we are
going to hand over to ARIA so you might turn up your S-Band
volume in a couple of minutes we'll have ARIA coverage on
S-Band for about another four or five minutes.
                     Very good. There's a good watch today.
     CAPCOM
                     Its been a good day, we've done a lot.
     SC
                     We sure did.
     CAPCOM
                     We're looking forward to tomorrow.
     SC
                     Very fine.
     CAPCOM
                     Apollo 7 Houston.
                     Houston go ahead
     CAPCOM
                     Okay, Wally, on that question that you
asked the 16mm camera frame - for oh - four zero frames per
foot of film.
     SC
                    Okay, I think we have that on the back
of them.
                     I didn't copy that last little, Wally.
     CAPCOM
     SC
                    How much footage do we have in the maga-
zine?
     CAPCOM
                    Okay, Stand by. Wally, there are 130
feet per magazine.
     SC
                    Roger, thank you.
```

END OF TAPE

APOLLO 7 COMMENTARY, 10/17/68, GET: 14851 (CDT: 2:55p) 467/7

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APOLLO 7 COMMENTARY, 10/17/68, GET: 1501600 (CDT 4:20p) 469/1
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This is Apollo Control at 150 hours and
     PAO
16 minutes. Apollo 7 passed over the tracking station at
Tananarive and Mercury during the news conference. We'll
play the tapes of those passes now.
                    Apollo 7 Houston through Tananarive.
     CAPCOM
Apollo 7 Houston Tananarive standing by. Apollo 7 Houston
one minute LOS Mercury at 06.
                    Roger, Apollo 7
     SC
                    Roger, I read you that time.
     Capcom
                    Roger, I read you, Ron.
     SC
                    Mercury, Houston COMTECH, voice check,
     CAPCOM
are you read.
                     Roger, you're loud and clear.
     SC
                    You're the same, thank you very much.
     CAPCOM
                     Roger
     SC
                     Apollo 7 Houston, standing by.
     CAPCOM
                     Roger, loud and clear.
     SC
                     Roger, same.
     CAPCOM
                     Donn Eisele wants 20 clicks of water
logged and two aspirin.
     CAPCOM
                     Log the LMP with 16 clicks of water.
     SC
     CAPCOM
                     Roger
                     How's it going down there?
     SC
                     Real fine, beautiful day down here today.
     CAPCOM
                     We got some beautiful pictures of it.
     SC
                     Very good.
     CAPCOM
                     Is anybody getting tired of this long
     SC
flight or anything?
                     No, not really. Like to be there with
     CAPCOM
you.
                     Very good route.
      SC
                     Good.
      CAPCOM
                     That hurricane was really something to
      SC
       It stood out very clearly today.
 see.
                     Apollo 7 Houston
      CAPCOM
                     Go
      SC
                     Roger, we concur on negative TV tomorrow.
      CAPCOM
                     Very good.
      SC
                     Apollo 7 Houston, looks like pins have
      CAPCOM
 come undone on LMP's biomed harness somewhere in there.
                     Okay, Roger, we'll get it glued together.
      SC
                     Roger.
      CAPCOM
                     Okay, Ron, I'll get on it. The reason
 for that is because I've got kinda of spider's web leads
 down here even after they made this harness over I've got
 about six inches extra on one lead and the others are fairly
 pretty tight, I guess.
```

APOLLO 7 COMMENTARY, 10/17/68, GET: 1501600 (CDT 4:20p)469/2

CAPCOM Roger, I understand.

But I've got this ground wire on so SC

whatever you do comes through good down here.

CAPCOM It was real good for a long time there, walt, then last night we noticed that it look like maybe the ground lead was possibly showing partially loose or something like that, the sensor, that is.

Okay, I'll tell you what happened. CAPCOM You've got a one line update to your targets of opportunity for two balls five, that's two balls five. Yeah

CAPCOM Roger, its the area North of the Colorado

river.

SC North of the Colorado river? Sicily? Rog, evidently it must be in the mountains CAPCOM up in there cause the river -

The Colorado river runs North and South, SC

It sounds like Alaska.

CAPCOM Me, too.

Ron, we'll try to figure it out just for the fun of it. What does burn five do to our inclination, does anybody have a story on that, its no big deal, just curious?

CAPCOM Rog, will check into it, I've got the -

Apollo 7 Houston, opposite omni.

Ron, while I'm looking at it, do you have any typhoons in the Far East, or typhoons in the Phillipines?

CAPCOM I'll check on it. I don't recall seeing

any on the map there this evening.

Hawaii and Australia, were you worried? CAPCOM Apollo 7 Houston about one minute to LOS. SC Roger

CAPCOM Now you're preburn inclination 31.22 and post burn 30.80. GETI will be about 165 plus 00.

We thought we'd drive it in a little bit. SC okay?

CAPCOM And Delta V 1646, burn about a minute and six seconds.

SC Roger, North of the Colorado river we wont get to for awhile.

CAPCOM Yeah. That's right.

PAO This is Apollo Control, 150 hours and 21 minutes. That's the end of the tape through the Mercury pass. As you heard the flight director has concurred with the crew's recommendation that there'll be no TV tomorrow because of the activity in the flight plan associated with this long number five SPS burn. The crew reported good

APOLLO 7 COMMENTARY, 10/17/68, GET: 1501600 (CDT 4:20p)469/3

pictures of our good weather down here. Lunar Module Pilot is having biomed harness problems again but he is repairing that now. There's was good com on this pass in which they discussed that burn. I'll go over those figures for you again though. These are the best numbers available at this time, we are looking for the burn at about 165 hours elapsed time. Duration of the burn one minute, six seconds, Delta V at 160046 feet per second. We'll change the inclination of the orbit from 31.22 to 30.08 and we're predicting the orbital perameters post burn to be an apogee of 241 miles, perigee of 89.6 miles. Present apogee is 152.1, perigee 89.7, those are nautical miles. We're showing an orbital weight of Apollo 7 at the present time of 29 538 pounds. Hawaii will acquire the spacecraft in about a minute, we'll come back up then.

```
APOLLO 7 COMMENTARY, 10/17/68, GET: 1502400 (CDT 4:30P) 470/1
                    This is Apollo Control at 150 hours 24 min-
     PAO
       Hawaii has acquired now and we'll stand by.
utes.
                    Apollo 7, Houston through Hawaii.
     CAPCOM
                    Roger.
     SC
                           Loud and clear.
     CAPCOM
                    Roger.
                    Same.
     SC
                    You're right. Tropical Storm Gloria is
     CAPCOM
due east of Luzon about this time, so you probably saw it
when you were going by there.
                    Roger, that's what we call (garble) Ron.
     SC
     CAPCOM
                    Roger.
                    That's two for Apollo 7, now isn't it?
     SC
                    That's correct.
     CAPCOM
                    7 Houston. We've got a new update on
     CAPCOM
the amount of film in your magazines. You have 8 zero feet in
16 mm magazines.
                    Fabulous. oh, 8 zero feet instead of
     SC
130, that's not fabulous. Okay.
                    Yeah, that's right.
     CAPCOM
                    Okay, I'll zero in and let you take over
     SC
again then. I guess you can see that it by telling us how
long we can run it, uh, 1 frame, 6 frames and 16.
                    Roger. I'll get that information.
     CAPCOM
                     Okay. We mapped the whole southwest
     SC
corner of the United States in 1 frame F a second on an 18 MM
camera, today.
     CAPCOM
                     Okay.
                     That was from, oh, just west of San Diego
     SC
all the way through to the hurricane on into Florida.
                     Roger.
     CAPCOM
                     That was done on SO 36840 in case anybody
      SC
gets excited.
                     Roger.
      CAPCOM
                     Wally, you might be interested, they're
      CAPCOM
not even waiting for you to get back. We're using the third
deck there for simulations, tonight, for the next mission.
                     That sounds good, Ron.
      SC
                     Roger. We're using - they're simulating
      CAPCOM
 the next mission upstairs, tonight.
                     Very good. Tell them to take better food
 along with them.
      CAPCOM
                     Apollo 7, Houston. I have your film run
      CAPCOM
 times, there.
                     Take it, Ron
      SC
                     Roger, I have your film run time, your
      CAPCOM
 16 mm run time.
                     Okay.
      SC
                     At 1 frame, it's 53 minutes 20 seconds
```

**CAPCOM** 

APOLLO 7 COMMENTARY, 10/17/68, GET: 1502400 (CDT 4:30P) 470/2

At 6 frames it's 8 minutes 54 seconds, CAPCOM

at 16 it's 3 plus 20

SC

Okay, thank you. Apollo 7 Houston. S-band volume up at CAPCOM

35 plus 3 zero for ARIA.

Roger. 35 3 zero. SC

SC Ron, 3152 on the (garble) back. That was on the big island of Hawaii.

CAPCOM Roger.

SC (garble) LOS

## APOLLO 7 COMMENTARY, 10/17/68, GET 15034 (CDT 4:40 p) 471/1

This is Apollo control at 150 hours 34 minutes, we'll pick up the ARIA aircraft again this pass, in just about a minute so we will have some extended coverage and we'll continue to stand by through the ARIA pass.

ARIA three, go remote. CAPCOM

ARIA three, clear and loud, go ahead. SC Apollo 7, Houston, through ARIA three, CAPCOM

S-band.

Apollo 7, Houston, through ARIA, over. CAPCOM

Go ahead, Houston. SC

Apollo 7, Houston, you broke up that time CAPCOM

say again.

garble. SC

Roger, you're still breaking up. CAPCOM

Roger, you're very weak. SC

Roger, coms not too good this time. CAPCOM

garble. SC

Roger, I copied that. CAPCOM

Apollo 7, Houston, you should be closer CAPCOM

to ARIA now, is the voice any better.

garble.

Still not much better. You're still CAPCOM

breaking up and I must be coming through weak still. Apollo 7, Houston, one minute LOS CAPCOM

Tananarive at 17.

This is Apollo control 150 hours 40 PAO minutes into the mission, Apollo 7 out of range of ARIA three now, during this coverage, which started at a -Hawaii, some slight overlap at the Huntsville tracking ship and then into the ARIA aircraft range, there was film reports passed back and forth. The crew was advised the tropical storm Gloria is now due east of Luzon and they will obviously attempt to take a look at that their next pass in that area and we advised the crew that flight controllers for Apollo 8 are beginning simulation for that mission. The next station to acquire will be Tananarive at 151 hours 17 This is mission control, Houston.

APOLLO 7 COMMENTARY, 10/17/68, GET: 1511700 (CDT 5:20P) 472/1

This is Apollo Control 151 hours 17 min-PAO utes. Apollo 7 is in the night side of its 96th revolution. Tananarive is about to acquire. We'll stand by for this pass.

CAPCOM Apollo 7, Houston, through Tananarive

standing by.

Loud and clear. SC CAPCOM Roger, the same.

Apollo 7 Houston. 1 minutes LOS. Mercury CAPCOM

at 41.

SC Roger.

Apollo Control at 151 hours 24 minutes. Tananarive has LOS. There are no activities scheduled on the flight plan during this period. And Apollo 7 passed Tananarive without conversation. The tracking ship Mercury will acquire next. At 151 hours 40 minutes, this is Mission Control, Houston.

APOLLO 7 COMMENTARY, 10/17/68, GET: 15140 (CDT 5:45 p) 473/1

pAO This is Apollo control at 151 hours 40 minutes into the mission, Apollo 7 coming up on the Mercury now, we'll listen.

CAPCOM Apollo 7, Houston, through Mercury,

standing by.

SC Roger.

CAPCOM Loud and clear.

SC frames, 154 and 155, over Japan.

CAPCOM Roger, copy.

SC Lot of magazines here.

CAPCOM Roger. 7, Houston, you've attempted

biomed test we still have no (garble).

Ron, I went ahead and checked all these things, they're all made up and I don't think there's anything else I can do, but I'll check them again when I go to bed in a little bit, but they look to me like everythings okay.

CAPCOM Okay, we might have the internal break or something in one of the wires and we'll work on it later,

no sweat.

SC Along the (garble) the stow on the top.

CAPCOM Say again.

SC Frame 155 (garble).

CAPCOM Roger.

pao This is Apollo control at 151 hours 47 minutes, the Mercury has LOS. Brief transmission during this pass, Wally Schirra gave some film reports, indicating that he had done some photography over Japan including Mount Fujiyama. We told the lunar module pilot, Walt Cunningham, that we still are - still are unable to get a reading on his biomed, he believes that he's done all he can to fix the harness, but we'll continue to pursue that problem. The next station to acquire will be Hawaii at 151 hours 58 minutes.

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APOLLO 7 COMMENTARY, 10/17/68, GET: 1515800 (CDT 6:00p)474/1
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This is Apollo Control at 151 hours and PAO Hawaii has Apollo 7 now. 58 minutes. Apollo 7 Houston, we're reading 104 and CAPCOM

up.

(garbled) SC Roger, 103. CAPCOM

Roger. Hey, Ron, the - we've done the

check on the component, go.

Roger, Seven Houston, sometime when you CAPCOM get a chance there we could use a - more or less a taste versus time summary on your water.

Say that again.

Roger, we could use a kinda of a taste CAPCOM

versus time from chlorination on the potable water.

Well, now you've brought the subject up SC you want to talk to him. (Schirra begins talking). We just put the chlorine in about 15 minutes ago. Just before this pass. We are a little concerned about the rate we put it Its a rather brown looking goupy thing at the base of the chlorine injector and I'm not sure ... but I'm not sure that I'm happy with it at this time.

Roger, Houston you went through a key CAPCOM hole there and we're still in one, really. At the base of

what? And

If I had it on my water faucet I'd clean it off or get a new faucet.

Roger. CAPCOM

·If I had it in my swimming pool I'd call SC

for pool service.

About 30 seconds LOS Redstone at 46. CAPCOM

Roger. SC

Belay that Red, Redstone at 14. CAPCOM

Roger, 14. SC

This is Apollo Control 152 hours, 4 PAO Hawaii has LOS. During this pass Walt Cunningham reported that the environmental control system redundant component check had been completed satisfactorily. We ask the crew to give us a taste versus time report on the water chlorination and at that time Wally Schirra indicated that the - from what we could copy apparently the water is getting a brown tinge to it that they are not quite pleased with. We attempt to see if we can read that a little bit better on some tape. Next station to acquire will be the Redstone at 152 hours, 14 minutes. This is Mission Control Houston.

APOLLO 7 COMMENTARY, 10/17/68, GET: 1520600 (CDT 6:10P) 475/1

PAO This is Apollo Control 152 hours 07 minutes. We have a better handle now on that last report. Wally Schirra reports quote: brown goopy stuff at the base of the chlorine injector. It is not in the water. At the base of the chlorine injector. This is Mission Control Houston.

```
APOLLO 7 COMMENTARY, 10/17/68, GET: 1521400 (CDT 6:20P) 476/1
                     This is Apollo Control 152 hours 14 min-
      PAO
 utes into the mission. The Redstone has acquired Apollo 7.
                     Apollo 7 Houston through Redstone standing
      CAPCOM
 by.
      SC
                     Roger
      CAPCOM
                     Roger, loud and clear.
                     (garble) just off Hawaii. We saw a big
      SC
 smoke trail (garble)
                     7 Houston. Say it again.
      CAPCOM
                     We saw the smoke trail of a ship at about
      SC
 7:45 gti.
      CAPCOM
                     Rog.
                     7 minutes 45 seconds. Think Gord Cooper
      SC
will be happy to tell you that one.
      CAPCOM
                     Sure will.
                     (Garble) in Hawaii and now it's 9 seconds.
      SC
 We're losers on that one.
      CAPCOM
                     Roger.
                     Haven't seen any track of the Imperial
      SC
 Valley, yet, either.
     CAPCOM
                     Okay.
                     We'll look for water skiers in Clear Lake
      SC
 this week-end.
      CAPCOM
                     Very good.
      CAPCOM
                     7 Houston, about 30 seconds LOS. Walt,
 you might be advised it's the external connectors on the
 biomed that seem to be acting up.
                     Did you say the external connectors?
      SC
      CAPCOM
                     Affirmative.
      SC
                     Okay, I'll check it over good before I
 go to bed.
      CAPCOM
                     Roger.
                     We'll have all of that just to (garble)
      SC
                     Roger.
      CAPCOM
                     This is Apollo Control 152 hours 19 minutes
                    The Redstone has LOS now. Apollo 7 nearing
 into the mission.
 the end of its 96th revolution. During this pass the crew
 reported seeing a smoke trail of a ship, and remarked that
 should make Gordon Cooper happy, is a reference to Col. Cooper's
 Mercury flight, in which he reported seeing smoke at various
 locations, from ships and trains, and drew some disbelief from
 people that this was possible. The next station to acquire
```

152 hours 40 minutes. This is Mission

will be Ascension. Control. Houston. APOLLO 7 COMMENTARY, 10/17/68, GET: 15240 (CDT 6:45 p) 477/1

This is Apollo control, 152 hours 40 PAO minutes. Ascension has acquired Apollo 7, very low elevation pass nine tenths of a degree, this will be about a two and a half minute pass.

CAPCOM Apollo 7, Houston, through Ascension.

SC

Roger, thank you. Roger, loud and clear. CAPCOM

Anything more on the (garble) Ron. SC

Roger, we're working on some. CAPCOM

SC Okay, anybody Happen to have the Lima-

Sierra update?

CAPCOM Roger, your hydrogen margin is 2.6 pounds now, your 02 margin is 58 pounds, Lima-Sierra 073/061, Sierra-Foxtrot 075, Echo Kilo plus 003.

SC Roger, thank you.

CAPCOM The olympics are getting started tonight sometime, we don't have any information coming in on that yet.

SC Roger.

PAO This is Apollo control 152 hours 44 minutes, Ascension has LOS now and the Mercury will acquire at 153 hours 15 minutes.

APOLLO 7 COMMENTARY, 10/17/68, GET: 1524700 (CDT 6:50p) 478/1

PAO This is Apollo Control at 152 hours 47 minutes. We had a brief bit of additional conversation at Ascension after the normal LOS time. The network reports that we went past the predicted LOS by almost a minute. Since the tracking station there is on a hill over 2000 feet high and apparently they can track down past zero degrees which gave us that extra time. There was about 20 or 30 seconds of additional conversation, and we have a tape of that for you now.

SC Yeh, Ron, how are surgeons doing on

curing colds for long range, tonight.

CAPCOM They're still working on it now. A guy's down here also working, facetiously that is, to determine if you would have gotten a cold had you not flown.

SC Had we not what?

CAPCOM Had you not taken the flight. SC Roger, that's very significant.

CAPCOM I don't know how he's going to do it,

but he's working on it.

```
This is Apollo Control at 153 hours
     PAO
             Tracking ship Redstone in the South Pacific
46 minutes.
is about to acquire.
                     ...beta number 17
     CAPCOM
                     Ready to copy (garble)
     SC
                     Roger, 099-alpha charlie minus
     CAPCOM
028 minus 0180 155 plus 27 plus 54 4608
                     Say Ron, Can you be working on a
map update while I'm doing this?
                     Affirmative. 100-alpha charlie plus
     CAPCOM
081 minus 0240 157 plus 00 plus 51 4205 101-2charlie plus
205 minus 0239 158 plus 35 plus 56 3799 102-2 alpha plus
276 minus 0270 160 plus 10 plus 26 3594 103- 1 bravo plus
237 minus 0616 161 plus 35 plus 40 37 25 104- 1 alpha plus
297 minus 0627 163 plus 10 plus 40 3533 over.
                     Roger, was 99 alpha charlie the first
one?
                     Affirmative.
     CAPCOM
                     Minus 028 minus 0180 155 plus 27 plus 54
4608 100-alpha charlie plus 081 minus 0240 157 plus 00 plus
51 4205 101 - 2charlie plus 205 minus 0239 158 plus 35 plus 56 3799 102 -2 alpha plus 276 minus 0270 160 plus 10 plus 20
3594 103 - 1 bravo plus 237 minus 0616 161 plus 35 plus 40
3725 104-1 alpha plus 297 minus 0627 163 plus 10 40 3533 over.
                     Roger in area 102 2 alpha the GETI
      CAPCOM
160 plus 10 plus 26.
                     160 plus 10 plus 26. Standing by for
      SC
the map update.
                     Roger, Rev. 97 GET 152 plus 53 plus 56
      CAPCOM
longitude 31.6 east,
                     Roger.
                     Apollo 7, Houston the United States
      CAPCOM
beat Yogoslavia in basketball today 73 to 58.
                      Roger.
      SC
                     Now, you might be interested the
stock market is fired by rumors of a possible halt in the
bombing of North Viet Nam bounded ahead today in third
highest volume in the exchange history. The volume of
 21.06 million Dow Jones was up 3.60 at 95891.
                      Roger, that's highest on record
      SC
 isn't it?
                      Not quite sure, I don't think so.
      CAPCOM
 It looks like hurricane Gladys is expected to go ashore in a
 relatively sparsely populated area of Florida.
                      Roger that's good news.
      SC
                      It was also announced today that
      CAPCOM
 Mrs. John F. Kennedy will marry shipping tycoon Aristotle
```

Oh my!

Onassis.

SC

APOLLO 7 COMMENTARY, 10/17/68, GET: 1534600 (CDT 7:50p) 480/2

Walt, I have your present battery CAPCOM amp per hour if you have a minute.

Roger, go ahead with it.

Roger, A 30.8, B 28.4, and C is 39.0. CAPCOM

SC

Rog, thank you. This is Apollo Control 153 hours PAO The Redstone has LOS now. Next station to 54 minutes. acquire will be Ascension at 154 hours 12 minutes.

APOLLO 7 COMMENTARY, 10/17/68, GET: 1541200 (CDT 8:15P) 481/1

This is Apollo Control 154 hours 12 min-PAO utes and Ascension is about to acquire Apollo 7. Apollo 7 Houston through Ascension CAPCOM

standing by.

Roger, we're receiving you loud and clear. SC Roger, good morning. How are you? CAPCOM

SC Good shape. CAPCOM

Roger. I'd like to log in 2 aspirin and SC 13 clicks of water each for the commander and rev pilot.

Roger. CAPCOM

Apollo 7 Houston, opposite OMNI. CAPCOM

SC

7 Houston, LOS Mercury at 49. CAPCOM

Roger. SC

This is Apollo Control 154 hours 20 min-PAO utes LOS at Ascension. The command module pilot, Don Eisele, is awake now, and conducted the transmission during that pass. He reported that Wally Schirra and Walt Cunningham each took 2 aspirin before beginning their sleep period at 154 hours. The next station to acquire will be the tracking ship Mercury. At 154 hours 48 minutes, this is Mission Control, Houston.

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APOLLO 7 COMMENTARY, 10/17/68, GET: 1544800 (CDT 8:50P) 482/1

PAO This is Apollo Control at 154 hours 48 minutes into the mission. Apollo 7 coming up on the tracking
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ship Mercury, now. Guam has overlapping coverage this pass.
CAPCOM Apollo 7 Houston through Mercury.

SC Houston contact, Mercury contact giving

(garble)

CAPCOM Apollo 7 Houston through Mercury, standing

by.

SC Roger, Houston, Apollo 7. Roger, loud and clear.

SC Ron, this Donn. I'd like to register a strong complaint on the lithium hydroxide storage tanks on the floor. That, uh, either A2, I believe is the number. The ones that are under Wally's couch. (Garble) 11 and the lids, it takes a tremendous amount of force to make them close. They're just not suitable at all.

CAPCOM Roger, I understand.

SC They're the new type ones with the rounded corners and the (garble) are great and they come in (garble)

CAPCOM Roger.

CAPCOM Apollo 7 Houston. Opposite OMNI.

CAPCOM Apollo 7 Houston. Request you turn 02

tank 2 fan on for 5 minutes then off.

SC Roger, 02, 2 going on.

CAPCOM Roger.

CAPCOM Apollo 7 Houston 1 minutes LOS Ascension,

2 zero.

SC Apollo 7, Roger.

pAO This is Apollo Control at 155 hours 1 minute. Guam has LOS. Not a lot of conversation during that pass. We're in the period set aside for command module pilot to eat. Donn Eisele had just completed a lithium hydroxide canister change a short time ago. Reported that the stowage location under one of the couches. Apparently it's difficult to remove a fresh canister from that location. The next station to acquire will be the Redstone at 155 hours 20 minutes.

APOLLO 7 COMMENTARY, 10/17/68, GET; 1552000 (CDT 9:25p) 483/1 This is Apollo Control at 155 hours PAO 20 minutes into the mission. Apollo 7 just about within the range of the Redstone. We'll stand by for this pass.

Apollo 7, Houston through Redstone. CAPCOM Roger, Houston, Apollo 7. SC

Roger, loud and clear. Donn, we would CAPCOM like to get a run down on your health status and medication. sleep and what have you.

Say again. SC

Roger, just a little resume of your CAPCOM

status as cold medication, sleep.

Roger. (garbled) I got 5 hours sleep last night which seems like enough, I'm not a bit tired. We still have head colds. My ears are starting to clear up somewhat, but I still got pretty stuffy sinuses. Wally and Walt are still complaining of stopped up ears and head.

Roger. And we're assuming no medication CAPCOM

on your part other than reported aspirin.

That's correct. We decided to save SC

the actifed till last day or so.

Roger. Now another thing for our further flight planning here on your procedures book and the control modes, if you could somehow give us a run down. Either number them down the page or something like that. And give me the numbers you have not completed so we kind of plan maybe an RCS fuel.

Okay, Ron. I'll do that a little later.

I'm trying to eat my breakfast right now.

Rog, no hurry. CAPCOM

Yeh, I think we've covered most of them, SC

one way or another.

Roger. CAPCOM I don't know whether, or you know how SC much data got down on the ball, but I think we feed 'em just about every control mode.

Roger. You haven't had any PT for CAPCOM

breakfast yet have you?

Yeh, I had a little bit here, right now.

You talking about fortified Tang. (broken) anyway.

Something like that. Apollo 7, Houston CAPCOM opposite OMNI. Apollo 7, Houston, 1 minute till LOS. Ascension at 46.

Roger. SC

This is Apollo Control, 155 hours PAO 28 minutes. Apollo 7 beyond the range of the Redstone. got a health summary from Don Eisele that time. Reported he APOLLO 7 COMMENTARY, 10/17/68, GET: 1551000 (CDT 9:25p) 483/2

had about 5 hours sleep last night, but he believes that was enough because he is not tired. Says he still has a head cold, but that his ears have cleared some, that his sinus stuffy. The other crewmen, Wally Schirra, Walt Cunningham still complain some about their ears. He has taken no medication other than aspirin. And he was completing his breakfast as we came across the Redstone there. The next station to acquire will be Ascension at 155 hours 46 minutes. This is Mission Control, Houston.

APOLLO 7 COMMENTARY, 10/17/68, GET: 1554600 (CDT 9:50P) 484/1

This is Apollo Control 155 hours 46 minutes into the mission. Apollo 7 in it's 99th revolution now about to tag up at Ascension.

Apollo 7 Houston through Ascension. CAPCOM

Apollo 7 Houston, Ascension standing by. CAPCOM Apollo 7 Houston, 2 minutes to LOS Mercury CAPCOM

at two two.

Roger. (Static) Houston, go. SC

CAPCOM

Apollo 7 Houston, say it again. CAPCOM

Oh it was nothing, I was just acknowledging. SC

Oh, Roger, sorry. CAPCOM

Apollo 7 Houston. We've lost your biomed CAPCOM

now.

Biomed was disconnected temporarily. Roger.

CAPCOM Roger.

Apollo 7 Houston, verify 02 tank 2 fan CAPCOM

off.

This is Apollo Control 155 hours 54 min-PAOutes. Ascension has LOS. Apollo 7 about 10 minutes away from sunrise on this rev. Next station to acquire will be the tracking ship Mercury, at 156 hours 22 minutes. Mercury is experiencing heavy seas and may have some trouble tracking with its antenna. These heavy seas caused by tropical storm, Gloria in that area. This is Mission Control, Houston.

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APOLLO 7 COMMENTARY, 10/17/68, GET: 1562200 (CDT: 10;30p)485/1
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PAO This is Apollo Control at 156 hours and 22 minutes and Apollo 7 is approaching acquisition at the Mercury. Guam has overlapping coverage on this rev.

CAPCOM Apollo 7 Houston through Mercury, stand-

ing by:

SC Roger, we standing by.

CAPCOM Roger, you're loud and clear. Say, Donn we've got some more gold medal winners.

SC Great, who are they?

CAPCOM Roger, in swimming the U.S.A set a new record in the men's 400 meter free style relay in 331.7. Also the U.S. women won the 400 meter medley relay in 428.3. That gives us a total of 17 gold medals so far.

SC Sounds pretty good. Great.

CAPCOM Apollo 7 Houston, opposite omni. Seven Houston we plan to run through program five over Redstone and power down again over the Canaries, this pass.

SC Okay

CAPCOM Apollo 7 Houston, you ought to be right

over typhoon Gloria at this time.

SC Okay, thank you, I was looking for it. Gee, I think I see it, Ron, its just a big mass of white clouds just underneath me but I can't get a shot at it, we are not at the right angle.

CAPCOM Roger.

SC Couldn't discern a particular pattern like we could on hurricane Gladys. Where is Gladys now anyway?

CAPCOM Its just about to hit the Florida Coast

down there kinda West of Tallahassee, I think.

SC Oh.

CAPCOM Apollo 7 Houston about one minute LOS Redstone at 54.

SC Okay

CAPCOM Hey, Donn, just out of curiosity, were you testing the tissues between Redstone and Ascension on the last pass.

SC Was I testing what?

CAPCOM The tissues.

SC Tissues, no, I was taking a bath, as a

matter of fact.

CAPCOM Okay.

SC Hello Houston, Apollo 7.

CAPCOM Houston, Go.

SC Would like to advise that the tissues have been tested with a reasonable degree of success.

CAPCOM Roger.

PAO This is Apollo Control at 156 hours, 34

APOLLO 7 COMMENTARY, 10/17/68, GET: 1562200 (CDT 10:30p) 485/2

minutes. Guam has LOS now. During this pass Donn Eisele reported seeing what he believes to be typhoon Gloria but reported that there was no discernable pattern that he could see on hurricane Gladys in the Gulf of Mexico. Redstone will acquire at 156 hours, 54 minutes. This is Mission Control Houston.

APOLLO 7 COMMENTARY, 10/17/68, GET: 1565400 (CDT 11:00p) 486/1

PAO This is Apollo Control at 156 hours 54 minutes into the mission. Apollo 7 coming within range of the Redstone just at sunset on the 99th revolution. We'll stand by.

CAPCOM Apollo 7, Houston through Redstone.

SC Roger, Houston, Apollo 7.
CAPCOM Roger, loud and clear.

SC Okay.

CAPCOM Apollo 7, Houston. We're ready for

GNC power up.

CAPCOM Apollo 7, Houston. Is the urine dump heater still in main A, and have you been cycling it at all?

SC Roger, main A, we haven't touched it

that I know of since we took off.

CAPCOM Roger, Apollo 7, Houston opposite

OMNI. Apollo 7, Houston, LOS. Canary's at 25.

SC Roger, Ron.
PAO This is Apollo Control at 157 hours
2 minutes. Redstone has LOS. In approximately 5 minutes
Apollo 7 will begin its 100th revolution of the Earth. The
next station to acquire will be the Canary Islands station
at 157 hours 25 minutes. This is Mission Control, Houston.

APOLLO 7 COMMENTARY, 10/17/68, GET: 15800 (CDT 11:27p) 487/1

This is Apollo Control 157 hours 25 min-PAO utes into the mission of Apollo 7. We're now at the point of acquisition, the Canary Island tracking station, let's listen

Apollo 7, Houston through Canaries standing by. (pause) Apollo 7, Houston at Canary. Apollo 7 CAP COM Houston. Canary M&O, Houston Cap Com, are we getting through to you?

Say again. SC Rog, Apollo 7, Houston, we'll go on CAP COM

CMC power down.

Okay. SC

Apollo 7, Houston, one minute LOS CAP COM Redstone at 28 and you're in your 100th rev.

Oh, roger. SC This is Apollo Control 157 hours 30 min-PAO utes into the mission of Apollo 7. We have just lost acquisition with the Canary Islands tracking station. Apollo 7 is just ending a night pass, starting off on its 100th revolution around the Earth. We are anticipating Redstone tracking ship at 158 hours 28 minutes. That's about one hour from now. At 157:31 this is Apollo Control.

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APOLLO 7 COMMENTARY, 10/18/68, GET: 15828 (CDT 12:30a) 488/1
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Eight minutes into the mission of PAO Apollo 7. It's been about one hour since the last communication with Apollo 7. We're now approaching the Redstone tracking ship and we're just beginning a night pass and let's join the conversation. Apollo 7, Houston, opposite omni. CAP COM Apollo 7, Houston. Roger, go ahead Bill. SC Hello, Donn, I though maybe you weren't CAP COM reading me. I have a flight plan update when you're ready to copy. Okay, stand by. (pause) Go, ahead, Bil1. Rog. If you'll look at page 2 dash 54 CAP COM at 160 hours + 25 delete the fuel cell purge. Roger. At 161 + 10 DAP update. CAP COM Okay. SC 162 + 30 waste water dump. At 163 + 40CAP COM fuel cell 02 purge. Roger. Fuel cell 02 purge at 163 + 40. SC Affirmative and if you'll look on the CAP COM next page 2 dash 55, I have a few items there relative to the burn. Okay, go ahead. Right. The nominal time now for burn CAP COM five is 165 hours even. It'll be quads Bravo and Delta for the two jet ullage, MTVC for the last 30 seconds, the burn time will be 66 seconds and you can delete the reference to battery charging there. Okay, got quads B&D, 165 on the hour, SC two jet ullage and the burn time is one minute and six seconds. Is that right? Affirmative and delete the reference to CAP COM battery charging. Okay. Guess the Delta V changed some SC then too didn't it? We'll be updating that, and also there -CAP COM Okay. SC The MTVC's will last 30 seconds. CAP COM Alright. SC Okay, that does it. CAP COM Okay. SC Ah, Donn, just for your information, the CAP COM total Delta V for that burn is 1646. It'll be on the pad when we send it up. Okay. SC

Apollo 7, Houston one minute LOS

CAP COM

## APOLLO 7 COMMENTARY, 10/18/68, GET: 15828 (CDT 12:30a) 488/2

CAP COM Redstone, Antigua at 49. SC Roger, Antigua at 49.

This is Apollo Control 158 hours 36 minutes into the mission of Apollo 7. We are losing acquisition at the Redstone tracking ship. During this pass we had a flight plan update for the next several hours through the fifth service propulsion system burn. The change in that burn is that it will be 66 seconds in duration instead of 60.9 seconds according to the flight plan. Flight plan also had a Delta V, or velocity, change of 1465.4 feet-per-second now it's indicated that the Delta V velocity change will be 1646. The burn will take place at 165 hours into the mission. We are ending up our 100th revolution of the Earth at 158 hours 37 minutes, this is Apollo Control.

APOLLO 7 COMMENTARY, 10/18/68, GET: 15849 (CDT 12:52a) 489/1

PAO This is Apollo Control 158 hours 49 minutes into the mission of Apollo 7. We're coming up now to the acquisition point for Antigua. Let's listen in.

CAP COM Apollo 7, Houston through Antigua.

PAO This is Apollo Control 158:52 into the flight. We have just lost acquisition with Antigua. The next point will be in some six minutes with the Canary Islands. We're beginning our 101st revolution of the Earth at this point and we'll come up on Canary Islands at 158:57. This is Apollo Control.

PAO This is Apollo Control 158 hours 57 minutes into the mission of Apollo 7. The last hour and one half we've had a very quiet spacecraft with the exception of a flight plan update that was passed to them about an hour ago. Now we're coming up on acquisition with Canary Islands tracking station, let's listen in.

CAP COM Apollo 7, Houston through Canary. Apollo 7, Houston through Canary. Apollo 7, Houston.

SC Roger, go.

CAP COM Rog, just checking. Now, it's going to be about an hour here, see ah -

SC ···

CAP COM Rog, it's going to be about 45 minutes before next acquisition. I just wanted to get a call from you before we had LOS here at Canary.

SC Yeah, okay fine. Everything's fine

here.

CAP COM Good, thank you.

SC I've got two sleeping beauties and a sound ship.

CAP COM Rog. Donn, how was your sleep last

night?

SC Oh, it was pretty good. Not quite as

good as the night before.

CAP COM Rog. (pause) We have estimated acquisition Honeysuckle at 43, we'll need the S-band volume up however its sort of a freakish pass. If we don't get you there we'll get you at the Redstone on the hour and that will be about an hour from now.

SC Okay.

pao This is Apollo Control 159 hours 05 minutes into the mission of Apollo 7. That's 6 days 15 hours and 05 minutes. We've lost acquisition with the Canary Island tracking station. Our next point of contact will be Honeysuckle Creek at 159 hours 43 minutes. During this pass Astronaut Pogue here in the Control Center had a communication check. Astronaut Eisele indicated that he was - everything was fine on the spacecraft and that he had two sleeping beauties and a sound ship. At 159 hours 06 minutes into the mission of Apollo 7, this is Apollo Control.

APOLLO 7 COMMENTARY, 10/18/68, GET: 15943 (CDT 1:47a) 491/1

This is Apollo Control 159 hours 43 min-PAO utes into the mission of Apollo 7. We're coming up now on a pass at Honeysuckle Creek in Australia. It'll be a short pass but stand by.

Apollo 7, Houston through Honeysuckle, CAP COM

poor contact.

This is Apollo Control 159 hours 47 minutes into the mission. You heard Cap Com Pogue here at the Control Center indicate that it was a poor contact at Honeysuckle. Our next contact will be with the Redstone tracking station, excuse me, the Redstone tracking ship 160 hours and one minute. At 159:48, this is Apollo Control.

PAO This is Apollo Control 160 hours one minute into the flight of Apollo 7. We're coming up now on the Redstone tracking ship. We've entered a nightside pass, just had acquisition, let's listen in.

CAP COM Apollo 7, Houston through Redstone.

SC Roger, Houston, Apollo 7.

CAP COM Say, Donn, this waste water quantity is getting up pretty high and we've been taking a look at this, ah, it probably would be a good idea perhaps to dump this stuff before you do a nav sighting, well before.

SC Yeah, that's a good idea. Thanks,

Bill.

CAP COM And go ahead and do it anytime I suppose. Also, when I was updating the flight plan, if you have it there you'll notice there's still an H2 heaters On at 160 hours and five minutes and of course I should have had that deleted.

SC Rog, I got that.

CAP COM And, one additional item to catch up on and thats this fuel cell 02 purge at 163:40. This should be done after the Delta V bias test.

SC Oh, okay.

CAP COM Thank you. Apollo 7, Houston opposite omni.

SC Roger. (pause) Houston, Apollo 7.

CAP COM Go.

SC Roger. I was just looking ahead. This

... thermal control BPO.
CAP COM Rog.

CAP COM
SC
I'm wondering if we follow the procedures thats outlined if we're not going to put ourself in that undesirable situation where we're pointed straight up or nearly so in the lower part of our trajectory and I'm wondering if it might not be better to simply specify the time in which they want the rolling, you know with the ... to begin and let us simply ... few minutes ahead and then C spelling pitch and yaw at the designated time.

CAP COM Okay, Donn, stand by and we'll get

SC ... their tight net band for oh about 20 minutes before we disable pitch and yaw and our experience so far indicates that we can do a better job manually ... these pitch and yaw range anyway.

CAP COM Rog, we've copied that and we'll take

a good look at that.

SC

Okay. I'm afraid if we do it the way its outlined I think would cost us a fair amount of fuel and ... as well.

APOLLO 7 COMMENTARY, 10/18/68, GET: 16001 (CDT 2:04a) 492/2

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CAP COM Rog. (pause) Ah, Donn, your waste water quantity right now is reading about 88 percent.

SC Roger, Bill. I think I'll go ahead

and dump it now.

CAP COM Right, thank you. (pause) Apollo 7, Houston one minute LOS Redstone. Antigua at 20.

SC Roger.

PAO This is Apollo Control 160 hours 10 minutes into the mission of Apollo 7. We are losing acquisition with the Redstone tracking ship. Our next acquiring point will be at Antigua at 160 hours 20 minutes, 10 minutes from now. With a little less than 100 hours to go in the mission, this is Apollo Control.

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APOLLO 7 COMMENTARY, 10/18/68, GET: 16020 (CDT 2:23a)
     PAO
                    This is Apollo Control 160 hours 20 min-
utes into the mission of Apollo 7. We're just coming up now
on Antigua and just had acquisition; let's listen in.
                    Apollo 7, Houston through Antigua.
     CAP COM
                    Roger, Houston, Apollo 7.
     SC
     CAP COM
                    Rog.
     SC
                    Houston, log me ... clicks on the
water gun.
                    Say again the number.
     CAP COM
                    One two.
     SC
                    Roger, one two. (pause)
                                               Apollo 7,
     CAP COM
Houston, opposite omni.
                    Roger.
     SC
                    Ah, Donn, we show you down about
     CAP COM
53 percent on the waste water and just bring her right on
down to 25 percent.
                    Okay fine. Help me keep an eye on it.
Bill, I think I'm going to power up the CMC, the IMU and
everything prior to the next night pass. ... the heavier,
the burn time now occurs during the nightpass which effectively
wipes it out as a trying to do an alignment so I'm going to
have to start a little early.
     CAP COM
                    Okay.
                           (pause) Apollo 7, Houston, we
will need to send you an update over Carnarvon or Honeysuckle
and that's at about 161 + 20 nominally, maybe 161:10.
                    Okay. Okay, I'll go ahead and power
     SC
up everything at 161.
     CAP COM
                    Okay.
                    Houston, Apollo --
     SC
                     Apollo 7, Houston, go.
     CAP COM
                    Roger, could you give me a map update
     SC
please?
                     Rog, stand by. Apollo 7, Houston,
     CAP COM
map update for rev. 101, GET 158 + 48 + 46, NODE at 59.3 West,
five niner point three west.
                     Roger, thank you.
     SC
                     And, we're coming up on LOS Antigua
     CAP COM
we'll pick you up at Canaries in about 3 minutes.
                     Okay.
     SC
PAO This is Apollo Control 160 hours 28 minutes into the mission of Apollo 7. Apollo 7 has started on
its 102nd revolution of Earth, the next acquisition point
will be the Canary Islands at 160 hours 31 minutes. At
160:28 this is Apollo Control.
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PAO This is Apollo Control 160 hours 31 minutes into the mission of Apollo 7. We're coming up on acquisition with Canary Islands just acquired, we'll stand by.

CAP COM Apollo 7, Houston through Canary.

SC Rog. -

CAP COM Apollo 7, Houston.

SC Roger,

CAP COM Alright, Donn, I'll be giving you a DAP, ah or send - ah, yes, giving you a DAP pad and also a maneuver pad at Carnarvon. That will be about 161 + 10 and I'll have a P-27 pad standing by. Having a little trouble with our uplink at Carnarvon, but, that's what we'll be doing when we come up on Australia.

SC Okay. I want to try and get a few

pictures of Australia, too.

CAP COM Okay. (pause) Hey, Donn, are you

exercising?

SC No, I'm soaking up the water that

leaks around us. (garbled)

CAP COM Okay, that answers the question.
Our friendly doctor noticed that you must be scurrying around there.

SC Yeah, I am. Everytime we dump waste water ... .. leaks out around ...

CAP COM Yeah.

SC (garbled) (garbled)

CAP COM Yeah, must be quite a nuisance.

SC Yes. ... do it very often.

GAP COM Apollo 7, Houston, one minute LOS Canaries, I'm going to give you a call in a couple of minutes at AOS Madrid just to check the S-band, so we need the volume up. Apollo 7, Houston, S-band volume up.

PAO This is Apollo Control 160 hours 39 minutes into the mission of Apollo 7. We have just lost acquisition at Canary Islands and we have about one minute to go on the S-band Madrid acquisition. There will be no further conversation until we get to Carnarvon at 161:07. At 160:40 this is Apollo Control.

This is Apollo Control, 161 hours, PAO 7 minutes into the mission of Apollo 7. We're coming upon acquisition with a rather long pass, Carnarvon which has almost a 6 minute pass and then about a minute delay into Honeysuckle Creek for anoter 5 or 6 minute pass. We will stay up for all of the 12 or 14 minutes. Let's listen in. Maneuver path, and if you'll go to pull CAPCOM and accept we'll send up your new state vector. Roger, going to accept. SC Okay, now Don, I have the dap data CAPCOM updata course is brief, and the maneuver path will take a little while. You mentioned that you wanted to get some pictures over Australia so - sorta - you might take a look at that and either delay your readback or ask me to delay in sending it to you. Go ahead, Bill. SC Ready to copy? CAPCOM All right, I got you. Why don't you give ·SC me the DAP data? Okay, DAP data, minus 00078 minus 004 CAPCOM ' Read back. niner, plus 02142. Minus 00078 minus 0049, plus 02142. SC I'm ready to give Readback is correct. CAPCOM you the maneuver path when you're ready. Okay, I think I'll hold out until I get SC some pictures. Just let me know when you're ready to CAPCOM copy. And if we run to LOS of Carnarvon be sure to turn your volume up before Honeysuckle. We'll have Honeysuckle acquisition at about 15. Okay. SC Apollo 7, Houston. No need to acknow-CAPCOM ledge right now but you've got a GO for a 121-1. Roger, thank you. Apollo 7, Houston, you might check your CAPCOM attitude right now. I hear you, Roger. SC And we're coming upon LOS Carnarvon in CAPCOM about 45 seconds, S-Band volume up at 15. SC Roger. Apollo 7, Houston. Apollo 7, Houston, CAPCOM through Honeysuckle. This is Honeysuckle on (garble) CAPCOM Apollo 7, Houston, through Honeysuckle. CAPCOM Houston, Apollo 7. SC Roger, how do you read, Don? CAPCOM

Oh, loud and clear.

copy the maneuver path and also with the previous DAP data

Okay, let me know when you're ready to

SC

CAPCOM

update that was for noun 48. CAPCOM

Roger, understand. SC

And let me know when you're ready to CAPCOM copy the maneuver path.

Okay. You can go ahead now. SC

CAPCOM Roger, and before I start your state vectoring and target loads RN. Starting to read for SPS 5/ plugs 165000000 plus 01110 plus 16300 plus 02034, 2406 plus 08 niner 8 17280 2 niner 4 niner 4, minus 078 minus 049106 343548201, 164180000, minus 3062, plus 11248 123 niner, 000000000. Standby for readback.

Roger SPS 5/plugs 165000000 plus 01110 SC plus 16300, plus 02034, 2406 plus 0898 17280 29494, minus 078 minus 049106 343548201, 164180000, minus 3062, plus 11248 1239, 000000000. And hold off for attitude.

Roger, and for the attitude it's out of CAPCOM plane, south heads up. It now checks - standby - comments MTVC take over at TEG plus 3/6 seconds. Additional commment, manual cutoff at Delta-V counter equal 100 feet per second. Sextant star not visible after 164 plus 41. Also if needed, your RP and wire line are 171260014.

Say, that moved a little to the right. SC

What were those numbers against a - back the image.

ROLL - ROLL is 171, pitch is 260, YAW 014. CAPCOM This is Apollo Control, 161 hours, PAO 22 minutes into the mission of Apollo 7. We have passed out of acquistion with Honeysuckle Creek in Australia. We will acquire at Redstone Tracking Ship for a short pass at 161 hours, 37 minutes. You just heard an update, a DAP update which is digital auto pilot. Also, the SPS number 5 PUGS update, PUGS standing for propellant utilization and gauging system update. For the service propulsion system engine burn which will occur at 165 hours, ground elapsed time. At 16123, this is Apollo Control.

APOLLO 7 COMMENTARY, 10/18/68, GET: 16137 (CDT 3:40a) 496/1

pAO This is Apollo Control 161 hours 37 minutes into the mission of Apollo 7. We are approaching the Redstone tracking ship and should have acquisition shortly. Let's listen in.

CAP COM Apollo 7, Houston through Redstone.

SC Roger, Bill.

CAP COM Rog, I'd like to clarify one item in the comments regarding the bias, the manual cutoff at Delta V counter equalled 100 feet-per-second. I read it as one zero zero and just wanted to make sure that you understood there's not a decimal point there.

SC Roger, I get 'cha. You've deliberately loaded in a bigger number and we cut off at a plus number

manually by throwing the switch down, right?

CAP COM That's affirmative but it's one hundred

and not ten.

SC Right, I've got 'cha.

CAP COM
Also, you did get the RP and Y align.
SC
Rog, I'll get that a little later. I'll

bring ... in here.

CAP COM Okay, sorry to have bothered you.
SC No sweat. I plan to align this thing without mapping out the range boy it's really wheeling around.

CAP COM Apollo 7, Houston one minute LOS. When

it's convenient you can go to block on your TM.

Roger.

PAO
This is Apollo Control 161 hours 41 minutes into the mission of Apollo 7. In about 15 seconds we'll have loss of signal at the Redstone tracking ship. We're in the 102nd revolution, coming to the end of it. We'll be starting very shortly in the 103rd revolution. Our next point of contact will be MILA, that's Merritt Island, Flerida at 161 hours 52 minutes. At 161:42 this is Apollo Control.

as soon as possible and then leave you free to use as much of the nighttime as possible on the next nightime pass.

data out. (pause) -Go ahead with your block, Bill.

SC

Ah, good thinking, I'll get the block

"大利",这一样,"我们的大利"大利,这种人的对抗,"我们,"我都是我们想到一点看了这个文化,有"被我自己的事"。

APOLLO 7 COMMENTARY, 10/18/68, GET: 16152 (CDT 3:55a) 497/2

Rog, before I start I'd like to verify you have loaded the DAT with the DAT data update I gave you? That's right.

Roger, okay, starting to read block CAP COM data. 105 dash 1 alpha +314 -0627 164 46 06 3446, 106 dash 1 alpha +286 -0631 166 21 55 3485, 107 dash 4 alpha +283 -1625 168 59 03 3038, 108 dash 4 alpha +302 -1625 170 40 38 2787, 109 dash 4 alpha +275 -1625 172 22 48 3072, 110 dash 3 alpha +299 +1390 173 34 54 2890. Standing by for readback.

Roger 105 dash 1 alpha +314 -0627 164 46 06 3446, 106 dash 1 alpha +286 -0631 166 21 55 3485, 107 dash 4 alpha +283 -1625 168 59 03 3038, 108 dash 4 alpha +302 -1625 170 40 38 2787, 109 dash 4 alpha +275 -1625 172 22.48 3072, 110 dash 3 alpha +299 +1390 173 34 54 2890.

Roger, readback correct. Coming up on CAP COM

LOS, we'll have Canaries at 05. This is Apollo Control 162 hours 02 minutes into the mission. We have about a two and one-half minute wait for Canary Island acquisition. At 162:02 this is Apollo Control.

END OF TAPE

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PAO
                     This is Apollo Control, 162 hours.
5 minutes into the mission of Apollo 7. We're coming upon
acquisition point with Canary Islands now. Let's listen in.
                     Apollo 7, Houston, through Canary.
     CAPCOM
     SC
                     Roger.
     CAPCOM
                     Donn, you might be interested - the S-IVB
is just a bit ahead of you at about 400K - on the east coast
of Africa.
     SC
                     Oh, yeah?
     CAPCOM
                     It's coming in.
                     Oh, it's coming in? Besides you'll
speak to us.
              Houston, Apollo 7.
                     Go.
     CAPCOM
                     I think you need to give us a little
     SC
advice along the way - on these RCS quads - I'm going to
switch them. I've already switched C and I suspect A is
getting down in that direction, perhaps B & D also.
                     Roger, standby.
I don't want to switch them until we
     CAPCOM
     SC
have to but I'd like you to help out.
CAPCOM Okay. Apollo 7, Houston, you're riding comfortable above BRAVO and DELTA. You're getting fairly
close to A, about 5 to 6 pounds above and we'll keep you
advised on that just like we did on CHARLIE quad.
                     All right, thank you.
     CAPCOM
                     Roger, and you might check attitude
there again.
                     Roger, it's getting close. I'll try
not to fire any thrusters.
     CAPCOM
                     Apollo 7, Houston, we're about 1 minute
and 1/2 here until LOS. And we're transmitting through
S-Band.
         How do you read?
                     I read you fine, Bill.
     SC
     CAPCOM
                     Okay, good, thank you.
     SC
                     Houston, Apollo 7.
     CAPCOM
                     Go.
                     Roger. Did you find out exactly how
many frames we have in this set ... set camera pack? There
are a nominal number like something like 165. I'm sure it
has more than that. I just wondered if anybody knew - any-
body down there knows how many.
     CAPCOM
                     I'll check,
                                I'll try and get the word
to you but we're coming upon LOS.
     SC
                     Well, whatever is convenient - know
the rest of it,
     CAPCOM
                     We're checking. Apollo 7, Houston,
we'll have Canaryon at 40.
```

This is Apollo Control, 162 hours.

13 minutes into the mission. We've just had lost of signal

pAO at Canary Islands. Our next point of contact will be Canarvon at 162 hours, 40 minutes. During this pass, CAPCOM Pogue here in the Control center indicated to astronaut Eisele in the spacecraft that the S-IVB stage of the Saturn booster was ahead of the command and service module off the coast of Africa at about 400,000 feet. The S-IVB is due to reenter at approximately 166 hours into the mission. Eisele made the comment that as near as we could hear - Adios, Big Brute. Eisele is keeping watch on the spacecraft attitude and he says he will try and not fire any thrusters to keep it - to keep it within limits. At 162 hours, 15 minutes into the mission of Apollo 7, this is Apollo Control.

APOLLO 7 COMMENTARY, 10/18/68, GET: 16240 (CDT 4:42a) 499/1

This is Apollo Control 162 hours 40 minutes into the mission of Apollo 7. We're now coming up on Carnarvon tracking station and our 103rd revolution. should have acquisition in a very few seconds, let's join in.

Apollo 7, Houston through Carnarvon. CAP COM Roger, Houston this is Apollo 7. SC

Rog, say in reference to the passive CAP COM thermal control test, we would still like to perform the test as per the procedure. A couple points of clarification, the time of initiation is selected to get MAX time above 200 miles with channels as able, also the time to initiate attitude hold is 10 minutes past perigee so we shouldn't have too much of a problem there on the drag.

Okay, if you say so. We'll give it a whirl, if it's too bad we'll probably have to modify a little

bit going up.

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1.11.

Okay and in that regard, there'll be two CAP COM more of those tests they say if this is too expensive in fuel that we can just take a look at one of the two other tests that are coming up. We may just scrap one of those. ... suggest that if we get good results

SC out of the first one.

Well, they don't anticipate too much of CAP COM a problem but we'll just adopt a wait and see attitude on that one.

Roger, understand. SC

Also, in reference to your question on the Cassettes..., I've checked into this and there are 165 frames CAP COM MAX in there and I asked them if it kept cranking what happened, apparently it just keeps turning so your not taking anymore pictures after that.

Oh, Bill, you've got to be kidding. SC

Well, okay, thank you for the dope.

Also, just for your information on your CAP COM pass over the States after the burn you will be visible over Houston.

Roger, understand. SC

I'm sorry, Donn, Just before sunrise. CAP COM that's before the burn.

Roger, understand.

Say, Donn, how did the EMS Delta V test CAP COM

work out?

We haven't done that yet, Bill. SC

CAP COM Okay.

Houston, Apollo 7. SC

CAP COM Rog, go. Roger, just got a picture of Carnarvon. SC

APOLLO 7 COMMENTARY, 10/18/68, GET: 16240 (CDT 4:42a) 499/2

CAP COM Good. (pause) Apollo 7, Houston. 02 tank two fans ON three minutes then OFF. Apollo 7, Houston. Did you copy me on the O2 tank two fans.

SC Roger, Bill.

CAP COM Okay, and in about two minutes we'll have LOS Carnarvon and we'll require S-band volume up for Honeysuckle.

SC Roger, understand Bill and we just took three pictures frames 3, 4, and 5 on magazine R of ...pay Carnarvon and a terrain feature in Australia.

CAP COm Okay. (pause) Apollo 7, Houston.

Apollo 7, Houston.

CAP COM Rog, I've just been advised we're monitoring your condenser temperature on fuel cell number two at 174 degrees, this is 10 degrees higher than the other, there is a limit of 176 for an alarm indication so you may get a light on that but we are watching it and there is no cause for undue concern now.

SC Roger, you say if it goes up to 176 not

to sweat it,

CAP COM Rog, you get a light.
SC Right, I know but we don't have to get

excited about that?

CAP COM Rog, SC Okay.

CAPCOM Apollo 7, Houston, 1 minute LOS Honeysuckle, Wymas at 20.

Roger. SC This is Apollo Control, 162 hours, PAO 56 minutes into the mission of Apollo 7. We have just lost acquisition at Honeysuckle and we will be coming upon Guaymas, Mexico Tracking Station at 163 hours, 20 minutes, toward the end of the one hundred third revolution. During this pass we heard CAPCOM Pogue talk first of all about the camera onboard. The question Eisele had asked him of how many frames were in the camera. And Pogue indicated in this pass that there were 165 useable frames, total frames in the camera and after that it just kept clicking and there was no way to tell that there no more frames left. Eisele had a reply to that which was "Oh no, you gotta be kidding", which probably indicated that he did not realize that. Bisele indicated he just got a picuture of Canarvon and later indicated that he took three pictures of Carnarnon and terrain feature pictures of Austrailia. Pogue indicated that our ground readouts and the control center show the fuel cell number two condenser temperature at 174 degrees. He also indicated that if it went to 176 degrees, the alarm There was indication light will go on and not to sweat it. no reason for concern. In that fuel cell process, the hydrogen pump - provides a continuous circulation of hydrogen in the primary loop. And it withdraws water vapor and heat from the cell stacks. The - then the primary bypass valve regulates the flow through the hydrogen which is called the regenerator and takes exhaust heat to the incoming hydrogen gas as it is required to maintain the proper cell tempera-The exhaust gas flows to the condenser where the waste heats transfer to the glycol and the result temperature decrease liquifies some of the water vapor. It's this condenser that he was referring to when he indicated that it was now reading 174 degrees. At 162 hours, 59 minutes into the mission, this is Apollo Control.

pAO This is Apollo Control 163 hours 20 minutes into the mission of Apollo 7. We're now coming up on acquisition for Guaymas, Mexico, we should have it in a few seconds. The astronauts should all be up now and in an eating period, let's stand by for conversation.

CAP COM Apollo 7, Houston through Guaymas.
SC Roger, Houston, Good morning Bill.
CAP COM Good morning, how are you today?

SC Not bad. Say, I wonder if you could give me a readout on my fuel cell radiator two inlet and outlet test please. Give me the trend for the last several hours.

CAP COM Roger. We're doing that very thing right

now.

SC We do have a partial warning light on and it's reading about 177 or 178 on the condenser exhaust, the skip temperature has crept on up to about 435.

CAP COM Roger, our last reading on the fuel cell

was 174 and that was at 48 over Carnarvon.

Roger, I'm wondering about if we get that trend, ah, I'm sure you think its probably a cooler pump failure also. The other question I have is should we give some thought to open circuiting the fuel cell now and throwing it on, letting it cool down a bit, putting it on just before the burn.

CAP COM That's exactly our line of thinking. We'll get back to you on that just as soon as we take a

closer look at the data here.

SC Okay.

CAP COM Apollo 7, Houston. SC Go ahead, Bill.

CAP COM Rog, in regard to your first request, we're still working on your trend. I told them to go back about two orbits. We suggest you open circuit, the fuel cell and put it back on line at 164 + 45. That's 15 minutes prior to the burn. Two fuel cells can handle the loads, however, the buss voltage is going to be about 26.5 to 26.6.

Rog. I concur, say again the time for

putting them back on.

CAP COM At 164 + 45, that's 15 minutes prior to

the burn.

SC Yeah. (pause) Got a morning report for you Bill.

CAP COM Okay.

Partial pressure 02 still 245 millimeters mercury so it looks like its holding there. I'll knock off giving you those readings anymore, I might take one the last morning. LMT 15 clicks of water this morning. I had 6-1/2

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APOLLO 7 COMMENTARY, 10/18/68, GET: 16320 (CDT 5:23a) 501/2
                     maybe 7 hours of sleep. ... 4-1/2 hours
     SC
of sleep last night.
                     Rog, understand LMP 15 clicks of water,
     CAP COM
6-1/2 to 7 hours of sleep and the CDR 4-1/2 hours of good
sleep. Also, Walt you can turn the cryo 02 tanks, ah tank
fans OFF, ah, tank two fans OFF.
                                  Been off awhile.
                     They're OFF.
     SC
     CAP COM
                     Thank you.
                     Good morning, Bill.
     SC
                     Good morning, Wally. How's everything?
     CAP COM
                     Very good. Haven't heard you in awhile.
     SC
                     No. I've been on the OFF period here I
     CAP COM
guess.
                     Yeah, they try to move us up earlier
     SC
each day.
     CAP COM
                     Right.
                     Understand your a big TV fan of ours.
     SC
                     That's right. I've been running home
     CAP COM
from work just in time to watch.
                     Thought for today we were going to try
for an Emmy for the best weekly series.
                     I thought you were going to try for a
     CAP COM
Hammy.
                     Maybe.
     SC
     CAP COM
                     Right.
                     Oh, you're coming back. I lost it.
     SC
                                That's a rare one.
     CAP COM
                     (laughing)
                     That makes up for the involuntary Oh
     SC
Boy you gave us anyway.
                     Rog. (pause) Apollo 7, Houston.
     CAP COM
the risk of laboring the point, we'd like to confirm 02
tank two fans OFF and heaters AUTO.
                     Fans are OFF and the - I have one heater
     SC
here ON was that called for ON during the night?
                     Negative, that should be -
     CAP COM
                     Okay, the fan is OFF.
     SC
                     Okay, for 02 tank two the fans should
     CAP COM
be OFF and the heater in AUTO.
                     Rog, understand. I'm going to turn the
fan on for five minutes. I had it off here. Looks like we
may have had a heater ... ON instead of AUTO.
                     Okay. (pause) Apollo 7, Houston.
     CAP COM
     SC -
                     Go ahead, Bill.
                     Rog, you might tell Donn apparently hes
     CAP COM
trying to load that noun 48 there and having trouble in
register two. He's putting in a minus 49 and when he's checking it its coming back a 50, they say that's because
of scaling into and out from.
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APOLLO 7 COMMENTARY, 10/18/68, GET: 16320 (CDT 5:23a) 501/3

Rog, I was having fun with that. If you put in a 49 it adds one and if you put in a 48 it subtracts one. There's no way to get 49 on there.

They say that when you put the 49 in and CAP COM

enter it, it's okay.

Yeah, it's all right. SC

Okay. CAP COM

I was just having fun with it. (pause) Hey, Bill, notice how quickly that exhaust temperature is coming down.

CAP COM

Yeah, it's coming right down. Hey, Bill, I'm thinking of manually SC

balancing the hydrogen tanks right after the burn.

Okay. CAP COM

I'd like to have what you guys read out SC

'as quantities in H2 one and H2 two.

Stand by. CAP COM

CAPCOM Walt, we're reading 42.6 in number - H2 number one and 39.2 in H2 number two.

SC Roger. I'll balance it out after the burn. You don't really need to wrap that - ham and apple sauce is a great dish.

CAPCOM Roger, ham and apple sauce. We're com-

ing up on LOS. We'll have Canaries at 39.

Sc Since you asked, steak and eggs are

better.

CAPCOM Amen.

This is Apollo Control, 163 hours, PAO 37 minutes into the mission of Apollo 7. We have 2 minutes, roughly, to wait before acquistion at the Canary Islands at 39 past the hour. During this pass we heard fuel cell number 2 condenser situation talked about. The suggestion from the spacecraft was to open the circuit now, cool it down, and put the fuel cell back on the line again just before the SPS number 5 burn on the next revolution. was what they were instructed to do. To open the circuit and put it back on the line at 164 hours, 45 minutes into the mission which would be 15 minutes before the service propulsion system burn. It was also indicated that two fuel cells, however, can handle the loads involved. Cunningham indicated he had 15 clicks or 7 and 1/2 ounces of water. He had 6 and 1/2 to 7 hours of sleep. And that Schirra the spacecraft commander had had 4 and 1/2 hours of sleep. Cunningham indicated again that he understood that astronaut Pogue our CAPCOM here is a big TV fan of theirs. Schirra said that he would like to try for an emmy for the best weekly series at which point astronaut Pogue here in the control center said you mean a hammy. Cunningham indicated that ham and applesauce is a great And Schirra said that steak and eggs are better for the CDR, meaning the spacecraft commander. We have 1 minute to wait for acquisition at Canary Islands. We will just stay on the line here and standby for conversation.

CAPCOM Apollo 7, Houston, through Canary.

SC Roger, loud and clear, Bill.

CAPCOM Roger. Have you done the E & S DELTA-V

bias test yet?

SC Okay.

CAPCOM
And as soon as you have finished with that, we would like a fuel cell 02 purge on all three.
SC
Roger. I'm going to go ahead and do

CAPCOM We thought maybe that - no, I guess it wouldn't hurt anything. Roger. Apollo 7, Houston, I have an update for the passive thermal control tests. However, if you are busy, we can hold off for a while.

SC Go ahead, Bill.
CAPCOM Roger. Passive thermal control, TO 166
plus 50, T aline 167 plus 16, attitude is 000. And that's
it.

SC Roger. TO 166050, T aline 167 plus 16,

roll 0 pitch 0 yaw 0.

CAPCOM All right, readback is correct.

SC Bill, did anybody take into considera-

tion our perigee torquing on that alinement?

CAPCOM
Yes, we had quite a discussion on that, wally, and it turns out that - you spin this thing up about 10 minutes past perigee and go in attitude hold. They're willing to pay any penalty to get that thing set up for this so that you will be in the proper attitude at the proper roll rate as you go above 200 miles. If they use too much fuel on this, then they are willing to - do away with one of the or both of the other tests.

SC Okay, let's have all of the BTO guys get together in a huddle and add up their willingness for us

to spend fuel and see if it meets our budget.

CAPCOM Roger. Well, that's what we have already done and they say they are willing to accept a cancellation of one or both of those later tests in order to get this done the way it is written out.

SC Okay, that's fair enough. I think we all- it's a new thing for all of us up here and I think

we should be aware of it.

CAPCOM Roger.
SC We're putting in the same address and that phenomena is going to hurt us every time. I'm planning it right now in fact. I think I got advantage of it this time. It is driving me to the right attitude.

CAPCOM Good. Apollo 7, Houston, coming up on LOS Canary. We may be able to get you at Tananarive at 01. Also, we would like the biomed to CDR and note we have

lost CNC EKG, request check harness.

SC Lock the MP. EKG, Roger. You notice that my main bus voltage, bill, is running right at 26 volts down here so it triggered it's lights on and off.

CAPCOM Roger; I just checked on that a minute ago and we were reading 26.9. Let me check again, here. 26.7

to 26.6 we're reading here Walt.

SC Okay, we triggered off the master line a little bit ago and I'm reading right at 26 on the onboard meter.

CAPCOM Thank you very much. SC What about the (garble)

PAO This is Apollo Control, 163 hours, 47 minutes into the mission of Apollo 7. We have just lost

APOLLO 7 COMMENTARY, 10/18/68, GET: 16335 (CDT: 5:38a) 502/3

acquisition at the Canary Islands and we are looking for Apollo 7 at 164 hours, 1 minute at Tananarive. At Carnarvon we are looking for it at 164 hours, 14 minutes. At 16347 this is Apollo Control.

APOLLO 7 COMMENTARY, 10/18/68, GET: 16402 (CDT 06:05a) 503/1

PAO This is Apollo Control 164 hours 01 minute into the mission of Apollo 7. We are coming up on a pass, a very short pass, a 2 minute pass at Tananarive. We should have acquisition in a very few seconds. Let's stand by.

PAO This is Apollo Control 164 hours 03 minutes into the mission of Apollo 7. We just had a voice check and that was all at Tananarive. We are standing by for Carnarvon, which will be 164 hours 14 minutes. At 164 03, this is Apollo Control.

## APOLLO 7 COMMENTARY, 10/18/68, GET: 16414 (CDT 06:18a) 504/1

This is Apollo Control 164 hours 14 PAO minutes into the mission of Apollo 7. We are on our 104th revolution, approaching Carnarvon acquisition, approaching Australia. After this Carnarvon and Honeysuckle pass, we will have an update of the past 8 hours of activity, or 7 and 1/2 hours of activity. Now let's join the conversation.

Roger, loud and clear. On the EMS pass, 5 passed for the duration of the burn, plus 30 seconds, which is when we turned her on - was .3 feet per second.

Roger, .3. CAPCOM

That's a minute and 36 seconds. SC

Bill, I would like to have you go over SC again what you have proposed for the DELTA-V counter setting on this burn.

CAPCOM Okay. The DELTA-V counter setting will be 1728.0. What this does, it is 100 feet higher than the DELTA-V you want to get and you will turn the thrust switches off at 100.0 indication on the DELTA-V c-counter, in other

words, with a hundred feet remaining.

SC What is the reasoning behind that? The thing is still to turn itself off at 0. That's one of our primary checks on the SCS cutoff on the DELTA-V counter. I'll turn it off if it doesn't turn itself off at 0. This is a complete departure from the way we normally handle the DELTA-V counter and the SCS technique.

CAPCOM Roger, that is correct. However, the BTO calls for this as part of the test. I think it's in that little burn sheet on the inside cover of the flight plan.

The BTO is wrong then. The DELTA-V cutoff in the DTO, as I see it, we've looked at it, cutoff is in the thrust switches. I don't think enough people understand the TMS. I found that out as soon as we got it on board.

Walt, are you there? CAPCOM

I'm here. SC

Roger. We need fuel cell number 2 back on at 164 + 30. That's 30 minutes prior to the burn,

instead of the 15 that I gave you.

Okay, I'll do that, but it looks to me like it's going to - that will give us just about enough time to get up the alarm stage again. Donn is still reading 170 about, on the condenser exhaust and 430 on the skin.

Let me see if I can get a compromise CAPCOM

here. Okay. I'll do - I'll go with whatever you guys want, but I would like to make sure we aren't jumping the gun. Also, I would like to know what your trim data shows on those radiators, so I will know whether to turn the

pumps off or not. SC Roger, stand by. I will ask for that. CAPCOM it's still in process. Okay, standing by. SC Bill, you do understand the normal SC

That's what it's for. It will beat me cutoff at DELTA-V? any time.

Roger, I understand that. In fact, CAPCOM the way I had understood this was that you were using the thrust switches to turn it off just to check them. It's part of a -

They better work. They are all we've SC We got three burns and cutoffs: G&N cutoff, DELTA-V counter going through zero, and then DELTA-V burn switches. And I'm convinced that they must work, or I wouldn't be up here.

Right. This was a late change, Wally, CAPCOM and you have a 100 foot per second there to play with, so to speak. If they don't cut it off, then the LTVC will cut it off.

Roger. They have changed everything SC then, that is not the way we've been doing burn 5. And it says nothing about biasing the DELTA-V counter 100 feet per second. We've never done it. I'm hair-triggered for zero.

Hey, Bill. SC CAPCOM Go.

I guess you have raised something in SC my mind. We did have an SCS burn where the DELTA-V counter did cut off, didn't we?

Roger, that is affirmative. CAPCOM

Okay. Let's bias it about 50 feet. I don't want to throw another 100 feet per second on this beauty.

CAPCOM Wally, 50 feet bias, feet per second

bias, is okay.

SC Okav.

Apollo 7, Houston. One minute LOS CAPCOM Carnarvon. Honeysuckle at 22, S-band volume up.

Apollo 7, Houston. You might check

the fans, might still be on, 02, tank 2.

Apollo 7, Houston through Honeysuckle. CAPCOM

Loud and clear. SC

Roger. Did you get my call to check CAPCOM the O2 tank 2 fans? We are monitoring them still on. (garble) off, fellows. SC

CAPCOM Roger.

Subsequent to our Apollo 7, Houston. CAPCOM conversation on this DELTA-V setting, I just want to confirm that the setting will now be 1678.0.

APOLLO 7 COMMENTARY, 10/18/68, GET: 16414 (CDT 06:18a) 504/3

SC Roger, got it down.

CAPCOM Thank you.

CAPCOM Apollo 7, Houston. A few minutes ago, you gave me the drift for the EMS DELTA-V bias test as .3 and 1 + 36 seconds. I just wonder if I could get a readout of residuals from the EMS DELTA-V test.

CAPCOM Apollo 7, Houston. CAPCOM Apollo 7, Houston.

SC The fuel cell condenser - looking at the condenser temperature of fuel cell 1 now, and the skin temperature (garble). But I do have fuel cell 2 back on the lines.

CAPCOM Roger, thank you.

CAPCOM Apollo 7, Houston. Request a readout on the residuals from the EMS DELTA-V test.

SC I ran the EMS DELTA - DELTA-V test is -21.7.

CAPCOM 21.7, thank you.

SC Hey, Bill, fuel cell 1 has got a skin temperature of about - between 435 and 440 and the condenser exhaust temperature is 178, it looks like now.

CAPCOM Roger, we are reading slight lower

than that, but we are watching it.

SC Okay. They usually start coming down after I put fuel on the line, but I can't figure out (garble) condenser exhaust temperature.

CAPCOM We are studying the problem too.

CAPCOM Okay, we show number 1 coming, starting to come down slightly. We have 1 minute LOS Honeysuckle, Guaymas at 51, excuse me, Huntsville at 47.

minutes into the mission of Apollo 7. We have lost acquisition at Honeysuckle. We are anticipating contact with the Huntsville ship at 164 47. For a recap of the last, roughly 7-1/2 hours of the mission, from 157 hours through 161 hours, it was relatively quiet. At 160 hours, Donn Eisele reported he had taken 12 clicks, or 6 ounces of water. At that time, he was dumping the waste water. He was at 53 percent on the dump and bringing it down to 25 percent. At 161 hours into the mission, CAPCOM Pogue here at the Control Center, sent up the information to Eisele that Apollo 7 had a go for 121 dash 1, which means 120 revolutions. At 1-

... to Eisele that Apollo 7 had a GO for 121 - 1, which means 121 revolutions At 162 hours into the mission the Canary Island tracking station acquisition Pogue told Apollo 7 that the S-4B stage, the Saturn stage. was ahead of the command and service module off the coast of Africa at about 400, 000 feet. That S-4B stage is due to reenter at approximately 166 hours into the mission. Eisele's comment at that time was, "Adios Big Brute". Eisele at that time was keeping a watch on the spacecraft's attitude trying not to fire any thrusters to keep it within limits. At 162 hours 40 minutes over Carnarvon it was indicated that 165 frames were the maximum number of frames in the camera. Eisele had asked that question of the ground before, and after that it just keeps turning and there is no indication that there is no more film available. Eisele's comment there was, "Oh no, you've got to be kidding." Eisele then indicated that he had gotten three pictures of Carnarvon and terrain features of Australia. At that time CAPCOM Pogue indicated that our ground readouts here showed that the fuel cell number 02 condenser temperature was 174 degrees F and that if it went to 176 degrees F the alarm indication light would go on and not to sweat it because there was no reason for concern and we were watching it here on the ground. condenser, the way it works on the fuel cell is the hydrogen pump provides a continuous circulation of hydrogen in the primary loop of the fuel cell, and it takes water vapor and heat from the spec - from the fuel cells - and through a series of bypass valves it regulates the flow through the hydrogen, what's called a regenerator, and through that to impart exhaust heat to the incoming hydrogen gas which of course is cryogenic, as that is required to maintain the proper temperature in the cell. Then the exhaust gas flows to the condenser, which is the thing in question, where the waste heat is transferred to the glycol and the resultant temperature decrease liquifies some of the water vapor. Well, this is the condenser that is in question as far as the temperature was concerned at that time. At 163 hours 20 minutes into the mission at Guaymas, Cunningham indicated, who was then awake, that fuel cell number 02 condenser the light had gone on, it was now an open circuit, and we are going to cool it down and put it on again. That was also according to ground instructions just before the SPS burn which was scheduled to occur at 165 hours into the mission. Cunningham indicated that he had taken 15 clicks or 7 and a half ounces of water and he had had 6 and a half to 7 hours of good sleep, and that the spacecraft commander, Schirra, had had 4 and a half hours of sleep. He also indicated he understood Pogue, the CAPCOMwas a big TV fan of theirs, and Schirra chimed in about the TV that he would like to try for an

PAO Emmy for the best weekly series. Pogue replied, "You mean a Hammy." We have had during the pass at Carnarvon further comment concerning fuel cell number 02 and the fact that Pogue indicated it should go on the line Cunningham indicated that at 164 hours into the mission. possibly we might get a warning light again if we put it on that soon, that if we waited till 164 hours 45 minutes or 15 minutes before the service propulsion system burn, that it might be better. However, at 164 hours 29 minutes fuel cell number 02 was put back on the line. The fuel cell number 01 then was indicating by an onboard reading by Cunningham that it was 178 degrees, and the condenser reading - and Pogue the CAPCOM, indicated that it was coming down, that we had a light reading on the ground - that it was coming down. 165 hours into the mission we will go in for a fifth service propulsion system burn. It will be a performance test of the service propulsion system or engine, and it will be a propellant utilization and engaging system test, and also a control mode changeover test. The control mode changeover will be initiated under the guidance and navigation control mode first when the start the burn, and the last 30 seconds of the burn it will change over to a mode where the pilot onboard, Schirra, will control it with the hand controller. The resulting DELTA-V, or change in velocity, will be approximately 1646 feet per second. This will be the longest burn of the mission for the service propulsion system. It will be preceded by a 20 second ullage burn, and the total SPS burn will be 66 seconds long. In the flight plan the burn originally had been scheduled for 61.5 seconds for a change in velocity of 1465 feet per second. The resulting orbital change will put the spacecraft at an apogee of 240.6 miles, and perigee or low point of 89.8 miles. As i say, this manuever will occur at 165 hours into the mission, which is 6 days 21 hours, that will at 7:00 Central time this morning. Our spacecraft sighting table indicates that for the 18th of October, this morning, the command and service modules, providing the skies are clear, could be viewed from Houston, Texas here, and it could be viewed approaching from the west southwest at 6:54 A.M., some 10 minutes from now, or a little more. Maximum elevation would be 38 degrees due south at 6:59 A.M. and it will leave going east at 7:02 A.M. There will be no TV scheduled for today and again the S-4B stage of the Saturn rocket vehicle should reenter at 166 hours ground elapsed time. At 164:40 this is Apollo Control.

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APOLLO 7 COMMENTARY, 10/18/68, GET: 16447 (CDT: 6:50a) 506/1
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pao This is Apollo Control, 164 hours, 47 minutes into the flight of Apollo 7. We are coming up now on the tracking ship Huntsville, and after that we have simultaneous acquisition almost by Guaymas and we'll go into a Stateside pass and we'll be live through that pass and during that pass we should have our 5th service propulsion system engine burn. Let's stand by.

CAPCOM Apollo 7, Houston through Huntsville.

SC Houston; read.

CAPCOM Apollo 7, Houston; go.

SC Roger, Bill; I just wanted to report the sextant star check was within a couple of tenths of a degree; very good.

CAPCOM Roger; within 2 tenths of a degree; thank

you.

SC Right.

CAPCOM You have about 1 minute and -

SC On the alignment, this was (garble) of the initial alignment, the angles were 1 degrees, 2 degrees and 3 and a half degrees respectively.

CAPCOM Roger. 1 degrees, 2 degrees and 3 and

a half degrees.

SC Right; that was after the course aligned attitude. And at the final line the angles were very small.

CAPCOM Roger; final line very small.

relating to the fuel cell operation. Number 1; make the burn with 3 fuel cells on line of course if at all possible, number 2; it's okay to make the burn with 2 fuel cells; it would cost less than 1 amp per hour on the batteries, number 3; if the condenser temperature exceeds 200 degrees F; remove that fuel cell from line except during the burn.

SC Roger.

CAPCOM Walt, how are the fuel cells looking now?

SC They (garble)

SC Garble

CAPCOM Roger, LOS. Apollo 7, Houston through

Guaymas.

SC Roger; go ahead.

CAPCOM Apollo 7, Houston. I'll give you a time

check at 5 minutes.

SC Roger.

CAPCOM 15 seconds.

SC All SPS regulators post. (garble) control closed. Circuit breaker motor control 4 closed. 1, 2, 3, 4, -

CAPCOM 5, 4, 3, 2, 1 - mark. 5 minutes.

SC Roger; right on it (garble). Okay,

AC off, retro fuel off, (garble) off, (garble) is 2, (garble)

```
APOLLO 7 COMMENTARY, 10/18/68, GET: 16447 (CDT: 6:50a) 506/2
     SC
                     (garble) volt 3 command.
     CAPCOM
                     Roger; command.
                     (garble) right; pitch and yaw AUTO
     CAPCOM
                     Go AUTO
     SC
                     DBD fuel power; 1 and 2 ON.
                     1 and 2 ON.
     CAPCOM
     SC
                     Control powered 1.
     CAPCOM
                     Controller 2 arm, ON. Same bus time;
they are both ON; give a motor pitch 1 yaw 1.
     CAPCOM
                     Pitch 1; start.
     SC
     SC
                     Translation and controller clockwise.
     CAPCOM
                     Clockwise.
                     Verified OMT TDC. Pitch 2, yaw 2.
     SC
     CAPCOM
                     Pitch 2; start.
     SC
                     On. Jump to start; ON. (garble) 78 and
49 last burn.
     CAPCON
                     Verify MT TDC.
    SC
     SC
                     TAC neutral.
     CAPCOM
                     Thank you.
                     And controller power both.
     SC
     CAPCOM
     SC
                     Do your turn maneuver.
     SC
                     Terminated (garble)
     CAPCOM
                     Okay.
                     Okay, direct RCS ON. Direct ON. 4 trip;
     SC
2 bags, or main attitude; excuse me. At (garble) tred; bags
at rate 1 rate 2.
     SC
                     3 at 1 rate 2. (garble) Enter. (garble)
pitch coming up. Pitch down - 0 - minus yaw, minus yaw
(garble). Steady at 2 minutes.
     CAPCOM
                     Okay, looks good.
                    This is Apollo Control; you just heard
     PAO
the crew in the countdown and the checklist prethrust check-
out for the SPS number 5 firing. We are waiting now for a
2 minute warning for the firing, which should come up in about 8 seconds from now.
     CAPCOM
                    Mark; 2 minutes.
     SC
                    Roger; with you.
     SC
                     2 minutes. Got the (garble) scale 55.
     SC
                    55.
     SC
                     (garble) normal.
     SC
                    Normal
     SÇ
     SC
                    Normal.
     SC
                    And controllers arm.
    SC
                    Upper arm is normal,
```

```
SC
                     Fue1 -
                             GDE aligned. Standing by for
     SC
                     Roger;
30 - we have pugs loaded on (garble), circuit breaker 277
flight QUAD recorder going on at 30 seconds.
     CAPCOM
                     Roger.
     PAO
                     This is Apollo Control. The first 36
seconds of this burn will be handled by the G&N, guidance and
navigation system, and the last 30 seconds will be by Schirra's
manual thrust vector control, with his hand controller. We
are now about 47 seconds away from the burn.
                     We have vector B is AUTO.
     SC
     CAPCOM
                     Roger; 30 seconds.
                     That is 20 seconds.
     SC
     SC
                     (garble) and counting.
     SC
                     All (garble).
                     10 seconds -
     CAPCOM
     SC
                     Roger.
                     5, 4, 3, 2, 1 - ignition. Yabba-dabba-doo!,
     CAPCOM
                     Steady. (Garble). Rub a dub a doo.
     SC
PAO The SPS engine is now thrusting - the spacecraft commander Schirra said, "Rub a dub a doo." This
will be a 66 second thrust Delta V; the velocity will change
1 646 feet per second.
                     Delta V thrust A and B is OFF.
     SC
     SC
                     We are informed that the attitude of the
     PAO
spacecraft during the burn has not varied, not more than
2 to 3 degrees in any axis.
                     (garble) is OFF.
     SC
     SC
                     OFF.
     SC
                     (garble) ties are OFF.
     SC
                     (garble) coder.
     SC
                     Flight flow is OFF.
                     This is Apollo Control. They are now
     PAO
securing the systems onboard. The SPS firing has completed.
                     (garble)
     SC
     SC
                     Roger; our residuals are minus 2 balls
469 plus 00128 plus 0079; the Delta V counter is hardly
visable due to the bright sunlight in the cabin; at this time,
even with the numerics still up, so we're having it cut off
itself.
                     Roger. Understand it cut off on the Delta
     CAPCOM
V counter.
     SC
                     That's right.
     CAPCOM
                     Thank you.
                     Time reading 4.55 percent oxidizer
left and 3.8 percent fuel left on the SPS.
     CAPCOM
                     Roger -
     SC
                     Houston, Apollo 7.
```

APOLLO 7 COMMENTARY, 10/18/68 GET: 16447 (CDT: 6:50a) 506/3

APOLLO 7 COMMENTARY, 10/18/68, GET: 16447 (CDT: 6:50a) 506/4

CAPCOM Go.

SC That's your big mistake in changing the rules in real time. At first off we couldn't see the Delta V counter.

CAPCOM Roger. We read that; I think that the situation is rather obvious now.

SC Okay, let's learn a big lesson from that. I recall we simulated that burn without doing that Delta V game.

CAPCOM Roger; that was a last minute change. SC That's correct; it didn't hurt us.

That's the reason we went along with it. The Delta V counter residuals minus 17.5.

CAPCOM Apollo 7, Houston; we have you in a 89 by 2343.

SC Roger. I had a chance to look at the accelerometer; it was just a smidgen under 1G.

CAPCOM Right

SC Which was a nice little experience for this

long a time.

CAPCOM Right.

SC It didn't even twitch a little bit when we took over the real nice transition into a SPS MPDC.

CAPCOM Roger; copy.

SC There was a very minor control adjustments to keep it on.

CAPCOM Roger.

PAO This is Apollo Control; the results of that burn, you heard, at 89 by 243 nautical mile orbit we had aimed for 89.8 by 240.6, so that's pretty well on the money.

APOLLO 7 COMMENTARY, 10/18/68, GET: 16505 (CDT: 7:08a) 507/1

pAO This is Apollo Control. There are several things to be gotten from this SPS burn. Some of the requirements were to analyze the inertial measuring unit performance, the entry monitoring system performance, the SPS performance, and some of these readouts of course we don't have at this time but it certainly looks good from here.

CAPCOM Apollo 7, Apollo 7, over.

CAPCOM Apollo 7, Apollo 7; how do you read; over.

Roger; read you loud and clear.

CAPCOM Roger; we had to go to manual key.

SC That was a real nice maneuver because

she performed beautifully

CAPCOM Good. SC (garble)

CAPCOM Nice to hear.

SC We may be mopping up water; we'll check

that a little later.

CAPCOM Roger. That ought to have settled quite

a bit out.
SC We are realigning to the D fuel line.

CAPCOM Roger.

PAO This is Apollo Control. Spacecraft commander Schirra just indicated the machine performed beautifully. This of course must also refer to the manual thrust vector control or his controlling the SPS engine during the last 30 seconds of that burn as well as the functioning of the spacecraft and the engine during the rest of the burn.

This is Apollo Control. The command and service module total weight before this burn was 29 494 pounds before the thrust. After the thrust it was scheduled to be 25 036 pounds which would be a difference of 4 458 This is Apollo Control, 165 hours, 10 minutes into the mission of Apollo 7; we have had from all appearances a successful 5th and longest in duration SPS burn, which was scheduled to last for some 66 seconds, 30 seconds of which was manual thrust vector controlled by spacecraft The resulting orbital situation now commander Schirra. is 89 nautical miles perigee, or a low point, by 243 nautical miles apogee, or high point. The original aim was 89.8 nautical miles perigee, 240.6 nautical miles apogee. Spacecraft commander Schirra indicated the machine performed beautifully. We don't have any more definitive readouts at this time. We anticipate contact with the Canary Islands tracking station at 165 hours, 14 minutes into the mission, some 3 minutes from this time. At 16511, this is Apollo Control.

## APOLLO 7 COMMENTARY, 10/18/68, GET: 16522 (CDT 7:40A) 508/1

This is Apollo Control Houston at 165 hours PAO 22 minutes into the flight. Over the Canary Islands a few minutes ago Wally Schirra had some observations about the press corps covering Apollo 7. Here is that conversation. Apollo 7 Houston through Canary. CAPCOM SC Roger. Hey Bill, we've had our primary evaporator shut down for - coming on the about 36 hours I guess, or 30 hours. How often am I going to have to reservice that? It's going to be susceptable to drying out just like the secondary isn't it? Stand by. CAPCOM Apollo 7 Houston. Recommend leave the CAPCOM primary evaporator as is. We will open up back pressure valve prior to 48 hours elapsed, and ground is not particularly worried about that. Thank you, I'm glad they are not. SC That's very good hearing. CAPCOM If you read roger tell us, will you? SC CAPCOM Roger. Hey Bill, how come you let the third team SC stay on for the big burn? Well we had to have some practice. CAPCOM Yes, you'll have something to say in your SC press conference today. What's this? CAPCOM Aren't you having those duty press conferences scwhen you break up? Oh, no, I've been working the grave yard CAPCOM shift. I haven't had any of those. SC Oh, the press corps goes to bed when you're working. Donn and I have been having con-CAPCOM Roger. versations. Bill, we're beginning to breath during SC the day. CAPCOM Apollo 7 Houston, 1 minute LOS Canary, Tananarive at 31. SC Roger (garbled) CAPCOM Say again, Wally. I said our residuals are exactly 52 per SC second.

Roger, copy that.

END OF TAPE

CAPCOM

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APOLLO 7 COMMENTARY, 10/18/68, GET: 16531 (CDT 7:35A) 509/1
      PAO
                     This is Apollo Control Houston 165 hours
31 minutes into the flight. We are about to tag up with
Apollo 7 by Tananarive. Let's listen.
                     CAPCOM, COMTECH
     CAPCOM
                     Apollo 7 through Tananarive.
     SC
                     Garbled.
                     Roger. Wally, just one thing on T
     CAPCOM
aline for this passive thermo control test. If you set in
the T aline that we have given you prior to 166 plus 50
you'll have to do it over again.
     CAPCOM
                     I'm sorry, that's 165 plus 50.
     SC
                     garbled.
                    Houston, Apollo 7.
     SC
     CAPCOM
                    Go ahead 7.
                    Bill, we called in to the station at
Tananarive and found out (garbled)
     CAPCOM
                    Roger, stand by.
     CAPCOM
                    Apollo 7 Houston.
     SC
     CAPCOM
                    Donn, if you set in the T aline that
we gave you for this passive thermo control test prior to
165 plus 50 you'll have to redo it again.
                    I understand that. Wally had it up there
     SC
originally.
                    Okay, real fine.
     CAPCOM
                    Yes, that's two for today. We've only
     SC
               Jack, I ought to do it over, off hand. Is it
got a little.
that (garbled) area or did you say you were going to find
(garbled)
     CAPCOM
                    Well, what it does, you'll be over one
rev ahead on the integration there.
                    This is Apollo 7 Over. Hey Jack, are
you still there?
     CAPCOM
                    Roger, Walt.
     SC
                    We were (garbled) and that put us back up
to aline (garbled)
     CAPCOM
                    Okay, Walt, we would like to leave fuel
cell on the line to see if T sub CE goes on up toward 200
again.
                    (garbled) if it's okay with you I'll just
leave it at 200 and cycle back to (garbled)
                    Affirmative, Walt.
     CAPCOM
     SC
                    (garbled) Are you still there Jack?
     CAPCOM
                    Apollo 7 Houston go ahead.
                    We'd really like to put a little water on
the bulkhead after our last burn because it's probably (garbled)
we've marked the parameter of the (garbled) on the aft bulk-
head and somebody can calculate how much water we need there.
```

Roger, understand.

CAPCOM

APOLLO 7 COMMENTARY, 10/18/68, GET: 16531 (CDT 7:35A) 509/2

SC (garbled) water sort of bunched up off

the floor.

SC We also had water coming out of the water vector but that didn't ball up.

CAPCOM Okay, copy that.

SC It's coming out in big drops. We can

(garbled) and can probably handle the (garbled)

CAPCOM Okay, Wally, the comm here at Tananarive isn't too good. We'll pick you up over Carnarvon, and let's get a good rundown on it then at 165 plus 47.

SČ (garbled)

SC AT 65 hours 39 minutes, and Wally's

(garbled)

CAPCOM Roger, copy that Wally. We're just about to lose you over Tananarive and pick you up over Carnarvon.

SC (garbled)

SC (garbled)
PAO This is Apollo Control. You heard Wally
Schirra note during that pass the water gun is sputtering
a bit. As he put it it's putting out more gas than it is
water. We'll be taking a look at that system here as the
spacecraft swings across the Indian Ocean. At 165 hours
41 minutes into the flight this is Apollo Control

PAO At 165 hours 52 minutes. And through Carnarvon, we are having a discussion with the crew about fuel cells. Let's listen.

CAPCOM Apollo 7, Houston through Carnarvon.

SC Roger. I prepared your torque start on this one with the thrust on the perigee about 130 degrees local, pitch down 30 degrees, went right on down through 270 and as we climbed to a high apogee, there was not enough fuel there to affect us, so we did a nice sweet loop right through apogee.

CAPCOM Roger, copy that.

SC 290 degrees local vertical.

CAPCOM Roger, copy.

SC We remarked back there at Tananarive and let's not make changes in the system at the last minute. That's how I got a sweet little 50 feet per second overburn on that last burn 5.

CAPCOM Roger, copy, Wally.

SC I thought we learned that a long time ago. It would have been 100 feet per second if I hadn't cut it down to 50. Our problem was the sun to hit right on the DELTA-V counter and the burn switch was up full bright, and that was not sufficient to keep it illuminated.

CAPCOM Okay, understand.

SC Now we did do burn 5 with MCC in the

past.

CAPCOM Okay. Wally, on the fuel cell, we have been plotting rad-in and rad-out temperatures and it looks like we got a good DELTA-T, so it appears right now that the coolant pump is working.

SC Good news. Except what is the problem

then?

CAPCOM Wally, we are really looking at the data here and we are going to let you know as soon as we get some time history on the data after Carnarvon here.

SC I think you will have a new page in

that malfunction book.

CAPCOM What we would like to do is see if the condenser exhaust temperature will stabilize. That's

why we would like you to let it go to 200.

SC Got it. We can't possibly have an internal problem, jack. One of the things that surprised me was when I took fuel cell 2 off, fuel cell 1 then started to climb in condenser exhaust and skin temp and at a greater rate than fuel cell 3, although both of them were picking up the same amount of added load. Fuel cell 3 held everything right in there, its controls seem to be a lot better that fuel cell 1. And as soon as I put fuel cell 2 back on the line to pick up its share of the load, fuel cell 1 came back on down again.

```
APOLLO 7 COMMENTARY, 10/18/68, GET: 16552 (CDT 08:10a) 510/2
                    Roger, we follow that, Wally. We are
     CAPCOM
looking right now at something in the regenerator there.
                    Roger, sounds about right. And Apollo
says to cut the .3 degree percent in pitch and we will start
looking for inertial.
                    Roger. Now Wally, we showed a - we
     CAPCOM
would like you to switch quad brave to secondary tanks now.
                    Roger. Bravo secondary on, bravo
primary off.
     CAPCOM
                    Copy that.
                    You must know something we don't on
    · SC
that one. Oh, you're reading that aren't you?
                    Roger, Wally. We used just a little
     CAPCOM
bit more than we expected during the burn on quad brave
there.
                    How close is the balance now?
                    Stand by, we will have it for you.
     CAPCOM
                    Good.
     SC
                    Wally, the difference between bravo
     CAPCOM
and delta is 13 pounds.
                    Roger.
                    Walt, I have this SPS propellant
     CAPCOM
thermal control pad to give you whenever you are ready.
                    Houston, this is Apollo 7.
     CAPCOM
                    Go ahead.
     SC
                    Did you notice our DSKY?
                    Negative, I've been looking at the
     CAPCOM
fuel cells, stand by.
                    And do you notice our inertial atti-
tude? That's on you all. We had free ride to 000, now we
got to go fly back again.
                    Hey, Jack.
     SC
     CAPCOM
                    Go ahead.
                    You have the SPS propellant thermal control update
     SC
                    Roger. Your key zero is 167 + 57,
     CAPCOM
roll 004, pitch 183, yaw 020.
                    Is our key align required on this one?
                    Negative, Wally.
     CAPCOM
     SC
                    Roger.
     CAPCOM
                    Apollo 7, we are 1 minute LOS Carnar-
     We will pick you up at Honeysuckle. You want to
turn your S-band volume up.
                    Okay. What time do you pick us up,
     SC
Jack?
                    We've got continuous coverage now.
     CAPCOM
We are really high, we've got wide overlapping coverage.
```

Apollo 7, Houston, opposite omni.

Copy, but you sure have a lot of grass

Very good.

SC

SC

CAPCOM -

APOLLO 7 COMMENTARY, 10/18/68, GET: 16552 (CDT 08:10a) 510/3

SC in the background. Could you turn

the volume down?

CAPCOM Roger, copy. Apollo 7. SC Go ahead, 7. CAPCOM

Would you check to see if with the SC Maurer movie camera, 18mm lens, at (garble) frames per second, whether we overlapped on frame exposure, over.

CAPCOM Okay, Wally, we have a real garbled signal here at Honeysuckle. I'd like to wait and get you through Hawaii. We pick up Hawaii at 166 + 15.

Okay. The subject is the movie camera. ŠC

Okay. I copied something about the CAPCOM

movie camera, but I didn't get it all.

Okay, I'll wait.

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APOLLO 7, COMMENTARY, 10/18/68, GET: 16615 (CDT: 8:18a) 511/1
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This is Apollo Control, Houston at 166 PAO hours. 15 minutes into the flight. A few minutes ago it was confirmed to us through Norad and through the Goddard Space Flight Center sources, that the S4B, the second stage of the Apollo 7 booster, has reentered the earth's atmosphere, and apparently burned up. The reentry took place south and east of the Indian Pennisula in the Indian Ocean. Presently estimating the time of reentry at 4:30 am, Central Daylight Time, on this time. We have acquired through Hawaii and here's how that conversation is going. Apollo 7, Houston through Hawaii. CAPCOM SC Roger. (garble) a good mark on the perigee torqueing. The whole thing can be on automatic power as far as I'm concerned so that fuels on the ground check and let's get some data on how fast it goes up at this high velocity and perigee. CAPCOM Okay, real fine Wally. Perigee is at about 43 - just before we SC started the test. Okay, copy that. CAPCOM You might get the (garble) fuel usage on this too; I'd like to find out if this might be a setup you'd have just prior to a burn for some later mission. Eventually an over locked (garble) could you check on that? Okay, will do. CAPCOM We do need to use six frames a second, but its so we can handle that too. CAPCOM Okay. Houston, Apollo 7. SC Go ahead Walt. CAPCOM What about a map update to (garble) and check. SC CAPCOM Okay, Walt, ready on your map up dates. CAPCOM SC CAPCOM Okay, for rev 106, the time of the node is 167 plus 42 plus 37; longitude 157.3 degrees east. Say time again please. Roger; 167 plus 42 plus 37. CAPCOM Roger; thank you. SC CAPCOM And, I have the morning news if you would

like to hear it. J.'m ready to copy. SC

> SC We have the xerox machine working.

Copy. Jackie Kennedy and Aristotle Onassis CAPCOM are to be married soon. She and her children left New York last night to join him at his home in Greece. He's one of the world's more wealthier men, 62 years old, she's 39.

That's Greek to me. SC

APOLLO 7 COMMENTARY, 10/18/68, GET: 16615 (CDT: 8:18a) 511/2

CAPCOM Roger. We saw the spacecraft loud and clear this morning from Houston.

SC Oh great. Very good. Sc Send a picture of it.

CAPCOM And from the avalanche of cards and letters that Penny's gotten, everybody must have seen your sign.

SC Oh no. Hope somebody's reading them.
There were times when the report was that we came back too
fast (garble). It was broken today. They'll understand; they
were in the category of smokers.

CAPCOM Roger (laughter). Gladys is supposed to come onshore today near Tampa, early tomorrow. Winds are down to about 65 miles per hour, weather bureau calls it a minimal storm.

SC That's good to hear.

CAPCOM And the US won it's 6th gold medal in track yesterday by winning the high hurdles.

SC Houston, this is Apollo 7.

CAPCOM Go ahead 7.

SC Roger; we lost you after the 6th gold

medal report.

CAPCOM That's all the morning news.

SC Okay, I send you one. Thank the boys in the back room for the pitch and yaw gimble settings; that was great on that engine.

CAPCOM Roger.

SC Just slid right in.

PAO This is Apollo Control here. Well, we seem to have a very reactive, jolly crew this morning. Upon being read the item of the upcoming marriage of Mrs. Kennedy and Mr. Onassis, we thought we heard Captain Schirra remark "That's Greek to me." - and a little later they all seemed to take great delight in the fact that Wally's secretary is being deluged with the cards and letters which were advertised earlier in the mission.

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APOLLO 7 COMMENTARY, 10/18/68, GET: 16625 (CDT 8:28A) 512/1
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... the cards and letters that were
     PAO
advertised earlier in the mission. The comm is a little
choppy here over the Huntsville, but we'll continue to
monitor.
                    We're coming through Honeysuckle, right?
     SC
                    Can I confirm that that last map update
     SC
that you gave was the next ascending node coming up?
                    Apollo 7, could you switch omnis?
     CAPCOM
                    Roger, could you confirm that the map
update that I have is for the next ascending node that is
coming up?
                    Stand by.
     CAPCOM
                    I show 167 plus 43. Could you verify?
     SC
                    Roger, Walt, the time of the node is
     CAPCOM
167 plus 42 plus 37, that will be for the orbit coming up.
                    Okay, Jack, if you get a chance in the
future we just assume we have the ascending node.
                    Apollo 7 Houston.
     CAPCOM
                     ... two revs ahead because our chart
is not as accurate as it used to be with our change in inclina-
tion. That way we can have more accurate charts for a longer
period of time.
                    Okay, Walt, we just had a handover and
     CAPCOM
I didn't get all you said, but I think the basic part of it
is you'd like a map update about every two revs. Is that
Charlie?
                    Negative. We'd like - whenever we call
     SC
for a map update we'd like to have it for about two ascending
                      Over.
nodes in the future.
                    Okay, copy that.
     CAPCOM
                    Jack, you might tell the boys at Carnarvon
     SC
we got a good picture of them today.
     CAPCOM
                     Okay.
                     Houston, Apollo 7.
     SC
                     Go ahead 7.
     CAPCOM
                     Did you get me an answer on that frame
     SC ·
overlap?
                     It's in work.
     CAPCOM
                     Okay, we're about ready to strip here.
     SC
                     Okay.
     CAPCOM
                     You can play the music.
     SC
     CAPCOM
                     Roger:
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APOLLO 7 COMMENTARY, 10/18/68, GET: 16635 (CDT 08:38a) 513/1
                     Houston, you are a little high in
cirrus, but generally wide open.
     CAPCOM
                     Roger, concur.
                     We see no thunderstorms in the Gulf.
     SC
going to the west of you, there is a band of weather, approx-
imately around the San Antonio area, and another band over
towards New Orleans.
     CAPCOM
                     Roger, thank you.
                     We are stripping at 1 frame per second.
     SC
     SC
                     Getting a good look at the hurricane,
Jack.
     CAPCOM
                     Roger.
                     She's high, you wouldn't believe it,
and wide. We are just passing the eye, got a glimpse of it. Took a photograph of it. That was frame 13 of magazine R.
     CAPCOM
                     Okay, copy that, Wally.
                     The Cape is loud and clear. We can see
all the launch pads and it's raining (garble) which makes
us ready for business. We can see Saturn V on the pad.
     CAPCOM
                     Oh, rog.
     SC
                     Jack, those guys over in Kuehnel's shop
should have that answer for you by now on that fuel overlock.
                     Roger, Wally, I've been writing them
     CAPCOM
and they say it's coming.
     CAPCOM
                     Okay, Wally, I've got some happiness
for you.
     SC
                     Grand.
     CAPCOM
                     Okay, for your fuel chart.
     SC
     CAPCOM
                     Okay, present value on your chart
should be 598. Your SCS redline 554, DAP redline 472, and
the hybrid redline 236. How's that for happiness?
     SC
                     Very nice. We're up on it.
                     And the quad balance is such that we
     CAPCOM
have got all those redlines.
     SC
                     Jack, does that 598 include the 60-80
pounds unusable?
     CAPCOM
                     Includes the unusable.
     SC
                     That's a chart update.
     CAPCOM
                     Roger, that's your chart update, Wally.
                     Okay, I want to see what kind of fuel
we use after this session.
     CAPCOM
                     Okay.
                     We're whistling right through perigee.
Are you plotting these on your chart down there, Jack?
     CAPCOM
                     Yes'sir, I am.
                     Okay, look at the difference between
yesterday's numbers 666 with a 598, like 68 pounds.
```

## APOLLO 7 COMMENTARY, 10/18/68, GET: 16635 (CDT 08:38a) 513/2

Affirmative. We are calling it. CAPCOM That's quite a big drop. SC I agree. CAPCOM Say, Jack, this is Donn. SC Go ahead. CAPCOM That seemed like an awful lot of fuel SC for more than we've done since yesterday. Could you have someone run through their data down there and see if they can ascertain just when and in what condition we used up all the fuel? Okay. We are doing a good analysis We will get it back to you. CAPCOM on it now. Donn. Okay, because I don't think we should have used more than about 15 or 20 pounds at the outside for that burn today. Okay, in work. CAPCOM This is Apollo Control here. This PAO fuel discussion, quads A through D, as in dog, read like this presently, according to our televised data coming through from telemetry. Quad A 150 pounds, quad B 149, quad C, charlie, 146, quad D, as in dog. 162. The SPS fuel remaining 1,118 pounds, the SPS oxidizer remaining, 1,859 pounds. We used about 1700 hundred pounds of fuel and nearly 3,000 pounds of oxidizer, 2800 hundred, in that big burn this morning. We've got an update number for you CAPCOM on your chart value. Go. SC Okay. 628. CAPCOM Ah ha. That's a little better. SC is much better news. It's 30 pounds more happiness. CAPCOM That's a real hump in that curve. SC Roger. CAPCOM We'll not lose confidence about out fuel if we keep that up. Roger. CAPCOM Apollo 7, Houston. We are about to CAPCOM lose you at Antigua. We will pick you up at Ascension at 53.

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APOLLO 7 COMMENTARY, 10/18/68, GET: 16655 (CDT 8:57A) 514/1
                     Apollo Control Houston at 166 hours 55
     PAO
          A minute or two ago we acquired over Ascension.
minutes.
                     And I'm pumping it out now.
     SC
                     Walt, something - a note of interest
     CAPCOM
      The T sub CE that you are reading on your gage is
approximately 3 degrees higher than the actual (cut out)
                     Roger. The - it triggerd the master
alarm at 178 yesterday. (garbled)
CAPCOM Okay, copy that, Walt, and the answer Wally to your question on the 16mm camera, at 90 miles,
which you are going through perigee, you'll have about 70 per-
cent overlap at one frame per second, and at apogee of 245
you'll have about a 75 percent overlap.
                     This is Apollo 7. Are you getting our
data real time or do you want us to be recording it?
     CAPCOM
                     7, could you say again your message?
     SC
                     (garbled)
                     Stand by Walt.
     CAPCOM
                     Walt, we're playing the DSC as normal.
     CAPCOM
We have high bit rate over the stations, we'll put it low
bit rate record as we get LOS, and opposite omni.
                     Roger. Before you go, we are doing a
DTO now and it will be (garbled)
                     We'll give it back to you as we leave
     CAPCOM
you, Walt...
                     Apollo 7 we'd like to go quad Alpha secondary.
     CAPCOM
                     Apollo 7 did you copy that?
     CAPCOM
                     Roger.
     SC
                     Walt, you are confirming quad A is in
     CAPCOM
secondary now?
                     Affirmative.
     SC
     CAPCOM
                     Thank you.
                     Jack, say again about quad A.
     SC
                     Roger. We'd like you to switch to
     CAPCOM
secondary tanks on quad ALPHA.
                     You want quad A secondary. Is that
     SC
correct?
                     That is correct.
     CAPCOM
                     Quad A is now secondary.
     SC
                     Roger. We're about 1 minute LOS
     CAPCOM
Ascension, we'll pick you up at Tananarive at 08.
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APOLLO 7 COMMENTARY, 10/18/68, GET: 16725 (CDT: 9:28a) 515/1
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This is Apollo Control Houston, at 167
     PAO
hours, 25 minutes into the flight. The crew has been having
a late breakfast for about the past hour, and we had no contact
with them through Tananarive; the communications were so choppy
during the earlier pass, it was just decided not to attempt
     This morning, we did put in a call and establish the
line but that's all that was done. The spacecraft is in a
cold soak, service propulsion system cold soak, test, wherein
for approximately 1 complete rev, the attitude will be held
so that the service propulsion systems sees only cold space
and not the sun. We have put in a call through Carnarvon
however little more than an identifying answer has come back.
Let's listen.
     CAPCOM
                    Houston, through Carnarvon.
     SC
                    Here.
     CAPCOM
                    Apollo 7, opposite OMNI.
                    Houston to Apollo 7.
     SC
     CAPCOM
                    Go ahead 7.
                    I think you can notice our pitch and yaw
staying in quite tightly here; we are just drifting with the
roll rate.
                    Roger, that's what we're seeing.
     CAPCOM
                    Roger; just threw it to you.
     SC
                    Apollo 7, Houston.
     CAPCOM
     SC
                    Go ahead.
                    Wally, on this SCS attitude control test
     CAPCOM
that's coming up, we would like to move it to, from 16800
to 16830; this will move it away from perigee and you'll
use less fuel.
                    Ah hahh; that's what I asked yesterday.
     SC
16830.
                    Roger; 168 plus 30 begin the SCS atti-
tude control test and you can cut it off at 16910. Thought
I'd help you out a little bit more; going 40 minutes rather
than an hour.
     SC
                    Roger,
                    Better take us B plus 3 hours into the
     SC
test here.
     CAPCOM
                    Say again Wally.
                    Okay, I took the temperature part; I see.
     SC
     CAPCOM
                    Roger.
     SC
                    Okay.
                    I wish they hadn't had that in tight
     SC
dead band.
                            Wish we had started at perigee.
     SC
                    Roger,
     CAPCOM
                    Roger.
                    It seems to be pretty close to the end
of the pass, so you can just make note of the numbers; you
won't have to log them.
```

CAPCOM

Okay.

```
APOLLO 7 COMMENTARY, 10/18/68, GET: 16725 (CDT: 9:28a) 515/2
                    When you get LOS take your last number.
     sc
                     Copy.
     CAPCOM
                    Any roll jet - (garble) the drifting part.
     SC
     CAPCOM
                     Roger.
                     I'd say it's turning about a 2 - 2 and
     SC
a half degree cone and the 3 zeros.
                     Okay, copy that.
     CAPCOM
                     This is very small.
     SC
                    Wally, is that cone getting any bigger
     CAPCOM
or is it staying about the same?
                     It seems to be getting just a little
bit bigger now; it's burning up to a three if you can see.
                     Roger.
     CAPCOM
                     It is diverging slightly.
     SC
                     That proves a point; pitch is going out.
     SC
                     And the flight yaw rate developing which
     SC
is making up in (garble) develop.
                     Copy that.
     CAPCOM
                     Now it appears it's trying to pick up
     SC
(garble).
                     You're right at apogee now.
     CAPCOM
                     (garble) is down (garble.
     CAPCOM
                     Roger.
                     There we go; got 45 minutes to go, right?
     SC
                     How much more time do you have in this
     SC
pass?
                     We are just about 1 minute LOS Carnarvon;
     CAPCOM
we have a very low angle pass at Guam at 39, then Hawaii at
50.
                     Roger; I'm only about a minute away from
      SC
end of testing and take these angles for us.
                     Okay, we are copying them.
      CAPCOM
                     Roger.
      SC
                     The reason yaw is decreasing of course
      SC
is we are flying across the belly band now.
                     Roger.
      CAPCOM
```

APOLLO 7 COMMENTARY, 10/18/68, GET: 16735 (CDT 09:38a) 516/1

PAO We have lost signal through Carnarvon and we will pick up the spacecraft in Hawaii. Guam will be very low. I doubt they even established contact. About 167 hours 35 minutes into the flight, this is Apollo Control.

## APOLLO 7 COMMENTARY, 10/18/68, GET: 16751 (CDT 9:54A) 517/1

This is Apollo Control Houston 167 hours and 51 minutes into the flight on the 106th revolution A call has gone out to the spacecraft around the earth. through Hawaii, we haven't gotten a Roger. Our apogee and perigee right now 89.9 nautical miles by 244.4 nautical Earlier today you heard discussions about the fuel Let's take a look and see how they're fairing, reading data coming to us through Hawaii the load sharing looks like this: 32 percent on fuel cell 01, 34.9 on fuel cell 02, and 33.1 on fuel cell 03. They're pulling within 24 to 26 amps each, and all in all are behaving quite well. The temperature started to mount on one of the fuel cells earlier, and it was taken off the line. Our present temperatures read like fuel cell 01 160 degrees F, and fuel cell 02 178 degrees Fuel cell 01 161. We'll monitor here the Hawaii pass and come back with more information about consumables in just a moment. CAPCOM Apollo 7 Houston through California. Roger I want to record a comment that we've been awfully concerned about the high forces on the switches that may close a loop by catching the (garbled) at the same time they activate the switch. As a result it won't read around the cockpit. It's on its way, Roy. COMM CAPCOM Roger. Apollo 7, would you turn up your S-Band CAPCOM so we can get you to S-band through Goldstone? Apollo 7, how are you reading through CAPCOM Goldstone. Loud and clear. SCCAPCOM Roger. We're starting into perigee and PEF, SC and it looks like it's going to hop right over to SCS. I'll just let it ride. CAPCOM Okay, copy that. I want to sample it from my STAS table and Apparently it likes SCS best. PES. Roger, it's straemlines I guess. CAPCOM SC (garbled) And Wally, Jo is in the viewing room. CAPCOM Very good, I'll drop in some time SC next week. CAPCOM Roger. I'll drop in the front room and thank SC

you cats for a pretty good show.

CAPCOM Roger.

SC Considering Laron and Bill Shaffer can target pretty well.

CAPCOM He'll be happy to hear that.

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APOLLO 7 COMMENTARY, 10/17/68, GET: 16751 (CDT 9:54A) 517/2
                    All we're doing is pumping roll and yaw
     SC
here, Jack. (garbled) looking right over the top.
                    Okay, copy that.
     CAPCOM
                    (garbled) apogee.
     SC .
                    (garbled) clock is (garbled)
     SC
                    I didn't copy that, Wally.
     CAPCOM
                    You can see the (garbled) the same
attitude as we did at 57.
                    Okay, copy that, Wally.
     CAPCOM
                    And we're not at perigee yet either, are
     SC
we?
                    Not quite at perigee, Wally.
     CAPCOM
                    About 13?
     SC
                    Wally you will be at perigee in 7 minutes.
     CAPCOM
    SC
                    Jack at 14 we could see in the back of
     SC
the (garbled).
                    1/10th per second in pitch.
     SC
                    Roger, copy.
     CAPCOM
                    Hey Jack, have you guys figured any
(garbled) of this condenser drop temperature yet?
                    Okay, Walt, it appears to be leveling
off slightly, but we're still watching it, it's not conclusive
yet.
                     Roger.
     SC
                     (garbled)
     SC
                     PTA where we had attitude hold backs
     SC
dead band. We had hold backs dead band (garbled) and limit cycle
auto OFF.
                     Okay, stand by.
     CAPCOM
                     Okay.
     SC
                     Roger, Wally, that will be Rates Low
     CAPCOM
limit cycle OFF.
                     And (garbled) Okay?
     SC
                     We're stuck to 6/10 of a degree per second
     SC
here.
                     Roger, we're copying the rates.
     CAPCOM
                     Great, I think we all agree it was a
     SC
(garbled).
                     Roger.
     CAPCOM
                     This is Apollo Control Houston. We've
     PAO
been watching the biomedical values as the Apollo 7 sails
overhead, and we're getting biomedical on Walt Cunningham.
We're showing right now a heart rate of 68, there it switched
to 67 beats per minute, and all other quantities look quite
normal. He is apparently moving around. We've seen a
variation in the heart of about 10 beats per minute.
must be moving around the cabin a little bit. The cabin
itself is still holding at 5.1, cabin temperature a very
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APOLLO 7 COMMENTARY, 10/18/68, GET: 16751 (CDT 9:54A) 517/3

PAO steady 68 degrees.

SC We're really whipping around up here.

CAPCOM And we're seeing those rates.

SC we're having our dinner chow over

pea soup and all that good stuff right now.

CAPCOM Roger.

that same chain.

CAPCOM Roger, copy that.

SC Hey, Jack, do you have the time of our closest approach to Ascension?

Frame 16 magazine R with another island in

SC

518/2

APOLLO 7 COMMENTARY, 10/18/68, GET 1681200 CDT 10:15a

Stand by, Wall. CAPCOM

CAPCOM Walt, your time of crossing Ascension will be approximately 3248.

3248? Looks like we come pretty close SC

to it.

CAPCOM Roger.

(garble) that attitude now.

SC Roger, copy. CAPCOM

PAO This is Apollo Control, Houston, 168 hours 23 minutes and that will wrap up the communications of the stateside pass. We'll be up in Ascension in a few minutes.

APOLLO 7 COMMENTARY, 10/18/68, GET: 16839 (CDT 10:42a) 519/1

minutes into the flight. At Ascension, we simply had a callup and identification, no comments. That will probably be Tananarive in about 3 or 4 minutes. We want to alert you to the fact that at 45 minutes after the hour this morning, 3 minutes from now, we will be showing through the Houston News Center, the tape of yesterday's television pass. The tape of yesterday's television pass, it's been run through our machine, it's the original tape recorded at the station. It is quite cleaned up and it is well worth seeing. We heartily recommend it to you. At 168 hours 40 minutes into the flight, this is Apollo Control Houston.

This is Apollo Control, Houston, 169 PAO hours 1 minute into the flight and some 5 minutes ago at ground elapsed time 168 hours 56 minutes, we have experienced a rather massive loss of circuits throughout our world net including the Goddard - the terminus - the hub of this data network which is Greenbelt, Maryland, the Goddard Space Flight Center. At first we thought the loss was confined to our high speed data circuits, since then the network flight controllers confirm that we've lost all our data circuits. We do have a good voice communications circuit, however, of course, to all stations and to the spacecraft and we'll operate with it. The effect of this is we'll only be able to read data when the spacecraft is We'll keep you advised as to the progress, we overhead. expect it's probably only a momentary dropout. We'll give you a status report on it as soon as it's available. We're in touch with the spacecraft over Carnarvon, let's listen to the conversation.

SC (Garble).

CAPCOM (Garble) deadband low rate test from there on. We should be through with that before we get on into perigee.

SC I'm max deadband low rate now.

CAPCOM Okay, real fine.

SC 41 and 10, max deadband high rate.

CAPCOM Roger.

SC If we go max deadband in high rate that will be goo enough for the cold soaks, so I'll do that at 10.

CAPCOM Okay, the attitude before should have been min deadband high rate, now we should be max deadband low rate.

SC Okay. I'll reverse it, I had max dead-

band low rate so far.

CAPCOM Okay, then pick it up min deadband high rate and we'll try to get done before we go through perigee.

SC Okay. I'll switch it now then Jack,

just to make it early. CAPCOM Okay.

SC Hey, Jack, you may have lost your data readout but I've got good ones on board here and I've checked the oxidizer line temperature down the wall and it looks like it's a little - something under 170, propellant tank temperatures are a little under 165 and that should be as good as your data readout. What I'm saying is that we're never going to get down to the point where I'm going to

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APOLLO 7 COMMENTARY, 10/18/68, GET: 16901 (CDT 11:04a) 520/2
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check a heater out. I might suggest that when we do terminate this test it will be useful to turn on the SPS line heaters to A/B and watch for a rise at least to see if they're working at all.

CAPCOM Okay, we copy that.

SC Okay, do you concur with that?

CAPCOM We're going to put that in the mail and discuss it here.

SC Jack, on Tananarive it turns out you can broadcast in the blind and the odds are we'll get it, but we can't seem to talk back to you.

CAPCOM Okay, fine, Wally.

SC We'd like to pass that on to the other flight controllers.

CAPCOM Will do.
SC Thank you.

SC Thank you. CAPCOM Apollo 7, Houston.

SC Go ahead, Jack.

CAPCOM Roger. We've got data back now and we need about 40 minutes at this min deadband high rate then you can return to the normal cold soak attitude configuration.

SC Would you say that is a new good configuration of 40 minutes there and that you want to keep going a little close like that?

CAPCOM Affirm. We'll look at it over Guam and

see what the trend is there.

SC If you don't hear data readout, (garble) and I'll give you my readout and then (garble) from behind.

CAPCOM Okay, we've got data now.

CAPCOM Okay, we've a (Garble).

CAPCOM Say again, Wally.

SC Could you find the COMSAT operation, we lost the line down there.

Can you give me a readout of hydrogen

A1 quantity and hydrogen A2 quantity?
CAPCOM Okay, stand by.

SC Jack, we made the remark after about 8 days of stirring a clock (garble), I'm sure you guys are going to think they're all right.

CAPCOM Roger, Wally, we'll get back to you on that, we'll discuss that pretty closely and I'm getting your tank quantities, wall.

SC Go ahead.

CAPCOM Wall, on the hydrogen quantity, tank 1, 39.8. Tank 2, 37.6.

APOLLO 7 COMMENTARY, 10/18/68, GET: 16901 (CDT 11:04a) 520/3

SC Roger. I'll continue with the balancing. I'm wondering about the capability of maybe overshooting about 1 percent with tank 1.

CAPCOM Roger.

PAO This is Apollo Control, Houston. The spacecraft control system attitude test is continuing and we've been advised that we've had partial restoration of service on our data network. It is not yet fully up, but we have one or two circuits that have been restored to use. We'll keep you advised. Here's more conversation through Carnarvon.

CAPCOM The RCS firing as we went through perigee.

SC Can not say.

PAO And that wraps up the conversation by Carnarvon. We'll acquire Guam in 4 minutes. Apollo Control, Houston.

APOLLO 7 COMMENTARY, 10/18/68, GET: 16917 (CDT: 11:20a) 521/1

Apollo Control here, 169 hours, 17 minutes PAO into the flight. We are talking to the crew by Guam and we will cut in on that conversation in just a minute. First, I want to make clear that all data circuits have been restored. We advised earlier that we lost our data circuits - our ground data circuits at elapsed time of 168, 56 minutes. Within about 15 minutes, all circuits had been restored. And much of that 15 minute outage was due to the testing on the alternate routing circuits that were brought up when we lost - when we had the data dropout. The trouble has been traced immediately to three major system failures in the Kansas area. It's no better defined than that, but apparently in the Kansas area there were three major failures in a very short period of time about 40 or 50 circuits, and those are circuits other than the NASA circuits, were involved. Alternate readings are available for all those circuits and they were routed very quickly. As I say, to recap, we have full restoration of our data circuits now, and we are in touch with the spacecraft by Guam.

CAPCOM Apollo 7, Houston through Guam.

SC Roger; loud and clear.

CAPCOM Roger. Wally, we -

SC We are getting worried about all the paper work; it's accumulating on our list; preparing for this mission.

CAPCOM Roger. Wally, we have a State vector update at - a DAP update we would like to send you; would you go to accept?

SC Got it. CAPCOM Coming up.

CAPCOM And Walt, I have the NAV check pad to read, whenever you are ready to copy.

SC What time is perigee; I have it written

as 44.

CAPCOM Okay, Wally, that's about right.

SC (garble)

CAPCOM Okay, the NAV check - GET of 175 plus 30 plus 0000 plus 2562 plus 09300 1407.

SC Roger; 175 30 0000 plus 2562 plus 09300

1407; over.

CAPCOM Roger; that's correct.

CAPCOM And Walt, I have - I would like to read you up the verification of the DAP data load we are passing you.

```
APOLLO 7 COMMENTARY, 10/18/68, GET: 16917 (CDT: 11:20a) 521/2
                    Roger; we can read it right back to you.
     SC
In a minute.
                    Is that the update?
     SC
     CAPCOM
                    Negative.
                    (garble) Go ahead with the DAP update
     SC
Jack.
                    Okay, NOM 47 - I'll read you R1, R2 and R3.
     CAPCOM
             Plus 00455. Plus 24921. Down 48, minus 00078.
plus 00139.
              Plus 02412. Were you able to copy that 7?
Minus 00130.
                    I didn't get the down 48. Did you say
     SC
down 48?
     CAPCOM
                    Okay - minus 3 balls 78, minus 2 balls
     Plus 02412.
130.
     SC
                    Update finished?
     CAPCOM
                    Affirmative Walt.
                                        The computer here is
     SC
                    Go on nav update?
                    Say again Wally.
     CAPCOM
     SC
                    Go on that update.
     CAPCOM
                    Roger; copy that.
                    And 7, when you can, would you switch
     CAPCOM
your biomeds to LMP?
                     (garble) break in part 2; they didn't
     SC
               There's a broken wire on it - when I took
leave it off.
a look at it.
                    Roger; copy that.
     CAPCOM
                    Should that program be second to the
     SC
(garble)
                    Stand by.
     CAPCOM
                    We are running it through the (garble)
and roll off the (garble) Probably won't get anything on
my biomed Jack.
                    Okay Wally, we feel that the computer
     CAPCOM
will be finished with program 00 shortly and roger on your
biomed data Walt.
     SC
                    Down 47 and down 48 is go.
     CAPCOM
                    Roger; copy that.
                    Does everybody down there concur with
     SC
letting hydrogen tank 1 get down about a 1 percent lower than
tank 2?
     CAPCOM
                    Inward Walt.
     SC
                    Okay, perigee is at 45 now.
     CAPCOM
                    Roger.
                    Walt, we would like to balance these
     CAPCOM
hydrogen tanks as close as possible to each other.
                    Understand; I will stand by for your
call: I show right now that they are getting pretty close,
maybe 2 percent apart.
```

APOLLO 7 COMMENTARY, 10/18/68, GET: 16917 (CDT: 11:20a) 521/3

CAPCOM We'll give you a call.
CAPCOM And we are 1 minute LOS Guam; we'll pick
you up at Hawaii at 27.
SC Roger.

```
Apollo Control here, 169 hours 28 minutes
     PAO
and we're in touch via Hawaii.
                    Apollo 7, Houston through Hawaii.
     CAPCOM
                    Aloha
     SC
                    Walt, could you tell me what omni antenna
     CAPCOM
you're on right now?
                    Omni C
     SC
                    Okay, for a comm test here and let us
     CAPCOM
know if you switch omni.
                    Apollo Control here. The Network controller
just advised the Flight Director we are back 99 percent
full coverage now on our data and our voice line.
                    Hey, Jack, this is Walt. We took frames
37 and 38 of the (garble)
     CAPCOM
                    Rog, copy.
                                  Jack, when can I put this
                    Magazine N.
     SC
in opposite antenna?
                    Okay, we'll get you that, Wally.
     CAPCOM
                    Affirm We just had a torque there.
     SC
                    Okay, copy.
     CAPCOM
                     And if you've been reading our DSKY
     SC
you can see I'm pretty close to SCF.
                     Okay, I'll get back to you as soon as
     CAPCOM
I can.
                     okay, it starts torquing about
(garble) as you approach perigee, about 10 degrees before
perigee.
                     Okay, I copy.
     CAPCOM
                     Apollo 7, opposite omni, Wally, is it
     CAPCOM
starting to torque now?
                     Just a little bit. Why don't you let
me flip it over and and then start hitting it pretty hard?
                     Okay.
     CAPCOM
                     I can actually feel the spacecraft working.
It's starting to torque now.
     CAPCOM
                     Okay.
                     Not as bad because of (cut off) why
     SC
don't we see if we can stick with it because she's riding
up the same way she would on inertial. Oh. (Garble)
                     Okay Wally, you can terminate the dead
band at anytime now depending on your thruster activity.
                     We've got an update at anytime now.
      CAPCOM
                     Apollo 7, Houston.
      CAPCOM
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APOLLO 7 COMMENTARY, 10/18/68, GET: 16929 (CDT: 11:31a) 522/2
                     Apollo 7, Houston.
     CAPCOM
                     Apollo 7, Houston
     CAPCOM
                     Huntsville M & O, Houston CAPCOM.
     CAPCOM
                     Houston CAPCOM, Huntsville M & O here.
     NETWORK
                     Roger; are we going out down there?
     CAPCOM
                     Affirmative. Volt SCM, USB and VHF.
     NETWORK
     CAPCOM
                     Roger; thank you.
                     Apollo 7, Houston.
     CAPCOM
                     Apollo 7, Houston; you can terminate
     CAPCOM
the min dead band attitude test at anytime now; we have an
update.
                     Roger; I'm going loose dead band for SPS.
                     Roger; copy that.
     CAPCOM
                     (garble) cycle on and 2 dead bands back to 8
     SC
high.
                     Houston, do you read Apollo 7?
     SC
                     Roger 7; you are 5 by.
     CAPCOM
                     Okay, do you see my GDC on number 1 ball?
     SC
     CAPCOM
                     Where - we don't have telemetry over
the Huntsville Wally.
SC Okay, that's the third time; I just did it again. It flipped 180 degrees of pitch and it did it on
number 2 ball; it's terminated its discrepancy alright.
Attaching it to another real line of GDT.
                     Roger. You say this exists just on the
     CAPCOM
number 1 FTI?
                     That's affirmative.
     SC
                     Very good.
     CAPCOM
                     I have number 1 and 2 on the (garble) fit.
     SC
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APOLLO 7 COMMENTARY, 10/18/68, GET: 16939 (CDT 11:41a) 523/1
                    Apollo 7, Houston.
     CAPCOM
                    There we go, loud and clear.
     SC
                    Roger.
     CAPCOM
                    Okay, you got TM on me now?
     SC
                    Affirmative.
     CAPCOM
                    Okay, I'm on number 1 ball, IMU num-
     SC
ber 2 GDC, with ORDEAL on.
                    Okay.
     CAPCOM
                    I'11 put number 2 back to GDC, now
     SC
can you see all this stuff? GDC on number 2 now and it
powers right in. Now I'll put GDC on number 1.
                    Okay, Wally, we can't see number 2
     CAPCOM
ball data.
                    Hey, that's number 1 right now, that
     SC
is Sayonara.
                     Okay.
     CAPCOM
                     It's a (garble) on GDC.
     SC
                     Okav.
     CAPCOM
                     Walt, we've got a - we are approach-
     CAPCOM
ing a heater cycle on tank 1. we would like to have you
read out AC1, phase A, B, and C now and then during the
heater cycle.
                     Roger. Phase A is 114-1/2, B is 116,
      SC
C is 114-1/2.
                     Okay, and we will let you know, you
      CAPCOM
don't have to watch it, we will let you know when the
heaters come on, then you can read it out again.
                     Roger. And what do you think about,
when we terminate this SPS DTO and I won't suggest we do
 that any time. How about turning the heaters on AB posi-
 tion long enough to observe a temperature rise to be sure
 they are working.
                     Okay, Walt. We are still discussing
      CAPCOM
                  Tentatively, the answer is negative.
 that down here.
                     Well okay, just trying to help.
      SC
                     Jack, I think we are pitching up by
      SC
 holding inertial attitude, that evaporator would want to
 torque up, so I guess we can just hang in here in this
 perigee.
                     Okay.
      CAPCOM
                      It's just about going through the
      SC
 same window. We lucked out, we went right through SCS at
 the right time.
                      Don't let Shaffer get credit for
      sc
 that whatever you do.
                      (laughter) Roger.
      CAPCOM
                      Apollo 7, Houston.
      CAPCOM
                      Go ahead.
       SC
                      Walt, on your EKG problem, do you
       CAPCOM
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APOLLO 7 COMMENTARY, 10/18/68, GET: 16939 (CDT 11:41a) 523/2
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think you will be able to restore the CAPCOM harness today? I don't know how I'm going to be able to SC restore it. We have taken a good look at the leads. I was told last night it was probably the external leads weren't connected to the readup. Wally took a look at them, it looks like we've got all the connections made. The only thing I can think of is a broken wire inside the lead someplace. Are you getting anything on me at all? Just respiration, Walt. CAPCOM Jack, I would like to check with you. SURGEON Do you know which external lead it is? We could change the tension, but that's about all. The wiring is intact. CAPCOM Okay. All of it. SURGEON Okay, might give those people a good work on that mickey-mouse wiring. It is not up to the standards as far as durability is concerned, for 7 or 8 days. Okay, Wally. They tell me that should work. Walt, they say you might try to make the same fix that Wally did on his. Do you want to put his - what you want to do - you going to give your EKG up and keep respiration only? Stand by, Walt. CAPCOM Okay, Walt. They want to swap respi-CAPCOM ration for EKG leads. You mean you want to swap the four connectors on the amplifiers, is that it? (garble) conditioners. That's right. CAPCOM Okay, we will do that. It may take a little while. If I can do it, I'll unhook the yellow ones. I've got - what? Yes, I've got enough wire here so that they might even reach. But if you could retool the deal with another wire here -Copied that. CAPCOM Houston Apollo 7 SC Go ahead. CAPCOM (garbled) water chlorination system. We remarked on a discrepancy there last night. The container that holds the ampules we have traded places with the pen

CAPCOM Apollo 7 Houston.

sponger that penetrates the water servicing valve. At any rate, there is a brown fluid all around the system.

(garbled) (cut out)

## APOLLO 7 COMMENTARY, 10/18/68, GET: 16949 (CDT 11:51A) 524/1

Apollo 7 Houston, CAPCOM

Roger, did you read all right? SC Negative, Wally, we got a handover CAPCOM Before we continue could we - we got just about that time. a report that the heater is on. Could you read out your AC Ol phase A, B, and C again?

113 and a half, 115 and a half, 114 and

a half.

Roger, copy that. CAPCOM

SC

Are you getting (garbled) now? And Wally, we got pretty much the same CAPCOM report on the chlorination system now. Have there been any changes from last night?

Negative, we're just about (garbled) in

that that loop seems to be rocking with (garbled)

Okay, we copied that. CAPCOM

That fitting in the water system was

scheduled for chlorine later today. Okay, we copy that.

CAPCOM This is Apollo Control Houston here PAO 169 hours 51 minutes. Schirra's last transmission has triggered a little discussion here in the Control Center about this brown fluid as he described it, at the connection point or at the neck of the - leading into the water container. was described also earlier in the day on the swing shift very similiarly to the description we just heard. Our best guess is that it is an oxidized lubricant from somewhere, and apparently the person making this diagnosis of oxidized lubricant has more specific information on it because they're In other words it wouldn't make also sure it's non-toxic. any difference, any physical difference to the water, although apparently it's none too appetizing looking. The main question in the minds here is why don't the crew simply wipe the brown stain away. It's doubtful that we'll get any more The surgeon just advised that we did comm through Antigua. not have, to the best we know, there was no similar occurrence during our chamber test here in Houston called 2-TV1, which is a long term run of the command module in our big vacuum This will trigger a lot of checks and cross checks I'm sure throughout the center here and the contract plant in California. At 169 hours 53 minutes into the flight, this is Apollo Control Houston.

PAO This is Apollo Control, Houston, 170 hours 11 minutes into the flight. A few minutes ago before we left the Antigua area of acquisition the crew came back up and made some additional comments on this brown fluid, which occupied the later part of that pass. Here's that conversation and then we will bridge right into the Ascension acquisition.

CAPCOM Apollo 7, Houston.

SC Roger.

CAPCOM Wally, we had a premature data LOS there. Could we get you to go your uptelemetry command switch to reset to normal?

SC I would like to restate on the chlorination that we find that every other day is satisfactory we have no objection to that.

CAPCOM Okay, copy that. Wally, do you think that

you could wipe off this brown spot?

SC I wish we could. I'm not sure what it

is though that's why (cut off)

CAPCOM Okay.

I'm not sure about the correct input in this biomedical log. There's really nothing for it in my book up here. If we wipe it off, who is going to get a chance to take a look at it afterwards to see what it was (garble)

CAPCOM Apollo 7, Houston, through Ascension.

SC Yes, This is Apollo 7, How do you read me?

CAPCOM Roger, Walt. Standing by.

SC Can you check your log and find out what time I turned the H21 burner H22 heater off this mornig?

CAPCOM Will do.

CAPCOM Apollo 7, Houston. Rog the best data

we had there was 167 plus 53.

SC Thank you, and what are the readouts now on H21 and H22 quantities?

CAPCOM Including 9.4 Walt, and 37.6.

SC Okay, they seem to be coming apart. If that's a little bit to slow I can turn the fans off in tank 2. Just fix it up occasionally.

CAPCOM Just hold what we got Wall.

SC Okay.

CAPCOM Apollo 7, Houston, 1 minute LOS Ascension. Tananarive at 170 plus 20.

APOLLO 7 COMMENTARY, 10/18/68, GET: 17020 (CDT 12:24p) 526/1

PAO This is Apollo Control, here at 170 hours 20 minutes. We should acquire via Tananarive. Let's listen. CAPCOM Apollo 7, Houston, through Tananarive, standing by.

PAO The flight directors advise we may get some comments on the cold soak tests as we pass through Tananarive. I think we'll probably determin by the quality of the communications circuit through that station today. We're standing by.

This is Apollo Control. We don't expect any communication via Tananarive, so we'll take the line down now.

```
APOLLO 7 COMMENTARY, 10/18/68, GET: 17048 (CDT: 1:51p) 527/1
```

This is Apollo Control at 170 hours, 48 PAO minutes into the flight. We are about to acquire through Guam but one additional word on that power outtage which now has been, - or the data outtage we recorded earlier. At that time it was indicated the trouble was somewhere in the middle west, Kansas was mentioned on the loop. The network flight controller has tracked it some more, and the trouble was traced to a place called Pinsboro, West Virginia, a major outtage in a large carrier and routing immediate - immediate re-routing had to take place and it takes some minutes to test out and validate the alternate circuits to be used. Don Eisele is well into his sleep period and we are now in touch with the spacecraft by Guam.

(garble) now. SC

Houston; Apollo 7 standing by. SC

Roger Apollo 7; Houston. CAPCOM Not gonna try you any more. SC

Roger. Relative to Walt's question on CAPCOM the SPS heater after the cold soak test, we do not, do not want to activate these heaters; we want to look at the data first.

Understand. SC

And Wally we would like to do a fuel CAPCOM

cell 02 purge at 171 plus 30.

Hey Jack, how are you reading my biomed SC

now?

Stand by Walt...Walt, you did good work. CAPCOM

We have good biomed data.

All of it, or just EKG's or what? SC

CAPCOM Just EKG.

Is my heart still pumping? SC

Affirmative. CAPCOM

I feel relieved. That leaves nothing to work with long either just talk right across the (garble) Roger. CAPCOM

Do you have any more words of wisdom SC

on the cord ejector?

Stand by Wally. CAPCOM

We aren't scheduled to use it tonight SC anyway, but just tighten up that one for awhile.

CAPCOM Apollo 7, Houston.

SC

Wally, we are expecting to chlorinate CAPCOM tonight since we didn't do it last night but relative to the brown spot, we are trying to get more data on that to pass up to you.

I checked my log - I think I did last SC

night and there's where we got the brown spot.

Yeah, last night we did chlorinate.

```
APOLLO 7 COMMENTARY, 10/18/68, GET: 17048 (CDT: 1:51p) 527/2
                    Say again Walt.
     CAPCOM
                    We chlorinated last night at 150 hours
     SC
approximately.
                    Okay.
     CAPCOM
                    We'll give you a lot of lead time on the
     SC
problem.
                    Roger; thank you.
     CAPCOM
                    We can check with any other equipment you
     SC
like.
                    Okay, Wally, we concur with your chlori-
     CAPCOM
nation; we won't chlorinate tonight.
                     Roger. You just might play games with
one of those ejectors and see what the heck it is down there.
                     Good idea.
     CAPCOM
                     It's between the ejector and the - deal
that hooks up with the spacecraft; there's a pin in it.
                     Okay.
     CAPCOM
                     I chased it. The place where the small
     SC
end of the chlorine and fuel is pierced; that's where the
brown stuff collects.
                     Roger; copy that.
     CAPCOM
                     Very good.
     SC
                     We are LOS 48 hours; we are at 24 hours
     SC
now.
                     Apollo Control here. Watching this data
coming in from Guam, you heard Walt Cunningham acknowledge
that he was reassured that we were showing a heartbeat for
him - and the heartbeat is about 68, the mean heart rate
is about 68.
                     Apollo 7, Houston.
      CAPCOM
                     Go ahead Jack.
      SC
                     Walt, sometime at your convenience, we
      CAPCOM
would like a command module RCS temp readout.
                     Roger; I'll get that shortly.
      SC
                     Apollo 7, opposite OMNI.
      CAPCOM
                     Roger; we are steady now.
      SC
                     Roger.
      CAPCOM
                     0kay - 5A - 50 - 5D - 50. 60 50, 6B;
      SC
 50, 6A, 50.
                     Roger; copy those all.
      CAPCOM
                     Jack what's the cutoff on this cold soak
      SC
 test - have we reached it?
                     Wally, it's about 17110.
      CAPCOM
                     Okay.
      SC
                     That's the same cutoff we had - it was
      SC
 started later than original.
                     Okay, there's a correction Wally. It's
 171 plus 22, because we started late.
```

APOLLO 7 COMMENTARY, 10/18/68, GET: 17048 (CDT: 1:51p) 527/3

PAO And that will wrap up the communication by Guam at 170 hours, 57 minutes.

APOLLO 7 COMMENTARY, 10/18/68, GET: 17105 (CDT 01:07p) 528/1

This is Apollo Control, Houston, 171 PAO hours 05 minutes into the flight. Momentarily we should acquire through Hawaii. There goes the first call.

We report all quiet here. SC

CAPCOM Roger. Donn, when you go to power down today, just as a reminder, don't forget to deactivate that damp.

Got that. We've got that on the rack.

We know how to do that stuff.

Roger. We were just worried about a CAPCOM

jet pyro.

Roger. The double 110 is now collecting SC conversation on the lower edge - the edge nearest the grid There's - oh some large specks as long as 3/8 of an inch and about an eighth of an inch wide on it. Most of the specks are about a 32nd of an inch in diameter. A lot of dust collection on the outer surface of the inner pane and the condensation is on the inner surface of the outer The little specks are from the dump system on the outer surface of the outer pane. Number 2 window has the sun on it now and the smoke on that I don't think has increased any, but we originally reported that's probably from power jettison. Guess the window looks quite good. Number 3 window, the hatch window, there are so much clouds today it looks smoothed over. We'll circle it out - 2-1/2 inches in diameter and the same crystal structure - this is all collected on the inner surface of the outer pane. That's a very bad show on that window. Number 4 window is about the same as number 2 and number 5 window, the side window, is also collecting condensation on the inner surface of the outer pane, but don't have the dump particles collecting on it.

Okay, Wally, that was a real fine window CAPCOM

status.

We've entered in our log that beards are SC no good. Did you copy that?

Say again, Wally. CAPCOM

We've entered in our logs that beards SC are no good.

I couldn't read it. CAPCOM

We've entered in our log - our flight plan log - that facial beards are no good.

I copied that. CAPCOM

At 7, we're 21 hours and 22 minutes -SC we might as well start you boys cracking on figuring how much fuel we have left and get our Delta for these 2 GTO's. Okay, Wally. CAPCOM

```
APOLLO 7 COMMENTARY, 10/18/68 GET: 17105 (CDT: 1:07p) 528/2
     SC
                    Roger.
     SC
                    And we noticed a gross change in tempera-
ture; it looks like it's going up.
     CAPCOM
                    We concur.
                    The SPS propellant tank temperature is
     SC
now reading 68.
     CAPCOM
                    Roger.
                    Jack how about a hydrogen 1 quantity and
     SC
hydrogen 2 quantity.
     CAPCOM
                    Okay, Walt. The hydrogen 39.0, 37.2,
                    Roger; pitch rate (garble)
     SC
     SC
                    We estimate 4 more days.
     CAPCOM
                    I read you; copy that.
                    Hey Wally; a couple of quick questions
     CAPCOM
on the FTI problem that you had back. Did FTI flip occur
with the ordeal and GDC operating on ball number 1?
                    (Garble) you know that FTDC and we'll
     SC
see how long it lasts.
     CAPCOM
                    Okay, Wally, your answer started just
at the handover to the hot soak, could you say again?
                    Yes, GDC on ball 1. We're doing a leak.
     SC
     CAPCOM
                    Was ORDEAL and GDC operating at the
same time on ball 1?
     PAO
                    The flight plan indicates the crew
should be now powering down the guidance and navigation
system, they'll also power down the spacecraft into the
control system, stabilization and control system. The next
item at 171 hours and 30 minutes calls for a purge - an
oxygen purge of the fuel cells. We're going through the
noisy area of the ship Huntsville at this point. Guaymas
should pick up momentarily. And the guidance and naviga-
tion order happily reports that we're ten feet above our
red line in the quad area on propellant. Let's listen
some more as we move down off the west coast of Mexico
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END OF TAPE

through the Guaymas circle.

```
APOLLO 7 COMMENTARY, 10/18/68, GET: 17115 (CDT 1:17P) 529/1
                     Apollo 7 Houston
     CAPCOM
                     Roger.
     SC
                            Wally, here is a chart value
                     Roger.
     CAPCOM
 for your RCS fuel.
                     Go ahead.
     SC
                     Roger, 614 quad A is still the limiting
     CAPCOM
quad, but still above all RCS red lines.
                     Very good.
     SC
                     And Walt, could you give us a rad C
     CAPCOM
readout when you have a minute?
                     36.2
     SC
                     Roger, copy, and your hydrogen imbalance
     CAPCOM
                    We've gone from 3.4 to 1.8 difference.
is improving now.
                     Roger.
     SC
                     Wally, I missed some of the answers to
     CAPCOM
the questions I asked about the DFT problem you had. Did
this 180 degree flip occur when the RDL and the GDC were on
ball number 01?
                     Negative. I've now got a (garbled).
You've got that (garbled) all up on the board. I'll give
(garbled) Do you read?
                     We aren't getting the data right now,
     CAPCOM
Wally.
                     You are, or are not?
      SC
                     Negative, we've got a low antenna angle
      CAPCOM
here at Guaymas.
                      I'll hold on a second.
      SC
CAPCOM Okay, Wally, it doesn't look like we are going to get any data at all here at Guaymas because of
the keyhole.
                      I've got about a 172 pitch, looking to
      SC
a FDI on number 01, and the ball slips right over to about
 022 pitch, so I can't seem to get GDC to lock on ball number 01.
                      Okay.
      CAPCOM
                      That's fine on number 02.
      SC
                      Does this flip occur just at the time
      CAPCOM
 that you're switching GDC 2 ball number 01?
                      That's correct.
      SC
                      Okay, copy.
      CAPCOM
                      (garbled) How does it look, Jack?
      SC
                      Okay, we're just about to lose you at
      CAPCOM
 Guaymas, we'll pick you up at Tananarive at 56.
      SC
                      Roger
                      And that will wrap up the conversation
      PAO
 for the Guaymas pass. At 171 hours 20 minutes into the
 flight this is Apollo Control Houston.
```

APOLLO 7 COMMENTARY, 10/18/68, GET: 17156 (CDT 02:00p) 530/1

PAO This is Apollo Control Houston at 171 hours 56 minutes. Tananarive should acquire momentarily and we will get an update for - a planned landing area update. No other activity is scheduled. Actually, that update may come later, during the Hawaiian crossing. More than likely, just a check in and a stand by call, as the spacecraft and the Control Center are sort of powering down after the day's work. We will keep the line open and see what develops.

CAPCOM Apollo 7, Houston through Tananarive.

CAPCOM Tananarive M&O, Houston CAPCOM.
TAN Houston CAPCOM, Tananarive M&O.

CAPCOM Roger. Are we going out down there?

TAN Affirmative, you are.

CAPCOM Thank you, sir.

PAO Well, from all appearances, we are not going to put any calls into the spacecraft, so we will just take down the line. At 171 hours 59 minutes, this is Apollo Control Houston.

```
APOLLO 7 COMMENTARY, 10/18/68, GET: 17222 (CDT: 2:18p) 531/1
                    This is Apollo Control, at 172 hours,
22 minutes into the flight. By the ship Mercury, in the far
west Pacific, we have just acquired the spacecraft.
                    Garble
     SC
                    Apollo 7, Houston through Mercury.
     CAPCOM
                    Roger; ready.
     SC
                    Hey Jack I would like to get a flight
plan update when they plan on debating the primary water
boiler and for how long.
                     Okay, Walt. Walt, here are some red lines
     CAPCOM
I used on your RCS that you might be interested in.
                     Red lines are up.
     SC
                     Your RCS redlines - in SDS deorbit, we
used 58 pounds as the redline, your DAP redline is 487, and
      CAPCOM
your hybrid redline is 252.
                     Thank you.
      SC
                     Don, -
      CAPCOM
                     This is Apollo 7; over.
      SC
                     Go ahead Apollo 7.
      CAPCOM
                     I could give you a status report of the
 remaining film we have onboard?
                     Okay, go ahead.
                                      Pan X; we have 121
      CAPCOM
                     First the 70 mm.
      SC
                    SO 368, 20 frames. SO 121, 48 frames.
 By the 16 mm, on the 368, there is 2 and one third magazines,
 and the 168, there is 4 magazines; over.
                     Copy that Walt.
      CAPCOM
                     I am standing by for -
      SC
                     We'll be back with you in a minute on
      CAPCOM
 that - evap.
                     Walt, we'll get back to you at the
      CAPCOM
 Guaymas circle on the primary evaporator.
                      Roger.
                      Apollo 7, Houston. We are about to
      SC
      CAPCOM
                     Hawaii at 40.
 lose you at Guam.
                      Roger Jack.
       SC
  END OF TAPE
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APOLLO 7 COMMENTARY, 10/18/68, GET: 17242 (CDT 0245p) 532/1
                    Apollo Control, 172 hours 42 minutes,
     PAO
via Hawaii we're having this conversation.
                    Apollo 7, Houston, through Hawaii.
     CAPCOM
                     Got you, Jack.
     SC
                    Roger. Wall, I have your block data
     CAPCOM
number 19.
                    Houston, Apollo 7, do you read?
     SC
                    Roger, 7, we've got your block data,
     CAPCOM
are you ready to copy?
                    Ready to copy, go, I'm loaded with
     SC
blocks now.
CAPCOM Roger. 111 dash 3 alpha plus 295 plus 1389. 175 plus 17 plus 19, 280 (cutout) charlie charlie plus 195
plus 1520 177 plus 00 plus 44 2680, 113 dash alpha charlie
minus 025 minus 0090 177 plus 42 plus 42 5628, 114 dash
alpha charlie plus 025 minus 0239 179 plus 14 plus 47 5297,
115 dash alpha charlie plus 122 minus 0310 180 plus 48 plus
41 4637, 116 dash 2 alpha plus 243 minus 0269 182 plus 26
plus 21 3648 end.
                     Forgot 164. Okay, read back follows:
111 dash 3 alpha plus 295 plus 1389, 175 plus 17 plus 19,
2808, 112 dash 3 charlie plus 195 plus 1520 177 plus 00 plus
44 2680, 113 dash alpha charlie minus 025 minus 0090 177
plus 42 plus 42 5628, 114 dash alpha charlie plus 025 minus
0239 179 plus 14 plus 47 5297, 115 dash alpha charlie 122
minus 0310 180 plus 48 plus 41 4637, 116 dash 2 alpha plus
243 minus 0269 182 plus 26 plus 21 3648 over.
                     Roger. On the second block, Walt, that's
     CAPCOM
112 dash charlie charlie.
                     Roger. 112 dash charlie charlie and
tell John hello and I've got a whole book full of unused
blocks here now.
                     Copy that. Okay.
     CAPCOM
                     Apollo 7, Houston.
     CAPCOM
                     Go ahead, Jack.
                     Okay Walt, you're pretty weak, but on
     CAPCOM
your question on the primary evaporator, we would like to
return the primary evaporator to auto.
                     Going to auto now, shall I bring it in
     SC
to operations as we've been doing before, I'll go ahead and
bring it on the line as we have been.
                     Okay, Walt, if you'll just place that
primary evaporator on auto it'll cycle by itself and we're
expecting a cycle sometime tonight.
```

Is this something that somebodys

dreamed up after all these months, I ve been told that you

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APOLLO 7 COMMENTARY, 10/18/68, GET: 17242 (CDT 0245p) 532/2
     SC
                    can not reservice the secondary evapora-
tor.
     CAPCOM
                    That is correct and we've come up with
a procedure to do it.
                    I don't know how I'm going to get so
smart in one weeks time, but I'll go ahead and copy. How
long is it?
     CAPCOM
                    Oh, four steps.
     SC
                    Very long steps.
     CAPCOM
                    No, real short.
                    Hit me with it.
     SC
     CAPCOM
                    Okay, you want to turn the evaporator
water control switch secondary to auto.
     SC
                    That's where it is anyway, isn't it?
     CAPCOM
                    Then you want to turn your secondary
coolant loop of that switch to evap for five plus or minus
one seconds.
     CAPCOM
                    Rog, you copy that Walt.
                    I got evaporator water control secondary
to auto which is where it normally is, but it's running, I
go to the evap position for five seconds and reset, I
assume immediately afterwards, is that correct?
     CAPCOM
                    Affirmative, five plus or minus one
seconds, then reset for plus or minus one second. Okay,
then repeat this - this step above for forty - for a recom-
mended forty cycles.
     SC
                    How many times do I do that?
     CAPCOM
                    Rog, forty cycles is the desired, but
twenty cycles is the minimum number needed to bring the
evaporator on the line, it'll give you three tenths of
a pound, twenty cycles will.
                    garble - will go on record here saying
that people that dream up procedures like this after you
lift off have somehow or another been dropping the ball
the last three years, if they hadn't (garble) Gemini (garble)
looks kind of Mickey Mouse, but I'll do it if I have to.
     CAPCOM
                    Okay, we just wanted to get you thinking
about it in case you needed it.
     SC
                    What, did you read me then?
     CAPCOM
                    Affirmative, Walt.
                    Okay, I'll do this Mickey Mouse procedure
if necessary, but not until LOS when we've stayed a lot
further with flight plan.
     CAPCOM
                    Okay, we've got it, we're about to lose
```

you over the Huntsville, Walt, we'll pick you up at

minutes and we'll bid good-bye to Apollo 7 for the afternoon.

This is Apollo control at 172 hours 51

Tananarive at 32 - 173 plus 32.

APOLLO 7 COMMENTARY, 10/18/68, GET: 17309 (CDT 3:15P) 533/1

pao This is Apollo Control at 173 hours 09 minutes. We're still about 23 minutes from our next acquisiton of the spacecraft at the Tananarive tracking station. At the present time here in the Mission Control Center we are in the midst of a change of shift. Flight Director Gene Kranz will be coming with his white team to replace Flight Director Glenn Lunney and the black team and we anticipate that Ron Evans will be coming on shortly as CapCom to replace Jack Swigert at 273 hours 09 minutes. This is Apollo Control.

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APOLLO 7 COMMENTARY, 10/18/68, GET: 17408 (CDT 410p), 534/1
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This is Apollo control at 174 hours 08
minutes into the mission, during our press briefing the
spacecraft completed two passes, one over the Tananarive
station and we've just completed a pass over the tracking
ship Mercury. We had no communications with the spacecraft
over Tananarive, we put in a call to the crew and stood by,
there was no conversation there, there was a brief bit of
conversation over the Mercury and we passed up some informa-
tion to Wally Schirra on reconnecting some biomedical
instrumentation leads which probably have come undone and
we'll play the Mercury pass back for you now in its entirety.
                    Apollo 7, Houston, through Mercury. *
     CAPCOM
                    Roger, loud and clear.
     SC
                    Roger, loud and clear.
     CAPCOM
                    Ron, would you check my biomed signal
     SC
when I'm on please.
                    Roger, coming through good.
     CAPCOM
                    Thanks, would you check the oxygen, will
     SC
you?
                    Roger, 02 manifold pressure now 106.
     CAPCOM
                    106, Roger.
     SC
                    Now it's 102.
     CAPCOM
                    102, we're at go.
     SC
                    Roger.
     CAPCOM
                    Go ahead.
    ·SC
                    Roger, you might tell Walt that his
     CAPCOM
spark plug changer has some information here when he gets
a chance to trouble shot his biomed.
                     (garble). He's got a good chance, because
     SC
he's got his hood open now.
                    Roger, we'd like to confirm that the
     CAPCOM
yellow lead is connected to the blue signal conditioner at
this time.
                    Okay, it's not hooked up right now.
     SC
Yellow lead to blue conditioner and Donn Eisele has the
same break I have in his manifold.
     CAPCOM
                    Roger.
                     So he'll rig it up the same way I am.
     SC
                    That's fine. If Walt has the yellow
     CAPCOM
to the blue conditioner we would like to disconnect the
side sensors at the pin connectors and then connect the
yellow lead to the upper and lower chest sensors.
                    Okay, and I just disconnect the (garble)
over the auxillary.
                     That's affirmative, disconnect the
     CAPCOM
auxillary.
                     I can already remove those sensors then
(garble) is going to disconnect them.
```

APOLLO 7 COMMENTARY, 10/18/68, GET: 17408 (CDT 410p), 534/2

CAPCOM Affirmative, and even also (cut off)
SC two externals and run them through the

yellow, pin to the blue conditioner.

CAPCOM That's affirmative, yes.

SC Okay, will do. We'll change (garble)

today.

CAPCOM Roger.

CAPCOM Apollo 7, Houston, 30 seconds LOS

Hawaii at 16.

SC Roger, we'll (garble) test your spark

plugs.

CAPCOM Roger.

PAO That is all the communication we had with the crew over the tracking ship Mercury we'll be acquiring again at Hawaii in about 5 minutes. This is Apollo control at 174 hours 12 minutes into the flight.

END OF TAPE

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APOLLO 7 COMMENTARY, 10/18/68, GET: 1741600 (CDT 4:20P) 535/1
                     This is Apollo Control at 174 hours 16 min-
     PAO
utes. We're standing by for CAPCOM Ron Evans to put in a
call to the crew over Hawaii.
                     Apollo 7 Houston through Hawaii. Roger, loud and clear.
     CAPCOM
     SC
     CAPCOM
                     Roger.
                     Apollo 7 Houston.
     CAPCOM
                     Come in.
                     Roger. Is the urine dump heater still
     CAPCOM
in main A?
                     That's affirmative.
     SC\
                     Roger, and which switch on the accumulator
     CAPCON
is now in operation?
                     Number 1, wait just a second, uh Number 1,
yeah.
     CAPCOM
                     Roger.
                     (garble) dump A line (garble) of my
     SC
concern.
                     Roger. It kinda bounces up and down
     CAPCOM
here on the temperature and on the thing, we're just watching
it - we're curious which one has been working.
                     A only,
     SC
     CAPCOM
                     Roger.
                     Any new news back that way?
     SC
     CAPCOM
                     Roger, I've got a man working on it now.
                     Okay.
     SC
                     Apollo 7 Houston, request 02 tank 2 fan
     CAPCOM
cycle on for 5 minutes and up.
                     Okay.
                     (garble) connections to try a new fix.
We'll give it to you, uh, give you the data.
     CAPCOM
                     Say, it again.
                     Rog. Walt's hooked up. You can try him
for an EKG, or whatever it is.
                     Roger. We're looking at it.
     CAPCOM
     SC
                     Ron, ask Mr. John if we can move the
upper sternal down about an inch to remove the strain on the
                     That's affirmative.
     CAPCOM
                     Okay. What's the reading on the (garble)
     SC
then?
                     Roger. It's not looking very good yet.
     CAPCOM
We'll check it again at Ascension.
SC Okay, that's the two sternal leads on the yellow pin connector to the blue signal conditioner.
     CAPCOM
                     Roger.
     ŞC
                     Okay.
                     LOS. We'll pick you up at Ascension at
     CAPCOM
```

five seven.

APOLLO 7 COMMENTATOR, 10/18/68, GET: 1741600 (CDT 4:20P) 535/2

Roger, five seven, Ascension.
PAO
This is Mission Control. During that
pass, as you heard, we checked out the biomedical information
from Walt Cunningham's sensors, and apparently are still not
getting good data here in Mission Control. The medic reports
that the data looked kind of erratic, and we'll check it
again on our next pass, which will be over Ascension. At
174 hours 23 minutes, this is Apollo Control.

APOLLO 7 COMMENTARY, 10/18/68, GET: 1745800 (CDT 5:00P) 536/1

PAO This is Mission Control Houston. We have put in a call to the crew over Ascension. Let's listen in for that conversation.

CAPCOM Apollo 7. Houston. Through Ascension.

Standing by.

PAO This is Apollo Control at 175 hours
05 minutes and apparently we are not going to have any communications with the crew over Ascension. We're scheduled to acquire at Tananarive in about 5 minutes. We'll come back up for that pass.

## APOLLO 7 COMMENTARY, 10/18/68, GET: 17512 (CDT 515p) 537/1

This is Apollo control at 175 hours 12 PAO minutes, we're standing by to acquire the spacecraft over Tananarive.

garble. SC

Rog, read you loud and clear. CAPCOM

garble. SC

And that didn't come through. CAPCOM

Roger, (garble) with us. SC

Roger, copied that. CAPCOM

SC Ron, ready.

CAPCOM Affirmative, GO.

Hey Ron, can you give me on hydrogen SC

tank one (garble). CAPCOM

Roger, H2 tank one 37.4, H2 number 2

36.8.

Come to think of it, give Donn a (garble) SC

Apollo 7, Houston, say again. CAPCOM

Give Donn a call (garble) have him

turn both heaters from the hydrogen tanks to auto.

30 seconds LOS - we will call Donn when CAPCOM

they get balanced, Mercury at 33. SC Roger.

This is Apollo control the spacecraft will be going out of range of the Tananarive station shortly and we had somewhat garbled communication along that pass of the spacecraft relatively low on the horizon and it seemed from the tracking antennas at Tananarive, we'll be picking them up again at the Mercury in about 19 minutes from now. Within the - the next 15 or 20 minutes Wally Schirra and Walt Cunningham are scheduled to begin their sleep periods and command module pilot Donn Eisele is scheduled to be ending his. This is Apollo control at 175 hours 16 minutes.

APOLLO 7 COMMENTARY, 10/18/68, GET: 17534 (CDT 540p) 538/1

This is Apollo control at 175 hours
34 minutes, the spacecraft now approaching the tracking
ship Mercury, in the western Pacific, we should be hearing
from command module pilot, Donn Eisele shortly. Donn is
scheduled to end an eight hour sleep period at this time.
We'll stand by for that call to the crew.

CAPCOM Apollo 7, Houston, through Mercury

standing by.

SC Roger.

CAPCOM Roger, found and clear.

PAO That sounded like Donn Eisele to us which would indicate commander Wally Schirra and lunar module pilot Walt Cunningham have begun their scheduled eight hour sleep period or will begin shortly.

SC Houston, Apollo 7.

CAPCOM Houston, GO.

SC Roger, this is the CMP up now and I'd

like to give you a little status report.

CAPCOM Roger.

SC Okay, first of all, starting last night when I went to sleep about 168 hours, it allowed me 30 clicks of water, 2 aspirin and 1 lomogel.

CAPCOM Roger.

The LMP wants to add 30 clicks of water wishes to announce that he is now pure in sleep with clean skivvies on.

CAPCOM Beautiful.

SC The CDR is - the CDR is recording 20 clicks of water and wishes to announce that he has his back up up backs on also.

CAPCOM Roger.

CAPCOM

SC

CAPCOM

Today, Ron, you got any hot news for us.

CAPCOM

Royer, the paper said your SPS burn was

the mightiest maneuver ever made by a manned spacecraft.

SC That's right.

CAPCOM Yea. - The stock market is at its highest

level since February of 66.

communcations with Apollo 7, we're scheduled to reacquire the spacecraft in about 10 will be over the tracking ship Redstone in the south Pacific. You heard Donn Eisele report on the status of the crew at the present time continuing to keep up on the water intake and the lunar module pilot Walt Cunningham and Wally Schirra, commander have apparently changed into their back up pair of constant wear garments or Wally called them him tack up up backs. This is Apollo control at 175 hours 42 minutes.

APOLLO7 COMMENTARY, 10/18/68, GET: 1760600 (CDT 6:10p) 539/1

This is Apollo Control at 176 hours and 6 minutes into the mission. We're preparing to contact the spacecraft at this time over the tracking ship Redstone in the South Pacific. Over that - over our last pass over the tracking ship Mercury telemetry information showed that our orbit has presently 243.1 nautical miles for a high point with a perigee of 89.8 nautical miles. We'll listen now as CAPCOM, Ron Evans, prepares to put in a call to the crew.

Apollo 7 Houston through Redstone. CAPCOM

SC Roger, Houston

CAPCOM Roger. Say, Donn, on all of our discussion on the Delta V meter there today you are in a mess with the counter. We never did get a residual EMS Delta V

after the burn today, do you happen to recall what that was?

SC I'm sorry, sure don't, Ron. We couldn't see it very well, it was so bright in here that the Delta V didn't show up very well.

CAPCOM Roger

SC Hey, Ron, could you give me an orbital backup date please and also and find out how much difference the period is between our orbit and the one that was (garbled) around the orbit map.

CAPCOM Wilco, Donn. Apollo 7 Houston opposite Apollo 7 Houston, I have a map update for you.

Roger, go ahead.

Roger, rev 111, GET 175 plus 15 plus 00, CAPCOM

longitude 41.4 East

SC GET 175 plus 15 plus - -

APOLLO 7 COMMENTARY, 10/18/68, GET: 17614 (CDT 615p), 540/1

Affirmative, 41.48. CAPCOM Okay. Did you find out about the orbit? Roger, we're working on it, the period SC CAPCOM is 90 something, let me look it up here - the period is 90 plus 42 now. Roger 90 plus 42. SC Affirmative. CAPCOM I see, i don't know what it is on this SC I guess I can figure it out. We 11 get the information for you and CAPCOM Donn did you get the fix on the biomed harness that we passed up for the rest of the guys. Oh, yea, to switch the plug to the other side.

Affirmative. CAPCOM Yea, I did get that, I haven't done SC it yet, I will in a little bit. Roger. - Apollo 7, Houston 30 seconds CAPCOM LOS Ascension at 31.

Roger. SC And 7, Houston, your map is a 90 minute CAPCOM period. Say again. SC

90 plus 00 period, on your map. CAPCOM Roger, I understand, thank you. SC

END OF TAPE

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APOLLO 7 COMMENTARY, 10/18/68, GET: 1763100 (CDT 6:35P) 541/1
     PAO
                    This is Mission Control, Houston at
176 hours 31 minutes. Apollo 7 is just entering darkness
now and coming up on the tracking station at Ascension.
                    Apollo 7 Houston through Ascension, stand-
     CAPCOM
ing by.
     SC
                    (Static)
     CAPCOM
                    Roger.
                    (Garble) Houston.
     SC
                    Say it again, Donn.
     CAPCOM
                    How's the weather there?
     SC
                    Roger. The weather is beautiful.
     CAPCOM
                    (garble) there's a beautiful (garble) up
here over (garble).
                     I don't know which one it is but it sure
did take.
     CAPCOM
                    Roger.
                    May be (garble)
                    We'll check, and let you know.
     CAPCOM
     CAPCOM
                    7 Houston, the Doctors say thank you.
                    That's what he wanted, Aye?
     SC
                    Affirmative.
     CAPCOM
                    Apollo 7 Houston, opposite OMNI.
     CAPCOM
     SC
                    Roger.
                    Houston, Apollo 7.
     SC
     CAPCOM
                    Houston, go.
                    Roger. A couple of days ago we did a
E23 star to lunar landmark exercise. I just wonder if the
data got down to the ground, and if they were happy with it?
We only got a chance to do one or two and I didn't know how
they came out.
     CAPCOM
                    Roger, we'll check it.
                    Thank you.
     CAPCOM
                    Ron, we were going to get the SCS and
GEN control mode checks and Donn's awake now. We've got a
couple of minutes. It might be worthwhile to try and get
that one done. Find out what he has completed from his log.
                    Apollo 7 Houston.
     CAPCOM
                    Read you.
                    Rog. Have you had a (There is an echo
on the tape and you can't understand)? Have you had a chance
to give us a rundown on the SCS and G&N control modes. How
many you have completed?
                    Yes, stand by. That's right. I owe you
that from yesterday.
     CAPCOM
                    Roger.
                    7 Houston, about 1 minute to LOS.
     CAPCOM
is fairly close to scorpio at this time.
                    Oh it's Venus?
     CAPCOM
                    Roger.
```

Okay, that's when it's spring.

SC

APOLLO 7 COMMENTARY, 10/18/68, GET: 1763100 (CDT 6:35P) 541/2

SC Ron, I'll give you this rundown when we come over the next station, okay?

CAPCOM Roger.

CAPCOM It will be Mercury at zero 9.

SC Roger.

PAO This is Mission Control. We've lost contact, now, with the spacecraft over Ascension. A relatively long pass that time accounted for by the fact Apollo 7 is at it's, or near it's apogee of 240 nautical miles at this point. The next station to acquire will be the tracking ship Mercury, and we'll pick up there in about 28 minutes. The thank you that you heard passed up from the Control Center to Donn Eisele from the medics here, was in response to his successful repair of his biomedical instrumentation leads. We are now getting a good electrocardiogram data on Donn here in the control center. At 176 hours 43 minutes, this is Apollo Control.

APOLLO 7 COMMENTARY, 10/18/68, GET: 1771000 (CDT 7:15p) 542/1

This is Apollo Control at 177 hours PAO We've just acquired the spacecraft over the 10 minutes. tracking ship Mercury. We'll listen for the call.

Apollo 7, Houston, Mercury standing by. CAPCOM

Roger, Houston, Apollo 7. SC

Roger, loud and clear. CAPCOM

Ron, I'm looking over this score card here on attitude control modes, and we've got 'em all checked off except for some of the various rates, particularly the high rate in automatic maneuver for G&N.

Roger CAPCOM

If you like, I can go down the list SC You want the details, or you just want a total for you. score card.

If you have time, we would like to go CAPCOM down the list. We're trying to figure out how much RCS fuel

we need to allocate for the rest of them.

Okay. With Agena control modes, Wally SC has checked off, or one of us did, max DEADBAND attitude holds for 20 to 30 minutes. I believe we did that in possibly T20 during rendezvous. Also the minimum DEADBAND we used during SPŠ burns which is attitude hold G&N.

Roger. CAPCOM

Automatic maneuvers, we do those we do an automatic turn maneuver for every burn. It also took automatic maneuvers in T20 during rendezvous.

Roger. CAPCOM

Manual recommence has been used to trim SC the roll angles at, you know, just prior to last auto trim for a burn, and we may have used that at other places. I can't recall. I think we did during such things as that T23 tracking where we went down to hold for a little while and then back.

Roger. CAPCOM

We used the minimum impulse controller SC for that the sextant calibration and for T23. We used RCS translation control for the rendezvous, and it was a TTI burn. We used CMC 3 mode in three axis during the sextant calibration. We made automatic maneuvers at .5 and .10 degrees per second. We've also made manual maneuvers at those rates. Usually it takes place during re-entry burn cycle, say 5 to 10 minutes before the burn when maneuvering the attitude or holding attitude.

Roger. CAPCOM

Okay, the SPS during the SPS cold soak SC we of course did the max DEADBAND, that fourth degree DEADBAND with low rates. We used minimum deadband with low rate during rendezvous for attitude hold during braking, and line of site corrections. We use rate command at low rate during the same period for during rendezvous. We use minimum impulse and accel command right along. That's our standard maneuver modes, it's of this (broken) it's higher than any other rate. translation control, we've done that through a one SPS burn and for the initial separation maneuver for the S-IVB. Walt, just before he retired down last night had the manual to rate mode and said it was satisfactory. We have not been rate command high rate, we're little low during maneuvers to correct the attitude following separation. We also used the back S-band to 8 degree during the SPS cold soak. And used that here, your minimum DEADBAND high rate during SPS cold soak.

CAPCOM Roger, looks good then.

of data down there, but as far as we're concerned we're running out pretty thoroughly, and we're pleased with the very smallest as far as handling problems. All I could tell you some more on those too. We're a little curious as to the fuel consumption on some of them. I think some of them, particularly with the kind of DEADBAND we're using a little more than we thought we might based on our simulations before we flew.

CAPCOM Roger.

pAO This is Mission Control. We're about on the fringe of coverage from the Mercury. However, we do have overlapping coverage from Guam on this pass, and we'll continue to monitor.

CAPCOM Apollo 7, Houston.

SC Roger, GO.

CAPCOM Roger, recommend H2 heaters to auto,

both tanks.

SC H2 heaters to auto, both tanks, okay.

(garbled), over.

CAPCOM Roger.

SC Rog. Yeh, Ron, can you give us the

H2 tank quanitities that you have down there.

CAPCOM Roger, H2 tank 1 36.58, tank 2 36.38.

SC Roger, 36.58, 36.38.

CAPCOM Roger.

CAPCOM Apollo 7, Houston, 1 minute or

30 seconds to LOS. Redstone at 40.

CAPCOM Roger, be waiting.

Roger, be curious to know do you notice much of the deviation from perigee to apogee in this oribt?

APOLLO 7 COMMENTARY, 10/18/68, GET: 1771000 (CDT 7:15p) 542/3

SC I haven't picked it up yet. I haven't been looking out the window that much, but should expect to see some.

CAPCOM Roger.
PAO This is Apollo Control at 177 hours
22 minutes, and we've had loss of signal with the spacecraft
from Guam.

1 1,3

PAO This is Mission Control, Houston at 177 hours 40 minutes into the flight of Apollo 7. The mission is progressing very well, almost without incident at this time. Wally Schirra, and Walter Cunningham began their scheduled 8 hours sleep periods about two hours ago. In the meantime we have been maintaining contact with the spacecraft through our tracking sites with Command Module Pilot, Donn Eisele. Donn ended his 8 hours sleep period about the same time his two fellow crewmen began their's. Apollo 7 is currently in orbit with a high point of about 243 nautical miles, and a low point of about 90 nautical miles. Following that very successful burn earlier today with the 21 000 pound thrust spacecraft Service Propulsion System engine. The SPS engine is scheduled to be ignited three more times including a burn to bring the spacecraft back to earth Tuesday. At present time Apollo 7 spacecraft is approaching acquisition over the Redstone in the South Pacific. We'll stand by for CAPCOM Ron Evans to put in a call to Eisele. CAPCOM Apollo 7, Houston through Redstone, standing by. CAPCOM Apollo 7, Houston through Redstone, standing by. SC Roger, Ron do you read? CAPCOM Roger, read you now. SC Okay. CAPCOM Apollo 7 Houston. I have some flight plan updates, whenever you're ready to copy them. Okay, Ron stand by a minute. Apollo 7 Houston, Stand by on those CAPCOM flight plans we'll catch them later. Alright. CAPCOM Apollo 7, Houston, 1 minute LOS Ascension at 07 and it looks like your exercising or something. Yea, how'd you guess? CAPCOM The good surgeon just came through. PAO This is Apollo Control at 177 hours 51 minutes and we've just had loss of signal from the spacecraft over the Redstone. As you heard that time, Donn Eisele confirmed CAPCOM Ron Evans' suspicion that he was doing his exercises at this time. That was indicated by the biomedical scope here in the Control Center, now showing Donn's heart rate going up somewhat. Eisele joked the other night that the only time he had a chance to use the inflight exerciser was when his two fellow crewmen were asleep. We'll be picking up the spacecraft again over Ascension. Acquisition there is scheduled at 178 hours 7 minutes, or about 17 minutes

from now. This is Apollo Control, Houston.

## APOLLO 7 COMMENTARY, 10/18/68, GET: 17808 (CDT 815p), 544/1

This is Apollo control at 178 hours 08 minutes, we have acquired the spacecraft now over Ascension. Now let's listen in. Apollo 7, through Ascension standing by. CAPCOM Roger, Houston, Apollo 7, how do you SC read? CAPCOM Roger, loud and clear. SC Right. Apollo 7, Houston, opposite OMNI. CAPCOM - SC garble. Roger. CAPCOM 7. Houston. CAPCOM SC Roger, GO. Roger, one and only is currently observ-CAPCOM ing your progress across the plot board. SC Oh, she is, eh? CAPCOM Roger. What time is it back there anyway, about eight o'clock? CAPCOM Affirmative, eight fifteen. Oh, yea. - Tell her I might drop in in SC a week or so. Roger. - Apollo 7, Houston, 30 seconds CAPCOM LOS Mercury at 45. Roger, I understand. SC CAPCOM Roger. This is mission control, Houston, the PAO spacecraft has now gone out of range of the tracking station at Ascension. Eisele was advised during that pass that his wife, Harriet, was here in mission control center observing

the progress of the flight. We'll be acquiring the space-

craft again in about 26 minutes as it passes over the

END OF TAPE

tracking ship Mercury.

## APOLLO 7 COMMENTARY, 10/18/68, GET: 1784600 (CDT 8:50P) 545/1

This is Mission Control Center, Houston PAO at 178 hours 46 minutes and we have just acquired the Apollo 7 spacecraft over the tracking ship Mercury, and we'll be putting in a call shortly to the spacecraft. Apollo 7 Houston through Mercury. CAPCOM Roger, Houston, Apollo 7. SC CAPCOM Roger, loud and clear. Donn, we'd like to power up the CMC over CAPCOM Mercury and Guam and then power down again over Redstone. Okay, you want to do that now? SC Affirmative. CAPCOM All right, go ahead. SC Say, Ron, would you speak to the visitor SC you mentioned last pass? Did you take care of that little detail for me? Affirmative. CAPCOM All right, thank you. SC Apollo 7, Houston. CAPCOM Go ahead, Apollo 7, Guam. SC Roger, your state vectors have been CAPCOM integrated forward and you can power down at your convenience. Okay, Roger. SC Apollo 7 Houston, opposite OMNI.

We have it.

Roger.

END OF TAPE

SC CAPCOM

CAPCOM

APOLLO 7 COMMENTARY, 10/18/68, GET: 17855 (CDT 0900p), 546/1

CAPCOM Apollo 7, Houston, 30 seconds LOS, Redstone at 16.

SC Roger.

PAO This is mission control, the spacecraft is now going out of range of the station at Guam, during that pass over the tracking ship Mercury and on out over Guam, we had Eisele pawller up the command module computer briefly to bring the computer up to date with the lastest orbital information. The computer has now been pawllered back down. We'll be coming up on the Redstone in about 18 minutes from now at 178 hours 58 minutes into the flight, this is Apollo control.

APOLLO 7 COMMENTARY, 10/18/68, GET: 1791600 (CDT 9:20P) 547/2

CAPCOM For Bat A you have 29.3, Bat B 26.9 and Bat Charlie 39.5.

SC Roger. Would you read those again, I

was out on the couch pulling the circuit breakers.

CAPCOM Roger, sorry.

CAPCOM

Bat A 29.3, Bat B 26.9, Bat Charlie 39.5.

SC

Roger. A and B are a little low, aren't

they?

CAPCOM They're coming down on schedule, yes.

SC Roger.

CAPCOM Apollo 7 Houston, 1 minute LOS Ascension

44.

SC Roger.

PAO We'll regain contact with the spacecraft in about 18 minutes so over Ascension, that will be a relatively low elevation pass with the spacecraft passing well to the north of the tracking station. At 179 hours 27 minutes, this is Apollo Control.

PAO This is Apollo Control at 179 hours 44 minutes the spacecraft at this time is coming up on the tracking station at Ascension completing a night side pass. We just received indication that we have acquired from Ascension. We'll stand by for that call.

CAPCOM Apollo 7, Houston through Ascension standing by. Apollo 7, Houston, look's like we got some

more Gold Medals today.

SC What were they?

CAPCOM Roger, 400 meter Lee Evans and long jumper Bob Beaman plus Sue Remick in women's springboard each picked up a Gold Medal. Evans by the way (cut off)

SC Very good

CAPCOM Evans, by the way, of San Jose, California, he lead a 1 2 3 sweep in his 400 meter run.

SC Who did that?

CAPCOM Lee Evans. He got first, two other gents from the United States got second and third.

SC All in the 400 meters?

CAPCOM Affirmative.

SC Well that's pretty good. Any relation

to you?

CAPCOM
SC
-Say Ron, I was looking at this flight
plan at this TV business. It doesn't look to me like to good
a time to do it because that's right in the middle of my
sleep period. I was wondering if it would be all right to
do it earlier, they don't have much going on today except
this secondary coolant test.

CAPCOM Ah I see. What you're saying is you

like to be on TV.

SC No, I don't care to be on TV but I don't care to have those guys walking around while I'm trying to sleep either.

CAPCOM No, We'll check into it and let you know

later.

SC I think what it is, they're trying to set this up so it ties in with somebody's TV show. Seem to me you could move it back or move it ahead an hour or two and then tape it, or do you want to do that?

CAPCOM I don't know about that, I will check

into it.

SC That's kind of an awkward time for us because that's when we're usually changing shifts and so forth.

548/2

APOLLO 7 COMMENTARY, 10/18/68 GET 1794400 CDT 9:50p

CAPCOM Roger, We'll take a look at it I think it may have something to do with that secondary loop test.

SC I believe you're right. The secondary loop test will still go along alright while that's going on. Start to check into it anyway and see what they say.

CAPCOM Will do. SC Thank you

PAO This is Mission Control we've lost acquistion now from ascension but because of the fact that the spacecraft is in a higher orbit and at the present time is near apogee of 240 nautical miles we have overlapping coverage from the Canary Islands. We'll continue to stand by.

CAPCOM Apollo 7, Houston 30 seconds LOS Guan

at 28. SC

Roger, Guam at 28.

APOLLO 7 COMMENTARY, 10/18/68, GET: 1802900 (CDT 10:30p) 549/1

PAO This is Apollo Control at 180 hours 29 minutes. The spacecraft is presently coming within range of the station at Guam. This will be low elevation pass and relatively brief. At the present time, Wally Schirra and Walt Cunningham are about 5 hours into their scheduled 8 hours sleep period. And the spacecraft is midway through day side pass. We've just put in a call to Donn Eisele onboard the spacecraft. We'll stand by for any conversation.

CAPCOM Apollo 7, Houston.

SC Roger.

CAPCOM Roger, Donn. Looks like we're going to move the TV one orbit before. I can change your times if your ready to copy.

SC Go ahead.

7, Houston, did you say go ahead.
7, 30 seconds till LOS. I'll catch you at Redstone at 52.

SC Okay, fine. I'll talk to you then.

PAO This is Mission Control. We have lost the signal of the spacecraft now from Guam. And we'll be

the signal of the spacecraft now from Guam. And we'll be reacquiring over the tracking ship Redstone in about 20 minutes from now. As you heard Cap Com Ron Evans attempted to pass up to Donn Eisele onboard the spacecraft an updated time on the television pass for tomorrow. He said we would be doing it one revolution earlier. According to our first calculations that would put it at about 7:15 tomorrow morning. We will update that time and refine a little more as necessary. At 180 hours 32 minutes, this is Apollo Control.

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APOLLO 7 COMMENTARY, 10/18/68, GET: 18052 (CDT 1055p) 550/1
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This is Apollo control at 180 hours 52 PAO minutes into the mission, we'll have acquisition of the spacecraft over the tracking ship Redstone shortly, we'll stand by for Capcom Ron Evans to put in a call to the crew. Apollo 7, Houston, Redstone. Go ahead, Houston, Apollo 7. CAPCOM SC Roger, I have block data, number 20 and CAPCOM some flight plan up dates. Okay, before that, I've got a little problem here with my biomed. One of the signal conditioners here is getting quite hot, so I took the whole thing off and stowed it. I just thought I better pass that along and see if the flight surgeon has got any ideas on what he wants me to do. CAPCOM Roger, which one got hot, your black one or the blue one. I don't know much about them, the one SCon the right - that curves to the right. Roger - Rog, Don the one furtherest to CAPCOM the right is the power supply. SC Rog, I don't care which one it is, I'm not going to wear it any more. CAPCOM Roger. SC Sounds like I trigered the (garble). That was standing on the sweet talk about how there weren't any. CAPCOM I understand. SC Rog, okay, I'll get it just before that one to got with the other one. Why don't you give me that flight plan (garble). \*CAPCOM Okay, everythings the same, if you'll check your emergency key test. Say again. SC CAPCOM On the emergency key test. SC We'll do it at 190 plus 35. CAPCOM SC Okay Prepare TV, at 188 plus 00. TV turn on CAPCOM TV pass 189 plus 04 to 189 plus 15. at 189 plus 02. Okay, I got TV over to 18902. SC pass from 04 to 15 and you moved the USB key emergency key test over to 19035. CAPCOM Roger. Okay. SC-Now, I have block data when your CAPCOM ready to copy. Go ahead with the block data Ron. SC CAPCOM Roger, 17 dash 1 charlie plus 224

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APOLLO 7 COMMENTARY, 10/18/68, GET: 1805200 (CDT 10:55P) 550/2
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CAPCOM MINUS zero 552 183 plus 54 plus 593833 118 dash 1 alpha plus 277 minus zero 6 zero 2 185 plus 31 plus 453310 119 dash 1 bravo plus 3 zero 3 minus zero 6 zero zero 187 plus 12 plus 182973 12 zero dash 1 alpha plus 282 minus zero 6 zero 2 188 plus 54 plus zero 82841 121 dash 1 alpha plus 225 minus zero 63 zero 19 zero plus 35 plus 193477 122 minus 4 alpha plus 298 minus 162 zero 193 plus zero 9 plus zero 9 3 zero 88. Houston, over. CAPCOM Apollo 7 Houston, opposite OMNI. SC That's 117 plus 1 charlie plus Roger. 224 minus zero 552 183 54 593833 118 dash 1 alpha plus 277 minus 0602 185 31 453310 119 dash 1 bravo plus 303 min 0600 187 12 182973 120 dash 1 alpha plus 282 minus 0602 188 54 082841 121 dash 1 alpha plus 225 minus 0630 190 35 193477 122 dash 4 alpha plus 298 minus 1620 193 09 093088. Apollo 7 Houston, read back correct. SC Ron, I've got one other flight question for you. CAPCOM Roger, go. Roger. In our checklist there's a procedure called the GEC and/or IMU backup alinement and it's identically the same procedure for either or both preferences. I noticed in the flight plan, we've got two separate tests there, which apparently are the same thing. I wonder if you could clarify that? There's one on 262 and one on 273. CAPCOM Roger. We'll investigate and advise. SC Okay. CAPCOM And on your B23, we have good data.

will be assessing it tomorrow and let you know.

SC

You say you did get good data.

CAPCOM Affirmative. SC Well, fine.

APOLLO 7 COMMENTARY, 10/18/68, GET: 1806200 (CDT 11:05) 551/1

CAPCOM Apollo 7 Houston, one minute LOS, Canaries at 23

Roger, understand at 23 SC PAO This is Mission Control the spacecraft is now going out of range of the tracking ship Redstone. We'll be reacquiring at the Canary site in about 20 minutes. During that pass we passed an update to Eisele on a television pass for tomorrow of the new time for acquisition at the Corpus Christi site and the beginning of the television transmission from the spacecraft is now 189 hours, 4 minutes ground elapsed time and we compute that to be about 7:07 AM, Houston time tomorrow. Eisele also advised that the signal conditioner power supply in his biomedical harness was apparently heating up, he said he had taken it off and stowed it. At 181 hours, 4 minutes into the flight this is Apollo Control.

APOLLO 7 COMMENTARY, 10/18/68, GET: 18123 (CDT 11:30 p) 552/1

This is Apollo Control 181 hours 23 minutes into the mission of Apollo 7. We're anticipating acquisition at Canary Islands in a very few seconds; let's listen

Apollo 7, Houston through Canary CAP COM standing by.

Ah, roger. SC

Roger, loud and clear. CAP COM

SC

CAP COM Apollo 7, Houston. Opposite omni.

SC Roger.

Apollo 7, Houston 30 seconds to LOS. CAP COM

Honeysuckle at 11, that 11 be at USB only.

Okay, 11 for Honeysuckle and I'll tune

it up.

CAP COM Apollo 7, Houston. My mistake, Honeysuckle is not up this pass, it will be Redstone at 27.

Okay, Redstone 27, look for you then. CAP COM Roger. We're going to be in a quander in the morning. You're suppose to pass right over Houston at the same time you're shootin' down the TV pictures so we'll probably be looking at the TV instead of the spacecraft.

SC If you got a portable you could watch it outside.

CAP COM Roger.

This is Apollo Control 181 hours 32 minutes into the mission of Apollo 7. Our next acquisition point will be Redstone tracking ship at 182 hours 27 minutes. is Apollo Control.

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APOLLO 7 COMMENTARY, 10/19/68, GET: 18244 (CDT 1:47a) 553/1
                    This is Apollo Control 182 hours 44 min-
utes into the mission of Apollo 7. We're on our 116th revo-
lution, we have a tape from, correction we're ending our
115th revolution, we have a tape from the last pass at the
Redstone tracking ship which we'll roll now. Shortly after
that we'll be at Antigua acquisition and we'll go live for
that. So, let's hear the tape.
                    Apollo 7, Houston through Redstone.
     CAP COM
                    Hello, dere.
     CAP COM
                    Hi, how are you this evening?
                    Just fine, Bill, how are you?
     SC
     CAP COM
                    Bright eyed and bushy tailed.
     SC
                    Atta, boy.
     CAP COM
                    Apollo 7, Houston. I have a two zero
time for your secondary coolant loop test.
                    Say again, Bill, please.
     CAP COM
                    I have the update time for the secondary
coolant loop test.
                    Oh, okay, start time for the test you
mean?
     CAP COM
                    Rog.
     SC
                    Okay, go ahead.
     CAP COM
                    It's 183 + 40.
                    Roger, 183 + 40.
     CAP COM
                    Right, and I also have been reminded to
pass on, said you probably already knew, but that BD cycle
entries on the procedure are not appropriate, they're not
applicable.
     SC
                    Understand, the BD cycle entries are not
appropriate.
     CAP COM
                    Affirmative.
                    ... some of you down there hawkeyes the
radiator parameters on the ... keeping an eye on how they're
doing.
     CAP COM
                    Right.
     SC
                    Houston, Apollo 7.
     CAP COM
                    Roger, we decided to start calling this
thing the emergency coolant loop rather than secondary so
from now on we'll use that term.
     CAP COM
                    Rog.
                    That's really what it is.
     SC
     CAP COM
                    Okay. Apollo 7, Houston.
     SC
                    Roger, Houston.
     CAP COM
                    Say, Donn, I have a question about this
glitsch on the number one ball. Ah, we had a reading here
that even with the ordeal power switch off, the switch must
```

be in inertial on the ordeal panel to preset ordeal selection

CAP COM when you switch back to ball one. Do you happen to know whether or not the switch was to inertial on the ordeal box when you had the trouble?

SC Bill, why don't you wait until Wally gets up after while and you can discuss that. I wasn't awake when all that was going on so I don't know what elapsed.

CAP COM Okay, disregard.
SC He's awake, I could relay it to him. I think it would be easier if you just talked to him later on.

CAP COM Okay, that'll be fine. Apollo 7, Houston one minute LOS Redstone, Antigua at 47.

SC Roger.

PAO This is Apollo Control 183 hours 47 minutes into the mission, we should have acquisition at Antigua very shortly, we'll stand by.

CAP COM Apollo 7, Houston through Antigua.

SC Roger, Houston.

CAP COM ... and Donn, I copied a number just about LOS and you were just starting to go unreadable. I copied 06853 and what was the significance of that number? SC Oh, that was a radiation reading. Walt tells me we haven't been calling that down so you can dis-

regard it.
CAP COM Okay. (pause) Apollo 7, Houston one

minute LOS Antigua, Canary at 59, about 3 minutes.

SC Roger.

pAO This is Apollo Control 182 hours 56 minutes into the mission. We've lost acquisition at Antigua we're now anticipating contact at Canary Islands at 59, 182:59. This is Apollo Control.

PAO This is Apollo Control 182 hours 59 minutes into the mission of Apollo 7. We are at the point of acquistion of Canary Islands. Let's listen in.

CAPCOM Apollo 7. Houston through Canary. SC Roger, Clear Lake Cap Com. This is

Apollo 7.

CAPCOM Roger.

CAPCOM Apilo 7. Houston. We will need S-band volume up for about a minute and a half longer contact over Madrid.

SC Roger. That is the first contact over Madrid, isn't it Bill?

CAPCOM I think we got one last night. In fact, we had a little trouble getting the handover executed.

SC Roger, Bill. And good morning.
CAPCOM Good morning, Sir. I was told I had
better be real careful talking to you today.

SC Say again, Bill.

CAPCOM Sorry Walt, I thought that was Wally.

PAO This is Apollo Control 183 hours 07 minutes into the mission of Apollo 7. We have just lost acquisition at Canary Islands. They are checking communications apprently with the Madrid station - through the Madrid station. After that we will have a dry spell until we have contact at Carnarvon at 1 - maybe 3:36. At 183 08, this is Apollo Control.

PAO This is Apollo Control 183 hours 36 minutes into the mission of Apollo 7. We're approaching Carnarvon now in Australia, we should have acquisition any second; let's stand by.

CAP COM Apollo 7, Houston through Carnaryon.

SC Roger, Bill.

CAP COM Rog.

SC Hey Bill, we had the primary evaporator front AUTO ... in hopes that it would ... sometime during the night it would be serviced. I can't verify it because I wasn't awake but I don't believe it's operated all night long. We've got low power and it's got almost 48 hours. I'd like to find out about water ... so that we are going ahead manually ... (garbled) secondary ... loop.

CAP COM Stand by. (pause) Apollo 7, Houston. EECOM advises that the evaporator was reserviced less than 48 hours ago, but it's okay to recycle the back pressure valve by the normal procedure passed up earlier but they

recommend that you don't add water to it.

SC We're not going to add water and we're not going to recycle it, we're going to go ahead with secondary coolant loop operation now.

CAP COM Ah, Walt, we're having a little keyhole

trouble here, would you say again please?

SC We're not going to add water to it and I'm not going to reservice it at this time. I'm going ahead with the secondary coolant loop operation.

CAP COM Rog, understand. (pause) Apollo 7, Houston, opposite omni and one minute Carnarvon LOS, Honey-

suckle at 43 and I have - require S-band volume up.

SC Roger, 43 and I have S-band volume up.
CAP COM Rog. (pause) Apollo 7, Houston you can
cease fuel cell purge on fuel cell three now.

SC Roger, that completes all three of them.

CAP COM Rog.

PAO This is Apollo Control 183 hours 42 minutes into the mission of Apollo 7. We've lost acquisition at Carnarvon, there is only a little less than a minute and one-half to wait for the pass at Honeysuckle Creek, we'll stand by.

CAP COM Apollo 7, Houston through Honeysuckle. (pause) Apollo 7, Houston we're monitoring your secondary loop performance. It looks okay so far, we have about four and one-half minutes left, but there is a keyhole uncertainty.

SC Roger, say again, Bill, you just came

in.
CAP COM Rog, we're monitoring the secondary loop and it looks good.

APOLLO 7 COMMENTARY, 10/19/68, GET: 18335 (CDT 1:40a) 555/2

SC Roger, understand. ..., Bill. (pause) Hey, Bill, can you pick up a nav update for us and if you can't get it to us over this station, will you give it to us over the next one?

CAP COM Rog, I've got one waiting for you here if you're ready to copy. Apollo 7, Houston I have a map

update when you're ready to copy.

SC Go ahead. CAP COM For rev 116, 182 + 47 + 12, 74.2 West, for rev 117, time is 185 + 48 + 03, 120.5 West.

SC - Roger.

CAP COM Apollo 7, Houston one minute LOS Honey-suckle, Redstone at 04.

SC Roger, Bill.

pAO This is Apollo Control 183 hours 51 minutes into the mission of Apollo 7. We have lost acquisition at Honeysuckle Creek in Australia. We're anticipating the Redstone tracking ship acquistion at 184 hours 4 minutes. At 183:52, this is Apollo Control.

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APOLLO 7 COMMENTARY, 10/19/68, GET: 18404 (CDT 2:07a)
                    This is Apollo Control 184 hours 04 min-
     PAO
utes into the mission of Apollo 7. We're approaching the
time of acquisition at the Redstone tracking ship; we'll
stand by.
                    Apollo 7, Houston through Redstone.
     CAP COM
                    Roger, loud and clear, Bill.
     SC
                    Thank you.
     CAP COM
                    Bill, verify for me on this secondary
     SC
coolant loop test I have not bypassed the primary radiators.
The pumps are off but the radiators are not bypassed on the
primary loop.
                    Stand by. Rog, that's correct.
     CAP COM
                    Thank you. Secondary loop seems to be
     SC
doing fine.
                    Right, we're watching it here and it
     CAP COM
looks good. (pause) Wally, I have a question on this
glitch you got in the number one ball when switching -
                     ... glitch, Bill, it happened three
     SC
times and stayed that way on the third time. I cannot trans-
fer GEC's to number one ball.
                    Rog, ah, one question that the ground
     CAP COM
would like to ask and that is, ah, what was the position of
the inertial switch? Was the switch in inertial on the
audio panel?
                     That's affirmative.
     SČ
                     Rog, thank you very much.
     CAP COM
                     Bill, you still read?
     SC
                     Rog.
     CAP COM
                     It transferred and then flipped 180 deg-
     SC
rees in pitch.
                     180 degrees in pitch.
     CAP COM
                     Roger, at first I had it exactly right
then it flipped right over. From then on it kept flipping
over.
                     Okay, I think that's significant.
      CAP COM
                     Roger.
      SC
                     The fact that it was okay to start with.
      CAP COM
                     ... but not very long.
      SC
                     Okay. Right, Wally, the statement I
      CAP COM
 got here was that even with the ordeal power switch off, you
had to have inertial selected to prevent this glitch from
 occurring when you select ordeal.
                     I'm well aware of that, roger.
      SC
                     Right, okay. Ah, Walt, let me know when
      CAP COM
 you have a minute, I'd like to cover about three points on
```

Okay, may not be very elaborate points,

I've got two sensors now with the good leads apparently hooked

the biomed harness.

1

SC into the blue transducer. Over.

CAP COM Okay that's the yellow one booked in

CAP COM Okay, that's the yellow one hooked into the blue transducer, is that correct?

SC Affirmative.

CAP COM Okay. I'll pass on the recommendation. First point is, they would like to have tape wrapped around the leads starting with the yellow connector and wrapping the tape around the leads to about two inches down from the yellow connector to avoid a fatigue area there where the wires go into the little yellow housing, or plastic covering.

SC Ah, Bill. CAP COM Rog.

SC Go. CAP COM Go.

SC Ah, I think we better refer back to the address board where I stand, I'll have no chiggers in the suit loop and we've gone much too far with this kluge right now. Now when Donn Eisele has a hot signal condition there, we've reached the bitter end. If we get suited up for reentry, we're gonna take 'em off.

CAP COM Rog, understand copied.

SC Roger. I'm not yielding on that one. Bill, last night I replaced the upper sternal sensor with a new one that was low enough to reach the lead.

CAP COM Good, that was the final point. They just wanted to make sure if it was possible to get the two sternal sensors located so that they didn't put tension on the leads.

SC Right, I didn't think they wanted them right next to each other. I got it as low as I could and they barely reach now. Looks like it will probably work.

CAP COM Sounds good. Thank you very much.

SC Bill, we've done all we can, I think,
to make them work and I'd rather not prevent a breakage
because that's the thing that scares us. Donn had one and
I had one and one more we just may have trouble.

CAP COM Rog, I think there's been a good effort in that respect. I don't think there's any question from the ground.

SC Okay, thank you.

CAP COM Apollo 7, Houston one minute LOS Redstone, Mila at 22, secondary loop looks real good. SC Roger.

PAO This is Apollo Control 184 hours 14 minutes into the mission of Apollo 7. We've lost contact with the Redstone tracking ship. We had some conversation on the ECS environmental control system, coolant loop test, which it was indicated from Cap Com Pogue continues good. Then

APOLLO 7 COMMENTARY, 10/19/68, GET: 18404 (CDT 2:07a) 556/3

PAO there was some biomedical harness conversation and Pogue was passing up instructions to them to wrap tape around the leads for two inches from the connect point and Astronaut Schirra indicated that they've gone far enough with those kluges, that Eisele had a hot signal condition and they've reached the bitter end at that point. He also said they'd done all they could do to make it work and since Eisele had a breakage and Schirra had a breakage, that was it. At 184:15, this is Apollo Control.

PAO This is Apollo Control, 184 hours, 22 minutes into the mission of Apollo 7. We're approaching acquisition point at Merritt Island, Florida in a few seconds and that will carry us through Merritt Island, Antigua, and Bermuda stations. Then we'll have a couple of minutes about 3 minutes between LOS signal at Bermuda and the acquisition at Canary Islands. So this will be a relatively long pass. Let's listen in.

CAPCOM Apollo 7, Houston through Mila.

SC We've got a problem for the day.

CAPCOM You were garbled, say again, please.

SC We've got a problem for the day.

CAPCOM What's that?

SC We are really worried about the crew. They are all glocked up with these colds. We're having a time to get one to clear. And we are seriously considering reentering shirt sleeve. But I'm afraid that we can't quite clear our ears on the way down, but if we do have to clear them on the way down, we'll have to take the helmets off. And then they become a hazard bouncing the cockpit. We feel the risk of repturing our eardrums is higher than the risk of injury without having our suits on. We realize the restraint harness will fit as closely because considering we can wear our life vest over our shirt sleevs.

CAPCOM Roger. I think we understand what you are saying there. And there has been considerable ground discussion regarding that.

SC At this time we feel the risk is low to come in shirt sleeves and I don't have my lists.

CAPCOM Roger, understand, copy. SC Houston, Apollo 7, over. CAPCOM Apollo 7, Houston, GO.

SC 8620 - I'm powering those items listed on the spacecraft 50 point configuration of the checklist, all except the - plan or all except the CMC and the G & N. And will that bring us up to the proper power level for the next phase?

CAPCOM Okay, standby. Apollo 7, Houston write at 186 plus 40, you power up the SCS and ground will command up some S-Band equipment. But all that it is necessary onboard is for you to power up the SCS.

SC Okay, on that same list we have one cabin fan. We've been generally running without the cabin fans. Should I - do I have to have that cabin fan on or not?

CAPCOM No, you can leave it off. SC I can leave the cabin fan off.

CAPCOM Right. Apollo 7, Houston. That secondary coolant loop is looking very good.

```
SC
                    Try to concur.
     CAPCOM
                    Apollo 7, Houston, coming upon LOS
Canary at 35.
                    This is Apollo Control at 184 hours,
33 minutes into the mission. We will acquire Canary Islands
at 184 hours, 35 minutes into the mission.
                    Houston, Apollo 7.
     SC
     CAPCOM
                    GO.
                    Roger, Bill, we carried your report on
     SC
our MDC mission timer a small crack in a few days ago.
     CACCOM
                    Roger.
                    We have a second crack that developed
     SC
into burn five and it is extending a little bit. It cuts
from across left to right above the number one in one hund-
red's hours. And it cuts into tens of hours. We're report-
ing these to show that they are logged prior to landing.
     CAPCOM
                    Roger.
     SC
                    So there are two cracks now in that
piece of glass.
     CAPCOM
                    Understand, two cracks.
                    Roger. And the second one was politively
     SC
developed in flight - I really can't say about the first one.
     CAPCOM
                    But this one you noticed right after
burn five?
                    That's correct.
     SC
                    Thank you. Apollo 7, Houston. We'll
     CAPCOM
need a USB volume up at 42 for contact through Madrid.
                    Roger, 10047?
     SC
     CAPCOM
                    GO.
                            This is a fine thing we don't
     SC
                    Roger.
have any film. We're getting some fantastic passes today.
     CAPCOM
                    Good.
                    We got cut back too far on (garble)
     SC
                    Apollo 7 sorta faded out there. We'll
     CAPCOM
call you on S-Band here in about 30 seconds. Apollo 7,
Houston. On S-Band through Madrid, how do you read?
                    Roger, loud and clear with a slight
     SC
echo.
     CAPCOM
                    One minute until LOS, Carnarvon at
10.
                    Roger, Carnarvon 10.
                                          Hey, Bill, log
LMP 15 clicks of water, will you please?
                    Roger, 15, thank you.
     CAPCOM
                    This is Apollo Control, 184 hours,
44 minutes into the mission of Apollo 7. During that pass,
spacecraft commander Schirra indicated the problem for the
day was as far as he was concerned was that he was very
worried about the colds the crew has and the possibility
of rupturing eardrums. And they were seriously considering
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PAO reentering when the time comes in shirt sleeve mode. He also indicated that even if they did reenter in shirt sleeves, they could still wear their life vests. It was passed up to him that what to be done in that situation was still being considered here on the ground. CAPCOM Pogue indicated that - the ground will power up some equipment at 186 hours, 40 minutes. All the crew has to do on Apollo 7 is power up the SCS (Stabilization and Control System). Schirra indicated there is another small crack in the mission timer glass and he noticed that after the SPS burn this morning, the number five burn. So that makes a total of two cracks in that glass which is incidental but he reported it as a matter of interest. At 184 hours, 45 minutes into the mission of Apollo 7, this is Apollo Control.

APOLLO 7 COMMENTARY, 10/19/68, GET: 18510 (CDT 3:12a) 558/1

pAO This is Apollo Control 185 hours 10 minutes into the mission of Apollo 7. We're coming up on Carnarvon, let's stand by.

CAP COM Apollo 7, Houston through Carnarvon

standing by.

SC Roger. (pause) We have Carnarvon in sight in Sharps Bay, we'll see if we can get that ... in there over the pass.

CAP COM Right.

SC Carnaryon loud and clear.

CAP COM Right.

SC As always. Tell them down there, Bill, we're right over them 240 miles.

CAP COM Right.

SC I think they know where we are better

than we do.

SC That's about true.
CRO Well, I'm right here.

SC Lewis, we're looking down at you.

CAP COM Apollo 7, Houston, opposite omni and S-band volume up at 19.

SC Hey, Bill, we apologize for having you

work over the weekend.

CAP COM You're too kind. (pause) Apollo 7, Houston, we have about 3-1/2 minutes until LOS but we do have a keyhole problem. Texas at 53.

SC Texas 53, roger. Roger, ... to Cap Com.

CAP COM I've moved.

PAO This is Apollo Control at 185 hours 28 minutes into the mission. We are losing acquisition at Honeysuckle Creek in Australia. Our next point of contact will be Texas at 185 hours 53 minutes. At 185:28, this is Apollo Control.

## APOLLO 7 COMMENTARY, 10/19/68, GET: 18553 (CDT 3:58a) 559/1

PAO This is Apollo Control 185 hours 53 minutes into the mission of Apollo 7. We now have Texas acquisition; let's stand by.

SC Houston Cap Com, Apollo 7, over.

CAP COM Roger, go.

SC Roger, on the secondary coolant loop test, I'm logging fuel cell curves ... I'm logging when we started the test. Are there any other times of the loop to be logged?

CAP COM Would you say again the last part there,

Walt, I didn't quite understand.

SC The secondary coolant loop, ECO, I logged the fuel cell curves when we started the test, what are the other two blanks for what times. One's in the upper high power on I would imagine and I don't know where the third one goes.

CAP COM Stand by.

SC ... Cap Com, do you have any word on the GET time on ... one.

CAP COM Negative. Ah, Walt, we're checking on those times.

SC Roger, look for it Cap Com.
CAP COM I feel like I'm gonna be had.

CAP COM Apollo 7, Houston. Reference to the logging of fuel cell currents, opposite selected times, you can disregard. That was only in case we couldn't get readouts and we are getting good readouts.

SC Roger, thank you.

CAP COM Rog, we're getting it on the D&C and it's running. Also, in relation to the FDAI one, apparently the troops thought they had it figured out here but it had to do with the switch not being in inertial and when you said it was, it sort of threw them back to the drawing board and they're still looking at it.

SC See, I went through that caper long ago

in the simulator. Thank you, Dickinson.

CAP COM Apollo 7, Houston. You're GO for 135 dash one.

SC Roger, thank you Dickinson Center.

CAP COM Apollo 7, Houston one minute LOS, we'll have Canary at 11 and we will have an S-band backup voice check.

PAO This is Apollo Control 186 hours 08 minutes into the mission of Apollo 7. We anticipate Canary Islands at 186 hours 11 minutes. During this last pass we also passed up a GO to the spacecraft for 135 dash one which means 134 orbits. At 186:08, we'll stand by now for the Canary Island pass.

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560/1
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Apollo 7, Houston, through Canary.
     CAPCOM
                    Roger, League City CAPCOM, Go.
     SC
                    Apollo 7, Houston. For a check on our
     CAPCOM
backup S-Band, request up telemetry switch to up voice back-
up and S-Band volume increase.
                    Houston, Apollo 7, let me know voice
     SC
backup.
                           Canary COMTEC, this is Houston.
                    Okay.
     CAPCOM
Disable VHF uplink, please.
                    Houston, Apollo 7.
                    Apollo 7, Houston, GO.
     CAPCOM
                    I want up voice backup if you call me.
     SC
                    Right. Apollo 7, Houston, do you read?
     CAPCOM
                    Houston, Apollo 7, I'm reading you fine.
     SC
                            We'll stay on this for a few
                    Roger.
     CAPCOM
minutes and see how it checks out.
                    Then I'm up voice backup?
                     Affirmative.
     CAPCOM
                     Very, very clear.
     SC
                     Good.
     CAPCOM
                     Bill, are we - are we going over the
Canary Islands now?
                     Affirmative.
     CAPCOM
                     Roger, have them in sight.
     SC
                     Apollo 7, Houston, 3 minutes until LOS.
     CAPCOM
                     It seems to be cutting in and out.
     SC
                    Okay, I'll give you a short count,
     CAPCOM
1 2 3 4 5 5 4 3 2 1, short count out.
                     Roger, read you 5 by 5.
     SC
                     Good. Apollo 7, Houston, you can put
     CAPCOM
up telemetry...back to data.
                     All right.
                     (garble) Apollo 7, Houston, back on VHF.
     CAPCOM
Apollo 7, Houston, back on VHF.
                     Loud and clear.
     SC
                     Roger, about 1 minute and 1/2 Canary
     CAPCOM
LOS, Canarvon at 45.
                     Thank you.
      SC
                     And Apollo 7, we'd like to confirm - up
      CAPCOM
to telemetry data switched to data.
                     Telemetry data switched to data.
      SC
                     Roger.
      CAPCOM
                     This is Apollo Control, 186 hours,
 18 minutes into the mission of Apollo 7. We've just lost
 acquisition at the Canary Islands Tracking Station. And
 we're anticipating the next contact to be Canarvon, Austral-
 ia at 18645. It's currently 18618 into the mission. During
 the Texas pass, we had a GO for revolution 134. At 18619,
 this is Apollo Control.
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APOLLO 7 COMMENTARY, 10/19/68, GET: 18645 (CDT 4:46a)
                                                        561/1
                    Australia (noises)
     PAO
     SC
                    Houston, Apollo 7.
     CAP COM
                    Would you run through the SPS pilot
     SC
check list and tell me if our loading right now is adequate
for this part of the test.
                    Stand by. Apollo 7, Houston, we'll be
     CAP COM
right back with you, we're checking it out.
                    Thank you.
     SC
                    Apollo 7, Houston, opposite omni, also
     CAP COM
your load now is from 350 to 400 watts which is the required
Delta. We have powered up the S-band power amplifier and
the FM transmitter.
                    Roger. (pause)
                                     Houston, Apollo 7.
     SC
                    Apollo 7, Houston, go.
     CAP COM
                    Roger, magazine R, frame 33, Sharks Bay
     SC
and Carnarvon station; frame 34 is a town just South of there.
                    What was the subject for frame 33?
     CAP COM
                    Frame 33 is Sharks Bay and Carnarvon
and 34 is a town about 60 miles South of there.
                    Thank you. (pause) Apollo 7, do you
     CAP COM
have a GDC on FDAI one?
     SC
                    Negative.
     CAP COM
                    Thank you.
                    That's the IMU wheeling around.
     SC
                          (pause) Apollo 7, Houston, coming
     CAP COM
                    Rog.
up on LOS Carnarvon. You can turn the S-band volume up in
one minute.
                    Roger.
     SC
     CAP COM
                    Apollo 7, Houston.
     SC
                    Roger.
                    I have a couple of questions. First,
     CAP COM
I'd like to know if you did a COAS calibration back on the
second day during the rendezvous?
                    Negative.
     SC
     CAP COM
                   Roger.
                    Wait a minute, Donn did one before the
     SC
rendezvous.
                    Okay, fine, that's good, thank you.
     CAP COM
                    Do you want the numbers on that or did
     SC
you lose them?
     CAP COM
                    Ah, stand - I'll wait until they ask
                    Apparently they just want you to know
you for it in here.
                    Ah, second point, have you done a P-53
if you've done it.
and a P-54 using the COAS?
                    Negative.
     SC
     CAP COM
                    Thank you.
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We probably almost had to (music)

SC

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APOLLO 7 COMMENTARY, 10/19/68, GET: 18645 (CDT 4:46a) 561/2
                     you read.
                     Apollo 7, Houston.
     CAP COM
                     (music - cutting out) alignment the
target is to the right one degree and up one degree.
                     Right, one degree and up one degree.
     CAP COM
                     Right, one degree and up one degree.
Basically that means there's a space across left one degree
and down one degree to be aligned.
                     Rog.
     CAP COM
                     On the target.
     SC
     CAP COM
                     Right.
                      ... the target shows up in the Northeast
     SC
corner.
                     Target shows up in the Northeast corner,
     CAP COM
right.
                     Okay. (pause) ... Cap Com.
     CAP COM
                      Say again.
                      ... Cap Com.
     SC
      CAP COM
                     Rog, go.
                      Rog, on power up we had .8 degrees per
     SC
second in yaw to the right, zero in roll, and zero in pitch.
CAP COM Rog, .8 degrees second yaw right, zero
roll, zero pitch.
                      That's correct.
                      Also, we have been monitoring the power
      CAP COM
load here, the Delta is about 300 watts, we would like to
bring up inverter three to Main A, but don't put on either
        This will give you an additional 100 watts.
buss.
                      Roger, you want to run that inverter
      SC
with that load then for the next 4-1/2 hours, huh?
                      That's affirmative.
      CAP COM
                      How about what if we powered up the G&N?
      SC
                      Ah, stand by. (pause) The G&N isn't
      CAP COM
cool with the secondary loop.
                      That's a good point. (pause)
                                                       Inverter
      SC
 three going on Main A.
                      Rog. (pause) Apollo 7, Houston, one
      CAP COM
minute LOS Honeysuckle, Huntsville low elevation pass at 21,
 Guaymas at 25.
      SC
                      Roger.
PAO This is Apollo Control 187 hours 04 minutes into the mission of Apollo 7. We're losing acquisition
 at Honeysuckle in Australia. Our next point of contact will
 be Guaymas, Mexico at 187 hours 25 minutes, correction, our
 next contact will be the Huntsville tracking ship at 187 hours
 21 minutes. Then we will have continuous acquisition with the
 spacecraft for some 22 minutes through Bermuda and at 187 hours
 and 04 minutes, this is Apollo Control.
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562/1
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show for you tonight, Bill.

Roger. CAPCOM

I have just finished with this one. SC

(garble)

Houston, do you still read? SC

Roger, Apollo 7, GO. CAPCOM

Okay, are you going to pass on our com-SC ments about a probable - I would like to put it that way shirt sleeve reentry.

Roger, I have already passed that on. CAPCOM Okay, I guess we'll talk about that the SC

next watch.

Roger. Yeah, we've been talking about CAPCOM

that for a couple of days in fact.

And I just got a real kleenex full.

How did that consultant's idea come out?

Say again. CAPCOM The consultant who said if we hadn't flown we probably would have gotten colds anyway.

No, I don't know. CAPCOM

(garble) sc

I don't know about that. CAPCOM

Yeah, okay then. SC

CAPCOM Now the gold team hasn't got to read any newspapers. We're all working.

SC (garble)

SC Are you going to rush home and watch the television show this morning, Bill?

CAPCOM No, I'm going to watch it from here this morning.

SC (garble). Is that show carried live

every morning?

CAPCOM Right, it is, and we're - this shift goes through the television sequence this morning.

SC Really in there, huh?

CAPCOM Oh boy.

SC You're getting all the big ones; burn 5, television - how does that picture turn out over the commercial screen by the time it gets there?

CAPCOM It's pretty good. In fact, I was very surprised the first time I saw it; I was ready for something like what we saw at Intergrated and it turned out it was not difficult at all to recognize you, and I was really impressed with the quality.

SC I gather the recommendation is to move

rather slowly.

SC Roger. Fast panning of course, you get sort of "burn in" on that vidicon, I guess. And if you move very slowly, it stays fairly sharp and of course the steadier you hold the camera, the sharper the images.

SC Very good.

SC Say Bill, this is Don. I called up several hours ago regarding some DTO's and I wondered if you could run it by again to see if we could come up with an answer.

CAPCOM Was this the one regarding the backup

alignment?

SC That's right.

CAPCOM Don, the reading I have on that is they still would like to do both of them - the first one gives you a check on your GDC, and IMU both - you align the GDC and then you drag it over to an attitude and then you align the IMU and when you do the star check at that point, you get a gross attitude error from the time at which you started the process. The second DTO involves a GDC alignment to a known IMU, and this gives you a good handle on the error in the GDC alignment itself and this they think is going to give them information in properly evaluating the total error on the GDC and IMU alignment.

SC I can see the rest now but I think it's getting awfully pure.

CAPCOM Yeah, anytime we have to use the line we can try GDC line to it.

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APOLLO 7 COMMENTARY, 10/19/68, GET: 18721 (CBT: 5:25a) 562/3
                    Isn't that right?
     SC
                    That's affirmative.
     CAPCOM
                    Bill, what planet is that right next to
     SC
the moon?
                    Stand by.
     CAPCOM
                    We are looking at it right now; you ought
to walk outside. We are guessing Venus.
                    I have a further - they are checking on
     CAPCOM
it by the way. I have further information on this DTO. They
are looking right now at replacing the backup IMU alignment
with a P53 - P54 coas.
                    That sounds more - that sounds a little
     SC
more sensible to me.
                    Okay.
     CAPCOM
                  I thought you were building up to that
with that coas check and all that good stuff.
                    The planet is Jupiter.
     CAPCOM
                    Jupiter? Oh.
     SC
                    By jove.
     CAPCOM
                    It's a real pretty sight; we got the sun-
rise, "Yewpiter" and then the moon, all within about 8 degrees
of each other. About 20 degrees. I can still see the moon,
but Jupiter is out of sight and the sun is up. And they
sparkle plenty.
                    Thanks.
     CAPCOM
                    Hello 7, Houston.
                                       The secondary coolant
     CAPCOM .
loop is still performing excellently.
                    Okay.
                    Apollo 7, Houston.
     CAPCOM
                    Go ahead.
     SC
                    Roger. If Don is ready to copy, we have
     CAPCOM
this change in relation to this DTO.
                    Just a minute let me check.
                    Yeah, I'll stand by.
     CAPCOM
                    Go ahead. I can write it on the flight
     SC
plan.
                    Okay, at 191 plus 40 in the flight plan,
     CAPCOM
you can delete the reference in the MCC update box there, re-
garding a backup IMU alignment. And replace it with T aligned
time for P54. Just T align for P54.
                    Okay.
                    And at 193 hours, delete IMU backup
     CAPCOM
align and reference to sextant star check at 193 plus 30;
don't need to write that down I don't think - with P53/P54
IMU backup align with coas.
                    Roger.
                    And this is merely a note - recommend
     CAPCOM
P52 option - 3 at the station of sequence as a check; power
```

down at completion of sequence. The approximate RCS consump-

tion will be 3 to 4 pounds.

APOLLO 7 COMMENTARY, 10/19/68, GET: 18721 (CDT: 5:25a) 562/4

SC CAPCOM That's a nice prediction; okay. Yeah, that's it.

SC ... okay.

CAP COM Okay and that's it. (pause) Apollo 7, Houston, one minute LOS Bermuda. Canary at 47.

SC Roger.

PAO This is Apollo Control, 187 hours 43 minutes into the mission of Apollo 7. During that pass we heard Apollo 7 Commander Schirra indicating they are not having much luck with their sleep cycles. Schirra so said he wanted to talk about a probable probable shirt sleeve reentry and that he would talk on the next shift, meaning the next shift here in the Control Center which comes on at seven o'clock in the morning Central Daylight Time. wondered about the television and asked if it was carried live and Cap Com Pogue indicated Yes it was. Schirra then asked How does the picture turn out, Pogue said Fine. Then there was some talk on the ECS environmental control system secondary coolant loop which is still performing excellently in the test that has been going on for several hours of that It was also indicated that they'd like to use the crew optical alinement sight instead of the sextant in the IMU inertial measuring unit backup alinement which will take place later on in the mission today. We have acquisition at the Canary Islands coming up at 187 hours 47 minutes some two minutes from now, a little more than two minutes from now, we'll just stand by for that pass.

CAP COM Apollo 7, Houston through Canary.

Apollo 7, Houston.

SC Go.

CAP COM Rog, Walt, I'd like to go over this relay comm mode test.

SC Roger, Bill, we've already done that once and we'll just do it the same way we did then, right?

CAP COM Well this is for USB UP and VHF DOWN.

SC Roger, ... this configuration for either

one. ... instructions ...

CAP COM Apollo 7, Houston. Ah, Walt, they say the test didn't work last time and EECOM would like for me to go ahead and go through this check the way they have written it to see - to make sure they have covered all their bets here.

SC (garbled)

CAP COM Apollo 7, Houston. Opposite omni. SC ... for you ... pass up the ... will you.

CAP COM Okay, you configure the center audio panel per side two EECOM slide rule, relay code, and in addition to that do the following. On the center audio panel, the CMP's, VOX Sensitivity thumb wheel to six.

SC VOX sensitivity to six.

CAP COM S-band normal voice relay.

SC Roger.

CAP COM VHF AMA Duplex, VHF AMB OFF, and squelch

B setting to five.

SC The only thing added ... is the squelch B setting to five and I think there's a ... in that last one, isn't there.

CAP COM Ah, Walt, we don't know what they had last time but we'd like for you to have it set up this way before Carnarvon acquisition and that will be at 188 + 21 and we'll try to contact you on this mode for Carnarvon. We have a very brief pass by Tananarive at 06.

SC Understand, wilco.

CAP COM Apollo 7, Houston, one minute LOS Canary, Tananarive at 06.

SC Roger.

pao This is Apollo Control 187 hours 53 minutes into the mission of Apollo 7. We're now leaving Canary Islands acquisition on 119th revolution. We will be coming up at Tananarive at 188 hours and 06 minutes. This is the revolution where on the stateside pass coming over the United States, we will have a television dump. They will set up the TV, should be setting it up at 188 hours into the mission, they will turn the TV on at 189 hours and 02 minutes into the mission, the TV pass will be 189 hours 04 minutes through 189 hours 15 minutes. The pass should start at approximately 7:10 this morning Central Daylight Time. At 187 hours 54 minutes, this is Apollo Control.

APOLLO 7 COMMENTARY, 10/19/68, GET: 18806, CDT 6:10a 564/1

PAO This is Apollo Control, 188 hours 6 minutes into the mission of Apollo 7. We're coming up now at acquisition time at Tannanarive, let's listen in.

CAPCOM Apollo 7, Houston through Tannanarive.

SC Roger. Houston, Apollo 7.

CAPCOM Rog.

SC Would you give us a map update

right ascension star chart, please.

CAPCOM Rog, will. - REV 121 192 plus - stand by disregard that one. For REV 121 its 191 plus 4 niner plus 3 niner. Nodal crossing at 147.0 east. Right ascension for star chart update is 0233.

SC Roger understand sun will lift 2 hours

and 33 minutes, right?

CAPCOM Affirmative. And for one - did you just want a star chart update.

SC No I wanted both.

CAPCOM Rog. then for -

CAPCOM Uh Walt, when you said you wanted that for two revs ahead did you mean to go to the second rev beyond like one, two, one.

SC Forget that, ...

CAPCOM Okay.

SC I don't think it matters that much ...

CAPCOM Okay, Donn.

pAO This is Apollo Control 188 hours, 14 minutes into the mission of Apollo 7. We've just lost acquisition at Tannanarive. Our next contact point will be Carnarvon, Australia at 188 hours 21 minutes. At 18814 this is Apollo Control.

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APOLLO 7 COMMENTARY, 10/19/68, GET: 18822 (CDT: 6:25a) 565/1
     PAO
                    This is Apollo 7 Control, 18822. We have
Carnarvon new.
     CAPCOM
                    Roger; standing by.
                    Do you want to do this relay mode now?
     CAPCOM
                    Stand by.
     CAPCOM
                    Roger, we are ready to do the test.
                    Okay, I'll configure the switches then.
     SC
     CAPCOM
                    Okay. Thank you.
     CAPCOM
                    Carnarvon COM TECH, disable VHF uplink
please.
     CAPCOM
                    Carnarvon, Houston.
                                         Carnarvon COM TECH;
this is Houston - do you read?
     CAPCOM
                    Apollo 7, Houston; how do you read:
     CAPCOM
                    Apollo 7, Houston relay mode; how do
you read? Over - Apollo 7, Houston. I am relay mode; how do
read?
       Over.
     CAPCOM
                    Carnarvon COM TECH; Houston.
                                                   Carnarvon
COM TECH, Houston; enable VHF uplink please.
     NETWORK
                    VHF uplink enabled.
     CAPCOM
                    Apollo 7; Houston; how do you read?
                    Apollo 7; Houston.
     CAPCOM
     SC
                    Roger Bill; how do you read?
     CAPCOM
                    Roger. I read you fair and square; the
test was satisfactory.
                    Okay, thank you. (garble)
     CAPCOM
                    Roger. Let's go back to the original
configuration.
     SC
                    Read.
                    Apollo 7, Houston. Did you have your S
     CAPCOM
band volume up during that test?
     SC
                    My S band volume was not; I was reading
you however.
     CAPCOM
                    Roger; thank you.
                    Apollo 7, Houston.
     CAPCON
     SC
                    Go Houston.
     CAPCON
                    I have been asked to pass on some helpful
household hints here on TV improvement.
                    Go ahead (laughter)
     SC
                    Go ahead.
                    (laughter) You sound pretty eager there.
     CAPCOM
Right; one of the things they have mentioned is to remove
the lens and blow the dust off the vidicon tube; second,
clean the lens; third, the best quality is obtained with
a fixed mount; fourth, they would like for you to try for
some window views over Texas.
     SC
                    I thought that the spacecraft motion over
the ground precluded getting any good window views.
```

I concur, I saw your attempts. I saw

CAPCOM

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APOLLO 7 COMMENTARY, 10/19/68, GET: 18822 (CDT: 6:25a) 565/2
one good shot of the Florida coast however, but I was just
passing on this information.
                     Okay; we won't be in active hold today;
and we'll plan it tomorrow.
     CAPCOM
                     When we are drifting, it's almost impossible.
     SC
                     Roger; understand.
     CAPCOM
                     Okay.
     SC
                     Hey Wally, this is Jack.
     CAPCOM
                     Good morning.
     SC
                     Good morning, if you take any pictures of
     CAPCOM
the ground, the camera has to be very, very still.
                     Understand. Think you will commence with
the TV production?
                     No, I was just watching.
     CAPCOM
                     Okay. We'll follow the rest of the
     SC
(garble).
                     There must be a great demand for this
     SC
sort of thing, to get all these bits.
                     You just don't know how much of a demand
     CAPCOM
there is.
                     We haven't decided yet whether that cate-
gory is a preplanned series or a special.
                     Jack, by the way, who's doing the interiors
     SC
for the (garble) now?
                     We missed that Wally.
     CAPCOM
                     Like Peter Hackett does on NBC, who does
     SC
the interiors -
                     Apollo 7, Houston. S band volume up
     CAPCOM
please.
                     We'll check the HF (garble) clear.
     SC
                     Yeah, we got some interference there also. We got a bunch. Did you follow my last
     CAPCOM
     SC
question?
                     No, I didn't Welly.
      CAPCOM
                     Typically, they show the interior of
a spacecraft, they got a mockup, who is the announcer for
the mockups?
                     I haven't seen any of the commercial
      CAPCOM
television myself; the only television I've seen is when
it comes over our monitor here.
                     And we are getting it live, and it's
      CAPCOM
going out live through the networks.
      SC
                     Roger.
                     Apollo 7, Houston. We would like 02 tank
      CAPCOM
2 fans back off.
                     Okay.
      SC
      SC
                      There you are.
```

Thank you

CAPCOM

APOLLO 7 COMMENTARY, 10/19/68, GET: 18822 (CDT: 6:25a) 565/3

SC When you (garble) to 3 minutes, you really

get them.

CAPCOM Roger; stir them up good.

SC Roger. Would you believe I have already

said good morning?

SC Houston, are you deleting the hydrogen

fuel cell purges? CAPCOM

Yes, all of them are deleted.

SC Roger.

CAPCOM We will schedule them when we need them.

SC Roger

CAPCOM Apollo 7, Houston, coming up LOS on

Hawaii at 50.

PAO This is Apollo Control, 188 hours, 38 minutes into the mission of Apollo 7. We are coming up on revolution 119 during which Stateside pass we will have live television from the spacecraft. We would like to go back now and do a wrap up from 181 hours into the mission up to now. Everything was quiet up to 182 hours, correct that, 183 hours, 36 minutes. The Spacecraft started on an -

## APOLLO 7 COMMENTARY, 10/19/69, GET: 18839 (CDT 6:42a) 566/1

... up to 182 hours, correct that, 183 hours, PAO The spacecraft started on an environmental 36 minutes. control system secondary coolant loop test, which was in It looked good and it has remained on from the flight plan. that time on and continues to look good up to this time. revolution 116, 184 hours into the mission, Astronaut Cunningham was talking about the biomed harness check. They have had a certain amount of difficulty with biomedical readouts here at the control center through the mission. Astronaut Pogue, the CapCom, indicated that the instructions were from the medics here to wrap tape around the leads for about 2 inches from the connect point. Astronaut Schirra, spacecraft commander, then indicated that he felt that they had gone far enough with the kluges, which means "make-shift" changes. indicated that Eisele had a hot signal condition, and he indicated that they had reached the bitter end. They have done all they can do to make the biomedical harness work, and he said Eisele had a breakage and Schirra had a breakage, and he was a little concerned about continuing the onboard fixing of that particular system. At 184 hours into the mission Astronaut Schirra indicated that the problem for the day, in his opinion, was that they were very worried about colds and the possibility of rupturing eardrums on reentry. They were seriously considering reentering in shirt sleeves, and he also indicated that even if they did, they can still wear life vests, in case they had to get out of the spacecraft in the water. We had a unified S-band communication test, which was a back-up test and very successful. Schirra indicated that there was another small crack in the mission timer glass, the viewing glass. They noticed that after the SPS, the service propulsion system no. 5 burn, which took place yesterday. So there are a total of two cracks in the glass at this time. At 185 hours, 53 minutes we got a GO for revolution 135-1, which means through 134 revolutions of the Earth. For the spacecraft, all the systems were satisfactory. The coolant loop test continued to go in good shape. There were good fuel cell current readouts here at MCC. At 186 hours and revolution 118, the unified S-band back-up test took place satisfactorily. At 186 hours, 45 minutes, Apollo 7 indicated that they had taken one frame of photography of the Sharks Bay in the Carnarvon area and one frame of a town about 60 miles south of Carnarvon that they could not identify. Revolution 118, 187 hours, 25 minutes, Astronaut Schirra indicated that they were not having much luck with their sleep cycles. He said he wanted to talk about a probable shirt sleeve reentry and that he would talk about it on the next shift, which means the next shift here in the control center, which will take place in the next 10 to 15 minutes. Schirra asked a question, if television was carried live ' down here on Earth, and Astronaut Pogue answered yes. Schirra asked how does the picture turn out, and Pogue said fine.

APOLLO 7 COMMENTARY, 10/19/68, GET: 18839 (CDT 6:42a) 566/2

PAO At that time the secondary coolant loop was still performing excellently, as it has, as I said, all through the test. It was passed up to the crew that they would like to have the crew optical alignment sight used instead of the sextant for the initial measuring backup alignment test, which is scheduled a few hours from now. They went through a communications checklist and a relay node test, which turned out satisfactorily. On revolution 119, which is the current revolution, 188 hours, 21 minutes into the flight, Astronaut Pogue indicated that if it was at all possible on the television pass, we would like to have window views over Texas. At that time the crew indicated that it was likely not possible because of movement of the spacecraft. Apollo 7 also indicated that they were not quite sure which category they should go up for, whether it should be a weeklong series or a special category. The current schedule for the TV is as follows: they have set up the television at 188 hours into the mission, the television will be turned on at 189 hours and 2 minutes, the television pass should last from 189 hours, 4 minutes through 189 hours, 15 minutes. At 188 hours, 45 minutes into the flight, coming up completing revolution 119 this is Apollo Control.

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APOLLO 7 COMMENTARY, 10/19/68, GET: 18850 (CDT 6:52a) 567/1
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PAO
                      This is Apollo Control 188 hours, 50 minutes
into the flight of Apollo 7. We're coming up on a stateside
pass, we should have Hawaii tracking station acquisition in
a very few seconds. We'll then remain live through the
stateside pass until we lose acquisition off the Florida
coast. Let's join in on the conversation.
      CAPCOM
                     Apollo 7, Houston through Hawaii.
      CAPCOM
                     Apollo 7, Houston through Hawaii.
      SC
                     Houston, Apollo 7, you read, over.
      CAPCOM
                     Roger, Apollo 7, how do you read?
      SC
                     Fine, I heard your first call, Bill.
      CAPCOM
                     Okay.
      SC
                      (garble)
      CAPCOM
                     Say again Apollo 7.
      SC
                     Roger, when they go live with this
television, do they carry the narrative too.
      CAPCOM
                     Apollo 7, Houston. Give me a short
count, please.
                     Short count 1234554321 over.
                     Roger, read you 5 square with a little
      CAPCOM
scratch.
     SC
                     That was an itch.
     SC
                     If you could see the beards we have,
you would sympathize.
                     Roger. We aren't reading your VHF, we're
     CAPCOM
picking you up on S-band.
     SC
                     Roger.
     CAPCOM
                     You might check S-band normal voice-to-voice
and VHFMAMA to simplex.
                     Roger. I confirm those switch positions.
     SC
     CAPCOM
                     Right.
     CAPCOM
                     Apollo 7, Houston. Opposite omni.
                     This is Apollo Control. We're currently
still scheduling to turn the television at 189 hours, 2 minutes
into the mission and for the live pass to begin hopefully with
good quality at 18904, so we will be turned on some time around 5 minutes from this time. Apollo 7 inquired as to whether
this was a live and narrative picture going out and the reply
from CapCom Pogue was yes it was.
     CAPCOM
                     Apollo 7, Houston, how do you read now?
     CAPCOM
                     Apollo 7, Houston through Huntsville.
How do you read?
     SC
                     Fine, we're a little weak now, how about
you.
     CAPCOM
                     I'm reading you about 3 by 3.
                     Roger, we'll turn the camera at 02 and
     SC
we would like to hear a call from you when you are receiving
the picture, so we can get the show rolling.
```

APOLLO 7 COMMENTARY, 10/19/68, GET: 18850 (CDT 6:52a) 567/2

CAPCOM Roger, understand. I'm ready any time you are CB.

SC (garble).

PAO This is Apollo Control, Astronaut Schirra just called and asked to be informed when we were receiving the television picture, because he wanted to get the show rolling and CapCom Pogue replied "Roger, anytime you're ready, CB."

## APOLLO 7 COMMENTARY, 10/19/68, GET: 18900 (CDT 07:02a) 568/1

SC Hey, Bill, do you read?

CAPCOM Roger, go.

SC Roger. I show that the tapes - okay, our tape is dropped and dumping. Do you want me to go off the tape and turn the TV switch on the S-band on?

CAPCOM Roger.

PAO This is Apollo Control. The Texas station acquisition will be 1890346. We are coming up now in acquisition with Guaymas, Mexico.

PAO This is Apollo Control. The TV camera

should be turned at this time.

SC This is Apollo 7, do you read me?

CAPCOM Roger, go.

SC Do you have a picture?

CAPCOM Negative. I'll give you a call as soon as we get one.

SC Roger.

PAO This is Apollo Control. The camera is on. Our TV pass is scheduled to start in some 35 seconds from now at 18904.

CAPCOM Apollo 7, Houston. We are starting to

receive it now.

SC Roger.

CAPCOM We can't quite tell the perspective here.

Looks like we are looking at one of the couches.

SC That is affirmative. Good morning, Houston, you are looking down at the couches. The crew is out just now for a coffee break. I think you will find that without the crew here there is absolutely nothing to fear, nothing to fear. This is a taped message.

CAPCOM Is this a fully automated flight?

SC That's affirm. At this point I would like to add, getting a close pan of the cockpit, the crew is out for a short break, so we will find them (garble). As we look across the couches, you will notice that the (garble) is in total instrument panel and then coming around the panel, you will note that we have full amount of (garble) under all conditions.

CAPCOM That is an excellent picture right there.

SC Roger. There is back lights in the panel as well as front lighting with flood lights. We are using flood lights now.

CAPCOM That is very good.

SC Looking at the heart of the spacecraft, as far as reference goes, the so-called FDAI, the flight direction attitude indicator. (garble) the attitude and adapt system is not operating, we are in drifting flight. Accorded with our entry monitor system, which we will use Monday evening, actually Tuesday morning, to return. The

SC various switches you see here are for controlling various attitude thrusters and for monitoring the launch boosters. After that is another MC scan and you can view on this panel some of the (garble). On this portion of the panel, you see the DSKY, that is the display keyboard for our onboard computer. We use the computer for various calculations with earth orbit, navigation, and for aligning the inertial platform. Oh, I see someone is coming in now.

SC Good morning (garble) the display key-board is another instrument identical to the one that Wally just described. The reason we have two, is that if one is down, we will have a backup. Also, we have two completely separate attitude reference systems, we can have one displayed on one ball and the other on a distant target. With that, I will pass the camera on down to the dump sheet hand.

Roger. Good morning to everyone in television land. You are looking at the right-hand portion of the main display console. The upper left hand portion of your view you will see the instrument that has to do with the cryogenics that are used to power the fuel cells and provide breathing oxygen to the spacecraft. Just beneath those, the round dials are devoted exclusively to environmental control system monitor functions and immediately below those, the switches which control the environmental control system. Moving on slightly over to the right, we have several meters which monitor the service propulsion system which we used during the burns we made the other I see we have another crewman coming in from his coffee break here and here comes, ladies and gentlemen, lo and behold, it is our navigator. He found himself. The camera here just briefly. We have a large number of switches at the bottom of this panel which have to do solely with communications. One of those switches you might be able to read, it is labeled TV and by turning that switch on, we started sending this picture to you. This instrument area is the quantity meter for our main propulsion system. reads out to - tells the quantity remaining. And here comes a third member of our party, arriving, old (garble) himself. It is known in the (garble) of spacecraft talk that we have a crew commander. What is not known too well by many that we run a taut ship and to maintain physical discipline, as well as moral discipline, we carry on a close, order drill instruction period. At this time gentlemen, left face. About face, about, about face, crewman drift. As you can see, we have our lighter moments.

CAPCOM Oh, that's bad.

SC As you can see, our spacecraft has both lighter moments and moments of relaxation. We have

one other motion that is called enforced march which might be indicative of the control we have in the new mode as we call it intravehicular activity or IVA. This is somewhat modernized over the older form of activity in EVA. Hup 2, you may be convinced that we have our ups and downs. We have got to get a new writer. Just a second, we will dolly in camera 2 and see what the erstwhile drill sergeant is doing. And there we have him, you can see, they are working very hard. Wally has been drilling his troops.

CAPCOM Yes, there we are.

SC Do you see the drill master here? Right, we have a good picture again. CAPCOM We lost it for just a minute.

Roger. We switched it off and dollied in camera number 2.

CAPCOM I see.

That's all technical talk among us television people.

CAPCOM They want to know what kind of dollies you have?

SC Not the right kind.

SC We are going to try to get another lens We are - were tempted to show you the outside, the recent good weather. We will get a long telephoto lens on it, at this time I will show you (garble) while Wally is digging out that lens. The weather is static, quite a few large cloud formations over the Gulf, if you will bear with us, we will change lenses and get an outside view.

CAPCOM Good show, Wally. The picture is exceptionally good today.

SC Roger. Camera is going on.

CAPCOM Right.

Okay, we are going outside. Do you

want ALC out or in?

CAPCOM We want adjacent omni first. Stand by. SC Okay. We are outside, cameras coming

on. CAPCOM ALC out, please. We do not have a picture.

This is Apollo Control. Hopefully, we have about 2 more minutes of pictures coming through. At this time, we do not have a picture coming through.

We must be right on the fringe of re-CAPCOM

ception. Try opposite omni, please.

This is Apollo Control Houston. We still do not have further picture. We have about 1 minute 15 seconds left to go.

APOLLO 7 COMMENTARY, 10/19/68, GET: 18900 (CDT 07:02a) 568/4

CAPCOM Apollo 7, Houston. Confirm, you have turned the camera off.

SC Yes. CAPCOM Roger.

SC Next time we will have to get better

material or better writers.

CAPCOM We would also suggest better actors.

SC Our actor's equity demands more sleep

next time.

CAPC Right.

SC We would have thought of a better plot

but we didn't get enough sleep last night.
CAPCOM Okay, I get the point.

APOLLO 7 COMMENTARY, 10/19/68, GET: 18915 (CDT 7:17A) 569/1

PAO This is Apollo Control 189 hours 15 minutes into the mission of Apollo 7. We have just completed our television pass. We are passing out of the acquisition point for the Mila Merritt Island facility in Florida. We will have acquisition with Bermuda. Let's stand by.

PAO This is Apollo Control 189 hours 15 minutes into the mission. When the TV pass was made over Texas - over Houston - the spacecraft was sighted and we got an excellent visual contact with the spacecraft as it flew by.

CAPCOM Apollo 7 Houston. The secondary loop still looks very good, about 1 and a half minutes LOS. Tananarive at 41.

SC Roger Bill. Can you give us a readout on what our waste water quantity was at the start of this test and what we're showing now?

CAPCOM Right now the waste water quantity is 55.8 percent. Stand by for the previous reading.

SC Roger, at 183 40.

SC And Bill we welcome suggestions for tomorrow's bit.

CAPCOM Go

SC We need them.

CAPCOM I'm sorry you cut out. Say again. SC We welcome suggestions for tomorrow's

bit.

CAPCON I'm sorry I didn't get that Wally.

SC We welcome a new script for tomorrow.

CAPCOM Oh, I'm sorry. Okay, I guess you've got as many ideas as we do. That was actually very good today. That was the best I've seen the picture. I thought the pictures of the instrument panel were very good.

SC I'd like to make another point. Any

acting awards today?

CAPCOM I'm afraid to say anything.

SC Okay, if you're so smart you come up

here and do it. CAPCOM

M Hey, I welcome the opportunity.

APOLLO 7 COMMENTARY, 10/19/68 GET: 18945 (CDT 7:50A) 570/1

This is Apollo Control Houston 189 hours 45 minutes into the flight, and we've had a shift change here in the Control Center as you probably noticed. severe weather conditions in the far west Pacific, that typhoon off the Japanese coast, has closed our normal -3 landing area, that zone about 250 to 300 miles south and east of the Japanese shore. We have temporarily moved we've picked a new landing site in the west Pacific, a point about six or eight hundred miles north of Samoa. I do not know at this time what our ship or airplane configuration is in that area. We expect to get a reading from the recovery room very shortly, but the ships that had been assigned the ships and planes that had been assigned to the western Pacific landing area have been directed to port or landing fields in Japan while the typhoon moves through the area. The Capsule Communicator put through a call, an establishing call, to Apollo 7 via Tananarive. It was simply a tag up. We've had no communication and we expect none. At 189 hours 47 minutes into the flight this is Apollo Control Houston.

```
This is Apollo Control Houston at 190 hours
     PAO
09 minutes into the flight. Just by way of passing, our retro-
fire clock now shows 69 hours and 28 minutes. Apollo 7 came to
us with an unusually clean communication by the ARIA aircraft,
the tracking aircraft, in the middle of the Indian Ocean,
and we have some tape on that, and we later tagged up with
them over Carnarvon, and we're still - the spacecraft is now
just about to leave the northeast Australian coast. In the
course of this Australian pass Walt Cunningham noted, among
other things, that the gunk - the brown gunky substance that
coated the water pistol yesterday, which we reported on
extensively, had over night turned to a rather salty coating.
He didn't describe the color, but we would take from that,
that it was white in color. A salty coating replacing the
brown gunky material that was the subject of a lot of
theories and speculation yesterday. He also reported that
the water pistol is getting harder and harder to work.
Apparently some physical difficulty in getting water out of
the water gun. Cunningham doesn't note it in his communication,
but there are at least two other sources of water onboard
the spacecraft. The food preparation water has both hot
water and cold water available, so for drinking they could
simply tap in to the cold water tap on the food prep board.
Here's an accumulation of the tape of our two last passes.
                    Apollo 7 Houston through ARIA.
     CAPCOM
                    ARIA 2 has 2-way lock. ARIA 2 has 2-way
     ARIA
lock.
                    Apollo 7 Houston through ARIA
     CAPCOM
                    Apollo 7 Houston through ARIA
     CAPCOM
                    Garbled
     SC
                    Roger, Walt, you faded out also. We'll
     CAPCOM
just stand by here on ARIA and pick you up at Carnarvon in
a few minutes.
                    Okay I'm (cut out) pictures (cut out)
     SC
millimeter. I've labeled the reels 1, 2, 3, 4, etc, and
we'd like to (cut out)
                    Houston Apollo 7.
     SC
                    Roger, Walt, I got your comments on
     CAPCOM
the 16mm film. You've labeled the reel 1, 2, 3, 4?
                    to the end - some of the reels overlap
so we'd like to see them kept in that order.
                    Okay, Understand.
     CAPCOM
                    And they shouldn't be released until we
     SC
take a look at them.
                    Okay.
     CAPCOM
                     This is the movies that we've taken
     SC
onboard and I see you people are monitoring fuel cell 02
```

That is affirmative.

Apollo 7, 1 minute LOS Carnarvon, Hawaii

giving its usual daily ditty, huh?

CAPCOM

CAPCOM

at 24.

## APOLLO 7 COMMENTARY, 10/19/68, GET: 19090 (CDT 8:14A) 571/2

SC Roger, Jack, and I'd like to log that the water gun has become very difficult to work. The trigger is slowly getting very very hard to push, and retract mostly.

CAPCOM Okay, copy that.

SC And you remember yesterday we mentioned the chlorine injector, how it had a stuff in it?

CAPCOM Roger.

It died out over night, apparently, and it had the form of salts this morning. I guess it's the kind of water that maybe something didn't get in and gum up the works on this water pistol too. It's lasted - it's done very well up until now, but it's sure getting hard to work.

CAPCOM Okay, copy that Walt. SC and log me 25 clicks

and log me 25 clicks of water, will you?

CAPCOM Okay.

PAO This is Apollo Control Houston 190 hours 26 minutes into the flight of Apollo 7, and the spacecraft is about to be acquired by Hawaii. A little bit more on the west Pacific weather situation. Two destroyers, two fleet destroyers, one called the Rupertus and the Tucker were called out of the west Pacific area southeast of Japan earlier this morning and were directed to Yokusuka Harbor. An intermediate landing area, a weather free intermediate landing area to the south and several hundred miles north of Samoa, near the Gilbert Islands, has been designated for revs 125 through 128, and it will be covered by aircraft from Tachikawa airport in Japan and also on the later revs from Samoa. Here is the crew getting the morning news.

CAPCOM Apollo 7 Houston through Hawaii.

SC Roger. I'm planning to power back up

the primary and shut down the secondary at 191:10.

CAPCOM Roger, copy that, and I have the morning news for you here.

CAPCOM Okay. Hurricane Gladys is cutting across northern Florida, will probably head back out into the Atlantic. 72 airliners were backed up on the runways at Kennedy yesterday morning when the fog finally lifted. And in the Post this morning there is a picture of Jo and Harriet and Lo out in the early morning hours trying to spot your spacecraft as it went over (cut out) and there's been a big flap at the Olympics over a couple of black US athletes who made a racial protest while receiving their awards during the playing of the Star Spangled Banner. (cut out) The Olympic Committee dismissed them, and Ohio State plays Northwestern today and USC takes on Washington.

SC We'll be standing by for the results. CAPCOM Roger, we'll give them to you as soon

as they come up.

SC Hey, Jack, log the LMP with 25 clicks of

CAPCOM Roger, another 25 clicks. SC Houston, Apollo 7, over.

CAPCOM Go ahead Apollo 7.

SC Roger. Jack, log the LMP with 25 clicks

of water, will you?

GAPCOM Roger, I copied that before.

Okay, would you mind telling Virgil True out at the Hawaii site that we got a good picture of Hawaii a couple of days ago.

CAPCOM Okay, will do.

SC (garbled) plenty of pictures of Carnarvon coming.

CAPCOM Copy that, Wally.

```
APOLLO 7 COMMENTARY, 10/19/68, GET: 19026 (CDT 8:30A) 572/2
                     Jack, when you have a minute, on those
     SC
(garbled)
                     Wally, I missed that.
     CAPCOM
                     (garbled)
     SC
                     Let's wait till we get - we're over
     CAPCOM
the Huntsville - let's wait till we get through Guaymas here,
and I think you'll be a little clearer.
                     Very good.
                     Apollo 7, How do you read?
     CAPCOM
     SC
                     Very good, Jack.
                     Okay, you are loud and clear now, Wally.
     CAPCOM
                     No sweat (garbled)
     SC
                     Okay
     CAPCOM
                     Okay
     SC
                     Okay, copied about the onboard movies.
     CAPCOM
                     Okay, I'll have high classification put
on there until the crew gets to review them.
                     Roger, I have made special note of that.
     CAPCOM
                     Very good, I think it would be (garbled)
SSB-58 the outside pictures of the rendezvous and of the earth.
(garbled)
                     Okay, copy that.
     CAPCOM
                     (garbled) as good as the movies that we
     SC
took inside.
                     I didn't get the last one, Wally.
     CAPCOM
                     I'm afraid of one of our inside pictures
     SC
being misunderstood.
                     Okay, copy that.
     CAPCOM
                     There's nothing embarassing about them
     SC
I just want to do them right before they release them.
     CAPCOM
                     Okay.
                     Very good.
     SC
                     Apollo 7 Houston.
     CAPCOM
                     Apollo 7 Houston, we are ready to
     CAPCOM
perform the keying test now.
                     Jack (garbled)
                     Apollo 7 Houston, we are ready for the
     CAPCOM
keying test.
                     Apollo 7 Houston.
     CAPCOM
                      (garbled)
     SC
                     Okay Walt. Could you put your PMP power
     CAPCOM
to OX and your S-band normal PCM switch to KEY, turn up
your S-band volume and we're ready for the keying test.
SC All set Jack, I'm going to key.
                     Okay, go ahead.
     CAPCOM
CAPCOM Okay, you got 100 percent today, and you can put your switches back to PCM and NORMAL.
                     Apollo Control here. That was Walt
Cunningham getting 100 percent today on the telegraph keying
```

## APOLLO 7 COMMENTARY, 10/19/68, GET: 19026 (CDT 8:30A) 572/3

pAO test which is done with the simple manual depression of the push-to-talk button on his voice communication circiut.

CAPCOM Apollo 7 Houston

SC (garbled)

CAPCOM 5 by. You might want to know how well the TV was received this morning. On all three networks you replaced all the kiddle cartoons.

SC (hearty laughter) (garbled)

SC As I recall Kiddie Cartoons are on all

three networks though.

CAPCOM That's right, you replaced all three of the Kiddie Cartoons on all three networks.

SC That's pretty strong.

```
APOLLO 7 COMMENTARY, 10/19/68, GET: 19042 (CDT: 8:46a) 573/1
                    You heard Wally Schirra being advised
     PAO
that he had preempted all the kiddie cartoons in the Saturday
morning network, and they seemed to enjoy that tremendously.
                    Frame 38, magazine R is Dallas and frame
39 is the Mississippi River looking north.
                    Towards New Orleans again.
     CAPCOM
                    Okay.
     PAO
                    Walt Cunningham is popping pictures like
                    Said he got a shot of Dallas, several
an airborn tourist.
of New Orleans, one looking up the Mississippi River towards
St. Louis and Memphis.
     CAPCOM
                    Roger; it's inland now.
                    Yeah, it's in sight.
     SC
                    It looks like it's in the northeastern
     CAPCOM
corner of Florida and it's heading - it looks like about 04
or 5 degrees.
                    We could more - can tell you where it
     SC
is better.
                    I think you probably can.
     CAPCOM
                    It's pretty far north; I don't think
there's much sense in getting a mark on it.
     CAPCOM
                    Roger.
                    Frame 42 is Gladys.
     SC
     CAPCOM
                    Copy.
                    It's getting a lot bigger, but not as
     SC
violent I gather.
     CAPC M
                    Wally, it's got 60 knots and it's supposed
to increase as it goes out into the Atlantic.
                    Roger. I still know it for track 541.
                    Affirm; we are really plotting that
     CAPCOM
carefully.
                    We are on that track right now; are we
     SC
to do 641?
                    Roughly?
     SC
                    Wally, 1641 would have been a previous
     CAPCOM
rev there.
                    So we're well south, yeah.
     SC
     CAPCOM
                    Yes.
                    I've got 260's on my mind I guess.
     SC
     CAPCOM
                    Roger.
                    We're trying to figure out whether we
passed the duration of Gemini V yet.
                    We're gonna look that up.
     CAPCOM
                    How about a map update Jack?
     SC
     CAPCOM
                    Inland.
                    Okay, Walt, for rev 123, GET on the node
     CAPCOM
```

194 plus 50, plus 26, longitude will be 100.8 degrees east.

/ ·

```
APOLLO 7 COMMENTARY, 10/19/68, GET: 19042 (CDT: 8:46a) 573/2
                       Jack, we had an interesting picture of
      SC
Dallas. Two aircraft apparently going over Dallas at 6, and the contrails formed a wide open "V".
      CAPCOM
                       Roger; copy.
                       What was the time of that last map update
      SC
time?
                       Okay, 194 plus 50 plus 26.
      CAPCOM
                       Wally, I'll give you a mark when you
      CAPCOM
                     It's about 5 minutes from now.
exceed Gemini V.
                       Very good.
      SC
                       You guys wouldn't want to try for Gemini
      CAPCOM
VII would you?
                       Negative. Negative. Hear that Deke?
      SC
      CAPCOM
                       Yeah.
                       Did you get my stories on the movies, Deke?
      SC
                       Negative; Jack is going to brief me on
      CAPCOM
it now.
                       Very good. Sounds like you have a cold.
      SC
                       Yeah, either you've got mine or vice a
      CAPCOM
versa.
                       Much laughter.
      SC
                       We got 6 blocked ears up here. I'd like
      SC
to have you talk to the guys about that reentry mode, Deke.
                       Roger; we've been discussing that one.
      CAPCOM
SC Very good. We're still pretty well stuffed up; I think the risk is greater on the ears than it is on - with no suits. We rehearsed in the couches this
morning with the inflight coveralls and we will wear our
comm carriers, of course, and we pitched down very well.
                        Very good. I still think we would probably
      CAPCOM
like to get the suit donning test at least someplace along here.
SC I accept that, yeah. We are really worried
about our ears because of the - by the time we get the helmets
off then we really expect (garble) neck rings.
```

Roger.

END OF TAPE

CAPCOM

PAO You heard Deke Slayton trading some good morning comments with the crew commander, and in the course of which it develops, Schirra would prefer - at least it sounded like he would prefer a coverall reentry opposed to the spacesuit reentry. There is feeling here in the control center, that at very least, we should do a quick don test. Here is more comm.

SC We really ought to (garble) if you like (garble) space for the next mission.

CAPCOM Roger, we agree there.

SC Our verbs are coming very well.

CAPCOM It sure looked like it from down here

watching the data.

SC We've actually been cooler because the evaporator has been running more and controlling the lower glycol temperature.

CAPCOM Roger, copy that.

SC According to the update computer, the update took us about 5 minutes longer than the (garble).

CAPCOM 7 opposite omni, we didn't copy that last

one Wally.

SC It took us about 5 minutes just to update it.

CAPCOM Okay, we got that. Walt, when you bring the primary evaporator back on the line here, we would like to have you open the back pressure valve for 2 seconds, monitor the steam pressure in the vap out temperature for 30 seconds, then go to AUTO.

SC Wilco.

CAPCOM Walt, can you confirm your PMP power switch in normal.

SC Okay.

CAPCOM Apollo 7, mark. You're now flying longer than Gemini 8.

SC Roger. I guess we got - man hours, that will take over 9 days. And I'm not sure how our compatriots stack up for total man hours.

CAPCOM Roger, copy that. I made a mistake, that's Gemini 5, I said Gemini 8.

SC Roger. No contest.

PAO This is Apollo Control Houston, 190 hours, 56 minutes and 33 seconds into the flight. This now is the second longest spaceflight in history. You heard one of the more talkative passes between Apollo 7 and this Control Center. The one just finished. One of the transmissions that might not have been fully understood because of some keying, was a comment from Schirra and backed up by some additional statements from Eisele to the effect that the emergency coolant loop was working very well. Eisele - Schirra noted that it should

APOLLO 7 COMMENTARY, 10/19/68, GET: 19052 (CDT 8:56a) 574/2

PAO pose no constraint to the next mission, Apollo 8. If anything Eisele said, it's providing more cooling. All in all, they are very happy with that. The total number of hours to do some further arithmetic means that the United States now has nearly 2600 hours of manned spaceflight time. Even closer would be 2570. Add 190 hours, 57 minutes into this flight. This is Apollo Control Houston.

This is Apollo Control Houston with PAO 191 hours 15 minutes into the flight. And it is that time in the flight when statisticians start combing the records books and doing comparisons with other flights. Several have been passed to us. For instance, this flight, if it goes the full duration, will exceed even Gemini 7's total manned hours logged. Gemini 7, in duration, was 14 days, of course, but with two men aboard, Frank Borman and Jim Lovell. Their total inflight time was something on the order of 660 hours. This flight, with three men aboard, going 260 hours, would give us a total of about 780 hours. We have already noted the fact that it has surpassed Gemini 5's total time in flight, to become second in longest duration in space flight. And another item worth noting, perhaps, is this flight alone has already exceeded all of the Russian manned flight time manned experience in all of their various spacecraft. We, according to our records, we totaled that out at 532 hours and these three men are now - have something better than 570 hours. Via Ascension, we had this brief communication.

CAPCOM Apollo 7, Houston through Ascension.

SC Roger.

CAPCOM Opposite omni, 7.

SC Roger.

CAPCOM Apollo 7, 1 minute LOS Ascension. We

will pick you up at Tananarive at 18.

SC Roger, 18 and you have got an echo on that one. Who is UCLA playing, Jack?

CAPCOM Stand by.

SC Check (garble) too, please.

Apollo Control back here and we should PAO acquire via Tananarive just any moment here. We should pick up in 30 seconds. Donn Eisele has gone to sleep according to the flight plan and according to the communications for That is a believable flight plan item. the last 1/2 hour. The BIOMED harness has been switched over to Walt Cunningham. According to flight plan, shortly after we pass Tananarive, the spacecraft will go into another night cycle and the crew will power up their onboard computer. We would assume that Walt Cunningham will be down there manning the navigation station. The usual navigator, Donn Eisele, is getting his rest. Still nothing via Tananarive. We will come back to you when the station has acquired. It is questionable whether we will get com, but if we do, we will be back to

APOLLO 7 COMMENTARY, 10/19/68, GET: 19120 (CDT 9:24a) 576/1

pAO This is Apollo Control Houston, 191 hours, 20 minutes. Jack Swigert is about to put in a call to Apollo 7. I think he is going to pass on to them some more football games. We got some queries wondering who UCLA would play today. Walt Cunningham's a graduate of that August institution and for the record, they're playing California. We thought we got a query on Navy as well. We'll standby for this first call going out through Tananarive.

pAO Apollo Control here, apparently we are not going to try to reach the spacecraft through Tananarive. We will take the line down and come back to you, if by chance we get in touch by the ARIA airplanes over the Indian Ocean or certainly we'll get around to Carnarvon in about 15 minutes. At 191 hours, 23 minutes, Apollo Control.

```
This is Apollo Control Houston 191 hours
     PAO
34 minutes into the flight. We have tagged up with Apollo 7
through Carnarvon and an interesting conversation developed
immediately. Walt Cunningham noted that the crew repeatedly
had been able to see the Magellanic clouds, the clouds named
for the explorer Magellan, which are prominent in the
southern hemisphere and he said they had been able to see
them before repeatedly. He said as far as he could recall,
he didn't remember any other crews that had reported them.
I think that would bear some checking, it seems to me that
Gemini 7 saw those clouds, reported seeing them. One of
the Gemini crews was given the specific task to look for
them. Let's turn on the conversation now, as it is develop-
ing on the coast of Australia.
                    Apollo 7, Houston through Carnarvon.
     CAPCOM
                    Roger, Jack. Hey, Jack, I'd like to
     SC
make note that we have noticed on numerous occasion since
the beginning of the flight, that we can see, quite plainly,
the Magellanic clouds in the southern latitude.
                    Roger, copy that.
     CAPCOM
                    I don't believe they have ever been
     SC
spotted up here before.
                    Okay, Walt. We have got a nav vector
     CAPCOM
we would like to send you and if you will go to accept and
also I have a nav check for you.
                    We got to get the computer up first.
     SC
                     I thought you were powered up.
     CAPCOM
                    We will bring it shortly. I'll copy
     SC
                     Go ahead, what is it?
the pad reference.
                           The nav check pad, the time 193
                    Okay.
     CAPCOM
+ 10 + 0000 - 1829 + 091892400.
                             Say again the time, please.
                     Roger.
                             193 + 10 + 4 balls.
     CAPCOM.
                     193100000 - 1829 + 091892400, over.
     SC
                     Roger, that is correct, Walt.
     CAPCOM
                     We might not be able to get state vec-
tor in the computer until the next station, Jack.
                     Say again, Wally.
     CAPCOM
                     Apollo 7, opposite omni.
     CAPCOM
                     I said 2 now waiting to catch up the
     SC
state vector.
                     Roger, stand by.
     CAPCOM
                     Okay, Jack, are you going to have time
to send the state vector?
                                   We've got about 4-1/2
                     Roger, Walt.
     CAPCOM
minutes left with you at Carnarvon.
                     Okay, we are in accept.
                                              Send your
     SC
message.
```

Coming up.

CAPCOM

```
APOLLO 7 COMMENTARY, 10/19/68, GET: 19134 (CDT 09:39a) 577/2
                    And Walt, I have a key align time for
     CAPCOM
P54 to give you.
     SC
                    Roger, go ahead.
                    Roger. That's 193 + 40, that is the
     CAPCOM
                    We would not like you to key in this
key align for P54.
time prior to performing P53 though.
                    Roger. Will load 193 + 40 + 00 after
performing P53.
                    Copy that. Walt, did you get the flight
     CAPCOM
plan update to perform P52 IMU realign option 3 after the
P54.
                    Affirmative.
                    Okay, could you record the side angle
     CAPCOM
differences in the general torquing angles for us?
                    Will do.
     CAPCOM
                    Thank you.
                    On the P52.
     SC
     CAPCOM
                    7, the nav update is finished, the
computer is yours.
                    Jack.
     SC
     CAPCOM
                    Go ahead, 7.
                    Nav check is go.
     SC
                    Roger, we verify.
     CAPCOM
                    Walt, can you confirm that inverter 3
     CAPCOM
is now off?
                    Yes, I'm going to turn it off.
     SC
                    Okay. Everything else is back in con-
     SC
figuration, as before the secondary cold loop test. The
primary evaporator did cycle down and operate for a while.
     CAPCOM
                    Okay, copy that.
                    Do you want to leave the primary evap-
     SC
orator on the line?
     CAPCOM
                    Affirmative, Wally.
                    Okay. It will probably end up drying
     SC
out again.
                    Okay, We are about 1 minute LOS Car-
     CAPCOM
        We will pick you up at Guam at - well, we won't
narvon.
get you there at Guam. It's too short a pass. We will
pick you up at Hawaii on the hour.
                           And you notice that fuel cell 2
     SC
                    Okay,
seems to have stabilized out right at the caution and warn-
ing trigger line.
     CAPCOM
                    Roger, we are following that real close.
                    That will wrap up the conversation by
     PAO
            At 191 hours 43 minutes, Apollo Control.
Carnarvon.
```

```
PAO
                     This is Apollo Control Houston, 192 hours,
6 minutes into the flight. We've tagged up via Hawaii and
we'll tune in on that conversation in a moment. Early
today you heard discussion of the fuel cell data and we've
pulled up the chart giving us the fuel cell status.
main item which keeps recurring in fuel cell conversation, is the temperature of fuel cell no. 2. Here is the way the
temperatures look. Fuel cell no. 1 is running a temperature
of 161 degrees Farenheit, fuel cell no. 2 - 177, which is
near the red line, and no. 3 is running 162. All in all.
the fuel cells are sharing the load very nicely, we have no
concern over them, they seem to have plenty of operating gases.
All in all, they are very productive. Here is the Hawaii comm.
     CAPCOM
                     Apollo 7, Houston through Hawaii.
     SC
                     Roger.
     CAPCOM
                     Apollo 7, Houston.
     ·SC
                     Go ahead.
     CAPCOM
                     On some questions earlier, UCLA plays
California today and Navy plays Pitts.
                     Roger, thank you. What about that ole
school of yours?
                     Oh, I didn't think that would interest
     CAPCOM
      On this relay test that we are going to do over Guaymas.
when we get Guaymas AOS I'll tell you to go to the relay node,
per the comm sliderule and then we will conduct it then.
                     Okay. Jack, are you going to be sending
up VHF and receiving S-band or vice versa.
     CAPCOM
                     We're sending up VHF and receiving S-band.
     SC
                     Okay. I'll set Donn's panel up with VHF
OFF and S-band TR, alright?
     CAPCOM
                     No -
     SC
                     (garble) set up for you sending - for
you receiving S-band and sending VHF.
     CAPCOM
                     Walt, the configuration we want is exactly
the same one on the comm sliderule there.
                     Okay.
     SC
     CAPCOM
                     Apollo 7, Houston.
     SC
                     Go ahead.
                     Wally, in view of the attitude problem -
     CAPCOM
display that you had on ball no. 1 yesterday, we would like
you to leave the FTAI select switch in the 1/2 position for
the remainder of the flight.
     SC
                     (garble)
     CAPCOM
                     Okay.
     SC
                     (garble)
     CAPCOM
                     Well, we're just looking at it and we
don't want anything to happen and lose display on reentry.
                     I've already considered not using
```

(garble) on no. 2 ball (garble).

APOLLO 7 COMMENTARY, 10/19/68, GET: 19206 (CDT 10:10a) 578/2

CAPCOM Okay.

Your GDC no. 2 on reentry. SC

CAPCOM All right.

Apollo 7, we are ready to perform the CAPCOM relay test, would you configure per the comm sliderule for relay node.

SC Roger.

Guaymas M and O, Houston CapCom. CAPCOM

Go ahead. GYM.

Roger, Guaymas M and O. Would you disable CAPCOM

Can you verify your USB link disabled? your USB link.

Houston, Apollo 7.

CAPCOM Go ahead 7.

They are configured. SC

Okay, Apollo 7, this is Houston on S-band CAPCOM for the USB relay test. Apollo 7, Houston performing the relay test, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 10, 9, 8, 7, 6, 5, 4, 3, 2, 1. Okay, Apollo 7, the relay test is complete. It was an outstanding success. You can return to your normal comm configuration.

SC Roger.

SC Houston, Apollo 7, are you reading?

CAPCOM

Reading you 5 by, Walt. Walt, I have your block data no. 21 when CAPCOM you are ready to copy it.

SC CAPCOM 123 dash 4 alpha plus 295 minus 1620
194 plus 50 plus 14 2813 124 dash 4 alpha plus 250 minus
1635 196 plus 31 plus 45 3012 125 dash charlie charlie plus
168 minus 1660 198 plus 09 plus 52 3079 126 dash alpha charlie
minus 223 minus 0100 198 plus 43 plus 50 7088 127 dash alpha
charlie minus 123 minus 0120 200 plus 17 plus 18 6447 128
dash alpha charlie minus 020 minus 0180 201 plus 50 plus 35
5824 end.

SC

Read back follows, 123 dash 4 alpha plus 295 minus 1620 194 plus 50 plus 14 2813 124 dash 4 alpha plus 250 minus 1635 196 plus 31 plus 45 3012 125 dash charlie charlie plus 168 minus 1660 198 plus 09 plus 52 3079 126 dash alpha charlie minus 223 minus 0100 198 plus 43 plus 50 7088 127 dash alpha charlie minus 123 minus 0120 200 plus 17 plus 18 6447 128 dash alpha charlie minus 020 minus 0180 201 plus 50 plus 35 5824, over.

CAPCOM Roger, that's correct, Wally.

APOLLO 7 COMMENTARY, 10/19/68, GET: 19226 (CDT 10:30A) 580/1

CAPCOM Go ahead 7.

SC I do have the command module RCS temperatures about an hour ago. All sets were reading 50.

CAPCOM Roger, thanks Walt.

CAPCOM Apollo 7 Houston, we are 1 minute LOS

Antigua, pick you up at Ascension at 38.

SC Roger

PAO This is Apollo Control. That apparently wraps up the communication via Antigua. We've been looking at the spacecraft temperatures and such this morning here at the conclusion of that long stateside pass, and according to Antigua data here's what we have. We have a cabin pressure of a rock solid 5.1 pounds. I don't think it's deviated off that for days. The cabin temperature is 65, that's a couple of degrees lower than what we've seen the last few days as I recall, and the oxygen quantity in pounds tank 01 showing 46 pounds, tank 02 showing 45. Our flow rate is like .2 pounds per hour and that is a very steady And the last biomed data which we got, which I think was on Walt Cunningham, shows a nice steady mean heart rate of 62, a very restful heart rate, with a high range of 74 and a low of 56, and Walt Cunningham is breathing at a rate of 18 respirations per minute. At 192 hours 32 minutes into the flight this is Apollo Control Houston.

Apollo Control, Houston, at 192 hours Via Ascension we had some discussion with 48 minutes. Walt Cunningham about pictures and he requested some information from some of the weather experimenters on what kind of filters he should use on future shots. Here's how it went. CAPCOM Apollo 7, Houston, through Ascension, standing by. I read you loud and clear. SC Roger, Wally. Go ahead Apollo 7. Copy that. CAPCOM We have more pictures with the red filter SC off, but apparently they're fairly (garble) red colors. Okay, it is in work. CAPCOM 331 000 50 dash 204. There's a Hasselblad 50 series. Okay. CAPCOM Jack, you better check with Helmut Kuehnel on the color correction for that. It sounds like a pretty good (garble) but it may be pretty hard. Okay, wally. CAPCOM Houston, Apollo 7. SC Go ahead 7. CAPCOM Roger, the (garble) is just barely scbright enough for tracking against the clouds. I am not sure it would be acceptable. I didn't get the first part, Wally. CAPCOM The COAS sight. It's so dark it just SC barely shows. I'm not sure it's bright enough for tracking various objects. CAPCOM Okay. 7, we're 1 minute LOS Ascension. We pick CAPCOM up Tananarive at 54. SC Roger. This is Apollo Control back again. have from the recovery forces received some information re-

have from the recovery forces received some information regarding the WESTPAC recovery zone, which we indicated earlier, is out of business due to the fact that a typhoon is moving through the area. Just to give you some feel for the extraordinary planning involved in these recovery tasks on a rev by rev basis, our recovery forces worked out a planned primary landing areas, and a planned secondary areas for each of four revs that we feel sure that the WESTPAC area will be out of business. In other words, we could not land in WESTPAC and we have gotten from them eight alternate landing areas. The range on these alternate landing areas is fantastic.

Some of them are in the, in fact, about PAO half of them are in the South Atlantic, in the area around the Ascension Islands. On rev 125 for instance, if trouble developed that would indicate normally a Western Pacific landing, we would bring the spacecraft down near Hawaii, which is accessible on that particular rev in an area just south of Hawaii. On rev 126 should trouble develop we would, rather than land it in the typhoon stricken area, bring it down at about 22 degrees south 10 degrees west, very near Ascension Island in the South Atlantic, and so forth. Just an indication of the extraordinary range and flexibility of our recovery forces and some of the planning detail they get into. HC130H aircraft of the Aerospace Rescue and Recovery Service out of Tachikawa, Pago Pago, Samoa, Anderson, Guam, and Ascension Islands in the Atlantic will be involved in these -- in the manning of shifted or alternate recovery areas that are under discussion here. At 192 hours 52 minutes this is Apollo Control, Houston.

This is Apollo Control Houston 193 hours PAO 21 minutes into the flight. Over Tananarive a few minutes ago, we had this conversation, and very shortly we should Let's hear the Tananarive tape first. acquire via Guam. Apollo 7, Houston through Tananarive. CAPCOM SC Roger. Wally, on your question on Panatomic-X CAPCOM film and the red filter, Weather says that they agree with your decision to use this film photographing clouds with the red filter on there. They do request that land, water, and clouds be included in the pictures that you take.

SC Roger. Will do (garble). I couldn't copy that, Wally. CAPCOM SC (garble) We couldn't copy that, Wally. We will CAPCOM pick you up over Guam. Apollo 7, 1 minute LOS Tananarive. CAPCOM will pick you up at Carnarvon at 10. Goddard voice, will you disable Tanana-COMM rive. Apollo 7, Houston through Carnarvon, CAPCOM standing by. Stand by. SC Apollo 7, 1 minute LOS Carnarvon, Guam CAPCOM at 21. SC(garble) CAPCOM Copy that. You are reading our DSKY, I assume. SC Did you get the start of the numbers on program 53? Negative, Wally. You went through CAPCOM that before we had data. SC Okay, 2 balls 18. CAPCOM Copy. Apollo Control here. At just any second now we should hear a call going out via Guam. We have been watching that fuel cell number 2 temperature. It has continued to climb and it is up to 183, now, 183 and we are really not concerned about it though, because we have reached that part of the day where we are going to start powering down the equipment and we are rather certain it will follow the course it has followed the last few days and that temperature will recede very quickly when the equipment is taken off line. The flight plan calls for the next rev, which will be the 123th rev, to do an IMU realign in the South African area, Pretoria and Tananarive zone. Here goes the Guam com. Roger. Planning program 52 to now SC check our error.

Okay, Wally.

CAPCOM

```
CAPCOM
                     Roger.
     SC
                     (garble) we really have now. You (garble)
     CAPCOM
                     Okay.
     SC
                     (garble)
     CAPCOM
                     Roger.
     CAPCOM
                     Apollo 7, Houston.
     SC
                     Roger.
     CAPCOM
                    Wally, what option did you select when
you did P52?
                    We took two. Star angle difference
4 balls 1, torquing angles were -2 balls 199 + 3 balls 64
+ 3 balls 93. (garble)
     CAPCOM
                     Stand by one.
                     That's about 2/10ths of a degree off.
     SC
     CAPCOM
                    Copy.
     SC
                     I hope once and for all they have in-
dicated what the heck a COAX is for.
                    Roger, Wally. Just a minute, we are
     CAPCOM
having some discussion down here.
                    If you have a check, we are off about
2/10ths of a degree.
     CAPCOM
     SC
                    Did you copy my general torquing angles
I read down?
     CAPCOM
                    Affirmative, Walt.
     CAPCOM
                    Apollo 7, Houston.
                    Go ahead, Jack.
     CAPCOM
                    Okay, Wally. We are having some discus-
sion down here on whether we need to redo that P53 so we
are requesting that you do not power down until we get back
to you. Secondly, we would like you now to switch to the
secondary tanks on quad delta.
     SC
                    Roger.
     CAPCOM
                    Okay and while you are up there, could
you give me a batt C voltage readout?
                    Jack, we are kind of blacked out up
here if you could hold on that one.
     CAPCOM
                    Okay, no problem, there is no hurry.
     SC
                    Okay.
     CAPCOM
                    Apollo 7, Houston.
     SC
                    Go ahead.
     CAPCOM
                    Roger, Wally. Just a minute.
     SC
                    (garble) as soon as you get your head-
set on, he will start talking.
     CAPCOM
                    Okay.
```

APOLLO 7 COMMENTARY, 10/19/68, GET: 19321 (CDT 11:25a) 582/2

3 balls 26, and the torquing angles we put on the tape, they were 2 balls 8 something, 2 balls 8 something, 2 balls

9 something.

The star angle difference in 54 was

APOLLO 7 COMMENTARY, 10/19/68, GET: 19321 (CDT 11:25a) 582/3

SC You reading my DSKY? CAPCOM Roger, 4 balls 1.

SC Okay, I just doing a final line check.

Now what were you about to give me?

CAPCOM Okay, just going over the hill here. The brown material that you see there and the subsequent salt development was observed on 2TV1. What we are doing is recommending that the material be wiped off the injector and the wiping cloth stowed for observation when you get back down and the chlorination proceed as per scheduled in the flight plan.

Okay. We note that it crystallized out today. It is a white powder all over the place. I suspect that this stuff is just hard to (garble) through.

CAPCOM Roger, copy that.

PAO That probably wraps up the communication via Guam, although the signal is unusually sharp and clear. That is one of the signals that is relayed to us via communication satellite, of course, and it is one of our most dependable throughout the entire flight. The data is excellent, so is the voice communication. Our orbital elements this morning are 240 miles apogee by 90 miles perigee. And while we were over the Guam circle during that recent pass, the spacecraft was at an altitude of 210 miles down to perhaps 175 when it left. It is now between Guam and Hawaii. We should acquire via Hawaii in 4 minutes. We will be back to you then.

```
Roger. Did you get the reason I'm doing
the option 2 instead of 3 in 52.

    Negative Donn, I guess you went over the

     CAPCOM
hill too fast.
                    Well, the reason I did that - see, if
     SC
we did no. 3, all we would have done is find a line to the
(garble) determined in 54. That wouldn't tell you how ac-
curate 54 was. It might give you some idea on how accurate
the star (garble) angle was, but you would get - by doing
52 (garble). I got a comparision (garble) between it and the
one determined in 54.
                    Okay Donn, we're discussing that down
     CAPCOM
here.
                    Okay.
     SC
                    Opposite omni, 7.
     CAPCOM
                    Jack, do you understand our bit of
     SC
logic there?
                    We've got all of the data we need, Wally.
     CAPCOM
There's some discussion on that, going back and forth here,
but we've got all of the data we need.
                    Okay, just have them check (garble) we get
out of 54, the (garble) we compared to 52, and the technique
with option 2 and 3 on 52.
                    I see some shaking of the heads, but we
     CAPCOM
copy.
                    Jack, before we quit, I did do an option
     SC
3 on that thing.
                    When did you do an option 3?
     CAPCOM
                    After the two option 2's.
     SC
     CAPCOM
                    Okay.
                     (garble) to the problem.
     SC
                    Could you give me a bay - bat C voltage
     CAPCOM
readout, when you get a minute. I have a flight plan update
here.
                    Bat C is 36.0.
     CAPCOM
                     Copy.
                     Go ahead with your flight plan update.
     SC
                     Okay, we want to do a fuel cell 02 purge
     CAPCOM
at 195 plus 00.
     SC
                     Roger, proceed.
                     Okay, that's it.
     CAPCOM
                     Okav.
     SC
                     Apollo 7, we would like you to delay the
     CAPCOM
```

APOLLO 7 COMMENTARY, 10/19/68, GET: 19338 (CDT 11:43a) 583/1

Roger Houston.

Hawaii, we're having this conversation.

and you can proceed with the power-down.

PAO

SC

CAPCOM

CAPCOM

This is Apollo Control Houston. Via

Roger, Wally, we've looked at the data,

Apollo 7, Houston through Hawaii.

```
APOLLO 7 COMMENTARY, 10/19/68, GET: 19338 (CDT 11:43a) 583/2
                    power-down. We're going to have a NAV
     CAPCOM
load for you.
                    Going too slow. (garble) going around
     SC
Houston.
                    Okay, we'll be ready for you in just a
     CAPCOM
minute. Wally, I would like to get some feel from you on
how long it would take you to doff suits.
                    To doff the suits.
     SC
     CAPCOM
                    Roger.
                     You have to understand the reasoning
     SC
                      I can cut it off or I can take it off.
behind our (garble).
                    When you were inserted and you got -
you doffed the suits, about how long do you figure it took
you to take it off and stow them?
                    Do you mean in the start of the mission?
                    Affirmative.
     CAPCOM
                    (garble) the suit off to protect it and
     SC
you put it away very carefully. I'd say it took about 30 to
35 minutes.
     CAPCOM
                    Okay, copy that.
                    Wait a minute, wait a minute.
     SC
                    Well Jack, what we did, we did it in
     SC
stages. We took the helmet and gloves off after the word
GO, and then the suits off after 17 or 16 1.
                    Wally could you go to ACCEPT and we'll
     CAPCOM
send this load up.
                    We're going to get squared away on this
     SC
in just a second.
     CAPCOM
                    Okay.
                    Okay, we got it now Jack.
     SC
                    Okay, coming up. I'll read you the
     CAPCOM
NAV check when you are ready.
                    Okay. Go ahead now, Jack.
     SC
                    Okay, time 199 plus 30 plus 4 balls plus
     CAPCOM
158 niner plus 058531875.
                    Roger.
     SC
                    Apollo 7, Houston.
     CAPCOM
     SC
                    Go ahead.
                    Roger, we would like you to standby on
     CAPCOM
any power-down till we pick you up in Guaymas.
                     We've already power-downed Jack, do you
want me to bring it back up?
                    Negative, we didn't quite finish the
     CAPCOM
NAV load. We want to pick it up here at Guaymas.
                    Okay, computer still going.
     SC
                    Roger.
     CAPCOM
```

## APOLLO 7 COMMENTARY 10/19/68, GET 19348 (CDT 11:53A) 584/1

CAPCOM Apollo 7 Houston. SC Go ahead, Jack.

CAPCOM Okay, we verified the load that we sent up and the computer is yours, you can go ahead and begin powering down.

SC Okay.

pAO Apollo Control here. I just got a report from guidance and navigation officer that our total expenditure of fuel - of propellant - forgive me, for the day is 14 pounds of propellant. We've still got an open line to the spacecraft via Guaymas and should hold them for another 5 to 10 minutes.

SC' Okay, Jack, we've alined.

CAPCOM Okay fine, good news.

CAPCOM Apollo 7 Houston 1 minute LOS Texas,

Ascension at 17.

SC Roger
PAO That will probably wrap up the communications via Texas site for this rev as we proceed now in the last few moments of the 123rd revolution around the earth. I believe that's 123, it's a little hard to make out here on the wall map, no, it's 122. I'm sorry. We - in just a very few minutes will cross the 80th parallel to begin rev 123. At 193 hours 58 minutes into the flight, Apollo Control Houston.

Apollo Control Houston here at 194 hours, PAO Via Ascension we have this conversation. 20 minutes. Apollo 7, Houston through Ascension. CAPCOM Roger, reading you loud and clear. S/C Wally, you're loud and clear also. CAPCOM Roger. SC Wally, one point. Because of the visi-CAPCOM bility problem that we've had in window number 3, if you'd like, we have some simple instructions which would provide you with 55 and 90 degree roll lines on window number 2. It's cleared up enough to where we can (garble) the center the last couple of days. But we can live with it. We can't shoot pictures out of it or see detail out of it. Roger, Okay, real fine. Copy that. CAPCOM Are we on FM? SC We're transmitting both. CAPCOM Okay, (garble) bank angles on reentry. SC Okay, copy that, Wally. We're 40 seconds LOS Ascension, and we pick up Tananarive at 29. Apollo Control here. That concluded the conversation by Ascension. This morning we had a great number of requests for a repeat performance of the television. the video pass. We have it on our tape machine and we're planning to rerun it for our News Center monitored cameras. for our News Center receivers, at 1:00 this afternoon, Houston time, about 35 minutes from now. I say again, we will rerun the video tape this morning. We have the audio track on it. It was a particularly enlightening tape and it was not without its humor. It will be shown at 1:00 this afternoon on the NASA News Center monitors. This is Apollo Control Houston.

APOLLO 7 COMMENTARY, 10/19/68, GET: 1942940 (CDT: 12:34p) 586/1

CAPCOM

Apollo 7, Houston through Tananarive.

Standing by.

SC SC

(garble) through Tananarive yet?

CAPCOM Say again.

SC

Checking to see if you could hear through

Tananarive.

CAPCOM

Roger, we are reading you. 5 by.

Fine here.

SC CAPCOM

Apollo 7, Houston. 1 minute LOS Tananarive.

The Mercury is 54.

SC

Thank you.

APOLLO 7 COMMENTARY, 10/19/68, GET: 19456 (CDT 1:00P) 587/1

PAO This is Apollo Control Houston 194 hours 56 minutes. We've got a scheduled acquisition here of the Mercury ship just momentarily, but because we had promised to replay the television pass of earlier this morning we'll go ahead and play that tape and then we will tape the audio communication via Mercury and play it for you at the conclusion of this video presentation. This is Apollo Control. go ahead and roll the tape if you would, the video tape.

TV PASS REPEATED
PAO
And we have now the taped conversation
via Guam. We'll play that for you.

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APOLLO 7 COMMENTARY, 10/19/68, GET: 19507 (CDT 1:11p) 588/1
                    And we have now the taped conversation
by Guam, we'll play that for you.
                    Apollo 7, Houston through the Mercury.
     CAPCOM
standing by.
                    Roger.
     SC
                    Apollo 7, opposite omni.
     CAPCOM
                   Hey Jack, are you still there?
     SC
                    Roger, Walt, go ahead.
     CAPCOM
                    Roger, if you get a chance, maybe we could
get an undated RCS number for our chart.
     CAPCOM
                    Okay.
                    Apollo 7, Houston.
     CAPCOM
                    Go ahead Jack.
     SC
                    Roger, your chart value for RCS today
     CAPCOM
Walt, is 588. It shows a little bit larger usage than we
expected and we can't account for it at this time. We're
going back over the data and looking at it.
                    Roger.
                    Apollo 7, Houston.
     CAPCOM
                    Go ahead, Jack.
     SC
                    Just for the record, you might help us
     CAPCOM
out and give us some clues about how much you think you used
today.
                    Oh, I don't really know, I think all
we did was (garble) pictures (garble) on that. We did the
alignments and a little (garble) and then the maneuverings
of the alignments.
                     Okay, copy that. We're about 1 minute
     CAPCOM
LOS Guam. We'll pick up Hawaii at 13.
                     Roger.
     SC
```

589/1

PAO Apollo Control, Houston, 195 hours
17 minutes. Through Hawaii we're having this conversation.
CAPCOM Apollo 7, Houston through Hawaii standing

SC Roger, Jack. Need a map update if you can get it and I'd just as soon have one. If not two revs ahead, if you can get it.

CAPCOM Sure can. In work.

SC I took a weather picture at 195 hours and 13 minutes, magazine V as in Victor frame number 14.

CAPCOM Okay, copy that, Walt. When would you

like the map update? This rev?

SC Yes, the next - send it now if you have it. CAPCOM Okay, Walt. The GET of the next sending node rev 124 will be 196 plus 20 plus 48 with a longitude of 77.7 degrees east.

SC Roger.

CAPCOM Apollo 7, Houston. One minute LOS Huntsville. Tananarive at 196 plus 05.

SC Thank you.
HTV Huntsville LOS.

APOLLO 7 COMMENTARY, 10/19/68, GET: 19618 (CDT 02:23p) 590/1

At 196 hours 18 minutes into the flight, PAO we've had only a tag up through Tananarive with the crew in the last 1/2 hour or so, no active communication, nothing no tapes to pass on. We have also had a meeting around the Flight Director's console, and couple of actions have been taken. For one, it's been determined the pilots will wear their space suits on reentry, the matter of whether they will put the helmet and gloves on is still open - I mean it's still under consideration. Our programed TV time for Sunday morning has been altered. It had been planned to do it at 8:30, the time has been moved up to 7:14 am Sunday morning, 7:14 am will be Corpus acquisition and it's scheduled as a television pass. Other activities remain pretty much as flight planned as we see them right now. Our next acquisition should be the ship Mercury in perhaps 10 minutes. At 196 hours 20 minutes, this is Apollo Control Hous-

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APOLLO 7 COMMENTARY, 10/19/68, GET: 19630 (CDT 2:35P) 591/1
                    Apollo 7 Houston through the Mercury
     CAPCOM
standing by.
                    Roger, Jack, we've got a readout aline.
     SC
(garbled)
                    Walt, we don't have data yet from the
     CAPCOM
          Stand by.
Mercury.
                    Houston Apollo 7.
     SC
                    Go ahead Wally.
     CAPCOM
                     I assume from the radar transponder
     SC
test that we successfully completed that we do not required
                   Is that correct? Are we going to back
doing that again.
up in case the first one fails?
                     Wally, you are correct in that assumption.
     CAPCOM
We're going to have a general update on tomorrow's activities
for you over Hawaii.
                     Okay.
     SC
                     Apollo 7 Houston, opposite omni.
     CAPCOM
                     Roger.
     SC
                     Apollo 7 Houston. We're ready to read
     CAPCOM
that out - the 02 manifold pressure out.
                     We have -
     SC
                     We have 102 now.
     CAPCOM
                     Okay, try again.
     SC
                     Roger 105.
     CAPCOM
                     Have you done the comp on the check as go?
     SC
                     Roger.
     CAPCOM
                     Apollo 7 opposite omni.
     CAPCOM
                     Apollo 7 Houston 1 minute LOS Guam, Hawaii
     CAPCOM
at 49.
                                    What are you going to do
                     Roger, Jack.
     SC
with your week end, Jack?
                     Oh, I think I'll just hang around mission
     CAPCOM
control.
                     They'll give you a lot to do.
     SC
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END OF TAPE

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APOLLO 7 COMMENTARY, 10/19/68, GET: 19649 (CDT: 2:52p) 592/1

PAO Apollo Control Houston here, at 196 hours, 49 minutes. And we are about to acquire by Hawaii. It should be an important discussion in that it will cover the flight plan updates for the next several days. The flight director has just cautioned everybody to turn out any outside interference and pay a close ear to this discussion. Here goes the first call.

SC Hey Jack, give the LMP 15 clicks of water. CAPCOM Okay, I am logging that Walt.

Is Wally monitoring?

SC Yeah, he's monitoring.

CAPCOM Okay, just generally, on tomorrow's activities, we are going to tailor them to accomplish the objectives based on what we know to date. We are going to remain above the service module RCS DAP redline, and we'll curtail any activities to remain so. Basically what we are going to do, and this is generally, because the exact times they are still working on. We are going to delete the rendezvous radar test during tomorrow; we are going to perform burn 6 as per the normal flight plan and in that period from 211 to 219, we are going to have the following 4 activities. Two revs of orbital navigation, using the 9 by 9 W matrix, one PTC test; it will be just like the preceding test except it will be about the pitch axis there; we are going to do the pitch instead of a roll. And in 1 P22 horizon sighting test for horizon definition and generally for the television tomorrow, basically with the activities that are planned, we felt that if you just turn it on, and proceed with your regular flight plan activities, that would be fine.

SC Okay, (garble) and just let it go.
CAPCOM Okay, and some information has come about the discussion on - the reentry configuration. Right now the thinking is to have the suits on for entry, to provide a heel restraint. The helmets and glove question is still in question.

SC Hey now that's pretty immature; we were going to launch without that kind of special heel restraint. And then all of a sudden they got worried about land landing and they put it in. If you are worried about a water landing the heel restraint, we got a long way to go before we can call this thing a flying machine.

CAPCON Hey, Wally. SC Yeah.

CAPCOM You did have heel restraint before anyway and I think the only concern here is that if you do get a tumbling even on the water your legs can end up flailing around and that clearance between your heels and the MDC as you remember has always been a bit of concern. Think it's just an attempt here to make darn sure you don't have some

APOLLO 7 COMMENTARY, 10/19/68, GET 19816, (CDT 4:10P) 593/1

PAO This is Apollo Control at 198 hours 16 minutes. Apollo 7 has had passes at Tananarive and the tracking ship, Mercury, during the news conference. At each sight, we notified them that we were standing by and there was no conversation at either of those sights. One bit of information on the Mercury reports now experiencing heavy sea states number 6, waves 15 to 16 feet, rolling up to 20 degrees. However, we were still able to get telemetry data during this pass, despite the rough weather that ship was experiencing. Crew condition described as green. The next station will be Hawaii at 198 hours 25 minutes.

END OF TAPE

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APOLLO 7 COMMENTARY, 10/19/68, GET: 1982500 (CDT 4:30P) 594/1
                    This is Apollo Control at 198 hours
     PAO
             Apollo 7 about to be acquired over the Hawaii
25 minutes.
station. Donn Eisele should be awake for this pass, with
Wally Schirra and Walt Cunningham preparing for their sleep
period. We'll stand by for conversation at Hawaii.
                    Apollo 7 Houston through Hawaii standing
     CAPCOM
by.
                    Well, hello there.
     SC
                    Good morning.
     CAPCOM
                    How are you?
     SC
                    Great. You're getting up earlier and
     CAPCOM
earlier.
                     Sure seems like it. What time is it?
     SC
                     It's 4:30.
     CAPCOM
                     Say it again.
     SC
     CAPCOM
                     1630.
                     Oh, Roger. (garble)
     SC
                     Apollo 7 Houston, opposite OMNI.
     CAPCOM
                     Roger, I'll do that.
     SC
                     All right, more data. 8 clicks of water
     SC
for CDR and 5 clicks for LMP.
                   · Roger.
     CAPCOM
                     And log me 7 hours of very fine sound
     SC
sleep.
                     Hey, great.
      CAPCOM
                     Apollo 7 Houston.
      CAPCOM
                     Go.
      SC
                     Roger. Request 02 tank 2 fan on for
      CAPCOM
 5 minutes then off.
                     Okay, It's on.
      SC
                     LOS Redstone 40.
      CAPCOM
                     Okay.
      SC
                     This is Apollo Control 198 hours 30 min-
      PAO
 utes, Hawaii has LOS. Don Eisele sounding very chipper
 reported 7 hours of very fine sound sleep. Redstone will
 acquire Apollo 7 in about 10 minutes. This is Mission Control,
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END OF TAPE

Houston.

APOLLO 7 COMMENTARY, 10/19/68, GET: 19840 (CDT 4:45P) 595/1

This is Apollo Control at 198 hours PAO Apollo 7 coming up on the Redstone now. 40 minutes. Apollo 7, Houston through Redstone, CAPCOM

standing by.

Roger, Houston. SC Roger, Apollo 7. Apollo 7, Houston. CAPCOM CAPCOM

Go Houston. SC

Roger. Verify 02 tank 2 fan off CAPCOM It's still on, I'll get it in a Roger, SC

minute.

Roger. CAPCOM

Apollo 7, Houston. One minute LOS CAPCOM

Ascension at zero 5. Apollo Control at 198 hours 46 minutes. The Redstone has LOS as Apollo 7 nears the end of its 125th revolution. Next station will be Ascension at 199 hours 5 minutes.

APOLLO 7 COMMENTARY, 10/19/68, GET: 1990600 (CDT 5:10p) 596/1

This is Apollo Control 199 hours 06 minutes Ascension has acquired Apollo 7. We'll stand by.

Apollo 7 Houston through Ascension. CAPCOM

standing by.

Apollo 7 Heusten, 1 minute LOS Mercury CAPCOM

at 42.

Roger. SC

Apollo Control, 199 hours 13 minutes PAO Ascension has LOS and there was no conversation. During this pass, we're in the period set aside for command module pilot, Donn Eisele to eat breakfast. The other two crewmen, Wally Schirra and Walt Cunningham, are in their sleep period. The Mercury will acquire Apollo 7 at 199 42 minutes. This is Mission Control Houston.

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APOLLO 7 COMMENTARY, 10/19/68, GET: 19942 (CDT 545p) 597/1
                     This is Apollo control, 199 hours 42
     PAO
minutes, the Mercury tracking ship is about to acquire Apollo 7, Guam has very brief overlapping coverage on this
rev, we'll stand by through those two.
                     Apollo 7, Houston, through Mercury,
     CAPCOM
standing by.
                     Hello, Houston, Apollo 7.
     SC
                     Roger, loud and clear.
     CAPCOM
                     Got any ball score, yet?
     SC
                     Roger, would you believe Kansas beat
     CAPCOM
Oklahoma State 28 to 6.
                     Oklahoma beat Iowa State 42 to 7.
     CAPCOM
                     How did Houston and Rice do?
                     Haven't got - don't have that one yet
     CAPCOM
Donn, we're working on it.
     SC
                     I see.
                     Have you got Southern Cal and Ohio State?
     SC
                     Not yet. Got Tennessee 10 Alabama 9.
     CAPCOM
Georgia Tech 21 and Auburn 20.
                     Couple of close ones.
     SC
                     Rog. - 7 be advised that Mercurys doing
     CAPCOM
a good job down there, they're taking rolls up to about
20 degrees and 40 to 50 knot winds, some 15, 16 foot waves
and we're still getting good data coming through.
                     Wow, sounds like they're having a high
old time, where are they exactly? Is there a big storm in
their area, is that whats going on?
                     Well, the typhoon coming on them from
the Phillipines and they're up around Taiwan, somewhere
around that area.
                     Oh, yea. They're near Taiwan you say?
     SC
                    Somewhere around in there.
     CAPCOM
                           That's kind of a bad place to be
                     Yea.
with that typhoon going on there.
                     Yea, that - I think they're going to
     CAPCOM
ride it out.
                     I don't think they have much choice.
      SC
                     That's what they said. - We got word
      CAPCOM
that they're a little green and it's not exactly green with
envy.
                     Gosh. - Hey, Ron.
      SC
      CAPCOM
                     Rog.
                     We, at least Walt and I started drinking
out of our little plastic bags, instead of the water gun
because it's too hard to work anymore, somethings wrong
with the trigger. I've had about 16 to 20 ounces of water
(garble).
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APOLLO 7 COMMENTARY, 10/19/68, GET: 19942 (CDT 545p) 597/2

7, Houston, through Guam, now. - Apollo CAPCOM

7, Houston. 8C

Go.

CAPCOM Rog, did the drink gun stick completely now or is it still just hard to operate.

SC It works, it's just real hard to operate.

Roger. CAPCOM

598/1

APOLLO 7 COMMENTARY, 10/19/68, GET 1995200 CDT 5:55p

CAPCOM 7, Houston LOS. Redstone at 14. Roger.

PAO Apello Control at 199 hours 53 minutes
Guam has LOS now. During that pass Donn Eisele advised us
that he started drinking water from plastic bag instead of
the water gun, the usual mode, because the trigger there's a problem which makes it hard to operate. Apollo
7 misses Hawaii on this rev, the next station to acquire
will be the Redstone. ... This is Mission Control, Houston.

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APOLLO 7 COMMENTARY, 10/19/68, GET: 2001400 (CDT 6:15p) 599/1
     PAO
                     This is Apollo Control at 200 hours, 14
minutes into the mission. The Redstone has acquired Apollo
   We'll stand by through this pass.
     CAPCOM
                    Apollo 7 through Redstone.
     SC
                    Roger
     CAPCOM
                     Roger, loud and clear, I have a one line
flight plan update.
     SC
                     Go ahead.
     CAPCOM
                    Roger, at 204 plus 20 delete radar trans-
ponder self test.
     SC
                    Roger, I got it.
     CAPCOM
                    Roger. Say, Donn.
     SC
                    Go ahead
     CAPCOM
                    Rog, at 201 plus 24 you'll be passing
right over typhoon Gloria.
                    Okay, I'll try to get a look at it, a
picture if possible.
     CAPCOM
                    Roger, that's right over the center.
     SC
                    Okay, thank you. Ron, could you get me
a map update, please?
     CAPCOM
                    Wilco.
                            Seven, Houston, are you ready to
copy?
     SC
                    Yeah, go ahead.
     CAPCOM
                    Roger, rev 126 GET 199 plus 21 plus 32.
longitude 31.4 East,
     SC
                    Okay, thank you.
     CAPCOM
                    Roger. Seven, Houston, 30 seconds LOS
Ascension at 40.
     SC
                    Roger.
     PAO
                    This is Apollo Control at 200 hours, 23
          Apollo 7 is beyond the Redstone's range. During
this pass CAPCOM, Ron Evans, advised Donn Eisele that at
201 hours, 24 minutes elapsed time Apollo 7 will pass directly
over the center of typhoon Gloria. Apollo 7 is about to
enter its 127th revolution, and the next station to acquire
will be Ascension at 200 hours, 40 minutes. This is Mission
Control, Houston.
```

APOLLO 7 COMMENTARY, 10/19/68, GET: 20039 (CDT 740p) 600/1

PAO This is Apollo control 200 hours 39 minutes into the mission, Apollo 7 in the night side of its 127 revolution, coming up on Ascension at - upon acquisition at Ascension. Ascension has acquired now, we'll wait for a call.

CAPCOM Apollo 7, Houston, through Ascension

and I have some battery ampere hours remaining.

SC You know this bird with all of its

windows makes a hell of a planetarium.

CAPCOM You mean, it's kind of hard to see.

SC No, it's very good to see.

CAPCOM Great.

SC Boy, you can really spot them. - Go

ahead, Ron.

CAPCOM Roger, Batt A 28.9 B 26.5 C 39.5

Lima-Sierra 073 slant NA.

SC Roger, I understand.

CAPCOM Apollo 7, Houston, opposite OMNI.

SC Roger.

CAPCOM Apollo 7, Houston, about LOS, pick you

up at Mercury 18.

SC What?

pao This is Apollo control 200 hours 50 minutes into the mission Ascension has LOS now after about 11 minutes of acquisition on that pass, a good long pass. Donn Eisele reporting that Apollo 7 makes a good planetarium during the night side of the revolution. Star identification very easy out the window. Next station to acquire will be the tracking ship Mercury over in the storm tossed western Pacific at time 201 hours 18 minutes. This is mission control, Houston.

```
APOLLO 7 COMMENTARY, 10/19/68, GET: 20118 (CDT 0720p)
                    This is Apollo control 201 hours 18
     PAO
minutes into the mission the Mercury is acquiring Apollo 7
now, Guam has overlapping coverage.
                    Roger, Houston.
                    Roger, Donn, I've got block data, to
     CAPCOM
send up there and work - try to work it in around checking
for the typhoon now. So let me know when you want it.
                    Okay, fine, thank, Ron.
     SC
                    Apollo 7, should be over typhoon Gloria,
     PAO
in about 5 minutes, just about the time Guam acquires, we'll
continue to stand by.
                    And 7, Houston, we would like for you to
     CAPCOM
do the CMP power up prior to Redstone and then we'll update
your W matrix over Redstone this pass.
                    This pass, okay, will do.
     SC
                     I think I've got the storm here.
     SC
                     Good.
     CAPCOM
                     I'll have to say it really covers a huge
     ·SC
                    Can you kind of determine where the
     CAPCOM
eye is?
                    Well, not exactly, hold it a second,
hold on, I think I do have it. - We're going right over the
eye, Ron and I'll give you a bark when we're directly over
it.
                     Bark.
     SC
                     Roger, 2350.
     CAPCOM
                    Hey, Ron, are you there?
     SC
                     garble.
Okay,
     CAPCOM
                            it was 54 and 55 of magazine RO,
     SC
                          I got 35 of the picture of the eye.
were at typhoon Gloria.
     CAPCOM
                     Roger.
                     At least that's what it looked like to
     SC
me.
                     That's about right on time, that's where
     CAPCOM
they forecasted.
                     (Garble). You could see the long straight
through (garble) right into the eye, but there was this
little seaport in the middle of it, you could see there
were some scattered and broken clouds in it. You could see
the water even through it.
                     Well, I'll be darned.
     CAPCOM
     SC
                     Very interesting.
     CAPCOM
                     How's the Mercury holding up out there.
     SC
                     I'll bet they're still green.
     CAPCOM
                     Yea, I'll bet they are.
     SC
```

Apollo 7, Houston, opposite OMNI.

CAPCOM

APOLLO 7 COMMENTARY, 10/19/68, GET: 20118 (CDT 0720p) 601/2

SC Roger.

CAPCOM It's a good thing, we don't log those

transmissions.

SC What's that.

CAPCOM Opposite OMNI type.

SC Yea.

CAPCOM Apollo 7, Houston 30 seconds LOS

Redstone at 49.

SC garble. CAPCOM Roger.

PAO Apollo control at 201 hours 30 minutes Guam has LOS Apollo 7 passing directly over typhoon Gloria. Donn Eisele photographing the storm, reported a clear spot in the eye through which he could see the water. The tracking ship Redstone will acquire next at 201 hours 49 minutes. This is mission control, Houston.

This is Apollo Control, 201 hours 49 minutes into the mission. Apollo 7 coming within range of the Redstone tracking ship.

Apollo 7, Houston through Redstone. CAPCOM

Apollo 7, Houston.

This is the Redstone Comm Tech over. That's affirmative the spacecraft acknowledged your last

transmission over.

Apollo 7, Houston, trying again.

Houston, Comm Tech Redstone, spacecraft CAPCOM request you say again, over. This is Redstone Comm tech spacecraft request you say again over.

Apollo 7, Houston, how do you read? This is the Redstone Comm Tech space-CAPCOM

craft read you 5 by over. Loud and clear, over.

Roger, Donn. You're not getting back to us the Redstone M & O is relaying. If you want me to read the block data up then you can read it back over

This is Redstone Comm Tech, The spacecraft Ascension? RED acknowledges your last transmission, over.

Redstone M & O does he want me to CAPCOM

read the data?

Try again, Redstone here. Redstone M & O, Houston CAPCOM does RED CAPCOM

Apollo 7 want me to read the data to him?

This is the Redstone Comm Tech, go.

The spacecraft is reading you loud and clear, over. Apollo 7, Houston. Transmitting in the

blind I'll give your block data for area 129. The rest over Ascension. 129 dash alpha charlie plus 080 minus 0250

203 plus 23 plus 55 5190. Redstone LOS, Redstone reacquiring. Redstone LOS Redstone reacquired. Redstone LOS. Redstone LOS Redstone reacquire. Redstone LOS.

Apollo 7, Houston in the blind. send your W matrix over Ascension. Keep the CMC powered up.

Redstone Redstone LOS.

This is Apollo Control at 201 hours RED Communications problems here at the Redstone. PAO We can apparently get to Apollo 7, but we do not read transmissions from the spacecraft, although the Redstone does. We'll try again at Ascension that pass coming up at 202 hours 15 minutes. This is mission control, Houston.

```
APOLLO 7 COMMENTARY, 10/19/68, GET: 2021500 (CDT 8:15p) 603/1
                     This is Apollo Control at 202 hours
     PAO
15 minutes into the mission. Apollo 7 coming withing range
                    We'll stand by.
of Ascension now.
                     Apollo 7, Houston, through Ascension.
     CAPCOM
     SC
                     Roger
                     Roger, loud and clear this time Donn.
     CAPCOM
and I have the block when your ready.
                     Okay, Ron go ahead.
                      Roger. Are you in accept?
     CAPCOM
will send the W matrix update.
                     Okay, I'm ready.
     SC
                      I got your 129 update.
     SC
                      Okay. I'll start with area 130 dash
     CAPCOM
2 alpha plus 192 minus 0270 204 plus 58 plus 45 4399. Apollo 7.
Houstón, switch omni.
                      Okay, go ahead.
     SC
                              131 dash 2 charlie plus 271
     CAPCOM
                      Roger.
minus 0271 206 plus 35 plus 31 3774 132 dash 1 charlie
plus 237 minus 0620 208 plus 02 plus 22 4055 133 dash 1
alpha plus 294 minus 0600 209 plus 40 plus 53 33 67 134
dash 1 alpha plus 299 minus 0600 211 plus 20 plus 43 2938
                      Roger, 129 dash alpha charlie plus
     SC
080 minus 0250 032355 5190 120 dash 2 alpha plus 192 minus
0270 2045845 4399. 131 dash 2 charlie plus 271 minus 0271 206 35 31 3774 132 dash 1 charlie plus 237 minus 0620 208
02 22 4055 133 dash 1 alpha plus 294 minus 0600 209 40 53 33 67
134 dash 1 alpha 299 minus 0600 211 20 43 2938.
                      Apollo 7, Houston. You're reading
     CAPCOM
that correct. Apollo 7, Houston. Our update is complete
you can power down.
                      Okay, I'll put it back to bed.
                      Roger. Got some football scores here if you
      CAPCOM
want.
                      Oh, okay, go ahead.
                      Roger. Air Force over Colorado State
      CAPCOM
31 to nothing.
                      Wow, They're coming up in the world.
      SC
                      Rog., Navy over Pittsburg 17 to 16.
      CAPCOM
                      Navy over who?
      SC
      CAPCOM
                      Pittsburg
                      Oh, that's very good.
      SC
                      California over UCLA 39 to 15.
                                                         Purdue
      CAPCOM
at Purdue, eeked out one 28 to 27 over Wake Forest.
                                                         Michigan
27 Indiana 19. Minnesota beat Michigan State 14 to 13
Norte Dame 58 Illinois 8 Still don't have any Texas games
yet.
                      Ron, what did you say that California
```

UCLA score was?

603/2

APOLLO 7 COMMENTARY, 10/19/68, GET: 2021500 CDT 8:15p

39 California 15 UCLA. CAPCOM How about Ohio State. Do you have them SC there? Say again Donn. Opposite omni. CAPCOM Roger, Ohio State SC Roger, Ohio State 45 Northwestern 21. CAPCOM Roger. SC 7 Houston, 1 minute LOS. Mercury at CAPCOM 54. What's our waste? SC We show your waste quanity 84. You can CAPCOM dump your at convenience or wait till the other guys get up. Okay, I'll get on it in a little while. Apollo Control at 202 hours and 26 minutes SC PAO Ascension has LOS. During this pass, we passed up contingency reentry information through rev 134. We also up linked some navigational information to the command module computer. Then Donn Eisele powered down that computer again. The next station to acquire again is the tracking ship Mercury. 202 hours 54 minutes. This is Mission Control.

APOLLO 7 COMMENTARY, 10/19/68, GET: 20254 (CDT 855p) 604/1

This is Apollo control at 202 hours 54 PAO

minutes, and the Mercury is acquiring Apollo 7.
PAO
This is Apollo control, very noisy circuits to the Mercury. This time we may wait until we get Guam acquisition at 203 hours about 3 and a half 4 minutes from now before we put in a call. We'll come back up at Guam.

APOLLO 7 COMMENTARY, 10/19/68, GET: 2030000 (CDT 9:00p) 605/1

PAO This is Apollo Control at 203 hours. We're at Guam now, and we'll monitor through this pass. Hopefully it will be not quite so noisy.

CAPCOM Apollo 7, Houston through Guam. Apollo 7,

Houston through Guam.

SC Roger, Houston.

Roger, loud and clear. Donn, I've got CAPCOM a flight plan update when your ready to copy.

Okay, go ahead.

CAPCOM Roger, normal flight plan through SPS GETI about 210 plus 08. At 207 plus 20 burn number 6. fuel cell oxygen purge. At 211 plus 40 MCC update P22 horizon sightings. 212 plus 05 as scheduled. 213 plus 00 to 217 plus 30 delete all scheduled activity. 213 plus 00 add MCC update, state vector, nav check. P22 land mark data. 213 plus 10 TV turn on, 213 plus 12 to 213 plus 23 TV pass. Still with me Donn.

Still with you. SC

CAPCOM 213 plus 40 P22 horizon sightings.

Yeh, Ron, I don't understand that, wasn't

it really P22 horizon sightings.

CAPCOM Roger, what we're trying to do is get a hack on the difference between the real horizon and one what you think the horizon is. And we'll pass up some more data on that later.

SC Say this is a new one on me, I don't

know anything about this.

That's affirm. We'll - I've got some CAPCOM information to pass up to you.

Okay. SC

CAPCOM Okay, at 214 plus 10 P52 IMU realign option 3. At 214 plus 45 start P22 land mark tracking pass. At 215 plus 30 MCC update, P22 land mark data. At 216 plus 00 MCC update state vector if required. At 216 plus 15 start P22 land mark tracking pass. At 217 plus 15 power down.

PAO This is Apollo Control 203 hours and Guam has LOS. The Redstone will acquire at 6 minutes. 203 hours 25 minutes.

```
APOLLO 7 COMMENTARY, 10/19/68, GET:2032500 (CDT 9:25p) 606/1
                     This is Apollo Control at 203 hours, 25
     PAO
          Apollo 7 coming up on the Redstone now down in the
minutes.
South Pacific. We'll stand by for this pass.
                     Apollo 7, Houston, standing by.
     CAPCOM
     SC
                     Roger, Houston
                     Roger, loud and clear, Donn. Did you
     CAPCOM
copy everything on that?
                     Wait just a second. Affirmative, I'm
going to check the waste water in a minute or two.
                     Roger.
     CAPCOM
                     Very good pressure. Going by the flight
     SC
plan fuel cells two thirds and 2720, is that what you gave
     2720 is that right?
                     Yes
     CAPCOM
                     Coming up on burn at 21008, I have at
21140 P22 horizon sightings, is that right?
                     Yes, I'11 update you. The information
     CAPCOM
at that time is an MCC update at that time.
                     Okay, got the information, we're set.
got 213 on the hour, we got state vector, NAV check and
P22, is that correct?
     CAPCOM
                     Affirm.
                     We have a TV pass starting at 12 noon
     SC
on the 24th, is that it?
                     Roger, 323
     CAPCOM
                     Okay, turn the TV on in ten minutes, any-
     SC
way and play me a tune.
                     Roger.
     CAPCOM
                     We got P22 horizon check, whatever that
     SC
is, at 213:40?
     CAPCOM
                     Roger
                     nineteen twenty two opposite and 21410
start of P22 land mark tracking and about 21425, I guess
that is, anyway the data matches. Be informed P22 data at
21530.
      CAPCOM
                     Roger
                     An update state vector of 216 (static)
     SC
P22 again at 21650.
      CAPCOM
                     Roger
                     And power down at 21750.
      SC
                     Roger. And if you notice, this goes into
      CAPCOM
your sleep period so recommend that you change your sleep
periods and move it back two hours, everybody back two hours.
                     Stand by, I've got to shut the water off. Roger, we show 24 percent now.
      SC
      CAPCOM
                     You show 24?
      SC
                     Oops, we just lost data again.
      CAPCOM
                     Okay, I'm reading about 15 in here, now
      SC
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APOLLO 7 COMMENTARY, 10/19/68, GET:2032500 (CDT 9:25p) 606/2
I'm going to shut it off.
                    Roger, we concur.
     CAPCOM
                    Still got that big water bubble around
     SC
the fitting.
                    Great
     CAPCOM
                    Sure is funny looking, its almost as
big around as a silver dollar, hanging on the wall by the
fitting on the water dump.
                    Well, I'll be darn. Is the leak between
     CAPCOM
hose and the fitting or between the fitting and the panel?
Donn, does it leak between the fitting and the hose or be-
tween the fitting and the panel?
                    Its between the fitting and the panel.
     SC
The water service panel.
                     Roger.
     CAPCOM
                    Leaks are on that P-nut, that you tighten
     SC
down on to get the fitting on.
                     Roger
     CAPCOM
                     It doesn't hurt anything, its just a big
     SC
blob and stays there until you kinda wipe it up.
                     Seven, Houston.
     CAPCOM
     SC
                     Right.
                     Rog, got that. On this passive thermo
     CAPCOM
control test tomorrow we want to use the same procedures
that you have on board except we want to pitch instead of
roll.
                     Okay, this is on the 212, is that it?
     SC
                     Say that again.
      CAPCOM
                     This is on the strength of 212 hours?
      SC
                     That's affirmative.
      CAPCOM
                     Okay.
      SC
                     Your procedure is written up to roll but
      CAPCOM
we want the pitch about the Y-AXIS.
                     Okay, seems to me your looking for a,
 pitch instead of a roll, is that right?
                     That's affirmative.
      CAPCOM
                     You want the same rate 310.
      SC
                     Affirmative
      CAPCOM
                     Okay
      SC
                     Hello, Seven, Houston, one minute LOS.
      CAPCOM
 I have some good news for you at Canaries 57.
                     What did you say again?
                     Roger, at Canary 57.
      CAPCOM
                     Apollo Control at 203 hours, 35 minutes
      PAO
 LOS at the Redstone. Apollo 7 about to enter its 129 revolu-
 tion. Too far North for the Ascension station at this time
 so the next station to acquire will be Canary Island at 203
 hours, 57 minutes. This is Mission Control Houston.
```

APOLLO 7 COMMENTARY, 10/19/68, GET: 20357 (CDT 1000p) 607/1

Apollo 7, Houston, through Canarys. -CAPCOM Apollo 7, Houston.

Roger, this is Apollo 7. Roger, loud and clear, Donn. - When SC Wally and Walt wake up have them remove their biomed harnesses and stow carefully for postflight malfunction analysis. Over.

SC

7, Houston, one minute LOS Redstone at CAPCOM

01.

Roger, I understand.

This is Apollo control, 204 hours 04 SC minutes, LOS at Canary, Apollo 7 will be out of touch now for about and hour. It missed the Mercury and Guam stations on this the 129 revolution, next station to acquire will be the tracking ship Redstone at 205 hours 1 minute, this is mission control, Houston.

PAO This is Apollo Control at 205 hours 1 minute into the mission. At the present time the space-craft is approaching the tracking ship Redstone in the South Pacific. And here in the Mission Control center we are in the process of changing shift. Flight director Jerry Griffin will be coming on shortly to replace Gene Kranz, and Bill Pogue will be taking over as Cap Com. One piece of logistics information, we anticipate that the Change of Shift Press Briefing will occur in about 15 minutes in the Building One News Center. We'll stand by now for the call to the crew through the Redstone.

CAP COM Apollo 7, Houston through Redstone.

SC Apollo 7.

CAP COM Roger, loud and clear.

SC Roger.

CAP COM Apollo 7, Houston. I have the procedures for your P-22 horizon sighting if you'd like a copy.

SC Roger, stand by.

CAP COM Roger, select P-22, use unknown landmark option. Do steps of , to six. Go to optics mode manual and proceed to step nine. Disregard R-1, R-2 and R-3. Make five marks at least 10 seconds apart and then exit the program at step 12. We will give you the gimbal angles for starting with zero optics if you so desire. Apollo 7, Houston opposite omni.

SC Alright. Let's see, I just relect P-22 use unknown landmark ... program to step six and secretics manual, proceed to step nine, ignore the display, take five

marks 10 seconds apart then exit at step 12.

CAP COM That's affirmative.

SC Okay, I don't think we need gimbal angle for zero optics. We want to use just the sextant or the telescope, I guess the sextant they'd prefer, huh?

CAP COM

They'd prefer the sextant and use the upper horizon, or what you think is the upper horizon any-

how.

SC (garble) whatever that is.

CAP COM Rog.

SC Okay, we'll try it. (garble) daylight early.

CAP COM That's affirmative. In the daylight. SC Okay. I don't think we'll need any

gimbal angles. Just set up for small (garble)

CAP COM Okay. And, ah, if it's going good and you can get it at different shaft and trunion angles, the more data we get the better off we'll be, but don't waste any more fuel on it.

APOLLO 7 COMMENTARY, 10/19/68, GET: 20500 (CDT 11:00p) 608/2

Okay, what's the purpose of this anyway. I guess I don't understand what and why we're doing it? Okay, the purpose is for ... to get an idea on the difference between the apparent horizon and the CAP COM real Earth horizon for the calculations on some mid-course

corrections. Yeah, I understand that but I don't understand what use it is because mid-course navigation is done several thousand miles out from the Earth and at that point, this horizon jazz doesn't mean anything, hell its all going to be --

Ah, I see what your saying but --CAP COM ... the only place this program applies SC

Roger, we see what you're saying but we anyway. still don't have a hack on what this difference is, we don't have any hack on what the difference is so we'd like to get at least one data point on that.

Yeah, okay, we can go ahead and do it. SC

7, Houston. CAP COM

Go.

SC Roger. Antigua acquisition at 21 and we'd like to have you be in P-5 at that time to send a load CAP COM to you.

Okay, I'm going to power up before then SC

and try to do a P-51.

Roger. CAP COM

APOLLO 7 COMMENTARY, 10/19/68, GET: 20510 (CDT 1110p) 609/1

CAPCOM Apollo 7, Houston, any minute LOS.

PAO

Roger.
This is Apollo control, we've had loss of signal now with the spacecraft through the Redstone.

Of signal now with the spacecraft through the Redstone.

During that pass Apollo 7 was approaching apogee in the spacecraft and the present time at an altitute of about spacecraft and the present time at an altitute of about spacecraft and the present time at an altitute of about through apogee in just a very short while. The next station through apogee in just a very short while. The next station to acquire will be the station at Antigua, we'll pick up to acquire will be the station at Antigua, we'll pick up there in about 10 minutes, this is Apollo control at 205 hours 13 minutes.

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APOLLO 7 COMMENTARY, 10/19/68, GET:20521 (CDT 11:25P) 610/1
                    This is Apollo Control at 205 hours
             We're standing by now to acquire the space-
     PAO
21 minutes.
craft at the Antigua station.
                    Apollo 7, Houston through Antigua.
                    Apollo 7, Houston through Antigua.
     CAPCOM
     CAPCOM
                    Roger, Houston, Apollo 7.
                    Roger. We monitor too. If you go to
     SC
     CAPCOM
accept, we have a couple of loads for you.
                    And I have the maneuver pad when you're
                     Roger.
     SC
     CAPCOM
ready to copy.
                     Okay, stand by.
                     Go ahead with your up pad data.
     SC
                     Roger. SPS number 6, minimum impulse
     SC
 21008 0000 minus 00000 plus 00154 minus 00000, 2362 plus
09002, 00055, 24814 minus 073 minus 128, 00034, 0422, 124
 209, 20, 0000 minus 2214, plus 10262 1511. Last block, roll,
 pitch and yaw, all balls. And we have about 1 minute to LOS.
 I'll wait for Canary for the readback.
                     Okay. What are you going to do about
                     Is it registering or are you still doing
 this (garble) key?
                     Do we have a verb 33 in the DSKY, Donn?
 it?
                     Okay. After we enter it, we can go up?
      CAPCOM
                     Yes, punch and enter and go on.
      SC
      CAPCOM
                     Affirmative.
                     And, Donn, LOS is so near, we'll get the
      SC
      CAPCOM
 readback at Canary.
                     Okay, it's all entered.
      SC
                     Thank you.
                     This is Apollo Control. The spacecraft
      CAPCOM
 now out of range of the tracking station at Antigua. During
 that pass, we handed some information up to Donn Eisele for
 tomorrow's scheduled SPS burn, the 6th burn of the service
 propulsion system engine, scheduled to come at 210 hours
             The next station to acquire Apollo 7 will be the
  Canary Islands and we will pick up there in about 4 minutes.
  This is Apollo Control at 205 hours 29 minutes into the
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END OF TAPE

mission.

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This is Apollo Control at 206 hours
    PAO
             At the present time Apollo 7 is just crossing
14 minutes.
over the northeastern coast of Australia. We are preparing
to acquire the spacecraft in a few minutes at Honeysuckle.
During the Change of Shift Briefing, we had some conversa-
tion with Donn Eisele over the Canary Island site and on out
over Madrid and we'll play that back for you now and then
pick up with the conversation through Honeysuckle.
                    Apollo 7, Houston through Canary.
     CAP COM
Apollo 7, Houston through Canary.
                    Roger, this is Apollo 7.
     SC
                    Rog, I have one comment for the maneuver
     CAP COM
pad for a readback and that is that maneuver is Heads Up,
Out of Plane South.
                    Roger.
     SC
                    And standing by for readback.
     CAP COM
                    Stand by. Houston, Apollo 7.
                    Rog, go Donn.
     CAP COM
                    Roger, may I read this back now?
     SC
     CAP COM
                    Okay.
                    Okay SPS six ... 210 08 00 00 minus 4
     SC
balls plus 00 154 minus 4 balls 6362 0902 3 balls 55 24184
minus 073 minus 128 000 34 0422 124 I guess that's 12.4 deg-
rees ... angle.
                    Affirmative.
     CAP COM
                    209 00 0000 minus 2214 plus 102 62 151
     SC
and all zeros for attitude this will be heads up out of
Plane (garble)
                    Heads up out of Plane south and I'm
     CAP COM
sure you have it right but the altitude in noun 43 is 151.1.
                    Oh, Roger. I thought I read that.
     SC
                    Readback is correct.
     CAP COM
                    Okeydoke.
     SC
                    Apollo 7, Houston, opposite omni please.
     CAP COM
                    Roger.
     SC
                    Apollo 7, Houston. Coming up one minute
     CAP COM
LOS Canary, we'll have another minute and one-half with
Madrid if you want to turn your S-band volume up at 40 + 30.
Also would like for you to go to block on your uplink.
                     Roger ...
     SC
                    Apollo 7, Houston. One minute LOS Madrid,
     CAP COM
Honeysuckle at 17.
                     Roger, Houston.
     SC
                    Apollo 7, Houston, we will need S-band
     CAP COM
volume up for Honeysuckle.
                     Roger I'll get it up for Honeysuckle too.
     SC
                     That completes the playback for the tape
     PAO
from the pass over Canary Islands. We'll stand by now for
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the spacecraft to be acquired through PAO Honeysuckle. Apollo 7. Apollo 7, Houston through CAP COM Honeysuckle. Roger, Houston. Apollo 7. SC CAP COM Rog. Houston, Apollo 7. SC CAP COM Go. Say again. SC Apollo 7, Houston. CAP COM SC Roger. Oh, I'm sorry Donn. I thought you CAP COM were calling me. Yeah, I was. I was just answering. SC Apollo 7, Houston one minute 30 seconds CAP COM One thing that I didn't pass up on the LOS Honeysuckle. maneuver pad they wanted mentioned was that it will be a quad B & D LH for burn six. Roger, that's what I figured on using, SCBill. That's what I told them. CAP COM Okay, thank you. SC Apollo 7, Houston, coming up on LOS, CAP COM Redstone at 36. Roger, Bill, see 'ya at 36. SC CAP COM Rog. And we have loss of signal now from the PAO spacecraft through Honeysuckle. During that pass we advised Donn Eisele to use quads B and D for the ullage maneuver preceeding the upcoming burn this morning. Since coming on shift here in Mission Control Center, flight director Jerry Griffin has been going through the status of all systems for that burn and at this point, everything looks good. The burn is scheduled to take place at 210 hours 08 minutes elapsed time and will be another minimum impulse burn the second such burn performed by the spacecraft service propulsion system engine. That would be a burn of about one-half second duration and would impart a change in velocity adding velocity to the spacecraft on the order of about 15.4 feetper-second. The next station to acquire the spacecraft will be the tracking ship Redstone and we'll pick up there in about 5 minutes from now. At 206 hours 25 minutes, this is Apollo Control.

This is Mission Control Houston at PAO 206 hours 36 minutes into the flight of Apollo 7. The spacecraft is presently in its 130th revolution, we're coming up on apogee at this time presently at a height of about 226 nautical miles and we're standing by to put in a call to the spacecraft through Redstone.

Apollo 7, Houston through Redstone. CAP COM

Roger, Houston, Apollo 7. SC

Rog, Ron has been working on this P-22 CAP COM procedure and he has a few more notes he'd like to give you. Oh, okay, just a second I'll get my pen SC

Go ahead. out.

Okay Donn, before you select P-22 on the CAP COM thing, preset your shaft to approximately zero degrees and the trunion to approximately 10 degrees.

What for? SC

What we want to do is use the land-Rog. CAP COM mark line of sight in the sextant there, so when you're making the mark -

Wait a minute. Wait a minute now, Ron. SC You mean you want me to use the landmark line of sight and you want me to fly the spacecraft and look at the horizon? That's affirmative. CAP COM

I don't think that makes much sense SC For one thing we're going to be pitched way up if we do that which means we're going to be fighting this perigee ... very likely. The other thing is it takes fuel to do that, you've got to keep maneuvering around to get it on there ... line of sight around with the spacecraft rather than maneuvering the optics with the optics controls. Can't they get the same -- P-22 measures optics angles as well as minute gimble angles, that's what it's for. I don't see why we can't use the - if we're going to use P-22, why we don't use the sextant line of sight rather than the landmark line of sight.

CAP COM Ah -

We use ... line of sight we can hold SC local horizontal attitude with it pitched up 15 degrees or so it will work out fine but if you go pitch up 50 degrees to put that line of sight on it that's going to be a horse of a different color.

Okay, I understand your concern, Donn, CAP COM but what we want to do is get a hack when looking through this landmark line of sight at the horizon. It looks different than it does through the star line of sight on the sextant.

Oh, I see. Okay, alright we'll give it SCa whirl.

CAP COM Roger.
SC That things a little more than "gee whiz"
data anyway cause that horizon doesn't look anything like
that when you're 10 000 miles away.
CAP COM Apollo 7, Houston.

SC Roger.

CAP COM Roger, to add a little food to what I said before on why we want it, ah, in this mission at a close distance if we can get a better feel for what this Delta H of the horizon is, ah, we get a better feel closer than we would at say 10 000 miles out.

SC Roger, I can tell you what it is. Its

2.8 degrees. We measured it.

CAP COM Okay.

SC No, we did. We made it in the COAS, we made it in the telescope, Wally's measured it in Mercury and Gemini flights and its well 2.8 plus or minus a double ... depending upon where the Sun is and the lighting conditions and maybe even what your looking at with, I don't know.

CAP COM Roger, I think the only difference we might have in there is we're looking at it through the differentic filter on that landmark line of sight now.

SC Yeah, that could change it a little, I

don't know, make it look orange.

CAP COM Rog. (pause) Ah, 7, Houston, what you last said there is the object of the whole thing really. We just want to get an idea what it looks like, what you think the top of the horizon is through that orange looking filter.

SC Well, we did that the other day, you know. That's why I gave up on making those ... there just wasn't anything there that you could say was a firm line to make a mark on. It was all fuzzy in the morphus and like that.

CAP COM We see what you're saying really. Ah, Donn, new subject. My errand was completed this afternoon.

SC Roger, thank you.

CAP COM Roger.
SC What kind of response did you get?

CAP COM The right kind. The good kind. SC Very good.

CAP COM And, we'll see 'ya tomorrow evening.

SC Okay, Ron, goodnight.

CAP COM Roger. Apollo 7, Houston. Opposite

omni.
SC Roger.

CAP COM Apollo 7, Houston. Switch omni again

APOLLO 7 COMMENTARY, 10/20/68, GET: 2063600 (CDT 12:39a) 612/3

please. CAP COM Roger. SC

Apollo 7, Houston, one minute LOS Red-CAP COM stone, Antigua at 55. Apollo 7, Houston coming up on LOS Redstone, Antigua at 55.

Roger. SC

This is Mission Control. The spacecraft now going out of range of the tracking ship Redstone. We'll have acquisition again over Antigua in about 9 minutes. At PAO 206 hours 47 minutes, this is Apollo Control.

APOLLO 7 COMMENTARY, 10/20/68, GET: 20655, (CDT 12:59A) 613/1

This is Apollo Control at 206 hours PAO The spacecraft is just beginning its 131st 55 minutes. revolution now and we've just acquired through Antigua. We'll stand by for CAPCOM Bill Pogue to put in the call. Apollo 7, Houston through Antigua. CAPCOM

Standing by.

Apollo 7, Houston. Coming on Antigua ' CAPCOM LOS in about 1 minute. At Canary at 07.

Roger, Bill. SC

Donn, I have one question. Do you have CAPCOM the number 1 set of BMAGS powered?

That is negative. I do not. SC

Thank you. CAPCOM

Bill, I've got about half the (garble) SC

system powered up here.

Thank you. CAPCOM

This is Mission Control at 207 hours PAO 6 minutes and we have lost contact with the spacecraft through Antigua. We'll be reacquiring in about 2 minutes from the station at Canary Islands. The sleep periods for Wally Schirra and Walt Cunningham are scheduled to have ended by now. We should be hearing from them shortly and the spacecraft crew will also be involved during the period of time coming up now. We're aligning the platform on the guidance and navigation system, getting prepared for that service propulsion system burn, scheduled for 210 hours 8 minutes into the mission. We'll be prepared to pick up in about 1 minute from now as we acquire at Canary Islands. This is Apollo Control at 207 hours 7 minutes.

APOLLO 7 COMMENTARY, 10/20/68, GET: 20709 (CDT: 1:14) 614/1

Roger, Bill, Good morning. SC Good morning, how are you today? CAPCOM Just wanted to reconfirm that you understand that the LMP and the CDR may remove biomed harness. Rog. We've got that word. SC Okay, thank you. CAPCOM Do you mean we can remove them right now? SC Affirmative. CAPCOM I see, okay. SC Aren't you all very clever. SC

SC Aren't you all very clever.

CAPCOM Thought you'd like that.

Do. It doesn't bother us much

one way or the other but the real point is that I think somebody needs to be told the fact that they're not very good equipment.

CAPCOM Apollo 7, Houston about -

CAPCOM Apollo 7, Houston about 1 minute from LOS Canary. S-Band volume up at 16 or approximately 2 more minutes of S-Band.

SC Roger, Bill

CAPCOM And we'd like to confirm that you have a - have an update for fuel cell 02 Purge at 207 + 20.

SC ... we've got there on the flight plan.

CAPCOM Thank you.

CAPCOM Apollo 7, Houston. 1 minute LOS Madrid,

Carnarvon at 43.

PAO This is Apollo Control we've now had loss of signal from Canarys. We'll pick up the spacecraft again in about 25 minutes over Carnarvon, Australia. This is Apollo Control at 207 hours 18 minutes.

PAO This is Apollo Control at 207 hours 43 minutes and we're standing by at the present time to acquire the spacecraft over Carnarvon, Australia. Coming up on the midway point in the 131st revolution, we'll listen for Cap Com Bill Pogue to put in a call to the crew.

CAP COM Apollo 7, Houston through Carnarvon standing by. Apollo 7, Houston, opposite omni please.

SC Roger, Bill.

CAP COM Thank you.

SC Houston, Apollo 7. Give me a chart

update please.

CAP COM Rog. Stand by. Apollo 7, Houston. Chart update, rev 132, 209 + 53 + 55, 130.3 West.

SC Roger.

CAP COM Apollo 7, Houston, one minute LOS Carnarvon, S-band up for Honeysuckle at 52.

SC Roger.

PAO This is Mission Control. We show that the spacecraft has now gone out of range of the Carnarvon station, however, we will be acquiring again within a matter of seconds at Honeysuckle. We show now that we do have acquisition at Honeysuckle and we'll continue to monitor.

CAP COM Apollo 7, Houston, we still have about three minutes to go. Sounded like we're coming into a key-

hole. Redstone at 13.

SC Roger, Bill.

CAP COM Apollo 7, Houston. Opposite omni please.

pAO It appears that's all the conversation we'll have with the crew over Australia this revolution. We'll be in touch next through the tracking ship Redstone and in about 28 minutes, we'll have our first acquisition of the day through the site at Corpus Christi, Texas. This is Apollo Control at 208 hours into the mission.

APOLLO 7 COMMENTARY, 10/20/68, GET: 208:13 (CDT 2:16A) 617/1

PAO This is Apollo Control, Houston, at 208 hours 13 minutes. At the present time, the spacecraft is approaching the tracking ship Redstone. This will be a relatively low-angle pass. The spacecraft is about 5 degrees off the horizon and at this time, the crew aboard Apollo 7 is involved in getting set up for that sixth service propulsion system burn scheduled in a little less than 2 hours. We now have acquisition of the spacecraft and we'll stand by for CAPCOM Bill Pogue to put in a call to Wally Schirra and the crew.

SC (Garble)

CAPCOM Go. Apollo 7, Houston. Go. Apollo 7,

Houston. I read you. Go.

SC Roger.

SC Houston, Apollo 7.

CAPCOM Apollo 7, Houston. Go.

SC Roger. You're getting the readouts off

our DSKY down there, aren't you?

CAPCOM Affirmative.

SC Okay, thank you. I knew it, Bill, I

had 34 balls, and now I've got 34 balls 1 here.

CAPCOM I've been watching that. They've been

looking good.

CĂPCOM Apollo 7, Houston. One minute LOS

Redstone. Texas at 28.

PAO This is Mission Control. We've now had loss of signal from the Redstone and we'll pick up the spacecraft in about 7 minutes from the outside at Corpus Christi, Texas. This is Apollo Control, 208 hours 21 minutes

APOLLO 7 COMMENTARY, 10/20/68, GET: 20828 (CDT 2:30 a) 618/1

This is Apollo Control at 208 hours PAO 28 minutes and we have acquired the spacecraft for the first time today from our site at Corpus Christi, Texas, and we'll pick that one up for you at the beginning.

Apollo 7, Houston through Texas. CAPCOM

Good morning, Texas. SC

Good morning. And I have an update for CAPCOM the second passive thermal control test.

Go ahead. SC

CAPCOM

Go ahead, Bill. What do you have Rog. SC on the passive thermal control?

Right. I have the update for times and attitude.

Go ahead. SC

Right. T 0212 plus 05, T align 212 plus CAPCOM 31, attitude is roll zero, pitch zero, yaw zero. I also have some changes to the procedure.

Did you give a T zero first? Rog. SC

T zero 212 plus zero 5. CAPCOM

Zero 212 plus zero 5, 212 plus 31, roll SC zero, pitch zero, yaw zero. You want to change your procedure?

Right. At T plus 5, make it read set up CAPCOM pitch rate, et cetera.

I bet you read a point 3. SC -

Right. And then just below LBR, where CAPCOM it says P and Y attitude hold, make that read R and Y attitude hold.

Roll and yaw attitude hold, pitch atti-SC

tude reads point 3 for second - right?

CAPCOM Right. At T plus 26, confirm right - that's correct, pitch rate point 3 degrees per second, et cetera. And make it disable R and Y, roll and yaw. Okay. SC

And the second line from the bottom there, CAPCOM from Y-axis orientation, et cetera. And just as a reminder, don't key in the T-align time until within 90 minutes of start test.

Apollo 7, Houston. You're GO for 150 CAPCOM

dash 1.

That's the next to last Roger, thank you. SC

one, isn't it?

Just about. And I passed up - I said don't key in T-align time til within 90 minutes of start test. That was wrong. It should have been don't key in T-align time til within 90 minutes of T-align time.

APOLLO 7 COMMENTARY, 10/20/68, GET: 20828 (CDT 2:30A) 618/2

That's the way I took it. Roger. SC

Okay. CAPCOM

Apollo 7, Houston. One minute LOS CAPCOM

Bermuda. Canary at  $4\overline{4}$ .

Rog, Bill. SC

This is Apollo Control. We've had loss PAO of signal now from the tracking station at Bermuda. We'll pick up the spacecraft again in about 4 minutes as it swings on out over the Canary Islands site. During that stateside pass, we passed up to the crew a GO for rev 150 dash 1, a GO for another in orbit. We also gave them an update for their second passive thermal control test, scheduled to take place in a little over 3 hours, at which time they will put the spacecraft into a very slow forward pitching maneuver so that it will be tumbling end over end once about every 20 minutes. The test total - last a total of about 26 minutes. At 208 hours 42 minutes, this is Apollo Control.

PAO This is Apollo Control. We are about to reacquire the spacecraft now at the Canary Island site at 208 hours 44 minutes. We'll stand by for Cap Com Bill Pogue to put in a call to the crew.

CAP COM Apollo 7, Houston through Canary, stand-

ing by.

SC Roger. Ah, Bill would you look up the man hours that was flown on Gemini 7.

CAP COM Stand by.

SC We passed Gemini V on time we're wanting to pass Gemini VII on man hours.

CAP COM Oh, I see what - okay. (pause) Apollo 7, Houston.

SC Go ahead, Bill.

CAP COM Right. Gemini VII 661.2 hours, you are coming up on 627 in about 13 minutes.

SC Roger.

CAP COM Also, we would like the SPS line heaters to A, we have an engine valve temp around 50 degrees we'd like to warm that up a little bit and you can turn that back off whenever the inlet temperature reaches 75 degrees or in any event turn it off before the burn.

SC Okay, I have a SPS propellant tank temperature there which is not a very apt description maybe of the ... Should I turn it off when my measurement shows 75?

CAP COM That is affirmative. But stand by for a check on that.

SC Okay, I'm turning the heaters on now.

CAP COM Right. (pause) Apollo 7, Houston, that is affirmative. When the propellant tank temperature reaches 75 degrees. (pause) Apollo 7, Houston, one minute LOS Canary, Carnarvon at 18.

SC Roger. We got a real thrill, we saw a ... oh about 100 miles long right over the Canary Islands. We didn't get a chance to get a picture though.

CAP COM Rog. Contrail.

SC Roger, it was really a long one. We just don't have that kind of film anymore.

CAP COM Right, too bad.

PAO This is Apollo Control. The spacecraft has now gone out of range of the Canary station. We'll acquire again at Carnarvon, Australia. During that pass you heard Wally Schirra request the total man hours in orbit for the longest U.S. space flight to date, the Gemini VII mission and that figured out to about 661.2 hours. We advised the spacecraft that they will shortly have 627 man hours. In rough figures that means they have about 10 hours

APOLLO 7 COMMENTARY, 10/20/68, GET: 2084200 (CDT 3:46a) 619/2

PAO to go before they equal and surpass the Gemini VII for man hours in space, on a single mission. Wally also mention sighting a very long contrail, we assume from a jet aircraft flying below them over the Canary Islands. He estimated that it was about 100 miles and was a very spectacular sight. This is Apollo Control at 208 hours 53 minutes into the mission.

This is Apollo Control at 209 hours 18 minutes. The spacecraft presently coming up on the Carnarvon, Australia, tracking station and we'll be acquiring shortly. Coming up at the end of this burn, rather at the end of this revolution and the beginning of the next one, we will have the minimum impulse burn, the sixth maneuver with the service propulsion system engine. That burn will be on the order of one-half second duration for the purpose of determining just how closely the guidance and navigation system can control a very short duration burn. And CAPCOM Bill Pogue has just put in a call to the crew over Carnarvon.

Apollo 7, Houston. On the time hack CAPCOM on 209 plus 19 coming up in 5 seconds. Mark 209 plus 19.

Do it again. SC

Rog, I'll give you a mark on 209 plus CAPCOM

20.

Rog. . . (unreadable)

CAPCOM I'm having difficulty copying, Wally.

10, 5, 4, 3, 2, 1, Mark. 20 - SC . . . (unreadable) Right, thank you. CAPCOM

I was with you. That's pretty tight, isn't it? My remark was you should have played with those Mercury range clocks if you want fun.

CAPCOM Right.

Hello down there, Carnarvon. You look SC

good today.

Apollo 7, Houston. One minute LOS CAPCOM Standing by 1 minute for Honeysuckle. Carnarvon.

SC Roger.

This is Apollo Control. We've had a PAO loss of signal now from the Carnarvon station and we'll continue to stand by for reacquisition of the spacecraft momentarily over the station at Honeysuckle.

Apollo 7, Houston. One minute LOS CAPCOM

Honeysuckle. Guaymas at 58.

Roger. SC

This is Apollo Control. Very little PAO conversation on that pass over Australia as the crew appears to be actively involved in getting ready for the upcoming SPS burn. Now that burn, by the way, is scheduled to occur over the eastern Gulf of Mexico at just the time we hand over communications from Corpus Christi to the station at MILA. Burn time, again, is 210 hours 8 minutes elapsed time. At 209 hours 37 minutes, this is Apollo Control.

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APOLLO 7 COMMENTARY, 10/20/68, GET: 2101300 (CDT 4:01a)
                                                         621/1
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This is Apollo Control at 209 hours PAO Apollo 7 is now crossing the Eastern Pacific 59 minutes. coming up on the coast of Mexico. As we approach the stateside pass that will see the sixth burn of the 20 000 pound thrust service propulsion system engine. As the spacecraft went out of sight from the Honeysuckle, Australia station, we got a report that they were in burn attitude, rolled heads down and the nose of the spacecraft at right angles to the flight path. We'll pick up the conversation now from the station at Guaymas.

30 second check list. SC

Rog, thank you. CAP COM

... anything ... accomplished ... wire heaters on board, I'm reading exactly ... temperature on mine.

Yes, we did show an increase at Carnar-CAP COM von on your valve temp.

Okay. (garbled) may not be able ... verify how much water we burned yesterday on the secondary coolant loop test.

Okay. We're checking on it. (pause) CAP COM

Apollo 7, Houston, are you trying to call.

Negative.

Rog. (pause) Apollo 7, Houston. CAP CCM

Confirm omni A.

That's affirmative. SC

CAP COM SC

Thank you. Looks like another one might be better.

RCS circuit breakers closed.

... water control ... closed.

Direct RCS OFF Direct RCS OFF

One roll channel in able

One roll channel in B&D in able

BMAGS are 82 BMAGS are 82

Spacecraft control CMC AUTO

CMC AUTO

SCS TV both ... command

Break command

TVC Gimbal drive pitch and yaw AUTO

TVC Servo power one and two ON

One and two ON

Hand controller power to one Hand controller power to one

Hand controller two ON, stand by for

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APOLLO 7 COMMENTARY, 10/20/68, GET: 2101300 (CDT 4:01a) 621/2
                     Check
     SC
                     Less than five minutes now from the burn
     PAO
the crew going through a final check list.
                     Ğimbal motor pitch one yaw one
                     Pitch one - start
                     0n
                     Gimbal one - start
                     On
                     Translation ... clockwise
                     Clockwise
                     Verify no MTVC
                     No MTVC
                     Pitch two Yaw two
                     Pitch two - start
                     On
                     Yaw two - start
                     On
                     Confirm ... trim
                     KPI set
                     Verify MTVC
                     Roger MTVC verified
                     Translation hand controller neutral
                     Neutral
                     Hand controller power to both
                     Both
                      ... trim over
                     Roger
                     Direct RCS ON - Direct RCS ON
                     Roger, direct RCS is ON
                      ... attitude rate command
                      Rate command
                      BMAG att 1 rate 2
                      Att 1 rate 2
                      Standing by for two minutes.
                      Roger.
                      Check maneuvers - GO.
                      ... need another GDC align
                      If we do, now is the time to do it.
                      Two minutes.
      CAP COM
                      Two minutes.
      SC
                      FDAI scale five five
                      Five and five
                      L&V thrust A&B normal
                      ... normal
                      Hand controllers armed
                      Hand controllers armed
                      Standing by for 30 seconds.
                      Roger.
                      Coming up on one minute to the burn and
       PAO
 all displays on flight director Jerry Griffin's console
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APOLLO 7 COMMENTARY, 10/20/68, GET: 2101300 (CDT 4:01a) 621/3
                    continue to show green.
     PAO
                    Okay EMS to Delta V in AUTO
     SC
                    Delta V on 30 seconds
                    2 jet ullage in 20 seconds
                    Roger
                    20 seconds
                    Jet ullage now
                    Ten (pause) five, four, three, two, one,
     CAP COM
                    ignition.
                    Complete
     SC
                    Roger, bring complete Delta V thrust
A & B OFF, spacecraft control SCS, do you read those ...
                    Rog, I have them.
     CAP COM
     SC
                    Roger.
                    Circuit breakers ... control ... open
                     ... circuit breakers open
                    ... power one and two OFF
                    Direct RCS OFF
                    Direct RCS OFF
                    Mein buss ties are already OFF
                    ENS mode - OFF standby reading residuals
                    Roger, I got minus 12.8 on L&D counter.
... no chance to read it now.
                    Ah, Donn, what'd you have to start with?
     CAP COM
What did you have set in?
                    5.5 '
     SC
                    Thank you.
     CAP COM
                    That's almost a space first. We did it
     SC
without hearing you "Cats".
                    Can we go back to bed, now?
                    Hope you all weren't scared down there?
                    We were watching.
     CAP COM
                    Don't you feel like your kinda left out?
     SC
                    We saw it all.
     CAP COM
                    Settin' okay.
     SC
                    And, we've been advised here in the
     PAO
Control Center that that burn apparently had a duration of
.4 of a second 1/10th of a second below the nominal 5/10ths
and very good.
     CAP COM
                    Apollo 7, Houston.
                    Go ahead, Bill, roger.
     SC
                    I have a block data pad here, back to
     CAP COM
the mundane things, when you're ready to copy.
                    Ready to copy.
     SC
                    Rog, block data 135 dash 1 alpha +266
     CAP COM
-0630 213 00 32 2817, 136 dash 4 alpha +279 -1618 215 38 45
3689, 137 dash 4 bravo +302 -1620 217 17 27 3168, 138 dash
4 alpha +280 -1617 218 57 54 2840, 139 dash 4 bravo +217
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APOLLO 7 COMMENTARY, 10/20/68, GET: 2101300 (CDT 4:01a) 621/4

CAP COM -1640 220 39 03 2969, 140 dash alpha Charlie -250 -0050 221

CAPCOM 221 1 niner 06, 73 niner 2. Standing by for readback.

SC Readback follows: 135 dash 1 alpha plus 266 minus 0630, 213 plus 00 plus 32, 2817 136 pdash 4 alpha plus 279 minus 1618 215 plus 38 plus 453689 137 dash 4 baker plus 302 minus 1620, 217 plus 17 plus 27, 3168 138 dash 4 alpha plus 280 minus 161.7, 28 plus 57 plus 54, 2840, 139 dash 4 baker plus 217 minus 1640, 220 plus 39 plus 03, 2969 140 dash alpha charlie minus 250 minus 0050, 221 plus 19 plus 06, 7392. Over.

CAPCOM Readback is correct.

CAPCOM Apollo 7, Houston. One minute to los

Bermuda, Canary at one niner.

PAO This is Apollo Control. That minimum impulse SPS burn appeared to be right on the money. We were targeted for a maximum of about five tenths of a second and we came up a little better than that at about four tenths of a second. We're standing by for a readout on the Delta V imported to the orbit, the change in velocity and the amount of propellant consumed in that very short burn. We would anticipate that the change in velocity would be something on the order of 15 feet per second. We don't anticipate that it would have much affect on the orbit. We will be re-aquiring the spacecraft shortly from the station at Canary Island. At the present time we have gone out of range from the Bermuda station. This is Apollo Control at 210 hours, 19 minutes.

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APOLLO 7 COMMENTARY, 10/20/68, GET:21020, (CDT 4:23A) 623/1
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This is Apollo Control. We've just put PAO in a call to the spacecraft through Canaries. We'll pick up that conversation. What happened to your com? We missed SC your 2-minute and 1-minute check. Well, I gave you a 2 minute and I waited CAPCOM and didn't say anything at 1 minute. We said we were going to stay a bit more quiet on this burn for you. That's okay. I don't think we read your SC 2 minute. Of course, we may have overridden you cause you were broadcasting. There was some background noise activity just about that time that was very strong. Yeah, it must have been us. I've also CAPCOM been having some trouble keying. Yeah, Donn should have his key on. It was open on the key. That's why I'm trying to bring the point up for you. That will give the Com Tech something to do. CAPCOM Rog. Bill. do you have apogee and perigee SC for us after -Stand by. We're doing some tracking CAPCOM right now. We'll give you the results shortly. Okay. Bill, this is Wally. SC CAPCOM Go. Roger. Someone is keying on us. SC Say someone is keying on you. CAPCOM That's right. Very slowly. I'd like SC to give you a statement for the day. Right. CAPCOM We are going to acquire a static fire SC on the SPS engine for 101. Copied. Right. CAPCOM At this time. SC You're right. CAPCOM I might add that I'm also glad to be in SC the position of having the ability to avoid saying I told you so on this one. Amen to that. And have your orbit now. CAPCOM 90.3 by 236.2. 216.2, huh? Roger. SC SC That was 236.2? Affirmative. 236.2. CAPCOM Okay. Our first cut onboard, just to compare the two was 2347 and 882.

Rog. 2347 and 882.

CAPCOM

APOLLO 7 COMMENTARY, 10/20/68, GET 21020 (CDT 4:23A) 623/2

Right. Guess we'll have to compare the SC

two as best we can.

CAPCOM Rog.

Houston, Apollo 7. SC Apollo 7, Houston. Go. CAPCOM

Rog. We had the TV camera off that SC

And it came out of the bracket. time, not running.

Rog. Understand. CAPCOM

In my lap. Didn't hurt anything, just SC

got caught on my leg.

And you did have it in the bracket? CAPCOM

That's right. SC

The tunnel hatch bracket. SC

Right. CAPCOM

The other thing that I don't think we've SC ever even thought of is that all of our burns have been conducted with the couch in the dock position and no

problem. Understand. CAPCOM

We'll meet the retro burn with the couch SC in the boost position.

Roger. CAPCOM

One minute LOS Apollo 7, Houston. CAPCOM

Canary. Tananarive at 40. Roger. SC

We've had loss This is Apollo Control. PAO of signal now from the station at Canaries. We'll acquire next over Tananarive. During that pass, you heard Waily Schirra comment that the TV camera apparently came off its bracket and into his lap during the SPS burn. He reported that there was no damage done and seemed to indicate satisfaction with the performance again of the SPS engine in that sixth burn. We now have two more burns scheduled, one of those being the burn to take the spacecraft out of orbit early Tuesday morning. At 210 hours, 28 minutes into the flight, this is Apollo Control.

This is Apollo Control, Houston at PAO 210 hours, 41 minutes. We're standing by at this time to acquire the spacecraft over Tannanarive off the southeast coast of Africa.

Apollo 7, Houston through Tannanarive. CAPCOM - Apollo 7, Houston, one minute LOS Tannanarive, Carnarvon at 54.

This is Mission Control. We've had loss PAO of signal now from Tannanarive, no conversations with the crew on that pass. This is Apollo Control at 210 hours 46 minutes.

This is Apollo Control at 210 hours PAO We have some updated figures for that previous 54 minutes. SPS burn, burn number 6, the minimum impulse. Subsequent telemetry shows that the total time of the burn including tailoff was five-tenths of a second and we calculate a Delta-V change of velocity of 18.6 feet per second. Now we've just put in a call to the crew now over the Carnarvon, Australia, tracking station. We'll listen in.

. . . and, Walt, I have the water con-CAPCOM sumption during the secondary loop test yesterday as being approximately 5 to 8 pounds. Some uncertainty because

there wasn't an eat period at that time.

Because there wasn't what period? SC

An eat period. CAPCOM

An eat period, okay. You can tell SC them that they can count on whatever reconstitutionals were in that meal, we used the water that went with them.

Rog. CAPCOM They still want the eight clicks from SC

the water gun?

Rog. CAPCOM

Might make a note that I consistently reported that the water gun's trigger action is becoming very very stiff and we're taking some of our drinking water and putting it in an empty bag out of the spout down there and the cold water spout is getting a little stiff, too. The hot water spout is still working nice and smooth.

Rog. Understand. Copied. CAPCOM

Apollo 7, Houston. One minute LOS CAPCOM Carnarvon, S-band volume up in 1 minute for Honeysuckle.

This is Apollo Control. We've now lost our communications with the spacecraft over Carnarvon. We'll be reacquiring at Honeysuckle shortly. We'll stand by and we'll come back up with any conversations that develop over eastern Australia. This is Apollo Control, at 211 hours 4 minutes into the flight.

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APOLLO 7 COMMENTARY, 10/20/68, GET: 2112700 (CDT 5:30a) 626/1
                     This is Apollo Control at 211 hours
     PAO
28 minutes.
             We've just acquired the spacecraft now from
the tracking ship Huntsville. We'll stand by for the call.
     CAP COM
                    Through Huntsville.
     SC
     CAP COM
                    And we'd like the O2 tank two fans ON
three minutes and then OFF.
     HTV
                    Houston, Huntsville cannot log, downlink
too low.
     CAP COM
                    Apollo 7, Houston. Would you say again
last.
                    (garbled) (pause) Hey, Bill, we've
got the ... OFF and are leaving them off now.
     CAP COM
                    Okay, roger.
     HTV
                    Huntsville LOS.
     CAP COM
                    Apollo 7, Houston. How do you read?
     SC
                    Loud and clear.
     CAP COM
                    Roger, I was having difficulty reading
                    I read you to say line heaters were OFF
you at Huntsville.
and that you were leaving them OFF. Was that correct?
                    No, the line heaters are off, we're
leaving them off and we also turned the fans off - the O2
tank two.
     CAP COM
                    Rog. Did you cycle them?
                    Sure did.
     SC
     CAP COM
                    Rog, thank you. (pause) Apollo 7,
Houston.
                    Go ahead.
     SC
                    I have some information here on landmark
     CAP COM
tracking that might be helpful. If you desire to get your
landmark maps in order, the following landmarks will be on
track for the first landmark exercise. I'll stand by until
you're ready to copy.
                    Okay, Bill. Roger, you just going to
read off the numbers right?
     CAP COM
                    Affirmative.
                    Okay, go ahead with the numbers. 20, 48, 71, 225. That's it. Note:
     SC
     CAP COM
we will have landmark update for you at 212 + 30. An
additional note for clarification. Also, landmark 48 is on
the page for landmark 40 in your map set.
     SC
                    Okay, thank you.
     CAP COM
                    Rog.
     SC
                    You got any idea of the weather along
these marks, Bill? Are they all clear?
     CAP COM
                    Stand by. That's a good question.
```

(pause) Apollo 7, Houston. I have the weather on those

APOLLO 7 COMMENTARY, 10/20/68, GET: 2113700 (CDT 5:30a) 626/2 landmarks. CAP COM Go ahead, Bill. SCRoger. For landmark 20 the coverage is CAP COM 4/10ths, for landmark 48 coverage is 2/10ths, 71 - 3/10ths, 225 is 1/10th. Roger read you. SCHouston, Apollo 7. SC Apollo 7, Houston. CAPCOM Don't you think that you have got me set SC up for the maximum purging torque I can get. Standby. CAPCOM We'll go ahead and - I think we've got plenty of fuel, no problems. Okay, we'll check. CAPCOM I'm going to try to give this thing the most torque I could in purging, as to the way I'm flying. That's BEF about 60 degrees off. Apollo 7, Houston. CAPCOM Go ahead. SC Roger, this is the same thing that we CAPCOM had last night. Donn questioned us on it and it was a good one then and is now and the answer is that we realize what you're saying is true, but in order to get the test performed above 200 miles, we have to start it low like this. Roger. It's amazing that the (garble) of people can figure it out up here and those computers can't. (garble). CAPCOM Okay. If you get a chance, get some more data on this purging torque. Roger. CAPCOM

PAO This is Apollo Control at 211 hours 51 minutes. It doesn't appear as if we'll have any additional communication with the spacecraft until we re-acquire at Canary Island is about 5 minutes.

END OF TAPE

This is Mission Control, Houston at PAO Spacecraft approaching the Canary Island 211 hours 56 minutes. site now - we'll be acquiring shortly there. At the present time the orbital weight of the combined command and service module is at 24,736 pounds. That following the sixth SPS burn this morning. The orbit is 236.1 by 90.1 and we have an orbital period of 90 minutes 35 seconds. We've just acquired spacecraft at Canaries. We'll stand by for the call.

Apollo 7, Houston through Canary. CAPCOM

SC Roger.

Say, Donn I have a little tweek on that CAPCOM P22 horizon and sighting procedure.

Okay, go ahead.

Roger. We want to get TM and during this CAPCOM procedure and the procedure has been modified as follows: 1. Do the test over ascension on the next pass. That will be at approximately 213 + 37 and wait for call from ground before starting. We want TM lockup for data and this is a low elevation pass. 2. and this is a change from the previous procedure - go through P22 twice making two marks approximately five seconds between marks. Before going through P22 the second time wait for a GO from the ground. Again we want to insure that we have a TM lockup.

Roger, that was 213 + 37. SC

Affirmative. CAPCOM

Do you want me to wait for you to confirm SC it or you want to lockup, is that correct?

Affirmative. CAPCOM

(garbled) and you want the marks five SC

seconds apart.

Two marks. That's right. But we only CAPCOM need two marks each time.

Oh, just two marks, right? SC

Affirmative. CAPCOM

This is Apollo Control, we've had LOS now following that relatively quiet pass over the Canary Islands. We'll acquire the spacecraft again over Tananarive and that will be in about 12 or 13 minutes from now. This is Apollo Control at 212 hours 2 minutes.

APOLLO 7 COMMENTARY, 10/20/68, GET:21214 (CDT 6:17A) 629/1

PAO This is Apollo Control at 212 hours 14 minutes. We're standing by now to acquire the space-craft through Tananarive.

CAPCOM Apollo 7, Houston through Tananarive.
CAPCOM Apollo 7, Houston, one minute LOS

Tananarive. Carnarvon at 29.

We've had loss of signal with the PAO spacecraft through Tananarive on another very quiet pass. Now this is a relatively quiet period in the flight plan for the Apollo 7 crew. We do have a passive thermal control test in progress, at the present time. That is scheduled to last a total of about 45 minutes, and it involves the requires the crew to impart a very slow tumbling momentum to the spacecraft at a rate of about three-tenths of a degree per second, which would figure out to about one revolution or one complete tumble every 20 minutes. this period of time, be observing the thermal condition of the spacecraft and how it behaves thermally when in a, not a controlled, but a drifting flight mode. We'll be acquiring at Carnarvon in about 6 or 7 minutes from now. Apollo Control at 212 hours 24 minutes.

APOLLO 7 COMMENTARY, 10/20/68, GET: 21231 (CDT 06:33a) 630/1 This is Apollo Control at 212 hours 30 PAO We are in touch with the spacecraft over Carnarminutes. We will tune in on that conversation now. Apollo 7, Houston through Carnarvon. CAPCOM Roger. I wish you would find out the SCidiot's name who thought up this test. I want to find out and I want to talk to him personally when I get back down. CAPCOM Roger, Wally. Good morning. SC Good morning. Where is Jack? They told me I was out about 20 pounds of fuel to get this attitude right now. CAPCOM Roger -SC While you are at it, find out who dreamed up D22 horizon test, that is a beauty also. CAPCOM Okay, Donn. I understand the objectives and I understand the reason, but I just don't understand all the changes and so forth at the last minute. I think it's rather ill prepared and hastily conceived. CAPCOM Ruger. SC I'm sitting just watching roll beat back and forth + 2/10th of a degree per second. I have got to go better than that. Jack, I need one question answered on SC this landmark jazz, too. I guess the idea is to put the sixth landmark on the horizon. Now what do you want me to do with the movable line of sight, I mean the sixth ins of sight on the right. With the movable on, do you release the zero optics or do you want me to run it off, so we are looking only through the sixth - sixth line of sight with & filter in it? CAPCOM Okay, Donn, I will get you an answer. SC Okay. SC Hell no, we are real happy this morning. CAPCOM Navy won and so did Ohio State. How did Stanford do, by the way? SC Just a minute, I'll get it for you. CAPCOM CAPCOM Apollo 7, Houston. SC Go ahead. Roger. CAPCOM SC Go ahead, Jack. Okay. In answer to Donn's question on CAPCOM the landmark line of sight, put the landmark line of sight

on the horizon. You can move the star line of sight away from the horizon to get rid of the earth's albedo affect.

And Wally, you - the answer to your ques-

Very good, or very bad, just depending.

Okay, I see.

tion, Stanford and Washington played to a 21-21 tie.

SC

CAPCOM

APOLLO 7 COMMENTARY, 10/20/68, GET: 21231 (CDT 06:33a) 630/2

Thank you. SC Roger. CAPCOM

We have a feeling you are believing that SC some of these experimenters are holier than God down there. We are a heck of a lot closer to him right now.

(chuckle) Roger. CAPCOM

Then we just (garble) spend 26 minutes SC getting to a very precise attitude, then high pick and right through perigee.

Roger, copy, Wally. CAPCOM

Also, started just about 10 days ago, SC right up to it. Can't even get a roll to get it down.

Could we have opposite omni, 7. CAPCOM

Roger. SC

Apollo 7, Houston. CAPCOM

Go. SC

Okay. We are close to losing you here CAPCOM at Carnarvon. We do have Honeysuckle. Do you want to turn your S-band up? Over Hawaii, we are going to send you a state vector update and I've got the lunar - I mean this landmark tracking pass for you.

0 37 SC This is Mission Control Houston. PAO spacecraft now going out of range of the station at Carnar-We will be reacquiring shortly at Honeysuckle. Here at the Mission Control Center, we are presently undergoing a change of shift, with Glynn Lunney's black team coming on to replace the gold team headed by flight director Jerry During the previous shift, we gave the species ft Griffin. a go for - through revs 150 and that will be anothe day in flight, at least. That came on the 131st revolution at 208 hours into the flight. At 210 hours 08 minutes, we carried out the sixth service propulsion system burn, right That burn was as planned, with a duration of on schedule. about 1/2 second and imparted a delta velocity, a change in velocity, to the spacecraft of about 18.6 feet per second. The present orbit is 90.3 nautical miles at the low point, and we have an apogee of 236.2. During the previous shift, we also began the second passive thermal control test, putting the spacecraft in a slow end-over-end roll, or rather, tumble and observed the thermal control - the effects on the thermal condition of the spacecraft during this control tumbling action. The television pass for the morning is scheduled to come up at the end of this revolution, ground elapsed time of 213 hours 12 minutes, or about 7:14 am Houston time. The Space Flight Meteorology Group, our weather bureau, reports that weather conditions for the flight of Apollo 7 during the next 24 hours will be satis-

factory. This is Apollo Control at 212 hours 41 minutes.

Houston, Apollo 7. CAPCOM Go ahead, Donn. Apollo 7, Houston. CAPCOM SC Houston, Apollo 7. CAPCOM Apollo 7, Houston. Roger. You want to give me those updates SC now, Jack? Okay, Donn, I can do it. CAPCOM Fire away. SC There are three landmarks. Number 1 is CAPCOM It's North of ground track 49 miles. The time 214 plus 55, GET, 327, trunnion 033. And the second one, Donn, is 71. It's 4 miles South of ground track. 214 plus 59, shaft 002 and a trunnion 030. We're giving you these two and we're just going to let you choose which one of the two that you think you would rather do. The weather is about the same in both of these. You can choose either one of those and the second landmark is number 225. It's 44 miles North of ground track, DT is 215 plus 21, shaft 340, the trunnion 030. What happened to landmark 20? SC Okay, Donn. That's so close to the CAPCOM other two that we thought we'd rather not do it. I can give you the data. It's only 4 minutes before landmark 48 so we kind of thought that was too close for you. Well, give me the data anyway. SC Okay. Landmark 20 is 51 miles North of CAPCOM It's T 14 plus 51 on the GET, shaft 329, ground track. trunnion 032. Now give me landmark 225 North or South? SC Landmark 225 is 44 miles North of CAPCOM ground track. Okay. SC And, Donn, landmark 20 is about four-CAPCOM That's about the worst of all of them. tenths covered. SC I wonder if he said due North? We SC should be doing 48 by now. Say again, Donn. CAPCOM I said Donn should know where 20 is, SC at least. . . (unreadable). We're about 2 CAPCOM minutes LOS Honeysuckle. We'll pick you up in Hawaii at

Okay.

SC

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APOLLO 7 COMMENTARY, 10/20/68, GET: 21257 (CDT 7:00A) 632/1
                    This is Apollo Control Houston at 212
     PAO
hours 57 minutes into the flight. We have some tape through
Hawaii, which just acquired, and we'll start that tape and
catch up with the conversation.
                    Apollo 7 Houston through Hawaii.
     CAPCOM
                    I finished the so-called pitch pony test,
     SC
and I think you might take note of the fuel we have left
after that caper. I wish you would log that.
                    Okay, Wally, I'm going to be coming back
     CAPCOM
          It's a real good hack on your fuel usage. We've
with you.
really been watching that closely.
                    We've got the fuel to burn, but that's
     SC
a hell of a way to burn it up.
                     I agree.
     CAPCOM
                    Okay, Wally, right now we show that
     CAPCOM
you've used 13 pounds in the PTC test, which is right on
what we expected, and -
                     I'd like to cut that to about 4 pounds
     SC
(garbled)
                     Cald you go to PU and ACCEPT and we'll
     CAPCOM
send up this state vector.
                     Go ahead Jack.
     SC
                     Okay. 214 plus 20 plus all balls minus
     CAPCOM
0921 plus 14534 2341.
                     Could you read it to me again, please?
     SC
                     Roger. 214 plus 20 plus all talls minus
     CAPCOM
0921 plus 14534 2341.
                     (garbled) would you give it to me one
      SC
more time?
                     Okay. 214 plus 20 plus all balls minus
      CAPCOM
 0921 plus 14534 2341.
                     Roger. 214 20 0000 minus 0921 plus 14534
      SC
 2341.
                     You got it.
      CAPCOM
                     Hey Jack, what day what meal are we
 supposed to be eating around noon?
                     You want to know what your eat period is?
      CAPCOM
                     No, what meal I'm supposed to eat next.
      SC
                     Okay, stand by.
      CAPCOM
                     I think we've got a minor crisis.
      SC
      CAPCOM
                     Roger.
                     Apollo 7, the computer is yours.
      CAPCOM
                     Go on the NAV check.
      SC
                     Okay, copy that.
      CAPCOM
                     We have a feeling that the dietician
 somewhere on a 10.8 day flight which means like 11 working
 days. The flight plan, however, has 12 working days. It looks
 like we're one day short on chow.
                     Okay, Wally, we're just coming up - we're
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CAPCOM

APOLLO 7 COMMENTARY, 10/20/68, GET: 21257 (CDT 7:00A) 632/2

CAPCOM 3 hours short of starting a 10th day, so this would be meal C on the 9th day, or meal A on the 10th day.

SC Roger, it's meal B. Like anybody else

we eat three meals a working day.

CAPCOM Roger.

CAPCOM Go ahead Apollo 7.

pao Apollo Control here 213 hours and 10 minutes into the flight and Guaymas is acquiring, on which we just might see some television here in a moment.

PAO The Flight Director reminds us all that we are about to get acquisition with Texas, according to the chart we should acquisition there right now. This pass has been an unusually quiet one since we acquired at Hawaii. The crew yesterday was advised to make this purely an operational test of the television system, that is, to simply turn it on and go about their normal duties as they cross the States. We are seeing a rather foggy picture right now, let's see if we can sharpen it up a little. There, we get a shot of the camera looking up at -.

SC Roger. We have ALC in on that right now.

CAPCOM Okay, looks good.

SC Put out, we have an out. Well one way or the other anyway. (garble) We can change the ALC.

CAPCOM Okay.

PAO The camera is looking up at Donn Eisele there, from the lower equipment bay mounted position.

CAPCOM That looks real fine, it's a real good picture.

PAO Notice Donn Eisele has his suit on, his hoses all hooked up.

PAO That was a big space yawn.

pAO See Walt Cunningham off to the top of the picture there. Donn Eisele takes a look at the flight plan. It's not clear to us how Donn is anchored below there, perhaps he has his feet wedged in somehow under the struts under of under the seat. The trouble, they say, is not due to your set, the picture has gone bad. Here it is back. The sound of the voice quality, if they are saying anything, getting some sound now.

SC There's a beautiful sight today, the sulighting up the whole Gulf of Mexico. (garble) We can realisee Lake Okeechobee from here. Houston, Apollo 7.

CAPCOM Roger, go ahead 7.

SC Roger, there's beautiful lighting around here.

CAPCOM It looks like Donn needs a shave.

SC I think we all do.

CAPCOM If anybody is near the camera, they might switch the ALC position.

SC Okay.

PAO ALC means the Automatic Lighting Control. I think, unless they have changed the camera, everybody is going to have a kink in their neck trying to see it.

SC It looks like a beautiful day all the way from - beginning with the Gulf Coast up and around to the tip of Florida.

CAPCOM That's good news.

PAO That weather observation came from

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APOLLO 7 COMMENTARY, 10/20/68, GET: 21310 (CDT 7:13a) 633/2
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SC

Walt Cunningham. You can observe the PAO dramatic changes in lighting conditions from the start of this pass to this point. That just shows how rapidly the light conditions do change in space. I guess we can't be accused of looking over their shoulder, but we can be accused of looking under their shoulder this morning. Could we have opposite omni, Apollo 7. CAPCOM Roger. Do you still have the picture. SC We've still got it, we've got it for a CAPCOM Looks like you're doing a little looking couple more minutes. for landmarks, Donn. (garble) that's one of the most spectacular SCsights I've seen just now, all the way across the States. You can see the whole Florida peninsula lit up by the sun rays, this morning of course, all the way from the west coast, all the way across the Gulf Coast. Copy that. CAPCOM This has been a long, quiet, strictly PAO business pass this morning. Now we can see Wally Schirra on the lower part of your screen. Hey Jack, on magazine R, frames 58, 59. and 60 were taken looking towards Florida on this pass. Okay, I log that. CAPCOM The last one is looking down at the Cape. SC Got a lot of sun coming in the lens, I hope we have some pictures of it. Yes, we can see it's pretty sunny in there. CAPCOM That's probably the water gun in Cunningham's PAO hand. Hey Walt. CAPCOM Yeah. SC What's the coil-like wire that's coming CAPCOM right in front of the lens there? SC See that? Yes, we can see it. CAPCOM That's the water gun. SC That's what we thought. CAPCOM Can you actually see all three of us sitting SC in here like this? I can just barely see you, it looks like CAPCOM you're chewing on something, and I can see Donn real good, but I can't see Wally. Donn came up to join us especially for SC the show. Okay. CAPCOM He has been down below with the computer. SC I can see Wally now. He's just handing -CAPCOM no, that's Donn that has the map. They don't let me up here very often.

APOLLO 7 COMMENTARY, 10/20/68, GET: 21310 (CDT 7:13a) 633/3

SC Only for the show.

CAPCOM Roger.

SC Somebody has to pump the pedals down here

to keep us going.

CAPCOM Copy that. It looks like we're just about

to lose the picture.

SC Did you see the beards we've got up here Jack?

CAPCOM Sure can.

PAO It looks like we're at the ragged edge of acquisition, the picture coming back a little sharp - no, it's cloudy, it's snowy. That will probably do it, everybody has had their heads cocked at an 80 degree angle. They can pull it back up to upright now. Let's standby for any additional audio for this pass.

APOLLO 7 COMMENTARY, 10/20/68, GET: 21323 (CDT 7:26A) 634/1

SC Roger, Jack, I hope the (garb1ed) SPS burns and TV shows.

CAPCOM Copy that, you can go back to work now.

The TV's off.

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APOLLO 7 COMMENTARY, 10/20/68, GET: 21337 (CDT 7:40A) 635/1
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Apollo Control here 213 hours 37 minutes.
     PAO
We've put the first call in via Ascension and we've not
                   Let's listen.
gotten an answer.
                    Apollo 7 Houston through Ascension.
     CAPCOM
                    Apollo 7 Houston through Ascension.
     CAPCOM
                    Apollo 7, Apollo 7, do you read Houston?
     CAPCOM
                    Apollo 7 Houston opposite omni.
     CAPCOM
     CAPCOM
                    Apollo 7 Houston.
                    Go ahead.
     SC
                    Okay, we've got good solid TM you can
     CAPCOM
start P-22.
                    Apollo 7, How are you doing with marks
     CAPCOM
on P-22?
                    We're working on it.
     SC
                    Okay.
     CAPCOM
                    We're about 1 minute LOS Ascension.
     CAPCOM
We get Tananarive at 50.
                    Donn, if we lose you here we want you
     CAPCOM
to continue this thin, recording it in high bit rate and
then when you've fine the program then go to your up
telemetry to your command reset back to normal.
                                                  We'll dump
it back over the states.
                    Okay, and then you want high bit rate
if we don't get it real time.
                           Just about to lose you.
                    Okay.
     CAPCOM
                     Jack?
     SC
                     Apollo 7 Houston through Taname
     CAPCOM
                    Apollo 7 Houston through Tangar 118
     CAPCOM
standing by.
                    Tananarive M & O Houston CAPCOM.
     CAPCOM
                    Houston CAPCOM, Tananarive.
     TAN
     CAPCOM
                     Roger. Am I going out down there?
                     Affirmative.
     TAN
                     Okay, thank you sir.
     CAPCOM
     TAN
                     You're welcome.
                     Houston, Apollo 7.
     SC
     TAN
                     Roger.
                     Apollo 7 Houston.
     CAPCOM
                     This is Apollo 7. Do you read?
     SC
                     Roger, you're about 2 by, Donn.
                                                       We're
     CAPCOM
standing by here.
                     (garbled)
     SC
                     Roger. Fonn, could you give me an
     CAPCOM
                  The tape was stopped on that P-22.
approximate GET.
                     (garbled) give you the run down.
     SC
you read me okay?
     CAPCOM
                     I'd rather wait till Carnarvon to get
the rundown so I don't miss anything.
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APOLLO 7 COMMENTARY, 10/20/68, GET: 21337 (CDT 7:40A) 635/2

SC You won't miss a hell of a lot if you don't get it here. (garbled) We did not get the results that you're after. We didn't get a damn thing in fact. All we got was program alarm and a restart light and a CMC light.

CAPCOM Roger, I understand and copy you got

a program alarm, restart and a CMC light.

SC I still (garbled) and it happened when I punched the PROCEED button and stepped into the program, P-20. I think it's a result (garbled) realine lights.

CAPCOM Okay, Donn, you faded there, I didn't

quite get it all.

SC We didn't get anything.
SC (garbled) over Carnarvon.

CAPCOM Okay, Donn, copy that you didn't get anything at P-22. We'll be with you over Carnarvon at 05.

APOLLO 7 COMMENTARY, 10/20/68, GET: 21407 (CDT 08:10a) 636/1

PAO This is Apollo Control Houston, 214 hours 07 minutes into the flight. The computer lockup, which you heard discussed over Tananarive, is getting a good working over, in a conversation via Carnarvon. Let's listen.

CAPCOM Apollo 7, Houston through Carnarvon. SC Carnarvon, Houston, Apollo 7. How do

you read me?

CAPCOM I read you 5 by, Donn.

SC Okay, Jack. I don't know if you've got what I said at Ascension or not. Did you read all that?

CAPCOM Negative. You faded out at Ascension and at Tananarive you were just about 2 by, fading in and out also.

SC Okay, I'll start over. We got into proper attitude and I got the horizon in the sextant fixed line of sight. I ran through P22 as per your instructions, up through step 10, I believe, where you proceed, and display and - well, anyway, step 10, when I hit proceed, I got a program alarm and restart light and a CMC light.

CAPCOM Okay, Donn -

SC I tried the (garble) on the verb side to see what the alarm was and the computer wouldn't take it. It was locked up tight. A few minutes later, we decided to try to unlock it, so we did the go-jam procedure. Hit reset, marked reject and reset at the same time, and that unlocked it. I looked at the program alarm and it was 1302, which says that the computer was trying to work with the square root of negative numbers. I think probably, as a result of trying to do marks on the horizon which is a couple thousand miles -

CAPCOM Okay, Donn. I want to ask you on that step 10, when you were setting your option, did you use the

unknown or the known -

SC I loaded in known landmarks.

CAPCOM Okay, copy that. That's what we wanted and so we have got something to mull over down here on the ground.

SC You sure do. I want to talk to the man, or whoever it was that thought up that little gem; that one really got to us.

CAPCOM Okay, Donn - SC Hey, Jack.

CAPCOM Go ahead, Wally.

SC I have had it up here today and from now on, I am going to be an onboard flight director for these updates. We are not going to accept any new games like adding 50 feet to the delta-V quota for a burn, or doing some crazy tests we never heard of before.

CAPCOM Roger -

SC Each test is going to be reviewed thoroughly before we act on it.

APOLLO 7 COMMENTARY, 10/20/68, GET: 21407 (CDT 09:50a) 636/2

CAPCOM Okay. Understand that, Wally.

SC And I suggest that when something like this comes up again, that you take it over to the simulator, run it through, if it wrings out, we may try it -

CAPCOM Copy. Could you give me the approximate

GET that you want your command reset, Wally?

SC It was only a few minutes after we left you - that's about time, time when you called.

Okay, copy. Do you think you will be

able to do the P22 landmark tracking now?

SC Jack, we went ahead and used your last nav check for the update, (garble), so rather than taking erasable, we will go ahead and do the landmarks and after that we want to check the erasable.

CAPCOM Okay, copy that. I have a voice P27 update to give you at this pass over Carnarvon here.

SC What's behind that one?

CAPCOM That was part of the flight plan. It is just to give you prior to the landmark tracking here, in case you need it.

SC Okay, we buy it.

CAPCOM Okay, and the other thing is on P22 landmark tracking area, you going to do it? If you are going to maneuver in minimum impulse we are recommending AC roll for quad balance. If you are going to use the DAP, we would recommend failing quad A and B, this again to balance fuel.

Are you saying that B and D are below

SC A and C now?

CAPCOM

CAPCOM No. A and C, A and B are the low quads, we would like to fail those and just maneuver in quad C and D, if you are going to use DAP control for the landmark tracking.

SC We are going to use pulse, DAP is too

expensive.

CAPCOM Okay, if you are going to use pulse, then in SCS, we would recommend AC roll and BD roll off, and the rest of the channels on.

SC Starting right now.

CAPCOM Okay.

SC Ready to copy, Jack, go.

CAPCOM Okay. Vector verb, state vector verb 71216 + 14 + 002101605000017541466060 - 30563440106175072 005015241550702374367703151112441121707040. The nav check 21544 all balls - 1995 + 101452335. Could you delay the readback just a second.

SC Roger. As follows, verb 71216140021 -

CAPCOM Delay.

SC Did you say delay, Jack?

APOLLO 7 COMMENTARY, 10/20/68, GET: 21407 (CDT 08:10a) 636/3

CAPCOM Roger, delay just a second, Wally. Okay, Wally.

SC Go ahead.

CAPCOM Okay, because of the CMC light and the go-jam procedure, we have got to go back through and do a P51 and a P52, option 2. The key align time will be 215 + 00 + 00.

SC Roger, (garble) and get it right now. Okay, and I'm ready on the readback

there, Wally.
SC
Roger, readback follows. Verb 7121614
002101605000017541466060 13056344010617507200 -- 5015241550
702374367703151112141121707040 and our key align time is
215 + 00 + 00, nav check 21544 4 balls - 1995 + 101452335
over.

CAPCOM Roger, voice P27 was correct and your key align was correct also.

SC Okay, thank you, Jack.

SC Jack, have you detected our concern, that any time we give that computer the balls out and the restart, it just (garble).

CAPCOM Roger. It has concerned us equally as

much, Wally.

right now. I hope everybody is learning that you don't make updates like that without a lot of problems. This is not a simple machine, it's very sneaky, it has a lot of steep paths, and I want everything validated before we train any more with it.

CAPCOM Okay, Wally. We want to get a verb 74, we would like to get an E mod dump here before we go over the hill. We are about 1 minute 15 seconds LOS.

SC We've got alignment coming up, sorry

about that.

CAPCOM Roger, Wally. We still would like to get that verb 74 and catch the dump before you go over the hill.

SC Okay.

CAPCOM Okay, we are about 40 seconds LOS Carnarvon, we get Guam at 21.

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PAO
                     This is Apollo Control 214 hours 33 minutes.
And the conversation has been resumed via Hawaii. We've just
tagged up, let's tune in. To background you a little here,
the crew apparently assumes that some navigational information
that was passed up to them , when it was put in the computer
apparently caused program alarm. That's at least, we're
assuming on the ground that they are making that assumption.
We don't know whether it's a valid assumption yet or not,
but there is no question about the fact that they are making
that assumption. Here is the start of the Hawaii pass.
                     214 hours and 22 minutes, program
52 opposite 02 started (garbled) angles plus 2-724 plus
2 balls 376 minus 01696. Started the angle at 5 balls.
     CAPCOM
                     Okay, copied that, Donn.
     SC
                    We were ready for you.
     CAPCOM
                    Roger, read that.
     CAPCOM
                    Apollo 7 Houston through hawaii.
     SC
                    How does our rations look, Jack?
                    It takes up 15 or 20 minutes, Donn, to
     CAPCOM
have the people look at it in the back room.
     Sc
                    Okay.
     SC
                    That's a lot better than they did when
we had to dump it down at the Cape.
     CAPCOM
                    You're right.
                    What was that? 3 months?
     SC
     CAPCOM
                    We'll get you the word to that as soon
as we can.
     SC
                    Roger. Jack, we'll give that last goop
to the lead elbow and pipe set.
     CAPCOM
                    Wally, I have the morning news and any
footbals scores you're interested in.
     SC
                    Roger, go ahead.
     CAPCOM
                    Okay, Jackie Kennedy and Aristotle Onassis
are to be married today on his island off Greece. They tell
me that back here in Houston the city is sinking.
65 years that parts of the city have sunk as much as 6 feet.
What scores would you like?
                    I've already heard that UCLA lost.
about the University of Houston.
     CAPCOM
                    They didn't play.
     SC
                    You might run up the score on fuel so
far.
     CAPCOM
                    Okay, and work.
     SC
                    That was a real load up as far as I could
tell.
     CAPCOM
                    Roger.
     CAPCOM
                    Wally, we've got a RCS chart update for
you.
     SC
                    Go.
```

```
APOLLO 7 COMMENTARY, 10/20/68, GET: 21433 (CDT 8:36A) 637/2
                    Okay, 5 4 3 pounds.
     CAPCOM
                    5 4 3.
     SC
     CAPCOM
                    Roger.
                    Except for the burn, what did we accomplish
     SC
with all that?
                    Say again, Wally.
     CAPCOM
                    Except for the burn 06 what did we
     \mathsf{SC}
accomplish today?
                    Well, we're going to get a lot of land
     CAPCOM
mark tracking in, and I think that will pretty much accomplish
what we set out to do.
                    Yes, we're going to burn on that though.
     SC
I haven't finished flying that part.
                    If we subtract out the burn there, burn 06,
I'd say we blew about 25 pounds of normal experiment.
                    Roger.
     CAPCOM
                    Jack (garbled) do you read?
     SC
                    Go ahead, Wally.
     CAPCOM
                    What's so discouraging is I sit up here
and we pulse all over the place trying to save a couple of
pounds of fuel, and some guy comes along and puts it in
tight, tight, tight dead band right through perigee.
                    Roger, understand. We discussed all that
before we read up the flight plan to you, and we really wanted
to do it.
                     I understand that, but why do we have to
have tight dead band and then turn it off to get a coding
test? I can do that pulse mode. I don't need to fly this
spacecraft for 26 minutes in tight dead band and then let
it drift. In fact, in the middle of pulse I can get enough
thrusters to pull us through it.
                    Roger, I understand.
     CAPCOM
                     I wish somebody would make the people
     SC
aware of that.
                     Roger, Wally.
     CAPCOM
                     In tight dead band it sits here and
oscillates in roll 01 plus or minus 2/10 of a degree per second.
In plus I can get about 1/100th of a degree per second.
                     Roger.
     CAPCOM
                     That's what we are complaining about.
     SC
                     I understand.
     CAPCOM
                     Jack, I would like to have you call Frank
     SC
Borman and inform he better go to his total flight plan from
```

work cycles, and for food periods.

CAPCOM Roger, copy.

SC And not too soon.

CAPCOM Roger.

liftoff in real time and check his time line out for sleep,

APOLLO 7 COMMENTARY, 10/20/68, GET: 21433 (CDT 8:36A) 637/3

SC Jack?

CAPCOM Go ahead, Walt.

SC Can you read the DSKY now?

CAPCOM Negative. we've been handed over to the Huntsville. We don't get data there, we'll have to wait till California.

SC Okay, when we clear to California I'll show you what zero roll looks like and what zero yaw looks like in pulse.

CAPCOM Roger.

SC We've really got a lot of graphs going

today.

SC (garbled)

PAO We should pick up the spacecraft at California just any second now. We have moved through the Huntsville area.

```
APOLLO 7 COMMENTARY, 10/20/68, GET: 21446 (CDT 8:49a) 638/1
                    Houston, Apollo 7.
     SC
                    Go ahead 7.
     CAPCOM
                    Do you read the DSKY?
     SC
                    Affirmative.
     CAPCOM
                    Note roll and yaw. 25 down.
                                                  I didn't
     SC
take the 26 minutes to get it that tight either.
                    The spacecraft is maintaining 0 rolls,
0 yaw, and is pitched down 25 degrees.
                    Houston, from up here, we can't see
Galveston.
                    Roger.
     CAPCOM
                    You've got some high cirrus that blocks
it out on top of low altitude.
     CAPCOM
                    Okay, copy.
                    Jack, I don't know whether to pass this
     SC
down to you or not, but the light, sunlight gives us a hard
time reading the DSKY and Delta-V counter, and the MET.
We may need some shade type device up here to permit us to
read the instruments.
     CAPCOM
                    Okay, I've logged that.
                    J ck, I forgot twist on that 50 foot
per second over burn the other day. I'll have to reset the
GET now to get the MET. I can't read the MET with full bright.
                    Okay, I logged that, Wally.
     CAPCOM
                    Roger.
     SC
                    Apollo Control here, 214 hours, 54 min-
utes and we're about halfway through a long and rather quiet
stateside pass.
                    You need the high bit rate or, low bit
     SC
rate.
                    Frame 59, magazine R, Havanna.
     SC
     CAPCOM
                    Roger.
                    Now Jack, you can say today, that we're a
small moon over Miami.
                    Roger. (Chuckle)
     CAPCOM
                    Got 5 marks, Jack. on Coral Gables
     SC
                    Okay, real fine Donn.
     CAPCOM
                    Or that key, or whatever it is. Key Biscayne,
     SC
I guess.
                    Apollo Control here. Landmark 20, the
one the crew missed was Galveston Bay area, and you heard
them note, "high cirrus clouds socked in, couldn't make
it out." They did pick up at least one, perhaps two landmark
sights in Florida, around Miami, Coral Gables. We're still
holding an open line to 7, which now is just south east of
Florida.
                    Meanwhile out in the far west Pacific,
     PAO
we've got a second storm southeast of Gloria, which is now
swirling just within - the eye of which is quite close to
```

our ship Mercury. Mercury is taking pretty good waves out

```
APOLLO 7 COMMENTARY, 10/20/68, GET: 21446 (CDT 8:49a) 638/2
                       there. Understand in the order of
      PAO
15 to 20 foot waves. A second storm, meanwhile is brewing,
it's due east of Guam, perhaps 500 to 600 miles southeast
of the present storm Gloria. We have no predictions yet
on its path, but it boiling into a pretty full size storm.
                        Apollo 7, Houston.
      CAPCOM
                        Go ahead, Jack.
      SC
                        I have the pad for this landmark -
      CAPCOM
second revolution landmark tracking.
                        Wait one. Jack, the second landmark
      SC
is clobbered with clouds, I can't see it.
                        Okay, that's the number 71?
      CAPCOM
                        Right.
                        Okay, real fine.
      CAPCOM
                        Go ahead Jack, ready.
      SC
                        Okay, the first one is landmark 11, that's
      CAPCOM
54 miles north of ground track, 216 plus 23, shaft 325, trunion 033. No. 2 - no. 128, that's 1-1/2 miles north of ground track, 216 plus 34, shaft 000, trunion 030. Third,
no. 144 at 16 miles worth of ground track, 216 plus 44, 350 shaft, 030 trunion. No. 4, 227, 45 miles north ground track, 216 plus 57 GET, 342 shaft, 029 trunion and that's all.
                        Roger Jack, the last part I didn't get
      SC
the - how far north or south.
                        Okay, the last one is 45 miles north of
       CAPCOM
 ground track.
                        Okay, I'll give you the landmark number,
      SC
 the GET, 227 for that one, 216 plus 57. Going back to the
 beginning with landmark 11, 216 plus 23; landmark 128, 216
 plus 34; landmark 144 at 216 plus 44.
                        Roger, you faded on the last one, 216
       CAPCOM
 plus 44.
                         Right, on that one, what was the shaft
       SC
 angle?
                         Okay, shaft was 350.
       CAPCOM
                         Thank you.
                        Okay, we are about 1 minute LOS Antigua.
       CAPCOM
 We'll pick you up at Ascension at 10.
                         Roger, note 60 and 20 again.
```

APOLLO 7 COMMENTARY, 10/20/68, GET: 21501 (CDT: 9:04a) 639/1

CAPCOM Copy.

Apollo Control Houston here at 215 hours, PAO 22 minutes. Via Ascension a few minutes ago, we simply had a Hello and a Goodbye. There was no communication beyond establishing circuit. The recovery room advises that the dash 3 area, the far western Pacific area, has been closed and will not be considered for a landing operation through the remainder of the mission. Two destroyers that were operating there yesterday were directed to port early yesterday. They will be told to remain in port because a second typhoon is aborting out there in WESTPAC and there's just no point in trying to get the ships back on station. Meanwhile, the Mercury, which is somewhat to the west of the typhoon Gloria, is still riding around on 15 foot waves and it's captain's option there, but the captain has elected to remain in the area to continue to service the flight. We will contact Apollo 7 at Tananarive at 26 minutes - 215 hours, 26 minutes, about 2 minutes from now. If there is communication, we'll be back to you.

PAO Apollo Control Houston here, 215 hours. 49 minutes into the flight. About 7 minutes ago we established - we had an establishing call with Apollo 7 via tananarive and - but no conversation developed and a similar situation has developed here at Carnarvon. We moved through the Carnarvon circle now without any further conversation with the crew. We expect to acquire via Guam in - at 215 hours, 53 minutes, about 3 minutes from now. The crew is being given a 1 minute LOS at Carnarvon. And they acknowledged that LOS. In the - more on the western Pacific weather area, typhoon Gloria's position at 1100 Zulu, it's now 1400 Zulu. That's 3 hours ago. It was estimated at 23 degrees north, The Apollo ship Mercury is still on sta-132 degrees east. tion and doing an excellent job. It's 400 miles west of the storm and it's riding in swells of up to 15 to 18 feet. The ship is taking as much as 20 degrees roll. The targeting points for the WESTPAC, the Western Pacific area, have all been moved east to the Hawaii area, the dash 4 area, for the rest of the mission actually. But they're presently - we have the information on revs 136 through 140, and alternate targeting for those points, for those revs 136 through 140. have been set up for landing areas in the south Atlantic around Ascension Island and a few points north and east of Tananarive, in the south Indian Ocean. The destroyer that had been in the western Pacific area, the Rupertus, and the Tucker, have made port now in Yokusuka, Japan. At 215 hours. 52 minutes into the flight, this is Apollo Control.

```
APOLLO 7 COMMENTARY, 10/20/68, GET: 21554 (CDT 09:56a) 642/1
     PAO
                    Apollo Control here.
                                           Jack Swigert is
putting a call in and let's pick it up.
     SC
                     (garble)
                    Say again, Wally.
     CAPCOM
                    Donn and I tried out the oxygen masks,
     SC
it was a mandatory DTO.
     CAPCOM
                    Roger, copy that.
                    This is Apollo 7.
     SC
     CAPCOM
                    Go ahead, 7.
     SC
                    Roger. We had a program alarm that's
anomalied too fast. What we were doing was trying the
lights all turned out and see the computer exterior lights
and had a GMI power (garble).
                    That was when you turned the lights
     CAPCOM
down you got it?
     SC
                    That's firm. Oh no, we are not sure,
Jack, I had the (garble) down also. I brought the lights
back up again and the program alarm was on.
     CAPCOM
                    Yes, we can read it here, 1105.
                    Roger, print. We tried to get in a
variable in the exterior light and we are trying to see if
it came on.
     CAPCOM
                    Okay.
     SC
                    That occurred in 2, by the way.
     CAPCOM
                    Roger.
     CAPCOM
                    Apollo 7, you are about 1 minute LOS
Guam, we get Hawaii at 08.
                            Who is that superduper (garble)
                    Roger.
     CAPCOM
                    That's the number 1 substitute.
     SC
                    (laughter) We are getting along pretty
well today.
     CAPCOM
                    Yes, all the systems looking pretty
good, Wally.
     SC
                    Going to have to ask you to watch those
new flight plan revisions, though.
     SC
                    You been east or north, I mean west
or north?
     CAPCOM
                    Say again, you are coming garbled.
     SC
                    Have you been west or north?
     CAPCOM
                    Oh, north.
     SC
                    How are we looking?
     CAPCOM
                    Pretty good.
     SC
                    Good.
     SC
                    (garble)
     CAPCOM
                    We are just about LOS. We will pick
you up at Hawaii.
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APOLLO 7 COMMENTARY, 10/20/68, GET: 21610 (CDT 10:13A) 643/1
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PAO Apollo Control Houston, 216 hours 10 minutes into the flight. Tom Stafford has struck up a conversation with Apollo 7 via Hawaii. Let's listen.

CAPCOM Apollo 7 Houston through Hawaii standing

SC When refilling the PLISS tank we took some oxygen out of it.

CAPCOM Roger. Copy that.

SC When we first picked up the bags one of the test buttons was depressed and we turned on the oxygen. We had full flow through it.

CAPCOM Okay, copy that.

SC It was still a mandatory detail.

CAPCOM Did it make much noise, Wally, with that depressed button?

SC Yes, you could hear it very easily, Tom.

CAPCOM Okay.

SC But Donn and I were still grabbing for

masks rather fast.

CAPCOM Okay.

CAPCOM Well, Wally, an interesting point for about 4 more hours the total man hours up there will exceed Gemini 7.

SC 4 more, very good.

CAPCOM We don't have all the PM on, but I can imagine DELTA-P lights are all three on.

SC Affirm. Yes, we found out we had 11 days food for 12 days work, but we'll only be short one meal.

CAPCOM Roger.

SC I passed the word down for all command pilots to check their flight plans from liftoff to splash for work rest cycles and for -

CAPCOM Okay.

SC Make it out for 12 working days and about that many days sleep.

CAPCOM Yes, we'll talk to you down at the Cape,

too, as soon as you get down there.

SC Hey, Tom, what you might do is take a look at those sleep day awake cycles and pick out the meals you want there, too. Sometimes they try to slip sleep cycle in between meal B and C, for example, and you end up eating dinner for breakfast if you follow this schedule.

CAPCOM Will copy.
CAPCOM Gemini 7 Cape.
SC Go ahead.

APOLLO 7 COMMENTARY, 10/20/68, GET: 21610 (CDT 10:13A) 643/2

CAPCOM Okay, let's try that one more more time. Apollo 7 from Houston. Does that sound more up to date?

SC Say again Deke.

CAPCOM Hey, listen, let's go over this reentry thing one more time since we've got a little slack here in good communications.

SC One of the things I plan on doing after we break off the burns today is put on my suit and see how

we stand in the couch with the helmet off.

CAPCOM Roger.

SC I'd like to get a report on that. That'll happen, though, probably an hour and a half or two hours from now.

CAPCOM Okay - SC Go ahead.

CAPCOM Let me tell you what our recommendation is and then your office is going to have to play it by the best knowledge you've got up there. Okay, we're recommending you come in with the torso on obviously for the leg protection which we talked about yesterday.

SC Roger.

CAPCOM And secondly, if you can valve salvo with the helmet popped loose. Keep the helmet on at least down through 50,000. Pop it so you can clear your nose, and then have it on for protection on landing. That, of course, is optional. The glove situation is the same. I don't think it matters whether they're on or off. The backup to that would be to come in without helmets or gloves and in that case we think you ought to provide yourselves with some head protection on the head rest.

SC Roger. Our problem is if we pop the helmets off we'll have to have the gloves off to get them

back on.

CAPCOM That's correct.

SC And for restraint it's very hard to maneuver them around, and we're a little worried about getting them back on again, particularly if we pick up drogues and then the lg environment, and there we've got three bomb shells running around the cockpit when we're landing.

CAPCOM Yes, I think the glove situation is pretty clear cut. I don't think you ought to mess with those. I think it may be desirable to have head protection from the helmet on landing, however, if we can figure out how to do

SC Yes. We may just cock it back and get

to our noses.

it.

CAPCOM That was what we were thinking.
SC But the odds of making up the neck rings

```
APOLLO 7 COMMENTARY, 10/20/68, GET: 21610 (CDT 10:13A) 643/3
                    again are pretty slim when we are
restrained.
                    I suspect that's true, but I think
     CAPCOM
you're probably still better off with the helmet on loose
than not on at all.
                    Okay, we'll play the game up here today.
     SC
                    Okay, fine.
     CAPCOM
                    (garbled) at least give us an option on it.
     SC
     CAPCOM
                    (garbled) I hope somebody meets us with
a safety razor on that carrier.
                    Say again, Walt.
     CAPCOM
                    Somebody (garbled) a safety razor on
     SC
that carrier.
                    Roger, I think there may be a couple.
     CAPCOM
                    Caption: The flight plan is beards
     SC
are NO-GO.
                    Got that.
     CAPCOM
                     (garbled) that pulse control is beautiful.
     SC
                    Copy.
     CAPCOM
                     Is Tom still there?
     SC
                     Roger.
     CAPCOM
                    Okay, for roll, Tom, with one variant.
     SC
it's 8 pulses for 2/10th of a second.
                     Yes.
     CAPCOM
                    For pitch and yaw, pitch about 10 pulses
     SC
per 2/10th of a degree per second.
                    Okay, got it, and that's using just the
     CAPCOM
one ring there, huh? Are you using just -
                     Just rings in the roll, yes.
     SC
                     Yes.
     CAPCOM
                     The pitch is pure.
     SC
                     Okay.
     CAPCOM
                     Apollo 7 Houston. Wally, does the sound
     CAPCOM
on minimum impulse sound like Gemini with those cracks?
                     Negative. It sounds like (garbled)
                     Yes. Okay.
     CAPCOM
                     It's sort of like the Gemini, but
     SC
(garbled)
     CAPCOM
                     They are in a different tune, the pitches
     SC
are about one note lower than yaw -
```

```
APOLLO 7 COMMENTARY, 10/20/68, GET: 21610 (CDT: 10:23a) 644/1
                    Okay.
     CAPCOM
                    (garble) but there it is. Very discern-
     SC
able, only one of them.
                    Okay.
     CAPCOM
                    We had a different trunnion which is about
1 minute lower than yaw and roll is sort of an individual
note.
     CAPCOM
                    Okay.
                    Land ho.
     SC
                    (chuckle)
     CAPCOM
                    Say, Jack, can you give me a map update
     SC
for the closest -
                    Okay, stand by. Okay, Walt, I've got it.
     CAPCOM
Are you ready to copy?
                    Go ahead.
                    Okay, you're just coming up on rev 137
     CAPCOM
here. The time, 217 plus 25 plus 25. The longitude of the
node, 144.1 degrees east.
     SC
                    Copy.
                    Our 61 magazine is (garble) and (garble)
very close behind the (garble) time for this pass.
                    Okay.
     CAPCOM
                    And not an uninteresting minute out of this
     SC
pass.
                    Our target is wide open.
     SC
     CAPCOM
                    Roger.
                    Jack, try and watch the P22 because the
trunnion is strapped to our (garble) and we're tracking on
our (garble) on the target.
                    Okay, we're watching P22.
     CAPCOM
                    (garble) roll right about 5 degrees to
     SC
optimize on the target pickup.
                    Okay.
     CAPCOM
                    Jack, you can see her sitting just about
     SC
at orb rate, pitch down, a little bit to go. Quite a view.
                    Guaymas, we can see your station.
                    Guaymas, Apollo 7, (garble) muchos gracias.
     SC
                    We copied, Wally, but I don't know whether
     CAPCOM
Guaymas got it or not.
                     Roger.
                     It sounds Spanish to me.
     CAPCOM
                     Si. How's our cut for going over Mexico
     SC
City?
                    Stand by one, Wally. Okay, it looks like
     CAPCOM
you're going to be coming fairly close to Mexico City.
                    Yes, it looks like that from the path
     SC
we're going. North or south? Looks like it's going to be
```

north.

That's what we show. CAPCOM

Roger. SC

Tom, we're getting a real kick out of this SC If you can sit here and just scrunch it down like left seat. a submarine commander working with a periscope, I've got the line in right now with the number 1 eight ball and we can just cruise back and forth with no strain at all.

Okay, that's out of the number 1 window CAPCOM

and the eight ball?

Number 2 window and the number 1 eight SC

ball.

Roger. CAPCOM

We just got down about 2 or 3 feet of SC This IVA stuff is just great sport. No this last portion. problem at all. Out in front of the number 1 ball to take the rates out.

Wally, Houston. What about when you're CAPCOM in local vertical in the dark position. Can you see the

horizon pretty well?

Yep. SC

Okay, and I asked Donn late the other CAPCOM night when you were asleep, to make some marks on this side window just with a pencil so we can calibrate the simulator later on, you know, for the attitude out the side window.

Oh, you mean for zero pitch? SC

Yep. CAPCOM

Tom, I can give you a couple of figures SC on that. If you're head is laying in the center couch at zero pitch, the horizon cuts through right about the middle of the rear side of the both number - both side windows, number 1 and 5.

Okay, got it. Thank you. CAPCOM

You can't see across the cockpit and see SC the horizon now, that's the center couch.

CAPCOM Okay.

Don't give up that center window. SCa dream if they can get it fixed up right.

CAPCOM Roger.

APOLLO 7 COMMENTARY, 10/20/68, GET: 21630 (CDT 10:33a) 645/1

CAPCOM Apollo 7, Houston. SC Landmark is (garble)

CAPCOM Okay, copy. Wally, the power-down that was scheduled at 217, we would like to delay that in order to get a state vector update to you probably through Guam about 21730 and then we can power-down after that.

SC Roger, are you going to check our

(garble) or have you found that it is alright.

CAPCOM Okay, I haven't gotten the report on that yet, but I'm waiting for it and I will get it up to you as soon as I get it.

SC I'd like to get that before we power-

down. I rather not screw it up again tomorrow.

CAPCOM Okay.

SC What is the new time for power-down?

CAPCOM Okay, the power-down will be about

1/2 hour later. It will probably be about 21745. We want
to get the state vector update at Guam and if we don't finish
it there, we'll get it through Hawaii.

SC We'll keep a computer on the line till

we get a GO on the (gartie).

CAPCOM Okay, real fine.

CAPCOM Apollo 7, we'll pick you up at Ascension at 47.

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APOLLO 7 COMMENTARY, 10/20/68, GET: 21652 (CDT 10:55a) 646/1
```

This is Apollo Control Houston 216 PAO Over Ascension a couple of minutes ago, hours 52 minutes. we had an interesting conversation with the crew. They were passed some sleep updates to their flight plan and we got some comments from Wally Schirra about nice the windows are in this - in the Apollo machine for taking pictures. Let's hear the conversation now.

Apollo 7, Houston through Ascension. Roger, loud and clear. CAPCOM

SC

Roger, Wally. We have got an update CAPCOM on the flight plan for a sleep period here.

Go ahead, Jack. SC

CMP sleep period from 216 through CAPCOM Okay. 225, CDR and LMP from 225 to 234.

That's great. My LMP is ready to get SC

started into it.

Walt, the nodal crossing on rev 137 is CAPCOM

114.1 east.

SOn 137.

CAPCOM Firm.

On that last one, we got five marks SC and corrected the landmark.

CAPCOM Okay, copy that.

It was wide open on the coast early. SC I found that the landmark had a 3/4 mile (garble) and we picked it up and got a picture of it too.

Sounds real good, Walt. CAPCOM

W are trying to get pictures of the  $\mathsf{sc}$ landmarks that don't have any.

Okay. CAPCOM

Hey, Jack. SC

Go ahead, Wally. CAPCOM

Roger. We've taken numerous packs of SC The first batch we took we shot at ASA 64 70 mm, S0121. so we wouldn't have to reset the light meter for S0268 and all the other S0121 packs have been shot at an ASA of 50 and I would like to make sure that you get that to the people that process these. I've marked the pack that was shot at ASA 64.

Okay, copy that. CAPCOM

This is really a great machine for taking pictures out of. There are five windows, almost every time you glance up, there is one of us on it.

That sounds like a pretty good tech-CAPCOM

nique there, Wally, with five windows there.

(garble) we have really got a lot of SC good pictures.

Good show. CAPCOM

I wish we had a heck of a lot more SC

APOLLO 7 COMMENTARY, 10/20/68, GET: 21652 (CDT 10:55a) 646/2

SC film up here.
CAPCOM Okay, we have 1 minute to LOS over Ascension and we are going to give a data dump over Guam this time, Wally.

Roger. SC

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APOLLO 7 COMMENTARY, 10/20/68, GET: 21750 (CDT 11:53a) 647/1
```

This is Apollo Control 217 hours 50 PAO minutes into the flight. Over Hawaii, we have established contact and we are having a chat with Apollo 7 and prior to that, we had some conversation via the ship Mercury. conversation was taped while we were replaying the television tape from a pass earlier this morning. We will start off with the Mercury tape and then break into the Hawaii pass and we will probably catch up with a lot of action. Apollo 7, Houston through the Mercury, CAPCOM standing by. Just a minute. SC Roger, Wally. We will stand by for CAPCOM Guam. Are you going to update then? SCAffirm. We are going to update at CAPCOM Guam. When are you going to make the - when SC are you going to go on the erasable? Wally, we are going to make another CAPCOM erasable at Guam when we get a good elevation angle, as a further check on the grown data, which we are having - getting back from Carrarvon. Okay. Apollo 7, opposite omni. CAPCOM Roger. SC Apollo 7, Houston. If you will go to CAPCOM accept, we will send you the state vector update. You got her. SC I have the nev checks Okay, coming up. CAPCOM for you when you are ready to copy. Go, Jack. Okay,  $221 \div 30 + 0000 - 2953 - 05172$ CAPCOM 1803. Roger. 221 \* 30 + 4 balls - 2953 - 0517 SC 2180.3. Roger. CAPCOM Apollo 7, Houston. We are finished CAPCOM with the dump, let me see, we are finished with the state vector update. Say again, Jack. SC We are finished with the state vector CAPCOM update. The computer is yours. Roger. SCOkay, Apollo 7, we are ready for your CAPCOM Could you key in the -E mod dump. Houston, this is Apollo 7. SC Go ahead. CAPCOM

SC

CAPCOM

Okay, the computer system is clear.

Okay, we are ready for the verb 74.

```
APOLLO 7 COMMENTARY, 10/20/68, GET: 21750 (CDT 11:53a) 647/2
                    Computer is synching, apparently.
     CAPCOM
                    Okay.
                    On the way down.
     SC
     CAPCOM
                    Roger.
                    Apollo 7, we are about to lose you here
     CAPCOM
          We pick you up at Hawaii at 45.
at Guam.
                    You through with 74?
     SC
                    Okay, Wally. We are through with the
     CAPCOM
E mod dump.
                    Apollo 7, Houston through Hawaii.
     CAPCOM
                    Roger, loud and clear.
     SC
     CAPCOM
                    You, too.
                    Apollo 7, Houston.
     CAPCOM
     SC
                    Roger, Jack.
                    Okay, Donn.
                                  It's going to be about
     CAPCOM
an hour before we have a printout of this E mod dump and
you can leave the computer powered up at your option.
     SC
                     Roger, willco, and Donn is in bed.
     CAPCOM
                     Okay. Somebody else has got a high
voice then.
                    Houston, Apollo 7.
     SC
                     Go ahead, Wally.
     CAPCOM
     SC
                     Can you read a DSKY?
                    Affirmative.
     CAPCOM
                    Of course; I'm tied up holding this
     SC
             Are you impressed?
pulse down.
     CAPCOM
                     Roger.
                     Pardon?
     SC
                     Affirmative.
     CAPCOM
                     That's pretty tight, isn't it?
     SC
     CAPCOM
                     Roger.
                     Come on, you can see through that one.
     SC
                     (garble), Wally.
     CAPCOM
                     Prefer to use her locked up, the IMU
                  Tom just burst in, I bet he was wonder-
is powered down.
ing too.
                     I was looking at SPS rate.
     CAPCOM
                               That is pretty tight pulse,
                    No fair.
     SC
isn't it, Tom?
                     Yes, that's as good as open.
     CAPCOM
                     Okay, I'll be a good guy.
     SC
                     Well; Wally, next time around we will
     CAPCOM
give you a call and you should be passing over this typhoon
Gloria and it will probably be night time, but you should
see lots of thunderstorms down below you, just over the
Mercury.
                     We got a picture of her earlier today.
     SC
     CAPCOM
                     Okay.
                     She's a pretty big one.
                                               I didn't see
```

SC

```
APOLLO 7 COMMENTARY, 10/20/68, GET: 21750 (CDT 11:53a) 647/3
                    it, Donn did. The eye of her was very
apparent, a very large storm.
                    It's giving the Mercury a few swells
     CAPCOM
out there.
                    Ah ha. It reminds me of a former Mer-
     SC
              Has Alan B. been in today?
cury CAPCOM.
                    No. He looked better than 90 though,
     CAPCOM
last time I saw him.
                     (Laughter).
     SC
                    Houston, Apollo 7.
     SC
                    Go ahead, 7.
     CAPCOM
                            Looks like the only DTO we still
                    Roger.
     SC
have ready here is going to make another cut at the cryo
stratification test. I would like to know, what are your
intentions and what phase to do that. I would like to not
save that thing until Monday night, for example.
                    Okay, we will get it to you, Walt.
     CAPCOM
                    It takes quite a while (garble). Give
us a couple of hours and we will probably do both of them.
     CAPCOM
                    Okay.
                    Jack, could you give me an update on
     SC
the time that it is appropriate for us to look for Gloria.
                     Okay, will do.
     CAPCOM
                     Good.
     SC
                     And I guess we need an update on our
     SC
fuel expended for the day, actually it should be the fuel
remaining for the trip.
                     Okay, in work.
     CAPCOM
                     Roger.
     SC
                     7, are you reading, Houston.
     CAPCOM
                     Reading you now. You were cut out
     SC
 there, you know.
                     We had a hand-off. You should be see-
      CAPCOM
ing Gloria about 219 + 04, somewhere around that time and
the chart update values 539.
                     All right, thank you, 539.
      SC
                     Apollo 7, Houston, 1 minute LOS Guaymas,
      CAPCOM
we will pick you up at Tananarive at 37.
                     Roger.
```

' OLLO 7 COMMENTARY, 10/20/68, GET: 21800 (CDT 12:03p) 648/1
DEAD AIR
END OF TAPE

APOLLO 7 COMMENTARY, 10/20/68, GET: 21824 (CDT 12:28p) 649/1

Apollo Control Houston here, 218 hours, 24 minutes, and we've had a long quiet time here since we left the Guaymas station with no contact and we expect none for another 8 minutes; at which time we should tag up via Tananarive. Just wanted to let you know we are still here, the flight is still moving along, and if you heard the last pass, you might have heard Wally comment about something reminding him of an earlier flight. I think it was in reference to the Mercury and the swells the Mercury's taking out there with storm Gloria. He said that it reminded him of the Allen B, that was in reference, of course, to Allen Barlet Shepherd Jr., one of his fellow astronauts who was a Capsule Communicator on Schirra's Mercury flight stationed on a ship in the far west Pacific, which took a tremendous buffeting from another typhoon. Shepherd and the ship managed to ride the typhoon out and they were on hand during the Signa 7 flight and Mercury. At 218 hours and 25 minutes, this is Apollo Control Houston.

APOLLO 7, COMMENTARY, 10/20/68, GET 2184400 CDT 12:48 p 650/1

pao Apollo Control Houston, here at 218 hours and 44 minutes into the flight via Tananarive we have tagged up with the crew. Among other things Tom Stafford passed up to them some social intelligence on the plans of the pilot's wives for this afternoon. Here is that conversation.

CAPCOM Apollo 7 Houston through Tananarive.

SC Roger Tom, we're reading you.

CAPCOM Roger, reading us loud and clear?

SC There's a little (garble) we up here

one more day.

CAPCOM Say again, Wall.

SC one more day, (garble) Then we can come

back (garble)

CAPCOM Roger, Bridently you're reading us, we can barely read you. I'll give you a social update. Deke is taking Jo to the ball game this afternoon. In fact, Lo and Harriet are also going to the ball game.

SC Lo and Harriet going to the ball game

too?

CAPCOM Roger.
CAPCOM Apollo 7, Houston

SC Go ahead.

CAPCOM We would like to do a fuel cell 02 purge.

SC I can't help you until we get acquisition.

CAPCOM Thank you.

CAPCOM Apollo 7, 1 minute LOS tananarive.

Mercury at 01.

```
APOLLO 7 COMMENTARY, 10/20/68, GET: 21905 (CDT 1:08A) 651/1
```

This is Apollo Control Houston at 219 hours 05 minutes into the flight, and we've been in contact - we are in contact with the crew via the ship Mercury, and early in the pass the lunar module pilot proposes a bet with our assistant flight director here, Ed Fendell, on one of the local football games today. Here's the conversation. Apollo 7 Houston through Mercury. CAPCOM SC Roger, Jack. CAPCOM Walt, your E mode dump is GO. power down the computer. Jack, whose playing the Oilers today? CAPCOM The jets are playing the Oilers today. (garbled) Sc Fendell's giving 5 points. CAPCOM I'll take him. SC SC Hey, Tom, tell Ed I'll go for two and take the Oilers for five. CAPCOM He's covered. SC Candy fellow baby. CAPCOM We'll call the results up in about 5 hours or so. If we're blacked out up here we'll power down the computers shortly, and want to see if Gloria's hanging out around this area. CAPCOM Okay, you should be coming right up on it now, Wally. Nobody should miss Gloria. SC (garble) It's a real big G I guess. CAPCOM No comment. We see a shoreline that is brightly SClighted up ahead of us here. CAPCOM Say again, Wally. A shoreline about - oh, 50 or 60 miles long and it's lighted up, looks like about 2 or 3 cities. CAPCOM Roger. We saw some lightning in the water about SC a minute or so ago. CAPCOM Roger, you should be passing over it about now, or already passed over the main part of the eye. Okay. SC SC We just took a hot water (garbled) I really have to force it back and forth. The cold water tap on the food preparation panel down there also seems to be getting a little tough to operate. CAPCOM Okay, copy that, Walt. CAPCOM Apollo 7 Houston, we ran on to the same thing with the water gun in the later Gemini flights. became stiffer as the days progressed.

APOLLO 7 COMMENTARY, 10/20/68, GET: 21905 (CDT 1:08A) 651/2

SC

Roger, thanks.
Apollo 7 Houston, 1 minute LOS Guam. CAPCOM

We pick you up at Hawaii at 21.

SC Roger. I don't know if we told you, but the water that seems to be the freest of gas is the hot water spout.

CAPCOM

Okay, copy. I think that's one of our fans for the SC reconstitutable food.

CAPCOM Roger.

```
APOLLO 7 COMMENTARY, 10/20/68, GET: 21927 (CDT 1:30p) 652/1
                     Apollo Control Houston here at 219 hours,
     PAO
27 minutes into the flight. We are in touch with 7 through
Hawaii and here is the conversation.
                     Apollo 7, Houston through Hawaii, standing
     CAPCOM
by.
     SC
                     Roger.
                     Apollo 7, Houston.
     CAPCOM
                     Yes, Jack.
     SC
                     Walt, what we would like to do is to get
     CAPCOM
a heater profile on those SPS heaters. Can you copy, it
won't take any attitude control or anything, just some
heater ON times.
                     How long were the (garble) up?
     SC
                     It's total 6 hours, I got some times
     CAPCOM
here for you.
                     Okay, I'll (garble) flight plan and
     SC
we'll probably get finished up with Donn's (garble).
                     Okay, real fine. Let me know when you
     CAPCOM
are ready to copy.
                     Okay, are these the SPS line heaters,
     SC
that I asked you to turn on and check about 2 days ago.
                     That's affirmative.
     CAPCOM
                            It's going to help to use the
                     Okay.
     SC
                There is no change at all in the A position
A/B position.
today.
                     Roger. Walt, let me know when you are
     CAPCOM
ready to copy this and the flight plan.
                     I'm ready to copy.
                     Okay, at 220 plus 57, put the heater
     CAPCOM
switch in A, the SPS line heater switch to A. At 223 plus
57 put the SPS line heater switch to A/B. At - you want to
terminate the test at 227 plus 11 or anytime the propellant
temperature or oxidizer T-line temperature reaches 75 degrees.
Did you copy that, 7?
                     Roger, I read (garble).
      SC
CAPCOM Okay, let me give it again, we are over the Huntsville here and I'm only reading about 2 by. At
220 plus 57, SPS line heaters to A. At 223 plus 57, SPS
line heaters to A/B. Terminate the test at 227 plus 11 or
anytime the propellant temperature or line oxidizer line
temperature reaches 75 degrees.
                     Jack, I assume you're collecting the
      SC
data on it, do you want any data from me?
                     Okay, Walt, the only thing we want you
      CAPCOM
to note, if you switch the heater position when you are not
in station contact, would you log the time.
```

Okay, will you be in station contact

Affirmative, these times are all predicated

SC at 220 plus 57?

CAPCOM

APOLLO 7 COMMENTARY, 10/20/68, GET: 21927 (CDT 1:30p) 652/2

on being in station contact at that time. CAPCOM

SC

Okay, thank you. Okay, we are about 1 minute LOS Huntsville, CAPCOM

we'll pick you up at Tananarive at 220 plus 13.

SĈ Roger.

HTV Huntsville LOS signal very weak, VHF down is also varying in amplitude. Huntsville LOS.

APCILO 7 COMMENTARY, 10/20/ GET: 22015 (CDT 02:18p) 653/1

PAO Apollo Control Houston here at 220 hours 15 minutes into the flight, and through Tananarive we are talking with Walt Cunningham. Here is how the conversation is going.

CAPCOM Apollo 7 Houston through Tananarive,

standing by.

SC How do you read me, Jack?
CAPCOM Reading you about 2 by.
SC (garble)

CAPCOM Walt, you're coming in weak and garbled. Copied "did I check about the stratification test." We are in the process of doing that now, seeing if we can move it up a little.

SC Roger, out.

APOLLO 7 COMMENTARY, 10/20/68, GET: 22039 (CDT 2:43P) 654/1

PAO This is Apollo Control at 220 hours

PAO This is Apollo Control at 220 hours 39 minutes. Apollo Control - Apollo 7 is in touch now with the Mercury. Let's listen.

CAPCOM Apollo 7 Houston through the Mercury,

standing by.

SC Jack, how do you read? CAPCOM You're about 4 by, Walt.

Okay, I don't know if you had me by the contact or not. I wanted to see if we couldn't schedule the (garbled) stratification test for (garbled) and 15 to 20 percent on the hydrogen and probably no less than 30 to 35 percent on the (garbled). This is to conclude being involved with it some time late Monday.

CAPCOM Roger, Walt. We're doing that. We're trying to move it up a little bit, oh, we're talking around

232 hours now.

SC Okay, thank you very much.

SC Jack, we have a third crewman verifying that all three oxygen masks now. I just made a mandatory test of the third one.

CAPCOM Okay, I copy that.

CAPCOM Apollo 7 opposite omni.

CAPCOM And Walt I have the block data number 24 for you.

SC Roger.

SC I'm ready to copy, Jack, and tell (garbled)

we're glad we are going to have to verify our (garbled)

CAPCOM Say again on that.

SC Tell John (garbled) we're glad we never had a chance to verify the accuracy of these blocks.

CAPCOM Roger. SC Roger.

CAPCOM Okay, block data number 24: 141 - ALPHA CHARLIE minus 181 minus 0100 222 plus 51 plus 52 6955 142-ALPHA CHARLIE minus 040 minus 0080 224 plus 26 plus 00 6134 143- ALPHA CHARLIE plus 028 minus 0200 225 plus 58 plus 13 5734 144- ALPHA CHARLIE plus 101 minus 0310 227 plus 30 plus 42 5293 145-2 ALPHA plus 230 minus 0270 229 plus 06 plus 36 4372 146-2 CHARLIE plus 288 minus 0270 230 plus 43 plus 18 3726 end.

SC Roger, I read back follows: 141-ALPHA CHARLIE minus 181 minus 0100 222 plus 51 plus 52 6955 142-ALPHA ALPHA minus 040 minus 0080 224 plus 006134 143-ALPHA CHARLIE plus 028 minus 0200 225 plus 58 plus 13 5734 over. It was just a break, Jack. 144-ALPHA CHARLIE plus 101 minus 0210 227 plus 30 plus 42 5293 145-2 ALPHA plus 230 minus 0270 229 plus 06 plus 36 4372 146-2 CHARLIE plus 288 minus 0270 230 plus 43 plus 18 3726. Over.

APOLLO 7 COMMENTARY, 10/20/68, GET: 2203900 (CDT 2:43p) 654/2

CAPCOM Rog. That's got it, except that should be 142 dash alpha charlie.

PAO Roger.
This is Apollo Control 220 hours 46 minutes. The Mercury has LOS. In terms of manhours, flown
Apollo 7 has now exceeded Gemini 7. The duration of Gemini 7
was 8 few minutes over 330 hours with 2 men abound. Weller now

was a few minutes over 330 hours with 2 men aboard. We're now at 220 hours 47 minutes into Apollo 7 with 3 crewmen aboard. Next station to acquire will be Hawaii at 220 hours 56 minutes.

This is Mission Control Houston.

APOLLO 7 COMMENTARY, 10/20/68, GET: 22056 (CDT 3:00p) 655/1 This is Apollo Control, 220 hours, PAO Apollo 7 is at Hawaii now. 56 minutes. Roger, SPS (garble). SC CAPCOM Roger. Can you give me a readout on my open SC manifold pressure, please? Roger, 102. CAPCOM Roger, 102. SC Can you hit me again with the manifold SC pressure. 103. CAPCOM and if the redundant component check SC is still in work, I'll give you a GO next sight. Roger. CAPCOM Hey Jack, redundant component check SC looks like it's GO. CAPCOM Roger, copy that. CAPCOM Apollo 7, we are 1 minute LOS Hawaii. Ascension for a short pass at 221 plus 38. Roger. SC This is Apollo Control at 221 hours, PAO Hawaii has LOS. The next station acquiral will 3 minutes. Apollo 7 beginning a short low elevation pass be Ascension. there at 221 hours, 38 minutes.

APOLLO 7 COMMENTARY, 10/20/68, GET: 2215234 (CDT 4:05P) 656/1

PAO This is Apollo Control at 222 hours 4 minutes. We have about a minute's worth of tape from the Ascension pass. We had a short bit of acquisition at Tanmarive, but no conversation at that station. We will play that tape for you now.

CAPCOM Apollo 7. Houston through Ascension.

Standing by.

SC It's about time ...

GAPCOM Roger. A little garbled there, but good

afternoon.

SC Good afternoon. Hey Ron, (garbled)

drinks of water?

CAPCOM Roger. Six clicks?

SC Houston, Apollo 7. Over.

CAPCOM Houston. Go.

SC Roger Ron. Will you log me 25 clicks

of water please?

CAPCOM Wilco. 25 clicks.

Hey Ron, we'll all be off comm here for

about 30 seconds. We are trying something.

CAPCOM

7. Houston. Say again.

SC Roger. I will be off comm for about

30 seconds here.

CAPCOM Roger.

SC Back with you Ron.

CAPCOM Roger. About LOS. We still show your

secondary glycol loop activated.

PAO This is Apollo Control 222 hours 13 minutes. Apollo 7 is in its 140th revolution. Coming up on the Mercury now.

CAPCOM Apollo 7. Houston through Mercury.

Standing by.

SC Roger Ron.

CAPCOM Read you loud and clear.

CAPCOM Apollo 7. Houston. SC Houston. Apollo 7.

CAPCOM Roger. We show the secondary loop still

on. Is that your intention?

SC It is off now. Ron I just finished

putting the suit on.

CAPCOM Roger.

SC Without gloves - without helmet. Do you read?

CAPCOM Roger.

And strapped in, blocking my feet up and I feel that is the way I am going to come in Monday morning-Tuesday morning. It is with suits, no gloves, no helmets, so that a pad to headrest on either side and wear a comm carrier instead of our lightweight headsets.

CAPCOM Roger.

SC Our heads are still too stuffed up to try to come in with our helmets on and take them off and try to blow our nose.

CAPCOM Roger. Understand.

SC Okay. You might pass on Deke that I actually got in with a suit on, strapped down and tried it out.

CAPCOM Will do. SC Very good.

CAPCOM Apollo 7. Houston. Opposite omni. CAPCOM Apollo 7. Houston. One minute LOS.

Hawaii at 34. And may have some (garbled) shortly.

SC Roger.

PAO This is Apollo Control. 222.22 minutes. LOS at Mercury. Wally Schirra reported during this pass that he has donned the suit, strapped himself in the couch as a test of the way in which the crew now believes they will reenter on Tuesday. It's with the suit on, no helmets and no gloves. He indicated they will pad the headrest and he believes this will be satisfactory for entry. Next station to acquire will be Hawaii. A very low elevation past there less than 1 degree, but we will have about 2 minutes of acquisition beginning at 222 hours 34 minutes. This is Mission Control Houston.

APOLLO 7 COMMENTARY, 10/20/68, GET: 22234 (CDT 435p) 658/1

PAO This is Apollo control at 222 hours 34 minutes, Apollo 7 about to tag up at Hawaii.

CAPCOM Apollo 7, Houston, through Hawaii

standing by.

I hear you loud and clear.

CAPCOM Roger, the same.

SC What's the late news on a Sunday

evening.

CAPCOM I've got a final on the Dallas and

Minnesota football game. Dallas 20, Minnesota 7.

SC That's nice. Any scores on the Oilers

yet?

CAPCOM No, they just started at three.

SC Oh, I see.

CAPCOM I don't have the score yet. - Looks like our Kansas boy Jim Ryun, got second in the 1500 meters in the Olymics.

SC Oh, really. He's the miler isn't he

Ron.

CAPCOM Roger.

SC Who got first.
CAPCOM Kip Kano of Keyna.

SC Yea, they used to be a rival on it.

CAPCOM Right.

PAO This is Apollo control 222 hours 36 minutes, Hawaii has LOS now. The next station to acquire will be the Redstone at 222 hours 47 minutes.

```
APOLLO 7 COMMENTARY, 10/20/68, GET: 22247 (CDT 450p) 659/1
                    This is Apollo control at 222 hours
47 minutes into the mission. The Redstone has acquisition
now.
                    Apollo 7, Houston, through Redstone.
     CAPCOM
                    Roger.
     SC
                            When you get a chance, request
     CAPCOM
                    Roger.
pyro A and B volts and batt C volts.
                    Roger, Ron, batt C is reading 36 volts.
     SC
                    Roger.
     CAPCOM
                    Looking over tomorrows flight plan.
     SC
     CAPCOM
                    I see no hold for the TV beam, except for
     SC
(garble) seven hour period. And there I think we would have
it as a very passive affair, where we don't do any thing to
set it up, just hook it up and let her rip.
     CAPCOM
                     Roger.
                    Now the next period just prior to 239
     SC
hours, I'd say we're busy.
                     Roger.
     CAPCOM
                     So during that ninth period I guess
     SC
we'll come across the states, the 237 plus 30, looks like
we could do it if we just plug it in and turn it on.
                     Roger, I'm not sure what we had scheduled
     CAPCOM
or if we had any, let me check and I'll pass the word up.
                     We're not volunteering, that's our only
     SC
out though.
                     Roger.
      CAPCOM
                     Our series end tomorrow.
      SC
                     Hey, that's right.
      CAPCOM
                     Yea, we had it (garble) coming on
Monday morning, Tuesday morning, correction.
                     Right.
      CAPCOM
                     Telling you ahead, happily.
      SC
                     Good.
      CAPCOM
                     Pyro A 36.8, pyro B 36.8.
      SC
                     Roger, and I have your ampere hours
      CAPCOM
 remaining.
                     Roger, wait one - I've got another hour
 to run on SPS line (garble) before going to A slash B, right?
                     Concur.
      CAPCOM
                     Go ahead, with batteries.
      SC
                     Batt A 26.7, correction 27.6 for batt A.
      CAPCOM
 Batt B 25.2, Batt Charlie 39.5.
                     76252395.
      SC
                     Roger. - Apollo 7, Houston, one minute
      CAPCOM
 LOS, Acsension at 12.
                     Right.
      SC
                     Apollo control at 222 hours 54 minutes,
      PAO
```

APOLIO 7 COMMENTARY, 10/20/68, GET: 22247 (CDT 450p) 659/2

PAO Apollo 7, beyond the range at Redstone. Wally Schirra reported during this pass that the activities tomorrow dictate that the TV schedule will be at 237 hours 30 minutes, this is about 3 and a half hours later than originally scheduled. He indicated that the crew would curn the camera on at that time and let it run through out the pass. The next station to acquire will be Acsension the 223 hours 12 minutes. This is mission control, Houston.

```
APOLLO 7 COMMENTARY, 10/20/68, GET: 2231200 (CDT 5:15p) 660/1
                     This is Apollo Control at 223 hours 12 min-
     PAO
utes. Apollo 7 is in revolution number 141 and Ascension is
                    We'll stand by.
about to acquire.
                     Apollo 7 Houston through Ascension
     CAPCOM
standing by.
                     Roger, loud and clear.
 SC
                     Roger, the same.
     CAPCOM
                     7 Houston.
     CAPCOM
                     Go ahead.
     SC
                     Rog. Walt, you might be interested to
     CAPCOM
know that when you were operating on the secondary loop,
there, the primary outlet temperature went down to about
9 to 10 degrees.
                     Glycol evaporator outlet?
     SC
                     Negative. Your radiator outlet tempera-
     CAPCOM
tures.
                     Okay, the heaters didn't come on, though,
     SC
huh?
                     Negative. Everything is operating
     CAPCOM
normally, now though.
                     Did it go down to plus 9 or 10, or minus?
     SC .
                     Plus. Plus 9 or 10.
     CAPCOM
                     Okay, no sweat. That's my fault, Ron.
 e were busy fiddling around here with the re-entry plans,
checking out the couch stuff.
                     Roger. I just thought maybe, you'd be
    CAPCOM
interested.
                     Hear it's brisk?
     SC
                     It sure is.
     CAPCOM
                     Do you have a copy of our canister
(garble) there?
                     Wait one and I can pick it up.
     CAPCOM
                     Okav.
     SC
                     7 Houston. I have it now.
      CAPCOM
                     Apollo 7 Houston. I have your canister
      CAPCOM
card now.
                     Roger, we just didn't change number 19.
      SC
                     Yeah, Roger, what's your problem?
      CAPCOM
                     We changed to 21N.
      SC
                     Roger. One more to go.
      CAPCOM
                     And then the (garble) we'll do it.
      SC
think we'll put number 1 back in again and we're all done.
      CAPCOM
                     Roger.
SC Both (garble) guys are getting along. We found we were right on (garble) when we got all done
today, too.
                      I see what you're saying.
      CAPCOM
                     There's no crisis there. We're just
      SC
```

Thinking about it.

APOLLO 7 COMMENTARY, 10/20/68, GET: 2231200 (CDT: 5:15p, 660/2

CAPCOM Roger.

CAPCOM Apollo 7 Houston. 1 minute LOS Merculy

at 50.

Roger.

This is Apollo Control at 223 hours
It minutes, LOS at Ascension. The Mercury, the next staticate acquire, is still in stormy seas out in the Western Pacific. Today they report waves at 15 feet and the ship is continuity to roll at 20 degrees. Apollo 7 will be within range of the Mercury at 223 hours 50 minutes.

```
APOLLO 7 COMMENTARY, 10/20/68, GET: 2235000 (CDT 5:50p) 661/1
                    This is Apollo Control at 223 hours
     PAO
50 minutes into the mission. Apollo 7 about to be acquired
at the Mercury. Guam has overlapping coverage. Mercury
reports a problem with its Unified S-band antenna. So we
will only have VHF voice during this rev. We'll stand by.
                    Apollo 7 Houston, through Mercury.
     CAPCOM
                    Roger, I read you loud and clear.
     SC
                    Roger. The same. We have no data from
     CAPCOM
Mercury this time.
                    Okay.
     SC
                    We'd like to delay switching to A/B on the
     CAPCOM
SPS line heaters until we acquire Guam.
                    What's wrong down there?
                    Apollo 7 Houston.
     CAPCOM
                    Go ahead. Go ahead, Ron.
     SC
                           We're using the FM biomed channels
     CAPCOM
                    Roger.
for some special instrumentation that are different instru-
mentation. So we'd like to cycle the cryo fans, tank 2 fans,
once we acquire Guam. Now, I'll give you the go on it.
                    Roger.
     SC
                    Say, Ron, (garble) tank 2 fans, or not?
     SC
                    Affirmative.
     CAPCOM
                    7, here's (garble) ready to copy?
     CAPCOM
                    Rog.
     SC
                    Rog. rev 141 GET 233 plus 26 plus 34
     CAPCOM
longitude 21.7 east.
                    Ron, do you mean 223 or 233?
     SC
                    Roger. I mean 223. 223.
     CAPCOM
                    Rog. Would you like for me to update?
     SC
     CAPCOM
                     (garble) We'll have that redone.
     CAPCOM
                    Apollo 7 Houston, request SPS line heaters
     CAPCOM
to A/B and your temperature readout.
                    Swell, that right then you should call
for it and we're reading, at my gage, for what it's worth,
about 67.
                     Roger.
     CAPCOM
                    Walt, we're reading 65 down here, and
     CAPCOM
we'll delay the cryo tank fan cycle until Redstone. Not
enough time, now.
                     Well, I can do it by myself, can't I?
     SC
                    Negative. We'd like to get some - we've
     CAPCOM
got some special readouts coming in on it. We'd like to pick
it up over a station. Both the on and the off cycle of the
fans.
     SC
                     Okav.
```

SC Okay.

CAPCOM And, 7, the 1 line flight plan update.

SC Go ahead.

CAPCOM Roger, at 224 plus 47, set down voice

APOLLO 7 COMMENTARY, 10/20/68, GET: 2235000 (CLT 5:50p) 661/2

CAPCOM backup check over Ascension. We will

command all switching from the ground.

SC

Roger, I'll stand by then.

CAPCOM Roger.

Approaching LOS Redstone at 21. CAPCOM

This is Apollo Control 224 hours 2 minutes PAO into the mission. Guam has LOS. Next station to accuire will be Redstone, at 224 hours 21 minutes.

```
APOLLO 7 COMMENTARY, 10/20/68, GET: 2242100 (CDT 6:20p) 662/1
                     This is Apollo Control at 224 hours
21 minutes into the mission. The Redstone has just acquired
Apollo 7. We'll monitor this pass.
     CAPCOM
                     Apollo 7 Houston through Redstone.
     SC
                     (Garble)
     CAPCOM
                     Roger (Garble) we're waiting for data
before we cycle the cryo fans.
                     Sure, Ron. Walt's troubleshooting the
switch, I believe.
                     You got that?
                     This is part of it, but we're using the
     CAPCOM
FM that we use to have the biomed on it, to get some more
data.
                     Roger, we've got that (garble)
                     Apollo 7 Houston, opposite OMNI.
     CAPCOM
     CAPCOM
                     Apollo 7 Houston, request 02 tank 2 fan on.
                     Roger, we have our 02 tank system on. Roger, 20 clicks for LMP.
     SC
     CAPCOM
     ŞC
                     (garble) 15 clicks?
     CAPCOM
                     Roger.
                     Say, Ron, we just went by the Tuamotu
Archipelago, out here, and for 4 minutes solid we went by
Coral reefs, atoll, I should say.
     CAPCOM
                     Roger.
     SC
                     That seems (garble) more than nothing
at all.
     CAPCOM
                     Wows
     SC
                     You should be locked up with him for
11 days.
     CAPCOM
                     That's right.
     CAPCOM
                     7 Houston, I've got some football scores
       New York 20, Houston 14.
                     14?
                          Bad news.
     CAPCOM
                     Roger.
     SC
                     Are you sure that's the correct score?
                     That's affirmed.
     CAPCOM
     SC
                     Looks like New york had a good day.
     CAPCOM
                     Roger.
     SC
                     (garble) only gave me 5 points.
     CAPCOM
                     San Francisco was 26 New York 20, Cleve-
1and 30 Baltimore 20, St. Louis 31 Washington 14, Chicago 29
Philadelphia 16, Green Bay 14 and Detroit 14.
     SC
                     (Garble)
     SC
                     Jack, what about the Rams?
     CAPCOM
                     Apollo 7 Houston 02 tank 2 fan off.
     SC
                     Roger.
     CAPCOM
                     7 Houston, 1 minutes LOS. Ascension 47.
                     Roger. What time Ascension?
     CAPCOM
                    At 47.
     SC
                     Roger.
```

APOLLO 7 COMMENTARY, 10/20/68, GET: 2242100 (CDT 6:20p) 662/2

CAPCOM 7 Houston, L.A. 27, Atlanta 14.

PAO This Apollo Control 224 hours 30 minutes.

Redstone has LOS. During this pass Walt Cunningham reported seeing a Coral Atoll in the area. Wally Schirra couldn't resist the pun that it's better than seeing nothing a'tall.

Ascension will acquire next shortly after Apollo 7 enters its 142 rev. Acquisition there at 224 hours 47 minutes.

This is Mision Control, Houston.

```
PAO
                     This is Apollo control at 224 hours 47
 minutes, Apollo 7 is in the night side of its 142 revolution
 as Ascension gets acquisition.
      CAPCOM
                     Apollo 7, Houston, through Ascension.
      SC
                     Loud and clear, Ron.
                     Roger. - Apollo 7, (garble).
      CAPCOM
      CAPCOM
                     Apollo 7, Houston, voice check you'll
be coming down - down voice backup.
      SC
                     Very well, do you want me to configure
now.
      CAPCOM
                     Negative, we have configurated from the
 ground.
         All you have to do it talk.
      SC
                     What I'm I here for?
      CAPCOM
                     (laughter) Just talk.
      SC
                     I'm testing down voice backup and I
wish I had those little command switches so I could throw
my own.
                     Yea, right, that's a pretty good deal,
     CAPCOM
he pushes one button and switches all those things.
     CAPCOM
                     Now you're coming through
                     That's right, asked them if they can
     SC
rock their spacecraft down there will you.
     CAPCOM
                    Okay. That down voice backup, that's
good voice, nice and clear.
                     Okay, would you asked them to please
switch my ranging back on and down voice back up to where
they can back us.
     CAPCOM
                     Roger, your ranging is still on.
     SC
                    Thank you. You get better down voice
without it.
     CAPCOM
                    Roger, we concur, but we want to test
it this way also.
                   That's why we're checking this time now
Walt, is ranging and down voice back up.
     SC
                    Say that again.
     CAPCOM
                    Roger, we are checking down voice back
up along with ranging on this test.
                    I understand, Ron.
     CAPCOM
                    By the way LA beat Altanta 20 to 14.
     SC
                    Roger, they're still undefeated then.
     CAPCOM
                    I assume so. San Diego over Denver
41 to 17.
     SC
                    Okay, I'm going to bed, good night
Ron.
     CAPCOM
                    Roger, good night, see you tomorrow.
     SC
                    Hello there.
     CAPCOM
                    Hey good morning.
     SC
                    How did the Oilers do?
     CAPCOM
                    Not too well.
                                    They lost to New York
14 to 20.
```

APOLLO 7 COMMENTARY, 10/20/68, GET: 22447 (CDT 650p) 663/2

SC Oh.

CAPCOM Hey, Donn. SC Yea, Ron.

CAPCOM Rog, you better check your food, Wally said he was one meal short there and not quite sure where he's going to get it so you better check your food and see if he's eaten yours.

SC Yea, thanks for the tip. I'll be

keeping an eye on it.

CAPCOM Okay.

SC I don't know what he did while I was

CAPCOM Apollo 7, Houston, one minute LOS Mercury at 26.

SC Roger, Mercury 26.

Ascension has LOS now. Donn Eisele awake during this pass, Wally Schirra and Walt Cunningham beginning their sleep period. Donns breakfast hour is scheduled during this next hour 225 hours to 226 hours. It's a quiet time in the flight plan. Next station to acquire will be Mercury at 225 hours 25 minutes. This is mission control, Houston.

APOLLO 7 COMMENTARY, 10/20/68, GET: 2252500 (CDT 7:30p) 664/1

PAO This is Apollo Control at 225 hours 25 minutes. The Mercury is about to acquire Apollo 7. Guam has overlapping coverage on this rev.

CAPCOM Apollo 7, Houston through Mercury standing

by.

SC Roger, Houston, Apollo 7.

CAPCOM Roger, loud and clear. Apollo 7, Houston opposite OMNI. Apollo 7, Houston, opposite OMNI.

SC Roger.

CAPCOM Apollo 7, Houston, 1 minute till LOS.

Redstone at 57.

SC Roger, understand.

CAPCOM Roger.

PAO Apollo Control at 225 hours 38 minutes. Guam has LOS. Very little conversation during the Mercury and Guam pass as we give Donn Eisele time enough to finish his breakfast. Next station to acquire will be the Redstone at 225 hours 57 minutes. This is Mission Control, Houston.

APOLLO 7 COMMENTARY, 10/10/68, GET: 2255700, (CDT 8:00p) 665/1

PAO This is Apollo Control at 225 hours
57 minutes, Apollo 7 coming upon the Redstone now. We'll
stand by through this pass.
CAPCOM Apollo 7 Houston through Redstone.

SC Roger, Houston, Apollo 7. CAPCOM Roger, Loud and clear.

CAPCOM 7 Houston, we'd like to power up the CMC over Redstone and power down over Ascension.

SC Okay, fine.

CAPCOM Apollo 7 Houston. SC Roger, Houston, go.

CAPCOM Rog. We're just about due for a cycle on our H2 heaters, and we can finish this last cryo H2 stratification test, there. If it's convenient for you to turn the H2 heaters and fans off at this time.

SC Roger. I can turn the heaters and fans

off at this time.

CAPCOM Roger, proceed and then this will start the H2 cryo stratification test.

SC Alright, fine. Starting at 2602.

CAPCOM Roger.

CAPCOM 7 Houston, we read 233 psi in tank -

H2 tank 1 and 231.3 in tank 2.

SC Roger. 233, 231. Thank you, Ron.

CAPCOM Roger.

SC (garble) our meters read - well it's a little hard to resolve it that close, I'd say about 228 and 226 from our view.

CAPCOM Roger, copy.

SC Looks like we're about 5 pounds below you.
CAPCOM Apollo 7 Houston. About 30 seconds LOS.

Ascension at 23 and your state vector is good.

SC Okay, thank you.

PAO This is Apollo Control 226 hours 06 minutes into the mission. The Redstone has LOS. Ascension will be the next station to acquire at 226 hours 23 minutes.

```
APOLLO 7 COMMENTARY, 10/20/68, GET: 2262300 (CDT 8:25p) 666/1
                     This is Apollo Control, 226 hours 23 minutes
     PAO
into the mission.
                   Apollo 7 being acquired at Ascension.
the time of Ascension LOS, the Canary Island station will
have AOS.
     CAPCOM
                     Apollo 7, Houston through Ascension.
Apollo 7, Houston through Ascension.
                     Roger, Houston, Apollo 7.
     CAPCOM
                     Roger, read you Donn.
     SC
                     Roger.
     CAPCOM
                     7, Houston verify SPS line heaters were
turned off.
     SC
                    Negative, they were not turned off. Did
you want them off now?
                    Wait one - stand by. 7, Houston we were
     CAPCOM
predicting that we would be up to 75 degrees here, but the
curve tapered off so we will advice when to turn them off.
                    Okay, I'm still reading 72 degrees right
now.
     CAPCOM
                    Roger, concur.
     SC
                    Could you give me the hydrogen pressures
again please?
     CAPCOM
                    Roger, right now H2 tank 1 232, H2 tank 2
230 -
     SC
     CAPCOM
                    And Apollo 7, Houston, we're Go for CMC
power down.
     SC
                    Okav.
     CAPCOM
                    7, Houston, have you ever taken the
optics eye pieces off and looked through the optics out
there?
     SC
                    We've taken them off, do you say?
     CAPCOM
                    That's affirmative, or do you normally
leave them mounted in position?
                    Oh, about 50, 50. Sometimes we put them
away, and sometimes we just leave them there. Depends on
what we're going to do, if we're going to be real active in
the LEB doing other things we usually put them away because
they're in the way.
     CAPCOM
                    Roger. I've got a little degradation
type thing I'll pass up to you here shortly.
    SC
                    Okay. Fact is they're stored right now.
```

the H2 heaters on, now, and stratification test at your

Roger.

Okay, heaters going on now.

CAPCOM

CAPCOM

convenience.
SC

Roger. Apollo 7, Houston, you can turn

APOLLO 7 COMMENTARY, 10/20/68, GET: 2262300 (CDT 8:25p) 666/2

CAPCOM On this optics degradation what we want do is remove the sextant and telescope eye pieces. And then observe the internal lens of both the sextant and telescope with your eyeball about a foot away from the panel during a day side pass with the optics pointed somewhere above the horizon.

SC Optics pointed where, above the horizon.
CAPCOM Optics above the horizon. And you should be able to observe some deposits on this objective lens similar to the ones that are on the windows.

SC (garbled)

CAPCOM Say again, Donn.

SC I say that even if the optics are off

(garbled) lifted off.

CAPCOM I still didn't copy that very well, Donn.

SC Just disregard.

CAPCOM You're clear now, say again.

SC Okay, when the eye pieces are installed the view through the optics is as good new as it was at the start flight.

CAPCOM Roger, understand. What we would like to do is get your evaluation with the eye pieces off, and see if you can see any deposits on those lens though.

SC Roger.

CAPCOM Apollo 7, Houston, 30 seconds LOS.

Mercury at 03.

SC Roger, Houston.

This is Apollo Control, 226 hours 37 minutes. Canary's has LOS. During this pass which started at Ascension and continued uninterrupted through the Cannary's acquisition, we continued the hydrogen stratification test, powered down the computer, and we passed up some information to Donn Eisele on a test to see whether the optics have been degraded by any deposits such as have been seen on the windows. We asked him to take a look through the optics with the eye pieces removed during a daylight pass. Donn reported that with the eye pieces on the view through the optics now is as good as it was at the start of the flight. The Mercury the next station to acquire at time 227 hours 2 minutes 56 seconds. This is Mission Control, Houston.

## APOLLO 7 COMMENTARY, 10/20/68, GET: 2270200 (CDT 9:05p) 667/1

PAO This is Apollo Control at 227 hours 02 minutes into the mission. Apollo 7 coming up on a short low elevation pass at the Mercury, followed by an overlapping brief coverage at Guam.

CAPCOM Apollo 7 Houston, through Mercury, stand-

ing by.

SC Roger, Houston.

CAPCOM Roger.

CAPCOM Apollo 7 Houston, opposite OMNI.

SC Roger.

CAPCOM Apollo 7 Houston, SPS line heaters off.

SC Roger. Give me a couple of minutes.

CAPCOM Roger.

CAPCOM Apollo 7 Houston. SC Roger, go ahead Ron.

CAPCOM Roger, on the H2 pressures, we show

256 and 254.

SC (garble) say it again.

CAPCOM Roger. Your H2 tank pressures, 256 and

254.

CAPCOM And 7 Houston, our oxidizer line temperature now reads 80 down here.

CAPCOM 7 Houston, 30 seconds LOS Redstone at 32.

and verify SPS line heaters off.

PAO Apollo Control at 227 hour 11 minutes. Guam has LOS. we continued the cryogenic stratification test during this pass and we have ended the service propulsion system line heater test. The next station to acquire will be the Redstone at 227 hours 32 minutes. This is Mission Control, Houston.

APOLLO 7 COMMENTARY, 10/20/68, GET: 2273200 (CDT 9:35p) 668/1

This is Apollo Control at 227 hours PAO Apollo 7 coming within the range of the Redstone 32 minutes. We'll stand by for this pass.

Apollo 7, Houston through Redstone standing CAPCOM

by.

SC Roger, Houston.

CAPCOM Roger.

I completed that stratification test. SC

I just finished completing it.

Roger, copy. Apollo 7, Houston I have CAPCOM a flight plan update when you're ready to copy.

Okay, Ron, stand by for just one here. SC

CAPCOM Roger, no hurry.

Go ahead with your flight plan update, SC

Ron.

Roger, at 228 plus 30 optics degradation CAPCOM That's what we were talking about a while ago. At 229 plus 50 oxygen fuel cell purge. At 230 plus 00 02 cryo stratification test number 3. We will advice further details later.

SC Okay.

CAPCOM At 232 plus 00 extend playmates sleep period to 234 plus 00.

SC Roger, got that.

Normal SPS burn prop accept. At 236 CAPCOM plus 00 dump waste water to blank percent. It's about 50 percent; we'll update that later.

Okay.

CAPCOM We want to get the right amount to be in the tank for de-orbit.

Is there a right amount for de-orbit? That's affirmative. They're full, in CAPCOM other words for de-orbit. About 90 percent is what we're trying for.

SC Oh, I see, okay.

At 236 plus 50 backup GDC/IMU alignment, CAPCOM

delete SCS backup align. At 237 plus 16 TV turn on. SC Yeh, Ron, I don't see how that's going to work out too well. We're here - that's right in the middle of the pass we're doing this alignment and vou've got to be darkened down from in here.

Wait a minute, I think I stated that CAPCOM

wrong. That should be 237 plus 16.

Yeh, I see what you mean. Okay, Ron, but you may not get it because if we're not finished with that alignment we're going to keep on with it.

APOLLO 7 COMMENTARY, 10/20/68, GET: 2273200 (CDT 9:35p) 668/2

CAPCOM Roger, it's just a passive TV pass any how.
SC Okay, wait a minute was that the end of night period. Oh, I guess it is, my flight plans a little low.

CAPCOM Yes. It was also there at CDR request. SC Yeh, I've got it here. Yeh, that'll

work out.

CAPCOM

Okay, TV pass is 237 plus 18 to 237 plus

At 237 plus 30 oxygen fuel cell purge.

APOLLO 7 COMMENTARY, 10/20/68, GET: 2274200 (CDT 9:45p) 669/1

CAPCOM

At 238.

SC

State it again Ron.

CAPCOM Roger, we're about LOS. I'll pick you up at the Canarys at 03.

SC

Okay.

PAO Apollo Control at 227 hours 43 minutes. Redstone has LOS. Next station to acquire will be the Canary Islands at 228 hours 03 minutes.

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APOLLO 7 COMMENTARY, 10/20/68, GET: 22803 (CDT 1005p) 670/1
                    This is Apollo control at 228 hours 03
     PAO
minutes into the mission, Canary Islands is about to acquire
Apollo 7. The Madrid station has some overlapping coverage.
                    Apollo 7, Houston, through Canarys.
     CAPCOM
                    This is Apollo 7.
     SC
                    Roger, loud and clear, Donn. We can
     CAPCOM
continue with the star plan update if you're ready.
                    Go ahead.
     SC
                    Roger, did you get the fuel cell 02
     CAPCOM
purge at 237 plus 20.
                    No, I'll start there.
                    Roger, at 237 plus 30 oxygen fuel cell
     CAPCOM
purge.
                     Okay, we just had one at 230.
     SC
                     That's affirm, this is the one just
     CAPCOM
prior to burn to make the fuel cell take more of the load.
                     Oh, I see, okay.
                     At 238 plus 30 delete Bravo prior
     CAPCOM
Huntsville and Alpha prior Guam or Guyamas.
                     (garble).
                     Roger, at 239 plus 06 present GETI
     CAPCOM
burn 7.
                     Affirmative.
     SC
                     Okay, I've got a change on that - on the
      CAPCOM
one I gave up to you, at 230 plus 00 delete that CYRO
stratification tests.
                     (garble).
      SC
                     Yea. Now it looks like the heat leak
      CAPCOM
 is such that the heat leak into the tanks is equal to the
useage out and the pressures are - remain constant now, so
 you can't do one.
                     Well, okay.
      SC
                     Roger. And one thing I wanted to make
      CAPCOM
 clear at 236 plus 50.
                     Yea.
      SC
                     Roger, that's a back up GDC alignment
      CAPCOM
 and the IMU is not to be caged it's an alignment test.
                     Right, we'll leave the IMU interzoned,
      SC
 while we fly back to it.
                             A little advanced information
                     Roger.
      CAPCOM
 looks like you only have about 12 to 13 minutes to get
 those stars in there and we plan to pass up some information
 for a local vertical attitude and kind of a AOS time at the
 stars.
                     Oh, okay, fine, that will help.
      SC
 Why do you say we've only got 12 or 13 minutes.
                     That's the only time the stars will be
      CAPCOM
 in the field of view.
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Oh, swell.

SC

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APOLLO 7 COMMENTARY, 10/20/68, GET: 22803 (CDT 1005p) 670/2
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And they'll start going under the CAPCOM horizon after that time. Oh, that's not such a hot deal is it, this is supposed to be our backup alignment method, if we've only got 12 minutes per night pass to find them that's kind of a difficult thing to do if you didn't have help. Roger, we understand, that's the best CAPCOM we can do at this setting though. Oh, it looks like a poor choice of stars. SC I copied that. CAPCOM That's interesting, I noticed the SCcurious night pass that the other cross was just barely above the horizon and that was only for a few minutes and it started going down. Roger. 7, Houston, we could use a -CAPCOM kind of a crew status report there of yourself if you've got a chance. Roger, I'm still holding up. Had a SC real good nights sleep, a good eight hours I guess and my cold seems better a fast I'm not blowing my nose as much and my ears stay was more than a greater proportion of the time then they were earlier. Yes, that's real good. CAPCOM I don't know whether Wally and Walters SC have improved any or not, I don't think they have to speak of. I took one lomo pill before I went to sleen, that was around - well, when ever it was that I went to  $s \mapsto e_{\mathcal{F}}$ Roger. CAPCOM I took it about 215 or 216. SC What was that 215 or - oh, that was CAPCOM the time, okay. About 215 hours or there abouts. SC CAPCOM Roger. I haven't kept too close a track of the water, I think it's been around 20 to 30 clicks. Roger. CAPCOM A combination of before I went to sleep SC and then after I got up. About 30 seconds LOS at Canarys, we've CAPCOM got Madrid for about 1 minute. Roger. SC You Redstone at 08. CAPCOM Roger, Redstone at 08. SC Apollo control at 228 hours 14 minutes PAO Madrid has LOS. We completed the flight plan update on this pass also got a run down on Donn Eiseles health, he

reported he got a good eight hours sleep, his cold seems better, his ears are clear more often now. Next station

APOLLO 7 COMMENTARY, 10/20/68, GET: 22803 (CDT 1005p) 670/3

pAO to acquire will be Redstone, we'll miss the Mercury and Guam this rev. Apollo 7, in its 144 revolution. Redstone due to acquire at 229 hours 07 minutes. This is mission control, Houston.

This is Apollo Control at 228 hours 25 minutes. Prior to acquisition of Apollo 7 at the Mercury, the next tracking station, we will have a change of shift in the control center. This shift has been essentially a quiet one. We'll give you a recap of the major items on the shift. During - early in the shift, during rev 140, at about 222 hours 14 minutes elapsed time over the Mercury, Wally Schirra reported that he had conducted a test. He had donned the suit, strapped himself in the couch, reported that he believed that they would re-enter Tuesday in suits, with the headrest padded, but with no helmets and gloves. He tried that out during the test and it seemed to work very Later in that same pass, that same rev rather, over the Redstone, Schirra reported that he would change the TV times tomorrow because of the busy schedule of activities. And the elapsed time for the television pass was changed to 237 hours 18 minutes elapsed for the start of the pass; 237 hours 30 minutes for the end of the pass, in Central Daylight Time that's 7:20 A.M. to 7:32 A.M. Tracking ship Mercury in the Pacific still reported stormy seas, waves of 15 feet; the ship rolling as much as 20 degrees. Mercury, during one rev, also had a U S-B antenna problem and we used VHF voice. We have not had any particular problems since then with the Mercury. Conducted several tests during this shift. Communications tests at several stations. Conducted a test of the service propulsion system line heaters and we conducted another cryogenics stratification test this time on the hydrogen tanks. We powered up the command module computer in rev 142 over the Redstone at 225 hours 57 minutes; checked some information in the computer; powered back down a station later at Ascension. At Ascension we passed up some procedure for optics degradation test, which is scheduled to begin in about 2 minutes. We asked Donn Eisele to take a look through the optics with the eyepieces removed during a day pass to see whether he could observe any deposits on the internal lens. These are deposits such as have appeared on the windows. At that time, Eisele reported that so far, with the eyepieces on, that the view is as good now as it was at the start of the flight. Over the Redstone, in rev 143, we started a flight plan update, which included the new TV times; times for a waste water dump; we continued that update during this last contact at the Canarys and at Madrid, taking the flight plan up through SPS burn number 7, which is scheduled for 239 hours 06 minutes elapsed time. Donn Eisele reported at that time, that he had a good 8 hours sleep, that his cold seems better and his ears are clear. That essentially covers the activities on the shift. There will be no change of shift press briefing tonight. The third shift headed by Jerry Griffin will have a news conference in the morning. Estimated time

APOLLO 7 COMMENTARY, 10/20/68, GET: 2282900 (CDT 10:30p) 671/2

PAO right now between 7:30 and 8:00. Next station to acquire will be the Redstone at 229 hours 07 minutes. At 228 hours 31 minutes, this is Mission Control, Houston.

PAO This is Apollo Control 229 hours 07 minutes into the mission of Apollo 7. We are approaching the Redstone tracking station, we should have acquisition in a very few seconds; let's stand by.

CAP COM Apollo 7, Houston through Redstone,

standing by.

SC Roger, Houston.

CAP COM Roger, loud and clear.

SC Houston, Apollo 7.

CAP COM Houston go.

SC I looked through the optics and I couldn't tell much in the way of dirt in there. The sextant looked clean as a whistle, there was some little light spots in the telescope which could be dirt particles catching light, you know, reflecting.

CAP COM Roger, but you didn't see anything that

looks like the command module windows?

SC That looked like what?

CAP COM Any of the deposits we have on the command module windows?

SC No, I couldn't tell anything like that. You mean on the surface - the innersurface of the - next to the spacecraft or are you looking through the whole thing?

CAP COM Well, looking through the whole thing and also on the innersurface anywhere that you can see.

SC No. I didn't see anything like that

that looked like our window degradation at all.

CAP COM Roger, copied.

They were clean as a whistle except for the little specks on the telescope which do not apparently effect the field of view when you've got the eye piece in.

CAP COM Roger. Sounds good then.

SC Yeah, I haven't noticed any change at all in the way the stars look or the ground looks from the day we took off.

CAP COM Roger.

sc In fact on such a ... flight, I'd like to suggest they rig up some type of a deal where you could mount a camera on there and take pictures through it. It's an excellent window for that kind of thing.

CAP COM Roger.

Apolle 7, Houston.

SC Go ahead

CAP COM Rog, I've got about three flight planning questions here on the completion of things.

SC Okay, go ahead.

CAP COM Roger. Has a second sextant calibration test been performed?

APOLLO 7 COMMENTARY, 10/20/68, GET: 2290700 (CDT 11:10p) 672/2

SC No, we haven't done that.

CAP COM Roger, and --

SC I guess the first one didn't come out

too well. I mean I only got one star.

CAP COM Roger. And how about the optics calibration test, have two of those been performed?

SC Don't remember what that is. You mean

the COAS calibration?

CAP COM

No, that's the first part of P-23. It's

that trunion ... check thing.

SC Oh yeah. No, I did that the same time I did the sextant calibration.

CAP COM Roger, and how about the window photo-

graphy as described in the DTO S-20.16?

SC Ah, I haven't taken any pictures, I think Walt and Wally have taken some along the way. I don't know if we did it exactly to that DTO but I think we ... intent of it.

CAP COM Roger, understand, and 7, Houston,

opposite omni.

SC

CAP COM Apollo 7, Houston. Opposite omni again please. (pause) Apollo 7, Houston, one minute LOS, Antigua at 27.

SC Roger.

PAO This is Apollo Control 229 hours 18 minutes into the mission of Apollo 7. We've just lost acquisition at the Redstone tracking ship, we are completing our 144th revolution at this time approaching the West coast of South America. At 229 hours 19 minutes, this is Apollo Control.

673/1

APOLLO 7 COMMENTARY, 10/20/68, GET: 22927 (CDT 11:30)

PAO This is Apollo Control, 229 hours, 27 minutes into the mission of Apollo 7. We're now at the point of acquisition at the Antigua Tracking Station. Let's listen in.

CAPCOM Apollo 7, Houston, through Antigua,

standing by.

SC Roger.

CAPCOM Apollo 7, Houston, 1 minute LOS, Antigua

Canaries at 38.

SC Roger, good morning.

CAPCOM Good morning. And goodbye, we'll see

you tomorrow, Don.

SC Oh, okay, Ron. Have a good day.

CAPCOM Roger.

SC Good night or whatever it is.
PAO This is Apollo Control, 229 hours,

PAO This is Apollo Control, 229 hours, 36 minutes into the mission of Apollo 7. Our next acquisition point will be Canary Islands at 22930. At 229, correction, 22938. Our time right now is 22936. This is Apollo Control.

PAO This is Apollo Control, 229 hours, 38 minutes into the mission of Apollo 7. We have acquired Canary Islands Tracking Station on the one hundred forty fifth revolution the beginning of the one hundred forty fifth, we'll standby for conversation.

CAPCOM Apollo 7, Houston, through Canary stand-

ing by.

SC Roger, Bill.

CAPCOM Apollo 7, Houston, opposite omni please. Apollo 7, Houston, coming upon LOS Canaries in about 1 and 1/2 minutes, approximately 1 more minute of calm after that if you turn your S-Band volume up at Madrid.

SC Roger.

CAPCOM Apollo 7, Houston, 1 minute LOS Madrid,

Canarvon at 17.

PAO This is Apollo Control, 229 hours, 49 minutes into the mission of Apollo 7. We've just lost acquisition with Canary Islands and the Madrid Tracking Station. Our next point of contact will be Carnarvon at 230 hours, 17 minutes. At 22950, this is Apollo Control.

PAO This is Apollo Control 230 hours 17 minutes into the mission of Apollo 7. We're coming up now on acquisition point of Carnarvon tracking station and we now have data at Carnarvon; let's listen in.

CAP COM 7, Houston, through Carnarvon.

SC Roger, Houston.

CAP COM Hi Donn, would just like to confirm a fuel cell load two purge.

SC Roger, that should work.

CAP COM Right, thank you. And I have a block data to pass up. Now this is a fairly brief pass here at Carnarvon, I'll get you at Honeysuckle at 24 and require S-band volume up at that time.

SC Okay. (pause) Ah, Bill.

CAP COM Rog, go.

SC Could you give me a map update, please?
CAP COM Rog, have one right here. For rev 146
GET 232 + 28 + 05, 116.8 West.

SC Roger, the time was 232 + 38 was that it? + 28.

SC 73, alright, thank you.

PAO Pais is Apollo Control 230 hours 21 minutes into the flight of Apollo 7. We've lost acquisition at Carnarvon. We have about 2-1/2 minutes to acquire at Honeysuckle Creek so we'll just stand by. During the Carnarvon pass it was confirmed that there had been a fuel cell oxygen or O2 purge and that was about it. We'll stand by now for the pass at Honeysuckle.

CAP COM Apollo 7, Houston through Honeysuckle.

SC Roger, Houston.

CAP COM And I do have this block data ready wherever you are ready to copy.

SC Okay. Go ahead, Bill.

CAP COM Rog. Block data 147 dash 1 bravo plus 263 minus 0630 232 plus 09 plus 47 4102, 148 dash 1 alpha plus 299 minus 0645 233 plus 46 plus 42 3550, 149 dash 1 alpha plus 293 minus 0644 235 plus 25 plus 39 3075, 150 dash 1 alpha plus 237 minus 0630 237 plus 07 plus 05 2811, 151 dash 4 alpha plus 294 minus 1615 239 plus 48 plus 35 3073, 152 dash 4 alpha plus 298 minus 1615 241 plus 29 plus 11 2839. Standing by for readback.

SC Roger, can you give me that last one over please? The time ...

CAP COM Roger, 241 plus 29 plus 11.

SC Okay 147 dash 1 bravo plus 263 minus 0630 232 09 47 4102, 148 plus 299 minus 0645 233 46 42 3550, 149 plus 293 minus 0644 235 25 39 3075, 150 plus 237 minus 0630 237 07 05 2811, 151 plus 294 minus 1615 239 48 35 3073, 152

APOLLO 7 COMMENTARY, 10/20/68, GET: 2301700 (CDT 12:21a) 675/2

SC plus 298 minus 1615 241 29 11 2839.
CAP COM Okay, readback is correct. (pause)
Apollo 7, Houston. Coming up on LOS Honeysuckle, Redstone at 43.

SC Roger.

PAO This is Apollo Control 230 hours 31 minutes into the flight of Apollo 7. We have just lost acquisition at Honeysuckle. We are now anticipating Redstone tracking station at 230 hours 43 minutes, some 11 minutes from now, 12 minutes from now. At 230:31, this is Apollo Control.

This is Apollo Control, 230 hours, PAO 43 minutes into the mission of Apollo 7. We're now approaching the acquisition point at the Redstone Tracking Ship. Let's listen in.

Apollo 7, Houston, through Redstone, CAPCOM

standing by.

SC Roger, Houston, Apollo 7.
CAPCOM Roger. Apollo 7, Houston, opposite
anomaly please. Apollo 7, Houston, 1 minute until LOS Redstone, Antigua at 02.

Roger. SC

This is Apollo Control, 230 hours, PAO 53 minutes into the mission of Apollo 7. We've just lost acquisition at the Redstone Tracking Station. We're anticipating Antigua acquisition at 231 hours, 2 minutes. At 23054 ending up the one hundred forty fifth revolution, this is Apollo Control.

PAO This is Apollo Control, 231 hours, 2 minutes into the mission of Apollo 7. We are coming up in a very few sconds to acquisition point to Antigua. Let's listen in.

CAPCOM Apollo 7, Houston, through Antigua.

Apollo 7, Houston.

SC Roger.

CAPCOM I have a couple of things to discuss here, Donn for you to put into the flight plan for flight plan update.

SC Oh okay, go ahead.

CAPCOM Right. First item we propose to dump waste water at 236 plus 50, excuse me 235 plus 50. That will be at the end of a - night pass. And this will allow plenty of time for the stuff to disperse before the next night pass. And also, we'll be timed to give us the proper quantity for reentry. Now at 235 plus 50 we'd like to dump to 40 percent waste quantity. And we would like to get pretty close to that number if possible because this is going to insure us that in the right quantity remaining at time for reentry.

SC Okay.

CAPCOM So I gave you a wrong number there. I corrected it but to make sure at 235 plus 0 dump to 40 percent.

Roger, I got it. At 235 plus 0 dump

tape.

CAPCOM Also second item for information, we're looking at north set stars and the analysis now is favorable. We'll have the information soon and that is if the crew wants the information.

SC I see. The north set stars and we could use if we had to do a real backup alignment.

CAPCOM Affirmative.

SC (garble)

CAPCOM Don, yes that is correct. You could use them for a backup alignment. They will be visible longer but the primary reason for looking those things up was to have two stars that would be visible for a longer period of time for doing this test.

SC Oh I see. You're saying you want to use

two other stars for the test.

CAPCOM We'll that's affirmative. We're proposing that or at least we're prepared to provide you with that information. Let me put it that way.

SC In coming in are we going to end up with the same - in other words when we fly back to...on our Gand C mode, that will be same as when we bring it up for the burn will it?

CAPCOM Affirmative.

SC All right. Well I don't care. It really doesn't make that much difference. We're trained on the south end stars.

CAPCOM Okay, well I had - we had understood it there was some reason to be worried about those because they wouldn't be visible long enough. These two stars that we have will be Navi and Polaris, stars 3 and 5. And they should - they will be visible for longer periods of time. That is why they went to work and got this information.

SC Oh I see.

CAPCOM They are still looking, trying to find out exactly what the periods are for the - that is the periods of visibility and then the duration of the time they will be visible.

SC Yeah, that would not be a problem. Actually, if you gave us the pitch, roll and yaw align we can just put those numbers on the IMU ball, and that ought to put .... in the right position.

CAPCOM Okay, the way I understood it was that because of the geometry of the orbit and the daylight problem they would be visible for short periods of time. However we'll just sort of hang loose on this for right now.

SC Well, Ron said something about 12 minutes that they would be visible. Twelve minutes would be plenty if you have them right in the telescope to begin with.

CAPCOM Copy.

SC That may not be enough.

CAPCOM Okay. We'll stand by. We have that information available.

SC Good. I prefer...stars, if we can, because we trained on that a little more on the ground, I think.

CAPCOM Okay, fine, request opposite omni please.

SC Okay.

PAO This is Apollo Control, 231 hours, 12 minutes into the mission of Apollo 7. We have lost acquisition. And we are now anticipating Canary Islands acquisition in some 2 and 1/2 minutes now. We'll standby. On this last pass we had definition of when to dump the waste water and that's 235 hours, 50 minutes to dump it down to 40 percent quantity. And that would be the last dump before reentry. At 23113 this is Apollo Control standing by for the Canary Islands pass.

CAPCOM Apollo 7 -

APOLLO 7 COMMENTARY, 10/21/68, GET: 2311400 (CDT 1:17a) 678/1

CAP COM Apollo 7, Houston, coming up on - stand (pause) Apollo 7, Houston through Canary standing by. (pause) Apollo 7, Houston, opposite omni please. (pause) Apollo 7, Houston, one minute LOS Canary, volume up at 23 for one minute more at Madrid, Carnarvon at 50.

Houston, Apollo 7, Roger.

Apollo 7, Houston, did you read. Roger, Bill, I got 'cha. CAP COM

SC

CAP COM Okay, thank you.

PAO This is Apollo Control 231 hours 24 minutes into the mission of Apollo 7. We've lost acquisition at Canary Islands. We're anticipating Carnarvon acquisition at 231:50. At 231:24, this is Apollo Control.

APOLLO 7 COMMENTARY, 10/21/68, GET: 2315000 (CDT 1:52a) 679/1

This is Apollo Control 231 hours 50 min-PAO utes into the mission of Apollo 7. We now have acquisition at Carnarvon on revolution 146; let's listen in.

Apollo 7, Houston, opposite omni please. CAP COM

Roger. SC

Apollo 7, Houston, through Honeysuckle, CAP COM standing by. (pause) Apollo 7, Houston, one minute LOS Honeysuckle, Texas at 32.

This is Apollo Control 232 hours 07 minutes into the mission of Apollo 7. We're climbing up apogee and coming into the last half of the 146th revolution of Earth. At 232 hours 07 minutes, this is Apollo Control.

PAO This is Apollo Control, 232 hours, 32 minutes into the mission of Apollo 7. We have acquisition at the Texas Tracking Station. Now let's standby.

SC Houston, Apollo 7. CAPCOM Apollo 7, Houston.

SC Hey Bill, I took a look at that South set star and those two stars and you're right - they're not much good. But then the cross went out in sight in - oh, I guess 6 to 8 minutes.

CAPCOM Roger.

SC So I think we better go with the north side if we can get them.

CAPCOM Okay, I'll start working on it right now. Apollo 7, Houston.

SC Reger, Go.

CAPCOM Right. On this procedure page 33 on the checklist, that's on this backup alinement, the two stars will be Navi, star number 3 instead of Acrux and Polaris, number 5 instead of Arria.

SC Company standby and I'll get that written

down here.

capcom (kay, and the procedure of course will remain the same.

SC Okay, Bill I god it. That line for each now - maneuver the stars Navi above 3 on the 50 degree mark and Polatis number 5 on the R line.

CAPCOM That's correct. And of course you have all the information written in there if we can go either way now depending upon the situation. But since you made the change, we'll assume now that we are sending all of our information up for the north set stars.

SC Right, I'd like to do that.

CAPCOM Okay, Apollo 7, Houston, you're GO for 164-1.

SC Roger,

CAPCOM Apollo 7, Houston, 1 minute LOS Antigua, Canary to 50.

SC Roger.
PAO This is Apollo Control, at 232 hours,
47 minutes into the mission of Apollo 7. During this last
pass we had the information passed up from CAPCOM Pogue here
at the control center that Apollo 7 has a GO for 164-1 or
for the completion of the mission. And now we have about
a 2 minute wait for acquisition at Canary Islands. We'll
standby through the Canary Islands pass for such conversation as there may be.

CAPCOM Apollo 7, Houston, through Canary. Standing by.

Roger, Bill.

SC Houston, Apollo 7.
CAPCOM Apollo 7, Houston, GO.
SC Roger. I just got a fast alarm and a fuel cell freed light come on. However, our cockpit meter indicates - it indicates normal.

CAPCOM

Roger, we're looking.

Apollo 7, Houston. CAP COM

SC Go.

CAP COM Rog, we've been watching it for some time. The condenser exhaust temperature has been dropping down, there's nothing to worry about, it'll come back up as soon as you power up. Apparently this has been a slow trend they've been monitoring from the ground.

Oh, I see now. Ours has dropped below the green band, I've got 155 here.

CAP COM 155 rog.

SC Okay, (garble) computer ... and figure it'll come back up when we power up.

CAP COM That's affirma

a fuel cell three light.

SC Roger. (pause) Houston, Apollo 7.

Apollo 7, Houston. CAP COM

Roger, we have a number three that tends to run cool and number two tends to run hot, ah, number two is carrying a little more load than the others that's on both buss. What do y a recople think of swapping, ah, let's put three on both bus as and two on buss two only?

CAP COM Rog, stand by. Apollo 7, Houston, we're talking that over, we'll get to you at Carnarvon.

Rog. SC .

Apollo 7, Houston, one minute LOS Canary. CAP COM Carnaryon at 23. We'd like to have POO in ACCEPT for Carnarvon acquisition, we'll give you a state vector and a target load.

Righto, I'll have it. SC

CAP COM Thank you.

This is Apollo Control 232 hours 58 minutes into the mission of Apollo 7. We're losing acquisition with Canary Islands now, we'll pick up the spacecraft at Carnarvon at 233:25. During this pass we heard Astronaut Eisele indicate that the fuel cell number three master alarm light was on but all the meter readings were normal, at which time Can Com Pogue indicated they had been watching this for some time on the ground and that the condensor exhaust temperature was coming down and it now stands at 155 degrees Fahrenheit. He also indicated that it will come back up and there's nothing to be concerned about when the fuel cell is put on the line. Bisele came back indicating that the history of the fuel cells seem to indicate that the number three cell is running cool, number one hot and number two is taking most of the load and how about swapping. Cap Com Pogue indicated that they would let him know at the Carnarvon pass. We have a GO for revolution 163, the completion of 163 revs which is the end of the mission and the

PAO retrofire that would come up from right now would come up in 26 hours 39 minutes and some seconds. We had a report in here that at 0605 Zulu, that's Greenwich time 5 hours different from Central Daylight Time that would be 01:05 our time, a Class one bright, 1B flare, occurred on the Sun solar flare. This flare had been predicted for the last couple of days and although it was small compared to those that would expell harmful high energy protons, the situation itself does serve to illustrate how it would have been handled had it been a lunar mission that we had going on with the astronauts on their way to the Moon. The flare was observed as it occurred by the SPAN, that's Solar Particle Alert Network, observer at the Carnarvon station Australia. He placed a call into the space environment console located in the Control Center here in Houston and the information was immediately relayed to the Space Disturbance Forecast Center in Boulder, Colorado for confirmation and additional information, their inputs. The Carnarvon SPAN site followed up their voice report by transmitting via teletype here to the Control Center detailed data on the RF burst that accompanied the flare. Withina half hour after the same was first observed, the data was being analyzed by a computer here at Houston MCC. results of the computer analysis will show that there is no adverse radiation associated with this event, as I say it was a minor disturbance, Class 1B is not a major solar flare. so there was not adverse radiation associated with it and it was expected result for such a small one. Proton and generally present only during the very largest of soler Solar flares such as this, again, would not effect the Recommendation 7 Earth Orbital mission so there is no cause for concern ab ... The only concern would occur during a deeper space flight such as a lunar mission, but again it does serve to indicate in this particular example how it would have bean handled had this been a lunar mission. We're anticipating Carnarvon at 235:25, 233:35 a correction. At 233:03, this is Apollo Control.

This is Apollo Control, 233 hours, PAO 25 minutes into the mission of Apollo 7. We're coming up in about 10 seconds with acquisition at Canarvon. We'll standby. Apollo 7, Houston, through Canarvon. CAPCOM Roger. SC Apollo 7, Houston, I have the maneuver CAPCOM pad when you're ready to copy. I'm ready. Go ahead. Roger. SPS number 7, 239061100 minus CAPCOM 00000, minus 010000, minus 02020. Don, could you go to accept please? We've got it. Roger. Continuing to read with noun 42, CAPCOM 2303 plus 0 niner 01, 02083, 24647, minus 073, minus 131, 008, 05, 2831, 276, 238, 24, 0000, minus 0 niner 42, plus 13557, 2307, ROLL pitch and YAW all 0's. Standing by for readback. ...SPS burn number 7, 59061100 minus SC 00000, minus 010000, minus 02020, 2303 plus 0901, 02083, 24647, minus 073, mi is 131, 008, 05, 2831, 276, 238, 24, 0000, minus 0942, plus 13557, 2307, all 0's. Right. You faded out. Now on 42 up CAPCOM there for the apogee height - 2303. Roger, 2303. SC Okay. And comments SCS auto with SPS. CAPCOM Out of pointing north, pitched up 70 degrees. And also in the comments section I have the backup align infor arion Okay, pitched up 70 degrees SC what you got? Affirmative. Out of plane north pitched CAPCOM up 70 degrees. Right and heads up. ...backup. SC Affirmative. That's right. It is CAPCOM heads up. Go ahead and give your backup angles SC now Bill. Right. For the backup alinement ROLL CAPCOM 035, pitch 003, YAW 006, comments backup aline stars are north set. Both stars available after 5 minutes in darkness. Okay. ROLL 035, pitch 003, YAW 006, north set - 5 minutes after darkness. Affirmative. Readback is correct. CAPCOM I understand these are the angles that when we're in position the north set stars that we fly back

to null on the GEC we'll also be at null on the INE pole. That's affirmative. That's the way I CAPCOM understand it.

```
Okay, Bill -
     SC
                    Donn, before you put your pad away, would
     CAPCOM
you confirm in noun 42 the C - 02083.
                    Roger, 02083, got it.
                    Thank you. Readback is correct.
     CAPCOM
                    Okay thank you, Bill.
     SC
                    Okay, Donn it is your computer.
     CAPCOM
                    Okay.
     SC
                    Both ROLLS are in. Apollo 7, Houston,
     CAPCOM
opposite omni please. Apollo 7, Houston, coming upon
Carnarvon LOS, S-Band volume up at Honeysuckle which will
be about 1/2 minute from now.
                    Okay Bill.
     SC
                    Apollo 7, Houston, opposite omni
     CAPCOM
please.
                    (garble)
     SC
                    Go. Apollo 7, Houston, Go.
     CAPCOM
                    Donn, nothing, Bill, I just responded to
     SC
your call there.
                    I'm sorry.
     CAPCOM
                         一急も。
     SC
                     Trois 7. Houston, approximately
     CAPCOM
1 minute LOS Honeysuckle, Guaymas at 04.
                    Roger.
                    This is Apollo Control, 233 hours,
     PAO
42 minutes into the mission of Apollo 7. We have lost
acquisition and as CAPCOM Pogue passed up to the crew. Guay-
mas acquisition will be at 23404. We also have a very shirt
2 and 1/2 minute contact with the Huntsville Trackie, ship
at 23401. And evidently CAPCOM Pogue does not anticipate
any contact there. So we'll come upon Guaymas at 23404.
At 23343, this is Apollo Control.
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APOLLO 7 COMMENTARY, 10/21/68, GET: 2340300 (CDT 4:07a)
     PAO
                     This is Apollo Control 234 hours 03 min-
utes into the mission of Apollo 7. We are coming up in just
a few seconds on acquisition at Guaymas, Mexico; let's listen
in.
                    Apollo 7, Houston through Guaymas stand-
     CAP COM
ing by.
     SC
                    Roger.
     CAP COM
                    Apollo 7, Houston.
     SC
                    Go.
CAP COM Hey, Donn, monitor your yaw. We show a slow drift over toward 270.
     SC
                    Rog, I'm keeping an eye on it.
     CAP COM
                    Okay.
                     I'm hoping that the pitch and yaw
     SC
(garbled) won't quite get over there.
     CAP COM
                    Okay, we'll keep an eye on it here, we
have a long pass.
     SC
                    Okay.
     CAP COM
                    Very good.
     SC
                    Okay, do a P-52 using (garble)
Oh you're not reading this are you?
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APOLLO 7 COMMENTARY, 10/21/68, GET: 23420 (CDT 4:30) 684/1 CAPCOM Apollo 7, Houston, 1 minute LOS Antigua ascension Canary weather at 26. Thank you Bill. We'd like to (garble). CAPCOM All right. PAO This is Apollo Control, 234 hours, 23 minutes into the mission. We are anticipating contact with the Canary Islands Tracking Station in about 2 minutes. So we'll standby for that pass. Apollo 7, Houston, through Canary. CAPCOM ing by. SC Roger. CAPCOM Go ahead. Apollo 7, Houston. monitoring about 75 degrees in yaw. Roger. Thanks Bill. I just caught it. I was hoping I could get away without firing the YAW if I had to. CAPCOM Roger. SCHey Bill, we have lost down link and you didn't give the tape back that last time. I did the final line check, used Sirius and Rigel. I got 5 balls starting with Eperus, got plus 4 ball 8, plus C ball 24 minus 4 ball to 3 for the torquing angle in the final line check. CAPCOM What were the last two on the final line check? SC Plus 4 balls 24 and minus 4 ball to 3. CAPCOM Roger. This is Apollo Control, 234 hours,

33 minutes into the mission of Apollo 7. We're now losing acquisition at Canary Islands. We're anticipating Tananarive

at 23446. At 23433, this is Apollo Control.

APOLLO 7 COMMENTARY, 10/21/68, GET: 23447 (CDT 4:50)

PAO This is Apollo Control, 234 hours, 46 minutes into the mission of Apollo 7. We have acquired at Tananarive. We'll standby. This is Apollo Control, 234 hours, 53 minutes into the mission of Apollo 7. We had no voice contact at Tananarive. We have experienced some difficulty of communicating through Tananarive in the last day or so. We are now anticipating contact with Carnarvon at 235 hours even. At 23453, this is Apollo Control.

Okay.

Well for change number 21 we can put

I'll explain it to you later.

SC

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APOLLO 7 COMMENTARY, 10/21/68, GET: 2350000 (CDT 5:04a) 686/2
                    can number one back but for 22 it leaves
     SC
me cold.
                    Okay.
     CAP COM
                    I think we'd better go back to the
     SC
drawing boards for that one, Bill.
                    No comment.
     CAP COM
                    Our point here, Bill, is maybe we had
     SC
better not change this one now. If we just stretch these
out none of them have gone very far, we're left about
1/10th of a millimeter right now. If we stretch this one
out and move the next one back a little bit, we've got
them through the ... I think.
                    Rog, I see what you're saying, I agree.
     CAP COM
                    What he's saying in 101 we should at
     SC
least try for a silly millimeter longer.
                    Oh, boy.
     CAP COM
                    That's two for you.
     SC
                    Bill, I told you to get us a new writer.
     SC
                    Thought you was setting me up there the
     CAP COM
other night, I'm afraid to say anything anymore.
                     (laughing) Yeah.
                    Hey, Bill, Happiness is package of
     SC
bacon squares on Day 10.
                     Rog. Sounds like you have quite a few
     CAP COM
useful comments on the food there, I've been reading the
notes.
                    You ought to see what we've written.
     SC
                    How do they spell "blacch?"
     SC
                     Check with Sparchy Schultz there. We
     CAP COM
think you ought to look that one up in your Funk and Wagnalls.
                     We'll bridge the gap.
     SC
                    Apollo 7, Houston, LOS Carnarvon in one
     CAP COM
minute, S-band volume up at that time for Honeysuckle.
     SC
                     Okeydoke.
                     Apollo 7, Houston, opposite omni please.
     CAP COM
Apollo 7, Houston, opposite omni again please.
                     Houston Control, S-band.
     SC
                     Roger, opposite omni.
     CAP COM
     SC
                     Roger.
                     Apollo 7, Houston, coming up on Honey-
     CAP COM
suckle LOS, Hawaii at 29.
                     This is Apollo Control 235 hours 17 min-
utes into the mission of Apollo 7. We've just lost acqui-
sition at Honeysuckle. We're anticipating contact at
Hawaii tracking station at 235 hours 29 minutes, some
11 minutes from now, 12 minutes. At 235:18 this is Apollo
Control.
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PAO This is Apollo Control, 235 hours, 29 minutes into the mission of Apollo 7. We're coming up on the Hawaiian Tracking Station. We should have acquisition in a very few seconds.

CAPCOM Apollo 7, Houston, through Hawaii.

Standing by.

SC Aloha.

CAPCOM Apollo 7, Houston.

SC All right, go.

CAPCOM Right. By just a way of a reminder, we'd like to remind you when it is DAP control, we'd like all channels enabled and DAP loaded to fail quads ALPHA and BRAVO to save some fuel on these two quads.

SC I understand that about the DAP load.

What did you say before the DAP load?

CAPCOM I said just as a reminder.

SC Okay it was only the DAP load we were aware. Thank you very much.

CAPCOM Right. Thank you.

SC Started to mention not to change - ...42 in the flight plan until about 40 hours unless CO2 partial pressure dictated that way.

CAPCOM Roger.

SC Houston, Apollo 7. CAPCOM Apollo 7, Houston, GO.

SC Roger. You're coming in a lot better now. It's our intention not to make cannister change number 22 called out in the flight plan until about 40 hours.

CAPCOM Roger, understand.

SC
And that - unless CO2 partial pressure goes up, we'll make cannister change - I guess that's 23. We will make 21 at 40 hours. We'll make cannister change 22 at about 50 hours. That will put cannister number 1 back in, cannister number 2 back in then.

CAPCOM Okay, I understand. That's okay.

SC We'll put the cannister back in we took out first whatever it was.

CAPCOM Right, I understand what you're saying.

SC Houston, Apollo 7.

CAPCOM Apollo 7, Houston, GO.

SC Roger, we're in the process of doing this backup alignment. I've gotten as far as getting as far as it should be and the lining of GET. We're now flying back to three zeroes on the ball. Let's check our air against the IMU.

CAPCOM Roger. Right. SC Houston, Apollo 7. CAPCOM Apollo 7, Houston.

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APOLLO 7 COMMENTARY, 10/21/68, GET: 2352900 (CDT 5:47a) 688/1
     CAP COM
                    Apollo 7, Houston.
                    I'd like to record a comment concerning
     SC
the optic quality of the telescope.
     CAP COM
                    Rog.
     SC
                     ... focus very sharply on the reticle
pattern and on stars and so forth in the center of the
telescope and as you get out there ... area ... it gets
a distortion and you get some fuzziness and it makes it
very difficult to pick up stars ... Reminds me of a cheap
pair of binoculars that you might get at Sears on sale or
something.
     CAP COM
                    Rog.
     SC
                    Houston, Apollo 7.
     CAP COM
                    Apollo 7, Houston.
     SC
                    Are you, your getting our ... downlink
are you?
     CAP COM
                    Affirmative.
                    Okay, those numbers you see are the
error in this procedure. Looks pretty good to me.
     CAP COM
                    Rog. Sure does.
     SC
                    That also includes any errors thrown
in by the GEC push button.
     CAP COM
                    Can't argue with that.
     SC
                    Let's argue, to make the point a little
plainer, the attitude set ... are also included in this
summation of errors because all I do was set in 9 balls to
fly the GDC error needle to nall. So the bias from that is
also included.
     CAP COM
                    I understand.
     SC
                    Roger. (pause) Hey Bill, do you have
a map update for us. Ah, one that's on this rev say.
                    Stand by. We have rev 149, time is
     CAP COM
236 + 58 + 44, 173.9 degrees East.
     SC
                    Roger.
     CAP COM
                    Apollo 7, Houston. Also like to remind
you about the waste water dump scheduled at 235 + 50.
     SC
                           (pause) Houston, Apollo 7.
                    Wilco.
     CAP COM
                    Apollo 7, Houston, go.
     SC
                    We show water dump down to 40 percent.
I assume that 40 percent guarantee means we won't have to
dump anymore before reentry. We can restow our attachment?
Over.
                    Okay. That is using the figures they
     CAP COM
have been able to determine on the flight, that's correct.
                    And we'll end up with how much of the
waste water tank then at 260 hours?
     CAP COM
                    About 90 percent.
```

Okay.

SC

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APOLLO 7 COMMENTARY, 10/21/68, GET: 2352900 (CDT 5:47a) 688/2
     CAP COM
                    You got a little --
     SC
                    We're going to restow this thing.
is going to be our last dump.
                    What if we go an extra three hours.
what would happen?
     CAP COM
                     Stand by.
     SC
                    We won't worry about that.
     SC
                    To look at this academically, we're worried
about a trickle flow through the urine dump, that's all.
     CAP COM
                    Okay.
     SC
                    ... able to make this dump and that's
it.
     CAP COM
                    Alright.
     SC
                    Houston, Apollo 7.
                    Apollo 7, Houston go.
     CAP COM
                    Through with downlink now, do you show
the cabin pressure holding steady? We show an 02 flow high
on and I think it looks to me like the cabin pressure might
be falling a little bit.
     CAP COM
                    Cabin pressure's holding pretty constant
here. I've been looking at it but stand by. Apollo 7,
Houston. No, it still looks good here, you might check the
waste vent and direct 02 valves.
     SC
                    Rog, we are dumping water.
     CAP COM
                    Oh, yeah, that's probably it. I'm
reading about 46.8 percent now.
     SC
                    Roger.
     SC
                    Are you seeing range down there, Bill.
     CAP COM
                    Ah, I can see quantities, I'm getting
readouts.
     SC
                    No, on the maneuvering range.
                    Looks like I just lost, ah, I lost part
     CAP COM
of my display here but I was watching them, yes.
                    We're building up to almost 2/10ths a
degree in percent already in yaw since the dump.
     CAP COM
                    Yeah, I see it.
     SC
                    Okay, let's take it out now.
     CAP COM
                    1/10ths of a degree in the other two
axes.
     SC
                    Rog.
     SC
                    (garbled) 2/10ths of a degree per second.
     CAP COM
                    Okay, I'm making a comment. Apollo 7,
Houston.
          Coming up on LOS, Tananarive at 21.
                    This is Apollo Control 235 hours 59 min-
     PAO
utes into the mission of Apollo 7. We are coming up on loss
of signal, we will acquire Tananarive at 236:21, correction,
no that is correct 236:21. At 235:59 this is Apollo Control.
```

This is Apollo Control, 236 hours, PAO 21 minutes into the mission of Apollo 7. We're coming upon acquisition with the Tananarive Tracking Station. Let's listen in.

Apollo 7, Houston, through Tananarive. CAPCOM

Standing by.

Good morning, Houston, Apollo 7. SC

Good morning, Don. CAPCOM Hi, Jack, how are you. SC

CAPCOM Fine. Good. SC

Apollo 7, Houston, 1 minute LOS Tanana-CAPCOM

rive, Canarvon at 36.

This is Apollo Control, 236 hours, 28 minutes into the flight of Apollo 7. We're now losing acquisition at Tananarive. Our next point of contact will be Canarvon at 23636. This is Apollo Control.

This is Apollo Control, 236 hours, 31 minutes into the mission of Apollo 7. We're coming up on Carnarvon within the next 4 plus minutes. We'll take a couple of minutes before to have a recap on the last 7 and 1/2 hours of activity. At revolution 144, 229 hours roughly at Redstone it was indicated by Apollo 7 that the telescope was working as well now as at the start of the mission. There was a dry period from 229 hours up through 230 hours with not much going on. At 230 hours - the Apollo 7 confirmed a fuel cell 02 purge, pass block data. And astronaut Pogue passed up a map update. At 231 hours, the waste water dump time of 23550 was indicated to the crew. And at that time was indicated if they would dump at 235 hours, 50 minutes down to 40 percent, that that would probably be the last waste water dump of the mission. At 232 hours, 32 minutes on the Texas pass REV 146, we passed up a GO for 164-1. That is 163 revolutions which is the complete plan for mission. So they have a GO for the complete mission as of that time. At 232 hours, 50 minutes the Canary Islands - Eisele indicated that fuel cell number 3 master alarm was on out all the meter readings seemed normal onboard. Astronaut Pogue here at the control center indicated that we had been watching this for some time. And that the condenser exhaust temperature is coming down, 155 degrees now or at that time. But it will go back up when the fuel cell is put on the line. Eisele then indicated that since number 3 fuel cell was running cool and number 1 fuel cell had a history of running hot and number 2 is tall and ost of the load. How about swapping it? And Pogue indicated mat they would let him know at Carnarvon. At about this time we had an indication of solar flare activity and that was that - they had observed a I-B. That's a one bright class: fication which is a small solar flare. And although it is small compared to those that would expel harmful high energy protons, the situation served well to illustrate how it would have been handled had this been a lunar mission. flare was observed by the SPAN. That's Solar Particle Alert Network Observer at the Carnarvon Australian Station. placed a call into the space environment console located in the control center here in Houston. The information was immediately relayed to the space disturbance forecast center in Boulder, Colorado. And the Carnarvon span site followed up the voice report by transmitting via teletype to control center here. A detailed account and the data on the RF burst that accompanied the flare. Within 1/2 hour after the flare was first observed the data was being analyzed by a computer here in MCC. The results of the computer analysis show that there is no adverse radiation associated with this event. And this was an expected result for such a small

flare. So there was no danger to the flight but it served well to indicate how such flare reportage was to be handled. At 235 hours, Astronaut Schirra had questions about the actifed tablets and about the mucus - and how - he asked the question of whether actifeds thicken the mucus, and if that was normal. And the doctor here in the control center on duty indicated yes, it was normal. He then asked about sinuses and the doctor said, "Yes, they open the sinuses; they shrink the sinuses." The canister changes were then talked about. We have two more canister changes to complete the mission and that the lithium hydroxide canisters onboard and in rev 148 235 hours, 29 minutes at Hawaii, it was indicated by the Apollo 7 crew that the telescope, when it was used, the edges appeared sort of fuzzy; very difficult to observe around the edges, looking through the telescope. There was a navigation update, and the last waste water dump down to 40 percent level was performed during that pass. We are now up to the Carnarvon acquisition point; let's stand by for any live conversation.

CAPCOM Apollo 7, Houston, through Carnarvon,

standing by.

SC Roger.

CAPCOM Apollo 7, opposite OMNI.

SC Tell Ed I admire his astute judgement.

CAPCOM Roger.

CAPCOM Apollo 7, opposite OMNI.

SC Roger.

CAPCOM Apollo 7, Houston.

SC Go ahead.

CAPCAOM Okay, Wally. As we go over the hill here, we are looking at the primary evaporator; looks a little strange. If it dries out you might shut it down and leave it shut down; we'll pick you up next time. We are about 45 seconds LOS here at Carnarvon. We do have HSK for another 4 minutes if you want to turn up S band.

SC Okay, we'll go ahead and shut it down Jack.

CAPCOM Okay. Does it look strange to you Walt?

SC Yep, I'm gonna shut it down.

CAPCOM Okay, we do not have HSK, so we'll pick you at Hawaii at 02.

SC Okay, 02.

pAO This is Apollo Control, 236 hours, 46 minutes into the mission of Apollo 7. We are losing acquisition, have lost acquisition at Carnarvon. Our next point of contact will be Hawaii Tracking Station at 23702. This is the pass on the 149th revolution, this is the pass, and I might say the final pass of the mission for television, the live television is as follows. On this revolution at

APOLLO 7 COMMENTARY, 10/21/68, GET: 23609 (CDT: 6:34a) 690/3

237 hours, 16 minutes, or 7:18 am Central Daylight Time, they will turn the television camera on at 23718, 7:20 am; our TV pass should begin with hopefully good resolution and at 7:32 am, Central Daylight Time, the pass will end. At 23648 this is Apollo Control.

APOLLO 7 COMMENTARY, 10/21/68, GET: 23703 (CDT 7:07a) 691/1

PAO This is Apollo Control Houston 237 hours 03 minutes into the flight of Apollo 7. The flight plan calls for an oxygen purge during this pass across the states, an oxygen fuel cell purge as well as a TV - the TV is to be turned on at 237 hours 16 minutes. We have tagged up with 7 via Hawaii. Let's catch that conversation.

CAPCOM Apollo 7, Houston through Hawaii.

SC Roger.

SC Houston, Apollo 7.

CAPCOM Go ahead. SC Roger.

SC Houston, Apollo 7.

CAPCOM Go ahead, 7.

SC Jack, I've got one more helpful hint to offer on this backup alignment.

CAPCOM Okay, go ahead.

SC Okay. In order to prevent the optics from dripping off the shaft and trunnion angle, you said merely turn optics power off when you get it set up and they will stay right there.

CAPCOM kay.

SC think the point to make note of is that we are really tracing out what amounts to an optics shaft tie-up anyway. You could see it that way.

CAPCOM Okay, copy that, Wally.

SC Hey, Jack, on the primary evaporator here, I went to manual and increased for a minute and then when I watched it, it started coming back up. I went to auto again, when I noticed the setting in here was the evaporator outlet temperature about the mid-range and the steam pressure in a comparable spot. I don't see either one of them moving at all now.

CAPCOM Okay, copy that.

SC But I am going to start looking for a separate column on that.

CAPCOM All right.

CAPCOM Apollo 7, Houston.

SC Go.

CAPCOM Okay, Wally, on the primary evaporator there, the pressures and temperatures look normal to us down here on the ground. We would like to shut the evaporator down at this time and some time after the burn, we will reservice it again and then use it prior to entry.

SC Okay. You don't want to reservice it

when I shut down.

CAPCOM Negative.

SC And what are you showing glycol evap

out temperature? CAPCOM

44.1.

APOLLO 7 COMMENTARY, 10/21/68, GET: 23703 (CDT 7:07a) 691/2

SC Yes, well when this is controlling, it controls down around 40.

CAPCOM Wally, it shouldn't be boiling now.

Your rad-out is low and it's - you are mixing.

SC Understand.

SC If you will notice, Jack, I don't have manual control of the steam pressure valve.

CAPCOM You have gone to increase now?

I went to increase for about 1-1/2 minutes when I shut it out earlier, with no noticeable effect on the back pressure - the steam pressure. Subsequent to that time, it came up. When it got within a working range, I went back to auto. I just attempted to manipulate it again, with no noticeable effect on it, that's why I think there is something fishy with the back pressure control. If I secure it now as much as I can secure it and if we just let it sit here, it might end up drifting on up, like it did before. I won't reservice it until some time before reentry then.

CAPCOM Okay, we will give you a cue.

pAO This is Apollo Control. The TV pass should be a good long one. We are due to acquire at Texas at 23718 and we should lose lock, according to our charts here, at - through the Merritt Island range, actually it will be the Antigua station at 23729, 11 minutes.

SC Houston, Apollo 7.

CAPCOM Go ahead. Go ahead, Wally.

SC Roger. We are starting with ALC out,

we are dark in here with floods on, is that correct?

CAPCOM If you are going to show pictures of the panel or something like that, you should put ALC in. For spot effects, then ALC should be out.

SC We have got floods around us here that

are pretty bright. We will try out first, all right?

CAPCÓM Okay, that is fine. And now, if it does not look like a real good picture, I'll tell you to change the position of the switch.

SC Very good.

CAPCOM Have you got a spectacular for us this morning?

SC Negative. CAPCOM Okay.

SC We are just going to be at our duty stations.

CAPCOM All right.

PAO And the camera is on. We are beginning to see a picture. We have got about half a picture and it is clearing up now. It's - cut it up, would you, Hal? It is just possible that might be converter trouble. I don't

APOLLO 7 COMMENTARY, 10/21/68, GET: 23703 (CDT 7:07a) 691/3

pAO it looks like to me that is the kind of trouble we had before. I can see the "high atop the Apollo room" sign.

CAPCOM Okay, there it is coming in. From the lovely Apollo room high atop everything. You might try a different position on the ALC switch, let's see how that helps.

SC How is that Jack?

CAPCOM Okay, let's go back to the other position,

I think you were right. Everybody out of the pool.

SC We are, this morning at our regular crew stations passing over the United States about an hour and a half before our seventh and final burn before our eighth burn tomorrow morning on retro fire. Donn Eisele is down in the lower equipment bay on a backup alignment technique. We had the platform aligned at this point before burn no. 7. I don't know whether you can note or not Jack, but I'm moving from the front of the attitude indicator down below up to the window, where we check for dawn and it should be arriving just any monent now. I think you can see the ease in motion, none of us are strapped in, we feel very comfortable where we are.

CAPCOM Roger, it's coming in very clear.

SC Roger. We will try to give each of you a closer look at our beards this morning, to prove that we have been here and we are not fans of the beard club. I will not admit to the fact that there is any grey in this beard, my hairdresser is the only one that knows.

CAPCOM oger, we can't see the grey, you're

safe.

SC Roger, I was wondering where the grey went. Well, I'm going down below now and let Donn get up on the couch, you can check his beard and his configuration for the day.

CAPCOM Let's see Donn, you want to move over to

your - oh, that's it.

SC Wally's got to move the camera a little bit. You have three professional cameramen up here now, so when we get back, we expect to get our union cards. I was performing a backup alignment procedure that could be used in the event of a computer failure to get the initial platform aligned for a particular maneuver. That has been completed now. That was one of our test objectives on this flight, and it came out very good. We came within a quarter of a degree of the actual alignment that we wanted. Wally and I have been taking turns watching the eight balls over here keeping the spacecraft somewhere near the attitude we need for the burn, and a little later on we will explain it precisely. Our no. 1 cameraman is now coming down to dolly up on Walt Cunningham and his beard.

CAPCOM Wally, there appears to be a few pieces

of lint on the lens. Thank you.

SC Now, we would like to give you another demonstration. (garble) at the moment that we've mentioned along about this time is the - a little bit of (garble) pressure causing the spacecraft to move at this altitude,

as we are near perigee, and that's what Donn's looking at on the ball right now, to stop rushing. Donn, why don't you tell them where you are now, and point out the camera over your head. Okay, we are just about due for an O2 purge. Because of the time, I'm going to go ahead and start the 02 purge. In fuel cell 1 and we have 3 fuel cells that have been running very nicely for 11 days. I've got a camera sticking in the window here, a 16 mm Maurer camera, which we have been taking (garble) photographs of the ground at various times and we are presently going to stow that. We're trying to get the cockpit clean for the burn, which is due here in a couple of hours. We keep behind our couch here, a large bag which we call a temporary stowage bag. In order to keep from taking items all the way down to where we originally got them, during the flight, we drop them in the temporary stowage bag, such as your meals, and like the camera was just done now. A rather interesting phenomena we're noting out the window, it's light now. It's very hard to tell on camera in that the details are We see about three or four different contrails very clean. from aircraft flying at different altitude, but obviously not as high as we. They show up very neatly, some people call contrails, vapor trails, they extend for hundreds of miles. I remember the one we saw, was it yesterday or the day before, over the window, Wally. Right now, we've got an interesting one below us, over the Gulf Coast. And as you look out the window towards the horizon, you can get a good view of the day air glow. There is a very interesting band of color that runs between the actual earth surface and up where the dark blue or black sky begins. It's a very pretty, very toned blue color. I'm now going to pan back across the cockpit here and I guess this will end our weekly series with this broadcast. There is our navigator. Navigator here. It's very fascinating, we're looking all over the Gulf Coast area and looking now at Lake Ponchatrain. We can see the bridge standing out very clearly. There's a slight cyclonic disturbance in the cloud structure, which is probably the great bitter end of our friend Gladys. I hope our friends in Florida, that we left not too long ago, have not suffered too much with Gladys.

PAO If you look very sharply, you can see pictures of the men's wives, just above their couches.

SC ... tomorrow, and see how everybody

held out.

CAPCOM Could you move it a little closer. Let's see Donn, you want to help him out there. As the sun sinks slowly in the west.

SC This is Apollo 7 cutting out now. CAPCOM A very good one Wally.

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APOLLO 7 COMMENTARY, 10/21/68, GET: 23719 (CDT 7:23a) 692/3
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SC Time for a commercial.

PAO That apparently brings down the curtain on another television performance. Here's Schirra again.

SC ... off the Coast.

CAPCOM Roger.

SC Looks like it still might be dumping

a little rain on the Cape.

CAPCOM On - Gladys is - looks like - about north

of Jacks.

SC Isn't that just about off the coast of

Jacksonville?

CAPCOM No, Wally, Gladys is up around 40 - 40 degrees

north.

SC Oh, it is? We're seeing the tail end

of it, I'm sure.

CAPCOM Well, it looks like about, 67 degrees west, and 40 degrees north. That was the position at 0400 Zebra, this morning.

SC Roger. How is the weather in 164 dash one

area?

CAPCOM Weather is real good there.

Well, I think we just about getting warmed up to the (garble). In that case, I've got a feeling today, that when we come over 164 dash 1, our splash point that is, that we won't use the word impact.

CAPCOM Okay Wally, I'll give you a kind of a hack when you pass close to us here, so you can take a look

at it.

Roger, are we working it now, or is it

the next rev.

CAPCOM

No, the next rev., it will be way north of you. In just a few minutes, I'll give you a hack and it will be slightly north of you, that is your present position.

SC

Okay, we'll try and give you a weather

report. I'm not really worried too much about the weather, as long as the ocean is nice and smooth.

CAPCOM Understand.

SC What we are facing up to, is this is a great spacecraft, but we know it's a lousy boat.

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APOLLO 7 COMMENTARY, 10/21/68, GET: 23729 (CDT: 7:33a) 693/1
                    Okay, Wally, you are about 65 degrees
west now and your latitude looks like about 24 degrees north
and so that would put 164-1 about 240 miles north of your now.
                    Roger. Walt, give your report (garble)
     SC
                    Dave, I can see nothing but very widely
     SC
scattered cumulus to the left for 1/10 coverage that way.
                    Thank you.
     CAPCOM
                    Do those signs come through fairly clear
     SC
to you Jack?
                    They do when you get close to the camera;
     GAPCOM
it was pretty clear today.
                    Okay. did you think it was (garble)
     SC
                    Well, they are there - we can't tell whether
     CAPCOM
they are 3 inches long or a half inch long.
                    I'd say about a - maybe one millimeter.
Hey Jack, note that the steam pressure is very slowly creeping
up here and that's long after I quit operating it, we'll have
to keep an eye back there.
                    Okay; it looks fairly normal to us.
     CAPCOM
looks like it might have been a little bit dry.
                    Rematen, Apollo 7.
     SC
                     Go shead 7.
     CAPCOM
                    Roger. One of the interesting things
we've noted; I don't think we have brought it to your attention
here. If you recall going to a monkey cage and watching
monkeys grab bars, we have the monkey cage here and grab
the same place. We found ourselves in the same condition here;
using our hands and feet to maneuver about, and se always
hit the same traffic spot.
                     Roger.
      CAPCOM
                     It's been very acclimated to us. I chink
he's trying to tell you what's on 8.
                     I thank we get that.
      CAPCOM
                     We're getting to before we get 3 rides
      sc
with this perigee kick, we're just about (garble) again.
It's gonna be kinda tight in this burn; it is right at
          And out of plane.
 perigee.
                     Yeah, that's right Wally.
      CAPCOM
                     I think that's probably the biggest sur-
      SC
 prise in the whole mission when the effects of this perigee
 torque. If you buck it, it can cost you dearly in fuel.
                     I guess it's kinda like the old aileron
      CAPCOM
 rolling the 86.
                     Very good. It's about that kind of
      SC
 surprise too.
                     7. could we get your up telemetry command
      CAPCOM
 reset then normal?
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APOLLO 7 COMMENTARY, 10/21/68, GET: 23821 (CDT 8:25a) 694/1
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Apollo Control Houston, 238 hours,
     PAO
             During the news conference, we picked up about
21 minutes.
1-1/2 minutes of tape, very minimum conversation at Ascension,
Tananarive, and Carnarvon. We're about to lose acquisition
by Carnarvon right now. We'll pick up at Guam in 6 or 7 min-
utes. We still have an SPS burn scheduled at 23906. Here
is the tape from the stations you missed.
                    Apollo 7. Houston through Ascension
     CAPCOM
standing by.
                    Roger, copy, we're standing by.
     CAPCOM
                    Houston, Apollo 7.
     SC
                    Go ahead 7.
     CAPCOM
                    Roger, what's the Ascension time.
     SC
                    Donn, the next one coming up is 238 plus
     CAPCOM
12.
                    Alright, thank you.
     SC
                    Apollo 7, you're 1 minute LOS Ascension,
     CAPCOM
Tananarive in 57.
                    Roger.
     SC
                    Apollo 7, Houston through Tananarive.
     CAPCOM
                    Roger. Jack, we feel that things are
a little more temperamental today than they have been in the
last 3 or 4 days. We're going a little faster and a little
higher. The (garble) indicates that the next hour and
6 minutes, we will state our activity.
                    Okay Walt, you're about 3 by here at
     CAPCOM
             Copy fuel cell 2 being a little more temperamental
Tananarive.
today than previously.
                    Houston through Carnarvon, standing by.
     CAPCOM
                    Roger, loud and clear.
     SC
     CAPCOM
                    You also.
                    Apollo 7, we are about 1 minute LOS
     CAPCOM
Carnarvon, we'll pick up at Guam at 25.
                    Roger. Jack on our AMS bias test for
the 30 second count into the burn and the duration of the
burn with .1 foot per second.
                    Roger, copy that.
     CAPCOM
     SC
                     (garble)
```

(garble)

END OF TAPE

CAPCOM

APOLLO 7 COMMENTARY, 10/21/68, GET: 2382535 (CDT: 8:29a) 695/1

CAPCOM Apollo 7, Houston through Guam.

SC Roger, loud and clear here.

CAPCOM Loud and clear.

SC Jack, would you reconfirm our Delta VC as 218 per second? The reason I ask is DSKY came up with a total velocity of 1025 and that's quite a difference.

CAPCOM Roger; we have 208.3 on the Delta V counter. SC Roger; they got that. Was right. Did you

have to (garble) Jack?

CAPCOM Affirmative Walt.

CAPCOM Don, we are allowing about 17 feet a second for tail out here on this burn.

SC I see; we are getting more than I thought

we would.

CAPCOM Roger; that was a change we made into the tail off into the computer.

SC Yeah.

CAPCOM 7, we are 1 minute LOS Guam; we pick up

Hawaii at 38.

SC Downlink yet?

CAPCOM Negative; we have lost downlink; we'll get it again at Hawaii.

SC Star check; that's 2831 27699 and (garble)

right on the star.

CAPCOM Okay.

CAPCOM Could you fade in the (garble) Don?

SC (garble) 27699.

## APOLLO 7 COMMENTARY, 10/21/68, GET: 23839 (CDT 8:43a) 696/1

This is Apollo Control Houston at 238 hours, 39 minutes. We should acquire, just any second, by Hawaii. We did make contact at Guam, but it was simply an establishing call, a standby, and I know, no resulting conversation. We are satisfied the carriers are in the proper attitude for the burn. The burn is to take place at 239 hours, 6 minutes, and it will be burn no. 7. The duration of it will be about 8 seconds and the differential velocity expected will be 225.4 feet per second. It will be done out of plane and have little or no effect on the orbit, The result in orbit will be 90 by 239 nautical miles according to our present Immediately following the burn, the crew is to have Then they're to do a sextant calibration test, I'll lunch. get an update on some more planned landing areas, should any difficulty develop. You've heard Walt Cunningham remark about all the pages in the planned landing area that he has They are to do some ground photography over Mexico Still no contact, we'll just standby. and South America.

CAPCOM Apollo 7, Houston through Hawaii.

PAO Apollo Control here, our present orbit
before the burn is 230.4 nautical miles, perigee 90.2,
230.4 - 90.2.

PAO Our oxygen supply reads 33 percent remaining and the - oxygen tank no. 1 and 33 percent is actually in oxygen tank no. 1 is 33.28 and oxygen tank no. 2 is 33.64. Here is some conversation.

CAPCOM Tank 1 fan is off now to prevent an auto cycling during this burn.

SC It's off.

PAO Cabin temperature is a very comfortable 70 degrees, about the same as it is here in Houston.

PAO The hydrogen remaining shows 18.4 percent

in tank 1, tank 2 - 18.1 percent.

PAO Spacecraft is pitch down 4 degrees, has a yaw right handed 3 degrees, 0 roll, and is maintaining that attitude quite steadily.

PAO Fuel cell temperatures look like this, 163 on fuel cell no. 1, 191 on fuel cell no. 2, that's a little bit higher than yesterday.

APOLLO 7 COMMENTARY, 10/21/68, GET: 23849 (CDT 8:53a) 697/1

PAO - the fuel cell temperatures look like this: 163 on fuel cell number 1, 191 on fuel cell number 2, that is a little bit higher than yesterday. It has consistently been higher than the other two through the flight. Fuel cell number 3 is 162 degrees Farenheit.

PAO Let's make that cabin temperature 66 - 65 to 66 degrees. Those are the latest telemetry data

coming to us via Guaymas.

PAO The cabin is still a rock solid 5.1 and the 02 flow rate today is .4. I think yesterday it was .27.

PAO The load sharing on the fuel cells is quite evenly distributed among the three cells, most of them are showing a 33 point something reading and it bounces back and forth on our scales here, some of them showing for a few seconds, 34, some other one perhaps 32, but these are in percentages. They show a very balanced load sharing condition, which is an important factor.

PÃO Astronaut boss Deke Slayton has joined us in the Control Center this morning to watch this burn.

PAO It is just deadly quiet from the space-craft and it is very quiet here in the Control Center.

CAPCOM 7, I'll give you a time hack in 10

minutes.

SC Okay, Jack.

PAO And this is Apollo Control. Apparently we will not have any discussion building up to it. We will come back to you just prior to the burn. At 238 hours 56 minutes, this is Apollo Control.

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APOLLO 7 COMMENTARY, 10/21/68, GET: 23901 (CDT 9:05a) 698/1
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PAO
                     This is Apollo Control Houston 239
hours 01 minute into the flight. We are just down to the
final minutes before the seventh burn on this Apollo 7 mis-
sion. We have had this conversation with the crew as the
spacecraft moved across the Gulf.
     CAPCOM
                     7, I will give you a time hack in 10
minutes.
                     Okay, Jack.
     SC
     CAPCOM
                     5, 4, 3, 2, 1, mark.
                     Looks like we are about 1/2 second off.
     SC
     CAPCOM
                     I will also give you one in 2 minutes.
     SC
                     Okay.
                     There is a lot of smoke right off Gal-
     SC
veston down there.
     CAPCOM
                     Roger, copy.
     SC
                     Looks pretty bad.
     SC
                     (Garble) direct off.
     SC
                     One roll channel.
     SC
                     One roll channel P and B is off.
     SC
                     (garble) pitch and yaw auto.
     SC
                     (garble) pitch and yaw auto.
     SC
                     AC zero power 1 and 2, AC1 and AC2.
     SC.
                     TV servo power 1 and 2.
     SC
                     Roger, servo power off.
     SC
                     Hand controller 2 armed.
     SC
                     that is armed.
                    Okay, Bill. Both fans on, give (garble)
     SC
          Start. Pitch 1 was a start. Pitch 2, yaw 1
pitch 1.
start.
     SC
                     Yaw 1, start.
PAO - if you look at your television monitors, you can see one of the TV displays we have called up
would suggest you direct your attention to the center of
the chart. You will see the pitch, yaw, and roll and this
is real time telemetry now coming in from the Antigua sta-
      You can also look at the top of that chart and see
the quantities remaing in quad A, B, C, and D. It reads
from about 123 in quad A down to 122 in quad B. The pilots
have now completed their checklists and they have gotten a
2 minute mark. That attitude is all zeros.
                    We have got still another good 4 min-
utes in this pass, so we should be able to cover the burn
with ease.
     PAO
                     4, 3, 2, 1, 0. The SPS is on, GMC con-
       Getting a normal burn. SPS off.
firms.
     SC
                     (garble) a little more circuitry.
```

Roger.

SC

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APOLLO 7 COMMENTARY, 10/21/68, GET: 23901 (CDT 9:05a) 698/2
                     VF downlink.
     SC
                     Affirm.
     CAPCOM
                     GDC servo powers 1 and 2 off.
     SC
                     Okay, servo power off.
     SC
                     Direct RC is off.
     SC
                     Direct RC is off.
     SC
                     Hand controllers locked.
                     Both hand controllers are locked.
     SC
                     Again, if you look at your quads, there
     SC
you notice about 8 pounds of fuel used up in ullage setup.
                     AMS residual is -17.9.
                     Copy that.
      CAPCOM
                     That's pretty good. Stand by.
      SC
                     Flight dynamics officer predicted
16.8 and the residuals came 17.9, got a compliment for his
 ability to plan from the Flight Director.
                     Houston, Apollo 7.
      SC
                      Go ahead.
      CAPCOM
                      Can you get us an RCS quantity readout
      SC
 as of this minute?
                      Okay, Donn. I am going to be coming
 to you over Ascension with the chart readout as well as
 the flight plan update.
                      Roger, understand.
 SC Hey, Jack, I would like to go ahead and open circuit fuel cell 2 and save it for the burn tomorrow.
                      We showed it (garble) coming down now
      CAPCOM
 Wally, We are reading 190.
                      I show 192. It peaked out at what,
 about 195?
                      No, we showed 192 on TM here.
       CAPCOM
                      Might just as well as burned.
 like it was about 195 on my meter and you want to go ahead
  and let it run with this?
                      Yes, we will let it run right now.
 We will see you over at Ascension. We've got about 1 min-
  ute LOS here.
                       Okay.
                       We will pick you up at 17 at Ascension.
       SC
       CAPCOM
  We will have a flight plan update for you then.
                       And that will wrap it up for this pass
  and we will pick it up at Ascension at 23917, 07 minutes
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END OF TAPE

from now. Apollo Control Houston.

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APOLLO 7 COMMENTARY, 10/21/68, GET: 23901 (CDT: 9:05a) 699/1
                     We're right up to DC; over.
     SC
                     We feel fine. Transmission neutral.
     SC
(garble) control power (garble)
                     (garble) control power (garble)
     SC
     SC
                     Roger.
                     (garble)
     SC
                     Negative; up G's; I meant to say that
     SC
at rate 2.
                     Roger; that's what it should be.
     SC
                     Right.
     SC
                     Direct RCS on.
     SC
                     Direct RCS on.
     SC
                     My manual attitude rate command.
     SC
                     Roger; rate command (garble)
     SC
                     And you are in that 1 rate.
     S€
                     (garble)
     SC
                     Okay, I'll give you mark at 2 minutes.
     CAPCOM
                     5, 4, 3, 2, 1 mark. T minus 2 minutes.
     CAPCOM
Apollo 7, verify on me Bravo.
                     Apollo 7, Houston.
     CAPCOM
                     Yes?
     SC
                     Roger; verify on me Bravo.
     CAPCOM
                     That's affirm.
     SC
                     Okay.
     CAPCOM
                      (garble)
     SC
     CAPCOM
                     Okay.
                      (garble) 15.
     SC
                     9, 8, 7, 6, 5, 4, 3, 2, 1, 0.
     CAPCOM
                     GPI's; gimbal's off.
     SC
                     gimbal (garble) off.
      SC
                     (garble) off.
      SC
                     Delta V off
      SC
                     Roger.
      SC
                     Got any circuitry; over.
      SC
                     Do you have downlink?
      SC
```

```
APOLLO 7 COMMENTARY, 10/21/68, GET: 23917 (CDT: 9:20a) 700/1
```

```
This is Apollo Control Houston at 239 hours,
     PAO
17 minutes into the flight. At any second we ought to hear
from 7 by Ascension Island. Let's open the line.
                    Apollo 7, Houston through Ascension.
     CAPCOM
                    Apollo 7, Houston through Ascension.
     CAPCOM
                    Apollo 7, Houston through Ascension.
     CAPCOM
                    Loud and clear Jack.
     SC
                    Okay, that burn looked pretty good down
     CAPCOM
here; how did it go up there?
                    Right on the mark. It's a beauty.
                    It looked the same way down here; I have
     CAPCOM
this flight plan update to go over with you?
                    Okay; will discuss.
                    Okay, are you ready to copy this material
     CAPCOM
in the book here?
                    Will copy.
     SC
                    Okay, they are mostly deletions here.
     CAPCOM
We still want you to do the pippa bias CMS bias test which
is scheduled at 23950.
                    You say cancel that?
                    No, negative. We still want you to do
     CAPCOM
that one.
                    We did it before the burn which is much
     SC
                   Already done it.
more significant.
                    We didn't do the pippa bias, yet.
     SC
                    Oh, you want the pippa bias?
     SC
     CAPCOM
                    Roger.
                    Okay, the NS bias is complete.
     SC
                    Okay, and at 240, you'll have that
     CAPCOM
cannister change which you have already been given; you want
to delete the sextant calibration test. Okay, I'll be
passing you up a state vector and a nav check along with
the landing block date of number 26; I'll be sending you
a state vector, and I'll be giving you the nav check.
                     Roger.
     SC
                     Okay, at 24030, we'll initiate a charge
     CAPCOM
on batt B; we want to charge batt B, the lowest battery,
to verify their repeatability of the lower than expected
battery charging performance that we have observed.
have run some chamber tests out at Downey to duplicate this
charging and we have concluded that it's a safe and useful
thing to do which will give us some added electrical capacity.
But even without battery B we've got sufficient electrical
capacity for any kind of entry and stay time on the water.
                     What kind of stay time?
     SC
                     18 hours.
      CAPCOM
                     18?
      SC
```

Well, we got more than -

CAPCOM

```
APOLLO 7 COMMENTARY, 10/21/68, GET: 23917 (CDT: 9:20a) 700/2
     SC
                     We think - suspect about 30 hours.
     SC
                     Rough 48 -
                     Okay, it's 18 with the hybrid reentry,
     CAPCOM
Wally, but we have got way more than that.
                     Okay.
                     And coming into - everything else that
     CAPCOM
I don't mention stays the same - you still have the photography
and at 241 - we'll power -
     SC
                     We are taping up H2 heaters and purge?
CAPCOM Roger; yes, that's all done; we picked that up a little later, H2 heaters and the purge are cancelled,
the G and N power down at 241. And -
                     241?
                     Yeah, 241 plus 00.
     CAPCOM
     SC
                     G and NSCS right?
     CAPCOM
                     Right.
                     Okay, what I need, and you might do that
now, is get the fuel reading.
                     Okay, I ve got that for you.
     CAPCOM
                     And if we had the fuel, I'd like to read
the SCS up for awhile and use that fuel for photography and
pulse both.
     CAPCOM
                     Okay, your RCS chart value is 496 pounds
                     Okay, it looks - let's use some of that
     SC
fuel today: we can't use much of it tomorrow.
                     Okay, Wally, stand by on that value here;
     CAPCOM
I'll be giving you an updated one here. Let's go ahead and
finish this flight plan update.
                     Okay.
     SC
                     At 24110, we want to delete the P23 trunnion
     CAPCOM
bias check.
                     Roger.
                     And at 242, then you'll delete that power
     CAPCOM
down.
                     Okay, we can power down to G and N.
     SC
     CAPCOM
                     Yeah, power down to G and N.
                     Okay, we'll leave the SCS up for now.
     SC
     CAPCOM
                     Okay, for that you'll have your power
down at 241 and then we are just deleting the power down at
      We're just powering you down an hour earlier.
242.
                     You still have the window photography
     CAPCOM
at 24 -
                     Okay.
     SC
     CAPCOM
                     You still have the window photography
at 24230, and the chlorination - okay, over at 244, we want
to delete the cryogenic stratification test.
     SC
                     We cut out at 243 - do you want more
chlorine?
     CAPCOM
                     Roger; the chlorination still stands.
```

APOLLO 7 COMMENTARY, 10/21/68, GET: 23917 (CDT: 9:20a) 700/3

SC Okay, we are just about right on that so I think it would be just about to run it any other day.

CAPCOM Okay, fine.

CAPCOM Okay. coming on that next page of 244 you'll delete the stratification test.

Roger.

CAPCOM Everything else on that page stays the same; there is an addition at 24540. That's the H2 line heaters on, and at 246, an H2 fuel cell purge, and you will be deleting the canister change at 247, and you are picking that up at 250. And the remainder of the flight plan looks pretty good Wally.

SC Okay, I'd like to start stowing the cockpit today, and I'd like to drop that humidity survey; we filled in

the block on that anyway.

CAPCOM Okay, we'll -SC Survey at 24520.

CAPCOM Okay, we'll let you know on that over Tananarive; your chart value updated is 503 and the doctors have come up with a recommended actifed schedule to give you the maximum crew comfort on reentry. They are recommending each crewman take one tablet at 241, another tablet at 249, and a third one at 257, and this is, the 257 one is the most important.

SC Okay, got that. Jack, broadcast in the blind at Tananarive if we don't answer.

CAPCOM Okay, will do Wally.

SC Okay.

CAPCOM We are just about to lose you; Tananarive

at 32.

SC Garble

pAO This is Apollo Control. That concludes a very talkative Ascension Island pass. And we'll see what happens at Tananarive in about 7 minutes. Apollo Control Houston at 239 hours, 25 minutes.

APOLLO 7 COMMENTARY, 10/21/68, GET: 23932 (CDT 9:36a) 701/1

Apollo Control Houston, 239 hours, PAO Via Tananarive, we expect acquisition just 32 minutes. any second.

Apollo Control Houston here, we've got PAO the data from that last SPS burn on fuel and on the weights of the SPS fuel and oxidizer and it goes like this. In the fuel tank just prior to the burn we had 1102 lbs. remaining. Immediately after the burn, we had 876. In oxidizer, just prior to the burn, we had 1832 lbs., immediately after the burn 1469. A rather dramatic dropoff, and this of course, remains above our red line value for that node of the orbit. Here goes Jack Swigert's first call.

Apollo 7, Houston through Tananarive. CAPCOM

Roger, all and clear, Jack. SC

Okay, you're about 4 by. CAPCOM

SC SC

Well, very good.

Jack, (garble)

Okay, Wally, we are going to have to CAPCOM wait until Carnarvon to get it, we've got an 8 minute pass I got something about a tenth of a MM, but I at Carnarvon. didn't quite copy all.

What did you say. SC

Let's wait till Carnarvon to get your CAPCOM We pick up Carnarvon at 48. last transmission.

(garble) SC

No, Wally, we don't have any other CAPCOM information for you, we'll see you at Carnarvon.

Roger, standing by.

PAO And that obviously will wrap up the inconclusive and unreadable comm by Tananarive.

```
APOLLO 7 COMMENTARY, 10/21/68, GET: 24008 (CDT 10:12a) 702/1
```

PAO Apollo Control Houston here, 240 hours. 8 minutes into the flight. From Carnarvon, we have some tape, we're in Guam now and we'll just bridge over and pick up the conversation that has developed there

SC Roger, loud and clear, Jack.

CAPCOM Alright -

SC Jack, I think what you heard me say is that we would like to check our fuel budget and use the SPS for about 2 revs or more, depending on how the fuel goes, to get some photography to finish up our films.

CAPCOM Okay, Wally, I'll be coming to you with

some red line values and some recommendations on that.

SC Let's do it right away, unless we're down that low. That will be alright, we'll use SPS to come down on the (garble) red line. That sounds good.

CAPCOM Okay.

SC We buy the SPS, obviously.

CAPCOM You're looking good.

even, we've got pretty good canisters in there now. We're less than 1 MM from CO2. I think I would like to let this known canister run along to about 3 MM in CO2 and then go ahead and change it out and put back in the - our last new one and then we won't have to count very much on the one that was in there at launch.

CAPCOM Okay, Walter, I'll get back to you on that. Okay, Walt, on your proposal there on the canister changes, we concur.

SC Thank you.

CAPCOM Okay, Wally, you might be interested that your orbit now, we're tracking is now 90.0 by 231.1.

Roger, do you know what we read onboar

SC Roger, do you know what we read onboard, 230.9 by 90.0. I think.

CAPCOM Yes, I copy that, I wrote it down.
SC Do you read 231 even as what you are

(garble).

CAPCOM Negative, 231.1.

SC Sorry, you are off by .2 miles.

CAPCOM I'll tell Fido.

SC Tell him to watch out, with all of this high calorie food, we may be as big as he is.

CAPCOM Roger, copy that.

SC So far, I (garble) over 200, it has improved since that last simulation.

CAPCOM Good.

SC Jack, you might send a call to the Pollution Control Board and have them check that smoke off Galveston. It looks terrible today.

```
APOLLO 7 COMMENTARY, 10/21/68, GET: 24008 (CDT 10:12a) 702/2
     CAPCOM
                     Okay, copy that Wally.
     CAPCOM
                     Okay, Wally, I've got some recommendations
for RCS fuel here.
                     Go ahead.
     SC
     CAPCOM
                     Okay, A and D are your best quads, B and
C are above the dab red line, comfortable now, but I recom-
mend that you be very sparingly when you use quads Baker
and Charlie and so when you are maneuvering don't use more
than 5 lbs. of RCS fuel for this - your picture taking.
SC Roger. That's just about all we need.
     CAPCOM
                     Okay, fine. We're recommending B and D
roll.
                     B and D roll. Roger.
                                             Jack, are you
getting these (garble).
                     If you will just wait a minute, Wally,
     CAPCOM
we'll catch you.
                   Okay, we're catching you now.
                     Would you like me to read you (garble)
balls (garble) DSKY.
     CAPCOM
                     Roger, we'll copy that now, Donn. Just
give us a few seconds here and we will have it all down.
                     Okay, by the way, on the scheduled
to the Actifed, we went to our schedule last night. about
3 days ago and Dr. Walt Cunningham, (garble) and we were
one bottle low in the whole schedule.
     CAPCOM
                     Okay.
     SC
                     So, the doctors are doing pretty well
down there.
                     Okay Donn, would you readout PIPA bias,
     CAPCOM
I guess we lost the data on it.
                     Okay Jack, the PIPA bias I got was
X plus .09, Y is 0, Z plus .308. The bias compensation
(garble) was loaded. It's plus 10504 plus 0 plus .07440.
They are all very close to axis.
     CAPCOM
                     Okay, copy that.
                     Jack, unless I don't understand this
EMS, what I do to get in EMS bias, is run it in Delta-V and
AUTO for the 30 seconds prior to the burn and the duration of the burn. That's all, I remember, they do in flight
anyway. If somebody has a better idea, I'll do it.
     CAPCOM
                     Okay -
     SC
                     (garble) using for.
                     Okay, we copy that. Okay, we are about
to lose you over Carnarvon. We'll pick you up at Guam on
the hour.
     SC
                     Roger, but of course the line and plan
```

Apollo 7, Houston through Guam standing

SC Roger.

enroute.

by.

CAPCOM

APOLLO 7 COMMENTARY, 10/21/68, GET: 24008 (CDT 10:12a) 702/3

Walt, one addition to the flight plan CAPCOM is that a fuel cell 02 purge at 249 plus 30.

Roger.

And I've got the morning news here. CAPCOM

SC

Okay, we'll copy.
Okay, - Apollo 7, Houston, about 30 seconds CAPCOM

LOS Guam. Hawaii at 15. Right. SC

```
APOLLO 7 COMMENTARY, 10/21/68, GET: 24016 (CDT: 10:20a) 703/1
                      This is Apollo Control, at 240 hours, 16
       PAO
 minutes.
            Or to say it another way, 19 hours, 22 minutes from
              Deorbit, as it is called in Apollo. We have
 retrofire.
 tagged up with Apolio 7 over Hawaii and here is how the
 conversation is going.
                      Apollo 7, Houston, through Hawaii.
      CAPCOM
      SC
                      Roger.
 CAPCOM Walt, on the primary evaporator, we would like to have you reservice it and leave it off.
      SC
                      Roger; 2 minutes worth?
      CAPCOM
                      Affirmative.
      CAPCOM
                      Apollo 7, Houston, we are ready to send
 you the nav vector, state vector update. Would you go to
         And I have the nav check for you when you are ready
 accept.
 to copy it.
      SC
                      Ready to accept Jack.
                      Okay, coming up.
      CAPCOM
      SC
                      Go ahead with your nav.
      CAPCOM
                      Okay, GEP 246 plus 30 plus 0000 plus
 2607 plus 15014 0947.
      SC
                      246 30 0000 plus 2607 plus 15014 0947.
      CAPCOM
                      Roger; that's correct.
      CAPCOM
                      And we'll be waiting a rev to give you
the block data number 26.
      SC
                      Okay, could you give us a map update?
      CAPCOM
                      Okay -
      SC
                      We would like to have the present mode -
or the last one that you got.
      CAPCOM
                      Okay, stand by here.
      CAPCOM
                      Nav check is in - state vector is in -
and the computer is yours.
CAPCOM Okay - the present orbit for a map update 239 plus 59 plus 37. Longitude 127.9 degrees east.
     CAPCOM
     SC
                     Roger; thank you Jack.
     SC
                     We are GO on your nav check.
     CAPCOM
                     Copy.
     CAPCOM
                     Apollo 7, Houston.
     SC
                     Go ahead Jack.
     CAPCOM
                     Roger, Walt. We are copying a little
bit high on the steam pressure; did you do a normal service
on primary evaporator?
     SC
                     Negative Jack, but I got more than 2
with the water in it.
     CAPCOM
                     About how many minutes did you put in?
     SC
                     That was a little over 3 minutes.
     CAPCOM
                     Okay, copy.
     CAPCOM
                     Apollo 7, opposite OMNI.
     SC
                     You are on A now.
     CAPCOM
                     Okay.
```

APOLLO 7 COMMENTARY, 10/21/68, GET: 24016 (CDT: 10:20a) 703/2

SC Any suggestions on the water boiler?
CAPCOM No Walt; we are still looking at massaging that down here.

CAPCOM Walt, what we're doing is, we are going to do is, that we are comparing that primary evaporator now with previous couple of days data.

APOLLO 7 COMMENTARY, 10/21/68, GET: 24031 (CDT 10:35a) 704/1

Apollo 7, Houston. CAPCOM Go ahead, Jack. SC

Have you initiated a battery charge on CAPCOM

B yet?

Just now pouring the battery relay SC

(garble). Okay, fine. We want to take a look at CAPCOM

it before LOS Texas here. It's about the same thing it started at

the other day, I think, a little over 2 amps.

Okay. CAPCOM

Hey, Wally, we are about 1 minute LOS CAPCOM

Texas. We pick up Ascension at 54 for a short pass. Roger. You reading the battery charge SC

burn?

Showing 2.3. CAPCOM

Roger. I'll make this a normal charge, SC

down 2.4 amps. Affirmative.

CAPCOM

705/1

APOLLO 7 COMMENTARY, 10/21/68, GET 2405250 CDT 10:55a

Apollo 7, Houston through Ascension. CAPCOM

(garbled) SC

CAPCOM Walt, we have a key hole effect here at Ascension, you're about 2 by. I can just barely make it out.

(garbled) CAPCOM Apollo 7, 1 minute LOS Ascension we pick you up at Tananarive at 08. (garbled) SC

This is Apollo Control Houston, at . PAO 241 hours and 33 minutes and back from lunch. In the last half hour to 45 minutes since our last transmission, we've had a very brief chat with 7 at Tananarive and we're about to acquire with the ship Mercury. Let's hear the Tananarive tag first.

Apollo 7, Houston through Tananarive, CAPCOM

standing by.

Apollo 7, Houston through Tananarive CAPCOM

standing by.

Apollo 7, Houston. We're about 2 CAPCOM minutes LOS Tananarive. We pick up the Mercury at 34.

Houston, Apollo 7, out. SC

This is Apollo Control, we have picked PAO up at the Mercury, let's cut in there.

Apollo 7, Houston through the Mercury. CAPCOM

Apollo 7, Houston.

Apollo 7 here. SC

Okay, Wally, just one little bit of CAPCOM information wanted to get from you. Is - I want to see how that crack in the MET has progressed after this last burn. Looks like we have the one I described

on the left side above (garble) of ours.

Right that's it. CAPCOM

It has already reached the bottom of the SC glass trellis and the top below the "H" in the word "hours" to the bottom of "tens of Hours." That goes all the way through. There are two smaller cracks that have developed above "hundreds of hours." The crack on the second side has not changed since we first observed it.

Okay, something you might give some CAPCOM thought to on entry is saving some tape out before you restow everything and taping this glass up so that it probably

doesn't come out when you splashdown.

Very good. SC

This is Walt. Hey, Jack. SC

Go ahead. CAPCOM

Rog, about 45 minutes ago I turned the 02 fans 1 back on auto and ran the fans 2 for three minutes. Okay, we copy that Walt. And I have CAPCOM

a (cut off) Jack, we've been trying to play a single SC vector for roll, and I am not sure yet what quad you want to use for that.

Okay, we want to save quad B, Baker and CAPCOM Charlie, so use quads Alpha and Delta as much as you can.

Do you have on the back of our schematics

book the plate on the thrusters? I can get it for you. You want to know CAPCOM

```
706/2
```

circuit breaker configuration? Right we've got it on the back of our schematics book, and I tried that and it doesn't work. Okay. CAPCOM (cut off) the chart that came from the logistics training manual, Jack. Okay. CAPCOM Should be on the (garble) you have as SC a backup cycle. Yes, I've got it here. CAPCOM I'll have Walt call out what he told SC me. Okay, it's probably in the front of SC yours. Yeah, I've got it. CAPCOM okay, we were trying to use the quad A SC roll, and the channel switches were in A. So, we pulled circuit breaker for A and C roll two main A. The channel switches were in A. CAPCOM Okay. That should give us Al and A2 only, right? SC You're not using it on minimum Right. CAPCOM impulse are you? you have to use minimum impulse. Yes. SC Vent B and D isn't it? No, when you're in minimum impulse you're CAPCOM going to use quads Baker and Charlie. That's what we did. B and C yeah. Okay, then when you pull AC roll 2A, CAPCOM you're going to knock out quads - the roll jets in quad charlie. yeah, but right now you wanted to use A and D, but whenever we're at minimum impulse we use B and C, so, it looks like we're SOL for this one. Right. You'll have to go to accel CAPCOM command if you want to get that configuration. I think we will probably stay like this SC at min impulse.

CAPCOM Okay.

Yeah, that's what (garble) is at.

We'll use and A and C roll. Okay.

CAPCOM The shell is pretty nice but if you bump SC it accidentally you - hose out quite a bit.

Okay, we would like you to use B and D You have a little more margin on quad Baker then you do on quad Charlie, if you're going to be in minimum impulse.

pAO

Apollo Control here. While he is reading up that update those of you in the News Center we would call your attention to the chart we have on your television matrix. The retrofire digitals they're down at the bottom of the chart. You'll see the GETI, ground elapsed time initiate, chart presently reads 259 hours 39 minutes, 20 seconds .01 that's your start retrofire time, the best estimate right now. If you want to make a copy of that we will leave the chart up a few minutes.

Since the burn, we have used 19 (garble)

CAPCOM Okay.

SC I'm working on it as fast as I can.
CAPCOM Okay, and I have your block data number

26, when you're ready to copy it Wall.

SC Go ahead I'm ready to copy.

CAPCOM 153 dash 4 alpha plus 254 minus 1610 243 plus 11 plus 05 3069 154 dash 1 charlie dash 4 charlie plus 163 minus 1610 244 plus 47 plus 45 2700 155 dash alpha charlie minus 236 minus 0100 245 plus 22 plus 22 6914 156 dash alpha charlie minus 139 minus 0110 246 plus 55 plus 49 6280 157 dash alpha charlie minus 040 minus 0170 248 plus 28 plus 57 5782 158 dash alpha charlie plus 053 minus 0250 250 plus 02 plus 00 511

APOLLO 7 COMMENTARY, 10/21/68, GET: 24143 (CDT 11:47a) 707/1

CAPCOM + 005113 end.

SC Okay, Jack. Readback follows and before that, we have just a couple minutes to go on the block read after this. If you get a chance, why don't you pass it up and we will get it out of the way. Also, we would like that block data for rev 165, over.

CAPCOM Okay, copy that.

SC Readback follows: 153 - 4 alpha + 354
- 1610243 + 11 + 0500069154 - 4 charlie + 463 - 1610244 +
47 + 45 -- 0155 dash alpha charlie - 336 - 0100245 + 32 +
326914156 dash alpha charlie - 139 - 01103346 + 55 + 496280
375 dash alpha charlie 040 - 040 - 0170248 + 28 + 575782
358 dash alpha charlie + 053 - 0350350 + 02 + 005113, over.
CAPCOM Roger, that's correct. We are working on

the remaining block data.

SC

I'll give you back one block, one rev

pass, then you are open.

CAPCOM Copy. We are about 50 seconds LOS Guam.

Hawaii at 52.

SC Roger.
PAO And this is Apollo Control. That wraps it up via Guam, at 241 hours 45 minutes into the mission.

```
APOLLO 7 COMMENTARY, 10/21/68, GET: 24155 (CDT 11:59a) 708/1
                    Apollo Control Houston here 241 hours
     PAO
             We have acquisiton via Hawaii. Here is the
55 minutes.
pass.
                    Apollo 7, Houston through Hawaii, stand-
     CAPCOM
ing by.
                    Roger.
     SC
                    Houston, Apollo 7.
     SC
                    Go ahead, 7.
     CAPCOM
                    Jack, I would like to give you an in-
     SC
ventory of the film we have left, and I would like to have
the people who are involved (garble) in the (garble) and
the way they have them full of targets too. I don't even
know where we are going (garble) be able to get some pictures
for them. (Garble) exactly 38 frames of Panatomic X (garble)
                    Okay, Wally, you faded in and out on
     CAPCOM
       I did copy that you got about 20 frames of Panatomic
X left, but I didn't copy the number of frames in S0368.
                     25 frames in 368.
     SC
                     25 frames in 368 and you would like -
     CAPCOM
as I understand it, for us to give you some desired targets
of opportunity to photograph. Is that correct?
                     (garble) information.
     SC
                     Okay, we will see if we can come up
with some desired targets as you come around on the subse-
quent rev.
                     We have got the film count at 15 frames
     48 frames Pan X.
368.
                     Copy that.
      CAPCOM
                     Apollo 7, opposite omni.
      CAPCOM
                     (garble)
      SC
                     Say again, 7.
      CAPCOM
                     Roger. I think we can turn the power
      SC
 down to about half the SPS.
                     Okay.
      CAPCOM
                     Apollo 7, Houston. We are about 1 min-
      CAPCOM
 ute LOS Guaymas, we pick up Tananarive at 44.
```

Roger.

APOLLO 7 COMMENTARY, 10/21/68, GET: 24247 (CDT: 12:51p) 709/1

pao This is Apollo Control at 242 hours, 47 minutes into the flight. At Tananarive we have already done a brief tag up; I don't know how much communication will result and one new time of interest has been generated this morning; we are now estimating splash time in the morning that's based on a 164-1 nominal landing point. Time of 6:11 am, Central Daylight Time - 6:11. Here is the beginning of the Tananarive pass.

CAPCOM Apollo 7, Houston through Tananarive,

standing by.

Okay Jack.

CAPCOM Okay - reading about 3 by Walt.

SC Surprised that you could hear us at all

here.

CAPCOM Roger. Coming up over Guam I'll pass you some of that information on terrain photographic targets.

SC Roger; we are chlorinating now.

CAPCOM Okay; copy that.

SC (Garble)

APOLLO 7 COMMENTARY, 10/21/68 GET: 24318 (CDT: 1:22p) 710/1

POA Apollo Control at 243 hours, 18 minutes over the Ship Mercury, we had the following communication.

CAPCOM Apollo 7, Houston, through the Mercury.

SC Yes Jack.

CAPCOM Okay, I have some of that information on photography here.

SC Go ahead Jack.

CAPCOM Okay, at GET of 24355, when you approach the West Coast of South America, you can shoot the 368, FO368 water to land - at 24401 on the East Coast of South America, you can shoot the S0368 land to water, and if you feel like you want to finish it up this pass, Wally, or do you want to continue on to the next rev?

SC We'll go on this rev.

CAPCOM Okay - I'll try to give you some times on the - well, in the next rev, you'll hit the West Coast of South America about 24532. And the East Coast about 24537. And if it's hazy, don't shoot the 368 film, and we'll give you some more targets later on.

SC We hear you.

CAPCOM Okay, on the panex, they are requesting on this rev here - on that 24532, a strip exposure, 1 exposure every 10 seconds from 24532 until 24537, all the way from across the South America to the water. And use the red filter on the panex film.

SC Is that for weather targets?

CAPCOM Okay - for the strip photography of the land, it's not really weather.

SC You want red only and not red and green.

Is that right?

CAPCOM No, red only.

SC Okay.

SC Jack, you still listening?

CAPCOM Go ahead.

SC I've got the S0368 at 24355, I think you

could (garble) at 24401.

CAPCOM Okay - you'll hit the West Coast of South America at 24355 and you could take some pictures there, water to land - and then at 24401, that's what time you'll hit the East Coast of South America and could take some SO 368 land to water. Did I confuse you?

CAPCOM Opposite OMNI, 7.

CAPCOM Apollo 7, we are 1 minute LOS Guam; we pick up Hawaii at 27.

PAO This is Apollo Control Houston here at 244 hours, 11 minutes into the flight. And we are 15 hours, 27 minutes away from retrofire and the only item, two items now, on our flight plan that are very significant, one reads, "Initiate deorbit storage." Command Module Pilot Don Eisele is well along into the sleep period, and about an hour from now the crew will do a ECS redundant component check, and take a careful look at their environmental control system. Some minutes ago we had a conversation with the crew over Hawaii. Deke Slayton discussed the helmet suit configuration for reentry with the crew. We have that tape and let's listen now.

CAPCOM Hawaii AOS.

CAPCOM Hawaii, Houston, do we have AOS yet?

HAW Affirm.

CAPCOM Apollo 7, Houston.

SC Go ahead.

CAPCOM How's it going?

SC Roger; loud and clear.

CAPCOM Roger. Got some late data for you here.

Let me read it off.

SC Just a second here; I'm just cleaning up - we just took some movies of Walt getting in his suit.

CAPCOM Stand by 1.

SC Roger.

SC Okay, go ahead.

Roger; okay. I'd like to give you some CAPCOM data here on landing without helmets. Number 1: We don't have any. Number 2: We are expecting X axis acceleration of 7.8 which to give you a reference is twice - little over twice what we had in Gemini, which was 3.4. Number 3: is about a 30 percent probability, there again it is a function of winds and waves actions, that you can get a tripping action or a rotation on impact of about 200 degrees a second. concern here is that you are probably going to get some head impact with either the headrest, the struts, the girth ring or anything else that happens to be in the general area. In summary, we are concerned about getting some head damage if you impact without the helmet on. I think on the other hand, we have some data that shows that you can impact without the helmet attached to the neck ring, and have reasonable protection; this has been done on a couple of sled tests. So our recommendation is that you come in with the gloves off, try to have the helmet in the vicinity of your head at least, probably on it; this you are going to have to check out and see whether you can't reach up there and clear your ears by reaching your fingers in between the neck ring and the helmet. And ideally of course you'd attach the helmet to the neck ring say around 2K before

APOLLO 7 COMMENTARY, 10/21/68, GET: 24411 (CDT: 2:15p) 711/2

landing, or if you can't do that, the next best thing is to

have it on your head. You got all that?

SC Yeah. We've fitted up our couches pretty well with the way our heads pretty well constrained - with food bags and tape, just to get our buffer. This is about all you can do with that. The helmet is - or our problem is - if we have to blow our nose - it's not just a case of clearing our nose, we are filled up with mucus and we feel when they put some G on us, our sinuses are going to drain as well. We just are going to have to play that one out, I guess, Deke, and if it gets bad, throw the helmet down.

SLÁYTON Okay - that's probably true. I think you

ought to start in with the helmet in any case -

SC We are pretty well convinced we will

pop our ears.

SLAYTON Roger; okay. I think you understand the problem - you remember Gemini 3, where we ended up with a broken visor on Gus - and we may have a few other things like this on this one - we really aren't that smart about yet.

SC Understand.

SLAYTON We'd hate to ruin that pretty profile on the landing.

SC Laughter. Okay, well, give us - we understand the problem and I think that's all we can do with it. And we'll work on it any way we can. Sure appreciate people working on it for us.

SLAYTON Okay - so you are going to try to come in with them on, and crack them, so that'll solve it, try to

clear your nose then on the way down, right?

SC Roger. It's really the case of solving (garble) It's trying to blow our nose; we feel we are going to be coughing and possibly the stuff going in our throats when you put G on. I'm still blowing my nose right now and I am two actifed down the road.

CAPCOM Roger.

SC And all we see there together - if we can blow our noses inside the helmet, that's going to be tricky. We'll have to play with it, I guess. We'll try it out a little bit early.

CAPCOM Okay, fine.

SC Roger; thanks to you. CAPCOM Apollo 7, Houston.

CAPCOM Apollo 7, Houston. 1 minute LOS Hunts-ville; Tananarive at 244 plus 20.

SC Roger; read you - Huntsville is flying. Bring Deke up again.

CAPCOM They were down below Wally and they are

APOLLO 7 COMMENTARY, 10/21/68, GET: 24411 (CDT: 2:15p) 711/3

on their way back now.

SC Okay.

CAPCOM They were - Okay, Walt, we copy a battery charging up .41 so you can turn the battery charger off.

Now at any time.

SC Say again Jack.

CAPCOM See you at Tananarive.

CAPCOM Wally, you can turn the battery charger

off on batt B

SC Okay.

FLIGHT Huntsville LOS; Apollo 7 did not copy

your last transmission.

This is Apollo Control Houston. discussion you heard Deke Slayton reference a Gemini 3 incident. That was when John Young and Gus Grissom reentering the earth's atmosphere on their parachute, and the Gemini parachute, and when it went to 2 point suspension, which was the landing mode for Gemini, the spacecraft popped - moved violently, and the crew, the crew and the engineers planning the mission hadn't anticipated the violence of the movement, and the result was that Gus' head banged forward and hit the window on his side, the commander's side of the spacecraft, and cracked his visor. It didn't do any damage to Gus' person, but it did, it was an unexpected joit and it was a severe one. Other Gemini pilots took a lesson from that and made sure their heads were restrained and that was the - that's the background on the Gemini reference in that conversation. 244 hours, 18 minutes into the flight, this is Apollo Control Houston.

APOLLO 7 COMMENTARY, 10/21/68, GET: 22427 (CDT 2:31p) 712/1

pAO This is Mission Control Houston 244 hours 27 minutes. At Tananarive, we tagged up with the space-craft and this is how it went.

CAPCOM Apollo 7, Houston through Tananarive.
CAPCOM Apollo 7, Houston through Tananarive.
CAPCOM Apollo 7, Houston through Tananarive.

SC Roger, loud and clear.

CAPCOM Roger, you are loud and clear also.

SC (garble)

CAPCOM Wally, for a point of information, we are assuming that stowage will be nominal for retrofire. If you have any items that are stowed non-nominally, would you let us know for CG purposes. We would like to calculate CG rather closely.

CAPCOM Okay. Comm is not the best here, you can give us a report over the Mercury on that subject. We will hit the Mercury at 44. Apollo 7, Houston, 1 minute LOS Tananarive.

APOLLO 7 COMMENTARY, 10/21/68, GET: 24444 (CDT 2:48p) 713/1

PAO This is Apollo Control at 244 hours, 44 minutes. Apollo 7, being acquired at the tracking ship Mercury. We'll standby for this pass.

CAPCOM Apollo 7, Houston through Mercury

standing by.

SC Roger, standby, we're working on our picture.

CAPCOM Roger.

SC Good morning. The (garble) component check is complete, except for the beam lights. I may get those over Hawaii, we're waiting for sunrise here.

CAPCOM Roger.

SC Yeh, Ron I'm assuming you are recording down there. We're watching the sunrise come up. We're going to film it with SA 1,000 film. At first we saw some - kind of a lightish gray with hardly any color, and then a very light blue, which turned into a little darker, like maybe a magenta. That blue at 1.8 degrees (garble), we're starting to get the orange now, and it's just about light enough out there, where we can catch the power from the far horizon, maybe a hundered miles away being in profile, and I'm going to have to let them in here the second start filming the camera.

CAPCOM Roger, we have it recorded.

SC After the blue layers which had various layers within it's self. The light and dark alternating, we got our layer of yellow which is almost white, and then went on into an orange. At first it's a fairly dull orange, and then it's getting very bright.

CAPCOM Roger.

SC Yeh, Ron, we ran out of film just as the sun broke the horizon.

CAPCOM Yeh, yeh.

SC This is really work, Ron, I'm burning a light meter and a hole in the spacecraft.

CAPCOM Roger.

SC We went all the way from a 50th of a second at 2 moving on up while the sun was rising till we had a F22 and 1250, and I hope it turns out.

CAPCOM Roger.

SC We have so far 160 pulses. Of course I estimated about 3 pounds.

CAPCOM Roger, LOS

PAO Apollo Control at 244 hours 52 minutes. Mercury has LOS. Walt Cunningham describing a colorful sunrise during this pass, and rather extensive photography of that sunrise. Hawaii will acquire next at 245 hours 3 minutes. This is Mission Control, Houston.

## APOLLO 7 COMMENTARY, 10/21/68, GET: 24503 (CDT 3:05p) 714/1

This is Apollo control at 245 hours 03 minutes, Apollo is within range at Hawaii. Apollo 7, Houston, through Hawaii. CAPCOM Loud and clear. SC Roger, the same. CAPCOM Ron, can we have the 02 manifold pressure. SC Roger, 103. CAPCOM Roger, switching. SC CAPCOM 104 now. We'd better double check it though. SC Roger. CAPCOM I guess you heard they changed the word SC landing to crash. Roger. - Apollo 7, Houston, 30 seconds CAPCOM LOS, Redstone at 19 and we still show secondary coolant loop in operation. Just the pump. SC Concur. CAPCOM This is Apollo control 245 hours 09 PAO minutes into the mission, Hawaii has LOS now. During this

pAO This is Apollo control 245 hours 09 minutes into the mission, Hawaii has LOS now. During this pass we completed another of the daily environmental control system redundant component checks. Next station to acquire is the tracking ship Redstone at 245 hours 19 minutes. This is mission control, Houston.

APOLLO 7 COMMENTARY, 10/21/68, GET: 2452000 (CDT 3:25p)715/1
DEAD AIR.

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APOLLO 7 COMMENTARY, 10/21/68, GET: 2460800 (CDT 4:10p) 716/1
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This is Apollo Control at 246 hours 08 minutes into the mission. During the news conference, Apollo 7 touched base at the Redstone and at Ascension. There was no conversation at Redstone other than an acknowledgment that we were standing by. There was a brief conversation at Ascension. Wally Schirra reported that he has powered down the SCS stabilization and control system. We'll bring you that tape now. Apollo 7 Houston through Ascension CAPCOM standing by. This is Apollo 7. SC You can go. CAPCOM Roger. We shut down the SCS system at approximately 38 minutes at the hour, and copy that at zero. Apollo 7 Houston, say that again. CAPCOM Roger. We shut down at 245 hours 38 min-SC utes for an SCS. Roger. CAPCOM this was at zero. SC Roger, copy. CAPCOM That's about 4 pounds as we figure it, SC and that leaves us better than 45 on re-entry (garble) Roger, copy. CAPCOM 7 Houston, your surge of power was CAPCOM observed that time. Roger, check. It's like hell when you drive with an (garble) feeling. (Laughs) CAPCOM 7 Houston, opposite OMNI. CAPCOM SC Apollo 7 Houston, 30 seconds LOS. Mercury CAPCOM

Roger.

END OF TAPE

SC

at 20.

APOLLO 7 COMMENTARY, 10/21/68, GET: 24620 (CDT 4:25p) 717/1

This is Apollo control at 246 hours PAO 20 minutes into the mission. Apollo 7 will be coming out of the night side into sunrise again as it is acquired at Mercury. Mercury has acquisition, we'll stand by for a call.

Apollo 7, Houston, through Mercury, CAPCOM

standing by.

Loud and clear. SC

Roger, CAPCOM

Hey, Ron, I've got two questions I'd like to have answered for me, when you can get it.

Roger, go. CAPCOM

One has to do with the fuel cells. We're presently planning to power up tomorrow morning somewhere in the 254 hour. And so Donn can get some alignment out of the way, before we get up, and fuel cells (garble) has been going to (garble) a little faster each day and when I get up it looks like it's climbing at a fairly healthy rate, I'd like to open circuit fuel cell 2 and put it back on the line at about T minus 45 minutes or T minus 39, that's the first point. The other one is on the primary evaporator I overserviced that today and I guess we don't know exactly how much water I got in it, it was on for more than 3 minutes though. And I wanted to know are we planning on bringing the primary evaporator back on the line or not and I suspect as how you just as well not do it, and I'd like to just go ahead and (garble), radiator bypass and cut the C circuit on the secondary component.

Roger, say the last on your primary CAPCOM evaporator, after are we planning to use, everything after

that.

Okay, the details are down there all ready on - I overserviced the evaporator, I just thought I'd prefer to do, (garble) as many possible columns of the steam duct, I would like to just go ahead with that. And secondary coolant leak with the radiator by pass (garble) secondary coolant leak and run a primary loop just on radiators.

Roger, copy your comments, will advise. CAPCOM

Okay. SC

I checked all the command module ICF engine heads about an hour ago, they're all ready at high loads, we don't plan on using the command module ICF engines.

Roger, we concur on our CS engine heaters. CAPCOM

That is it's not necessary to heat.

SC Roger.

Apollo 7, Houston, opposite OMNI. CAPCOM

Hey, Ron, if you're still there, can you SC give me my present battery status, we did a charge on battery APOLLO 7 COMMENTARY, 10/21/68, GET: 24620 (CDT 4:25p) 717/2

SC 2 today, battery B.
CAPCOM Roger, we're working on it now, we'll
get it up to you, probably over Redstone.
SC Rog, thanks.

PAO This is Apollo control at 246 hours 28 minutes, Mercury has LOS. During this pass Walt Cunningham had a couple of questions, one concerning the operations of fuel cell 2 tomorrow, the other concerning the possibility of taking the primary evaporator off the line tomorrow, using radiators only on that loop and activating the secondary coolant loop. We hope to have the answer to his question over the Redstone. The Redstone acquires at 246 hours 52 minutes. This is mission control, Houston.

APOLLO 7 COMMENTARY, 10/21/68, GET: 2465200 (CDT 4:55p) 718/1

PAO This is Apollo Control at 246 hours 52 minutes into the mission. Apollo 7 nearing the end of its 155th revolution. About to be acquired at the tracking ship Redstone. We'll stand by for a call.

CAPCOM Apollo 7 Houston through Redstone, standing

by.

SC Roger, Ron.

CAPCOM We're checking all angles of which you called down. No answers yet.

SC Roger, thank you (too much static to be heard)

CAPCOM Say it again, Walt.

SC Roger. I knew you guys would (garble) that.

CAPCOM Roger.

CAPCOM Apollo 7 Houston, opposite OMNI.

CAPCOM Apollo 7 Houston, 30 seconds LOS. Ascension

at 18.

SC Roger, Ron.

PAO Apollo Control at 247 hours 01 minute. Redstone has LOS. Apollo 7 will enter the night side of the 156th revolution about 5 minutes before acquisition at Ascension. Wally Schirra and Walt Cunningham will be in the middle of their dinner hour at Ascension. Due to acquire there at 247 hours 18 minutes. This is Mission Control, Houston.

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APOLLO 7 COMMENTARY, 10/21/68, GET: 2471700 (CDT 5:20p) 719/1
                    This is Apollo Control at 247 hours
     PAO
             Ascension has acquired Apollo 7.
17 minutes.
                    Apollo 7 Houston through Ascension, stand-
     CAPCOM
ing by.
                    Roger, loud and clear.
     SC
                    And 7 Houston, I have your battery status
     CAPCOM
if you desire,
                    Go ahead.
     SC
                    Roger, Bat A 26.26, Bat B 26.31, Bat
     CAPCOM
charlie 39.5.
                    You mean after we did that charge this
afternoon on Bat B, it's still now only 26 hours?
                    That's affirmative.
     CAPCOM
                    Okay, thank you.
     SC
                    You might say we're (garble) chargers.
     SC
     CAPCOM
                    Say, Ron, would you give me 35 clicks of the water
     SC
pistol over the last 4 hours.
                    WILCO.
     CAPCOM
                     7 Houston, the Chronicle refers to the
     CAPCOM
majestic Apollo 7 flying machine. And they say Apollo is
winding up the loose ends.
                    Winding up what?
                    The loose ends.
     CAPCOM
                    Winding up what, again?
     SC
                             The headlines say the Apollo is
                    Roger.
     CAPCOM
winding up the loose ends.
                             ENDS.
                    We think it's a magnificent flying machine,
     sc
too, Ron.
     CAPCOM
                     Roger.
                     But as far as the loose ends part, I think
we're kinda caught.
     CAPCOM
                     We just found out today we're not on a
     SC
landing craft.
                     No comment.
     CÁPCOM
                     It looks like the wives' pictures made
     CAPCOM
the paper tonight, too. They were out at the Astrodome watching
the Oilers' game last night.
                     Yeah, I guess they would. Jo's a complete
     SC
fan of that outfit.
     CAPCOM
                     Yeah.
                     About 30 seconds to LOS. Mercury at 56.
     CAPCOM
                     Rog. Ron. We'll be fading out and let
     SC
Donn carry on the rest of the evening.
     CAPCOM
                     Roger.
                     We've had a pretty good day.
     SC
                     We concur. I'll see you down at the Cape.
     CAPCOM
```

Rog. Ron, thanks a lot,

SC

APOLLO 7 COMMENTARY, 10/21/68, GET: 2471700 (CDT 5:20p) 719/2

PAO Apollo Control at 247 hours 28 minutes.

LOS at Ascension. Wally Schirra and Walt Cunningham preparing for bed very shortly. Their sleep period due to start

248 hours, just after acquisition at the Mercury. Donn Eisele should be up when we contact Apollo 7 next at the Mercury.

Acquisition time there 247 hours 56 minutes. This is Mission Control Houston.

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APOLLO7 COMMENTARY, 10/21/68, GET: 2475600, (CDT 6:00p)720/1
                     This is Apollo Control at 247 hours, 56
minutes into the mission. The tracking ship Mercury is just
           Guam has overlapping coverage on this rev.
acquired.
                     Apollo 7 Houston through Mercury, stand-
     CAPCOM
ing by.
     SC
                     Roger, Ron, loud and clear up here.
     CAPCOM
                     Roger, loud and clear.
                     Good show on that team. Like to speak
to flight, if I may.
     CAPCOM
                     Roger.
     FLIGHT DIR
                     Apollo 7, Houston Flight, how do you
read?
                     FLIGHT, Apollo 7.
     FLIGHT DIR
                     Apollo 7, Houston Flight, how do you
read?
                     Loud and clear, Gene.
     FLIGHT DIR
                     Right, how're doing, Wally?
SC Very good, I want to thank you and your team for an outstanding job, it was a very professional show
and we've have really enjoyed it.
                     Okay, thank you very much, Wally.
     FLIGHT DIR
                     Walt, would you like to say a word?
     SC
     CUNNINGHAM
                     Say, Gene, thanks a million. It wouldn't
have been such a great flight without the great department
                     We have a magnificient time machine up
we had down there.
here but we wouldn't have been going this far without you
guys.
     FLIGHT DIR
                     Okay, we'll be seeing you.
     EISELE
                     This is Donn, that goes for me, too,
Gene.
     FLIGHT DIR
                     Okay, Donn
     EISELE
                     Very big help for the whole
     FLIGHT DIR
                     See you later now, Donn.
     EISELE
                     Staying right in there with them.
     FLIGHT DIR
                     Rog.
     SCHIRRA
                     We'll see you cats back in the big "H"
and turn some more beer up.
     FLIGHT DIR
                     Okay
     CAPCOM
                     Apollo 7 Houston, opposite omni
     SC
                     Hello Houston, Apollo 7.
     CAPCOM
                     Houston, go.
     SC
                     About six clicks from the water gun for
Walt.
     CAPCOM
                     Wilco
                     And with ten for Wally.
     CAPCOM
     SC
                     And make it about 20 for me over the
```

last three hours.

APOLLO COMMENTARY, 10/21/68, GET: 2475600 (CDT 6:00p)720/2

CAPCOM Will do.

Ron, incidentally I haven't been keeping a very good check on that water consumption for the last few days, if the doctor's concerned about it tell him not to worry about it, I've been drinking plenty, I just haven't got it all logged in.

CAPCOM Rog, I understand.

PAO This is Apollo Control, 248 hours, 8 minutes into the mission. Guam has LOS. During this pass before beginning their period, Wally Schirra and Walt Cunningham had a discussion with Gene Kranz, the Flight Director on this team.

APOLLO 7 COMMENTARY, 10/21/68, GET: 24808 (CDT 615p) 721/1

PAO the last shift of the Kranz team in Apollo 7, each of the crewmen expressed their appreciation to him for the support of this team. Donn Eisele is awake now. He's getting his breakfast. Next station to acquire will be the tracking ship Redstone in the south Pacific at 248 hours 27 minutes. This is mission control, Houston.

```
This is Apollo Control at 248 hours
     PAO
            Apollo 7 in acquisition at the Redstone now.
27 minutes.
We'll stand by for a call.
                    Apollo 7 Houston through Redstone.
     CAPCOM
                    Roger, Houston, Apollo 7.
     SC
                    Roger. Loud and clear. Standing by.
     CAPCOM
                    Say, Ron, we've still got a little
     SC
(garble) up here on (garble) and I was wondering if you guys
would give me 3 or 4 pounds of (garble) so I could go ahead
and use it up during the next 2 or three revs. 3 or 4 pounds
of RCS fuel, that is.
                    Roger, stand by. Little garbled there.
     CAPCOM .
I understand you want 3 or 4 pounds of RCS fuel to use.
                    Yeah, see (Too much static to understand).
     SC
                    7 Houston, opposite OMNI.
     CAPCOM
                    Roger.
     SC
                    7 Houston. How's the voice now?
     CAPCOM
                    Say it again.
     SC
                    Roger, loud and clear now Donn, if you
     CAPCOM
can repeat what you were saying.
                    Oh Roger. I was asking for an RCS fuel
quantity reading for our chart, and also asked - negotiating
for a few pounds of attitude fuel so I can finish cit our
camera film.
                           I understand. Stand by on buch
                     Rog.
     CAPCOM
counts.
                    While you're at it, maybe you can dream
up some or work up some targeting for pictures.
                    Donn, we'll see you at Mercury next ret
     CAPCOM
and we'll have the answers available for both counts at that time.
                     Roger. Say it again, Walt, uh, Ron.
     SC
                     Roger. We'll give you the answers to
     CAPCOM
both questions at Mercury on the next rev.
                     Okay.
      SC
                     But it looks favorable at this time.
     CAPCOM
      SC
                     Okay.
                     Oh, Ron, I'll give you a film inventory.
We have a few frames of Hasselblad color film 368 and a
couple of magazines of 16 mm for the Maurer camera.
                     Roger.
      CAPCOM
                     I'd like to shoot those out the window
      SC
 at either targets of opportunity or any particular targets
 that you might be able to give me. That is, you know, at
 a time when we're going over a particular item of interest.
      CAPCOM
                     Roger.
                     And we'll furnish Panatomic-X list.
      SC
                     Check.
      CAPCOM
                     I think we've got about 25 frames of
      SC
 Pan-X and, oh I don't know, 6 or 8 of 368 and I'd say 2 rolls
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APOLLO 7 COMMENTARY, 10/21/68, GET: 2482700 (CDT 6:30p) 722/1

APOLLO 7 COMMENTARY, 10/21/68, GET: 2482700 (CDT 6:30p) 722/2

SC of camera of M film.

CAPCOM Roger.

SC Oh, and while you're at it could get me

a map update also.

CAPCOM Wilco.

CAPCOM 7 Houston. I have your map update.

SC Roger.

CAPCOM Rev 156 at 247 plus 30 plus 38, longitude

12.5 east.

SC Roger, would you say it again, my earpiece

came out while you were talking?

CAPCOM Roger. Rev 256 GET 247 plus 30 plus 38,

longitude 12.5 east.

SC Okay, thank you.

CAPCOM Roger.

CAPCOM Apollo 7 Houston. The United States has

a total of 55 Olympic medals and 24 of these are gold.

SC Pretty good.

CAPCOM Roger.

CAPCOM 7 Houston, 30 seconds LOS. Ascension at

53.

SC Roger.

Redstone has LOS now. During this pass, Donn Eisele asked for permission to spend a few pounds of RCS propellant for photographic purposes. He'd like to use up as much of the unexposed film as possible, during his watch, and he asked us for some suggestions on areas to photograph. As you heard, we will pass this information up to him over the Mercury during the next pass at that station. Apollo 7 about to enter its 137th revolution. Ascension will be the first station on that rev. We'll acquire at 248 hours 53 minutes. This is Mission Control, Houston.

APOLLO 7 COMMENTARY, 10/20/68, GET: 2484400 (CDT 6:45p) 723/1

PAO This is Apollo Control at 248 hours
44 minutes. A decision has been made not to move the primary
1 anding area 164 dash 1. The area will not be moved. Areas
164 dash 1 will remain at these coordinates 27 minutes
38 degrees - 27 degrees 38 minutes north latitude, 64 degrees
10 minutes west longitude. This is Mission Control, Houston.

```
APOLLO 7 COMMENTARY, 10/21/68, GET: 2485300 (CDT 6:55p) 724/1
                    This is Apollo Control at 248 hours
53 minutes into the mission. Apollo 7 coming up on Ascension
now.
                    Apollo 7, Houston through Ascension,
     CAPCOM
standing by.
                    Roger, Houston, Apollo 7.
     \mathsf{SC}
                    Roger, I have your RCS quanitities if you
     CAPCOM
want.
                    Okay, Ron, go ahead.
     SC
                    Roger, at 248 hours you have a total for
     CAPCOM
your profile of 503 pounds. And I have your red lines if
you desire those.
                     Okay, go ahead with all of them then.
     SC
                     Roger, SCS redline 533, DAT redline 458,
     CAPCOM
and your hybrid 234.
                    Okay, 503 remaining, 533 SCS, 458 DAT,
234 hybrid.
                    Affirmative. And 7, Houston I have block
     CAPCOM
data 27 whenever you want it.
                     Okay, I can take it right now.
     SC
                     Roger. 159 dash Alpha-Charilie plus 140
     CAPCOM
minus 0330 251 plus 35 plus 18 4565 160 dash 2-Alpha plus 260
minus 0265 253 plus 13 plus 19 3625 161 dash 1-Bravo plus 218
minus 0620 254 plus 39 plus 51 4011 162 dash 1-Alpha plus 278
minus 0642 256 plus 16 plus 31 3446 163 dash 1-Alpha plus 300
minus - 7, Houston opposite OMNI.
                             You got it.
     SC
                     Roger.
                     Roger, on area 163 longitude minus 0645
     CAPCOM
257 plus 55 plus 28 3007 164 dash 1-Alpha plus 277 minus 0642
259 plus 39 plus 18 3322 165 dash 1-Bravo plus 217 minus 0670
261 plus 16 plus 45 3151, over.
                     Okay, 159 Alpha-Charlie plus 140 minus 0330
      SC
251 35 18 4565 160 dash 2-Alpha plus 260 minus 0265 253 13 19
3625 161 dash 1-Bravo plus 218 minus 0620 254 39 51 4011 162
dash 1-Alpha plus 278 minus 0642 256 16 31 3446 163 dash
 1-Alpha plus 300 minus 0645 257 55 28 3007 164 dash 1-Alpha
plus 277 minus 0642 259 39 18 3322 165 dash 1-Bravo plus 217
minus 0670 261 16 45 3151.
                     7, Houston, you read back correct. We'11
      CAPCOM
have them for the next 10 revs later.
                     Roger, I thought I was done.
                     7, Houston. We're wondering about the
      CAPCOM
 decongestant that you're taking here about this time.
                     Oh, roger, I forgot to log that in.
      SC
 Both Walt and Wally each had an actifed about 248 30, and I
 took one at 249.
                     Roger.
      CAPCOM
```

APOLLO 7 COMMENTARY, 10/21/68, GET: 24903 (CDT 705p) 725/1

CAPCOM 7, Houston, 30 seconds LOS Mercury at 32. And do you show an 02 purge at 30.

SC Roger, I do.

CAPCOM Roger, thank you.

Apollo control at 249 hours 04 minutes,
Ascension has LOS. During this pass we gave Donn Eisele his
RCS propellant quantities remaining, 553 pounds. We updated
him with reentry information for each of the remaining revs
and the (garble) and he advised us that all three crewmen
had taken the decongestant tablet on schedule. Next station
to acquire will be the tracking ship Mercury at 249 hours
32 minutes. This is mission control, Houston.

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MMENTARY, 10/21/68, GET: 2493200 (CDT 7:25p) 726/1
APOLL
                    This is Apollo Control at 249 hours
             Apollo 7 coming up on the Mercury. Guam has
32 minutes.
overlapping coverage.
                    Apollo 7, Houston through Mercury standing
     CAPCOM
by.
                    Roger, Apollo 7 here.
     SC
     CAPCOM
                    Roger.
                    Fuel cell purge is complete, Ron.
                    Roger. And I've got a couple of updates
     CAPCOM
for your SO 368 and the PAN-X.
                    Okay, go ahead.
                    Roger, at 251 plus 15 we have some cloud
     CAPCOM
formations over New Guinea, and they're on track. Be good
for SO 368 film.
                    Okay, we'll do. (garbled)
     SC
                    Opposite OMNI, then say again.
     CAPCOM
                    Roger, what do you say about using a
little RCS fuel to turn these ends so we can get some pictures.
                    Rog, we're checking on it now. And I
     CAPCOM
have a - at 252 plus 39 we have a S-V target number 34.
will be north of track, use PAN-X with red filter.
                    Okay, at 39 you've got S-V from a turn
                 PAN-X with red filter.
north of track.
                    Roger, and you have a GO on your SCS.
     CAPCOM
Recommend BD roll channel disabled -
                    Okay.
     CAPCOM
                    Minimum impulse.
     SC
                    Roger.
                    7, Houston, we'd like to power up the
     CAPCOM
CMC over Redstone, and watch the time again.
                    Okay, will do.
                    Roger. 7, Houston, I have another PAN-X
     CAPCOM
update.
                    Okay, go ahead.
     CAPCOM
                    Roger, and this is really the number 1
priority. At that 251 plus 00 see Ganges River in India
south of track. Use PAN-X with red filter.
                    7, Houston. For your information quad B
     CAPCOM
has 4 pounds margin from down the red line, and quad DELTA
has 7 pounds.
                    I see, so this is just 02 TB.
     SC
     CAPCOM
                    If possible.
     SC
                    Roger, got you.
     CAPCOM
                    7, Houston.
                    Go, Ron.
```

APOLLO 7 COMMENTARY, 10/21/68, GET: 2494200 (CDT 7:35p) 727/1

7, Houston. CAPCOM Hello Ron.

Rog. I just got word that the - we're SC going to need a little more time to check that surge of power on the Saturn.

Okay. SC Okay. CAPCOM

Yeah, roger, I copy. About 30 seconds LOS. Redstone at 03. SC CAPCOM

Roger. SC

Apollo Control at 249 hours 44 minutes. Guam has LOS. Donn Eisele completed fuel cell 02 purge. Got permission to expend some RCS propellant for photography purposes, and we gave him a few recommendations on what he might photograph. Next station to acquire will be Redstone at 250 hours 02 minutes. This is Mission Control Houston.

APOLLO 7 COMMENTARY, 10/21/68, GET: 25002 (CDT 805p) 728/1

PAO This is Apollo control at 250 hours 02 minutes, and the Redstone has acquisition.

CAPCOM Apollo 7, Houston, through Redstone

standing by.

SC Roger. CAPCOM Roger.

SC Ron, I've got a note in the flight plan that says battery charge as required. Has that already been taken care of?

CAPCOM Sratch it out.

SC Okay.

CAPCOM Apollo 7, Houston, opposite OMNI.

SC Roger.

CAPCOM Apollo 7, Houston, everything's up to snuff on the computer. You can go ahead and power down.

SC Okay.

CAPCOM Apollo 7, Houston, one minutes LOS

Ascension at 32.

Apollo 7 beyond the Redstones range now. During this pass Donn Eisele powered up the command module computer. Ron took a look at the navigation vector, determined that it looked good and the computer powered down again now. Apollo 7 nearing the end of the 157 revolution. Next station to acquire will be Ascension at 250 hours 31 minutes. This is mission control, Houston.

APOLLO 7 COMMENTARY, 10/21/68, GET: 2503100 (CDT 8:35p)729/1

PAO This is Apollo Control at 250 hours, 31 minutes into the mission. Apollo 7 coming up on Ascension now. Canaries will acquire about the time Ascension LOS. We'll stand by.

CAPCOM Apollo 7 Houston through Ascension

standing by.

SC This is Apollo 7.

CAPCOM Roger. Apollo 7 Houston, when you get a chance request onboard readout PYRO A and B and BAT C. No hurry.

SC Okay, How much time to LOS CAPCOM I missed that, say again SC How much time to LOS?

CAPCOM Roger, about three and a half minutes. SC A PYRO A is 36.9 and PYRO B is 36.8. CAPCOM Roger, copy. Thirty seconds LOS

Redstone at 38.

PAO This is Apollo Control at 250 hours and 41 minutes. Canaries has LOS. Apollo 7 will be out of touch for about the next hour. The next station to acquire will be Redstone in the South Pacific. At 251 hours, 38 minutes. This is Mission Control Houston.

APOLLO 7 COMMENTARY, 10/21/68, GET: 2513800 (CDT 9:40p) 730/1

This is Apollo Control at 251 hours PAO Apollo 7 coming up on the Redstone now after about an hour of being out of touch. We'll stand by for this 38 minutes. pass.

Apollo 7, Houston through Redstone standing CAPCOM

by.

Roger, Houston, Apollo 7. SC

Roger, loud and clear Donn. Apollo 7, CAPCOM

Houston.

Roger, go. SC

Roger, we understand you have a cabin CAPCOM soaked with cold, and we don't feel the cabin cold soak is necessary this time.

Roger, I've got a cabin temp of 65 degrees SC and suit temp of about 51. It's very comfortable in here

right now.

Roger. CAPCOM

Speaking of cold soak and related things, we were discussing putting the secondary water boiler on for re-entry and leaving the primary off. Has there been any discussion of that down there?

Lots of it. CAPCOM Yeh, I bet. SC

We're still discussing Donn. CAPCOM

Okay. SC

Apollo 7, Houston opposite OMNI. CAPCOM

Roger. SC

Apollo 7, Houston 1 minute till LOS. CAPCOM

Roger, Houston. SC Antigua at 59. CAPCOM

Roger, 59 for Antigua. SC

This is Apollo Control at 251 hours PAO 49 minutes. Redstone has LOS. The flight controller team lead Jerry Griffin is in the process of relieving the Gene Kranz team. To recap the activities of this shift picked up in revolution 154 over the tracking ship Mercury. The crew was doing sunrise photography at that time. Walt Cunningham gave a rather colorful description of the sunrise. Completed an environmental control system redundant point check over Hawaii on that rev. And over Ascension on rev 155, Wally Schirra reported shutting down the SCS for the evening. That same rev over the Mercury, Walt Cunningham came up with a couple of questions he wanted some advice from the ground on. One was on fuel cell 2 which the condenser temperatures have been running a little higher than normal. He wondered about taking fuel cell 2 off the line if it got too warm in the

APOLLO 7 COMMENTARY, 10/21/68, GET: 2513800 (CDT 9:40p) 730/2

morning, letting it cool down, and putting it back on the line just before the de-orbit burn. He also adivsed that he had over serviced the primary evaporator today, and thought it might be a good idea to use the secondary coolant loop for the suits circuit, and use radiators only on the primary loop. We haven't passed any answers up yet on either of these items. The EECOM officer and his assistants are still in the process of studying them, and the answers will be passed up prior to the time they'll be needed. We got a battery status over Ascension the start of REV 156. Batteries looked Over the Mercury on that rev all of the crew talked to Gene Kranz, and expressed their appreciation for the support of his team during this mission. Donn Eisele was awake, and at this time Schirra and Cunningham started their sleep period. And that same revolution over the Redstone, Donn Eisele asked for permission to use a few pounds of RCS propellant. He wants to use up as much unexposed film as possible, and he asked for suggestions on areas that he might photograph. He got permission to use the film and some suggested areas over Ascension at the beginning of REV 157. REV 157 over the Mercury we had a fuel cell 02 purge. Over the Redstone on that pass we powered up the command module computer, checked the navigation vectors. They looked very good, and the computer was powered down. We're now about to end the 158th revolution. At the start of this rev we've got a read-out on pyrotechnic batteries. And just now over the Redstone we advised Donn Eisele that a cabin cold soak which had been listed as an optional activity would not be necessary. He reported the cabin temperature at 65 degrees. He said it was very comfortable. During this shift the decision was also made to keep the primary recovery area 164 dash 1 at it's present coordinates 27 degrees 38 minutes north, 64 degrees 10 minutes west. There had been some discussion of moving it slightly because of a front, but that will not cause a problem so that primary will not be moved. Present ephemeris of the spacecraft, apogee 228.5 nautical miles, perigee 90 nautical miles. Showing an orbital period of 90 minutes 28 seconds, weight in orbit 24 021 pounds. Next station to acquire will be Antigua at 251 minutes - 251 hours 59 minutes. This is Mission Control, Houston.

APOLLO 7 COMMENTARY, 10/21/68, GET: 2520000 (CDT 10:00p) 731/1

PAO This is Apollo Control 252 hours into the mission. We have acquisition at Antigua. Let's listen in.

CAPCOM Apollo 7 Houston through Antigua. A one line flight plan update.

SC Go ahead, Ron.
CAPCOM Roger. At 258 plus 30, oxygen fuel cell

purge.

SC Roger, I understand. An 02 fuel cell purge at 258 plus 30.

CAPCOM Roger.

PAO This is Apollo Control, 252 hours 05 minutes into the mission of Apollo 7. We have lost contact with Antigua. We're anticipating picking up the spacecraft at Canary Islands at 252:09. That's about 4 minutes from now. This is Apollo Control.

APOLLO 7 COMMENTARY, 10/21/68, GET: 25209 (CDT 10:15p) 732/1

PAO This is Apollo control 252 hours 09 minutes into the mission of Apollo 7. We're acquiring now at Canary Island tracking station. Let's listen in.

CAPCOM Apollo 7, Houston, through Canary.

SC Roger, good morning, Bill.

CAPCOM Good morning and a pleasant last day to

you.

SC Yea, oh, boy.

CAPCOM Apollo 7, Houston, a little over half minute LOS Canary S-band volume up and 45 seconds for about two minutes of coverage at Madrid.

SC Apollo 7, Roger.

PAO This is Apollo control 252 hours 18 minutes into the mission of Apollo 7. We have lost acquisition at Canary Islands our next point of contact will be Honeysuckle Creek at 255. At 25218, this is Apollo control.

PAO This is Apollo Control 252 hours 55 minutes into the mission of Apollo 7. We're coming up on Acquisition at Honeysuckle Creek. Let's listen in.

CAPCOM Apollo 7 Houston through Honeysuckle. PAO This is Apollo Control 253 hours into the mission. We're some little more than 6 hours 38 minutes away from retrofire. We have lost acquisition at Honeysuckle. We're anticipating the Redstone tracking ship at 253:13. have a weather report for the West Atlantic zone for tomorrow morning, which indicates that we'll have a weak cool front oriented northeast-southwest dividing the zone approximately in half. The weather on either side of the cool front will not be appreciably different. The prime target point will have partly cloudy to cloudy skies with the ceiling 1500 to 1800 feet; visibility 10 miles; scattered showers; wind from 210 degrees at 15 knots; seas 3 to 5 feet; and temperatures in the mid 70's. So, all in all, it looks like a fairly good morning. At 253:01 in the 159th revolution, this Apollo Control.

PAO This is Apollo Control, 253 hours, 13 minutes into the flight of Apollo 7. We're approaching the Redstone Tracking Ship. We should have acquisition in a very few seconds. Let's listen in.

CAPCOM Apollo 7, Houston, through Redstone.

Standing by. Apollo 7, Houston. Are you trying to call?

SC Negative, Bill.

CAPCOM Okay.

APOLLO 7 COMMENTARY, 10/21/68, GET: 2532300 (CDT 11:25p) 735/1

CAP COM Apollo 7, Houston, one minute to LOS Redstone, Antigua at 32.

SC Roger.

PAO This is Apollo Control, 253 hours 24 minutes into the mission of Apollo 7. For the past couple of hours we've had a very quiet spacecraft. All systems are functioning properly though. They're anticipating Antigua at 253 hours 32 minutes. We're now completing the 159th revolution at near our apogee of 228 nautical miles. We're approaching the West Coast of South America at 253 hours 25 minutes, this is Apollo Control.

APOLLO 7 COMMENTARY, 10/21/68, GET: 25332 (CDT: 11:35p) 736/1

pao This is Apollo Control 253 hours, 32 minutes into the mission of Apollo 7. We're just starting on our 160th revolution of the earth. We have three revolutions to go before our re-entry. We should have acquisition with the Antigua tracking station in a very short while. Let's listen in.

CAPCOM Apollo 7, Houston through Ascention - standing

by.

SC Roger, Bill. CAPCOM That is Antigua.

SC Uh, Bill at what station pass do you

expect the update for the retro maneuver?

CAPCOM Stand by, Donn. - Hey, Donn it will be over Antigua the next pass - be about one hour and a half.

SC Okay.

CAPCOM Apollo 7, Houston one minute LOS Antigua,

Canary at 44.

SC Roger.

pao This is Apollo Control 253 hours, 41 minutes into the mission of Apollo 7. We will lose acquisition at Antigua in a very few seconds and we will pick up acquisition at Canary Islands at 25344 about two and a half minutes from now. We're now beginning the 160th revolution. After this revolution we will have three more to go before deorbit and re-entry. We'll stand by now for the Canary Island pass.

CAPCOM Apollo 7, Houston, LOS Canary. Apollo 7 Houston, opposite omni please.

SC Roger.

CAPCOM Roger. Apollo 7, Houston, 1 minute LOS Canary. S-Band up at 53 and we'll have Carnarvon at 21.

SC Roger, say again Bill.

CAPCOM Roger, S-Band volume up in about 1 minute for the Madrid pass and if no contact we'll have Carnarvon at 21.

CAPCOM Oh okay, understand.

PAO This is Apollo Control, 253 hours,

A minutes into the mission of Apollo 7. We have lost

54 minutes into the mission of Apollo 7. We have lost acquisition at the Canary Islands. And in a few seconds, we will lose acquisition at Madrid. Our next point of contact will be Carnarvon at 25421. The last couple of hours as we said before have been exceptionally quiet - the quietest during the mission for a light period of time. All goes well with the spacecraft at this time. At 25354, this is Apollo Control.

This is Apollo Control 254 hours 20 minutes into the mission of Apollo 7. We are now approaching the Carnarvon tracking station; let's listen in.

CAP COM Apollo 7, Houston through Carnarvon

standing by.

SC Roger, Houston, Apollo 7 here.

CAP COM Rog.

Houston, Apollo 7. SC Apollo 7, Houston, go. CAP COM

Ah, Bill ... briefing ... do up here. SC Wally and Walt are still asleep. I've got some of the spacecraft stowed ... without disturbing them and I'm going to be putting my suit on here pretty shortly. At the beginning of the next night pass, I'm going to try to get P51 accomplished so I can get a leg up on the whole ... that way when your update comes up later in the pass, why, ah, if there's time I'd like to get ... might wait until the next one.

Okay, right, we'll - we have the rest CAP COM mat, nav load and the target load ready for the Antigua pass and that will be at 08 past the hour.

SC Okay, zero eight?

CAP COM Right. SC Rog.

CAP COM So that will be ready and waiting if you - oh, that'll give you, ah, let's see that won't give you too much of that night pass actually.

I'd like to do the P51 before that you SC see.

CAP COM Okay, if you could - if we could get through with that before zero eight, then we could get those three loads up to you and have that done and away with.

Yeah, that's a good idea, Bill. Okay, SC

fine.

CAP COM Okay, thank you.

I think we can get it all done but maybe

the fine alignment before they get up.

CAP COM Okay. (pause) Apollo 7, Houston, one minute LOS Carnarvon, Honeysuckle in about one minute, turn your volume up.

SC Okay.

CAP COM Apollo 7, Houston through Honeysuckle standing by.

SC Roger, read you.

CAP COM Rog.

CAPCOM Apollo 7, Houston. SC Roger, go Bill.

CAPCOM Right, Don. I have a little discussion here on a couple of items. I would like to make a couple of recommendations. First, for entry we would like all three fuel cells on line. And secondly, we like to operate the coolant loops primary without the evaporator, secondary looping bypass with the evaporator on.

SC Roger, understand. You want the fuel

cells on. All three formed for entry.

CAPCOM Affirmative.

SC And on the coolant you want to run the primary system with the evaporator shut down. And on the secondary bypassing the radiators with the secondary water boiler on it.

CAPCOM That's affirmative and of course if the secondary evaporator quits, well you can switch to primary

evaporator and try it.

SC Roger, understand.

CAPCOM Okay. SC Thank you.

CAPCOM Roger Apollo 7, Houston, opposite

omni please. Apollo 7, Houston, opposite omni.

Apollo 7, Houston. How do you read?

SC Fine, Bill.

CAPCOM Okay, one final item. This secondary

radiator - we'd like to activate that at 258 hours.
SC You're going to do what?

CAPCOM I'm sorry - secondary evaporator at 258. SC Oh, okay secondary evaporator at 258

hours, understand.

CAPCOM Roger. SC ...here.

CAPCOM Thank you. And we're coming upon 1 minute LOS Honeysuckle. We'll have Redstone at 50.

SC Roger.

PAO This is Apollo Control, 254 hours, 37 minutes into the mission of Apollo 7. We're anticipating the Redstone Tracking Station aquisition time at 25450, some 13 minutes from now. During that pass we heard Astronaut Eisele talking to CAPCOM Pogue here in the Control Center - indicating that Schirra and Cunningham were asleep. He also indiated he had stowed everything he could without disturbing Schirra and Cunningham. He was shortly going to put on his spacesuit. He said at the beginning of the next pass he would do a P51 and a P52. The P51 of course being the inertial measuring unit orientation program. And the P52 program being the inertial measuring alignment. Astronaut Pogue indicated that for entry the three fuel cells

pAO should be put on the line - all three of them that the primary coolant loop should be on with the evaporator shut down and the secondary bypass radiators with the water boilers on. And the secondary evaporator should be on at 258 hours. At 254 hours, 38 minutes, this is Apollo Control.

PAO This is Apollo Control 254 hours 49 minutes into the mission of Apollo 7. We're coming up now on acquisition with the Redstone tracking ship on the 160th revolution; let's listen in.

CAP COM Apollo 7, Houston through Redstone standing by. (pause) Apollo 7, Houston. No need to acknowledge, when you get around to it, opposite omni please. (pause) Apollo 7, Houston. No need to acknowledge, one minute to LOS Redstone, Mila at zero six, Antigua at zero eight.

SC Okay, Bill.

PAO This is Apollo Control 254 hours 58 minutes into the mission of Apollo 7. We are completing our 160th revolution very shortly, at that point we'll have three more to go. At this time, it is 04 hours 41 minutes and 01 second to the initiation of the retrofiring of SPS engine for reentry. Our next point of contact will be Merritt Island facility in Florida. They should have acquisition at 255 hours 06 minutes into the mission. At 254:58, this is Apollo Control.

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APOLLO 7 COMMENTARY, 10/22/68, GET: 2550600 (CDT 1:10a)
                                                         741/1
                    This is Apollo Control 255 hours 06 min-
utes into the mission of Apollo 7. We have a retrofire time
that was just passed to us; retrofire time now stands at
259 hours 39 minutes 16 seconds, which would be 5:42:01
Central Daylight Time. We now are coming up with acquisition
at Merritt Island, Florida tracking facility; let's listen in.
                    Apollo 7, Houston through Mila standing
     CAP COM
by.
     SC
                    Roger, Bill.
                                  (pause) Ah, Bill, you
ready with the updates.
                    Say again, Donn.
     CAP COM
     SC
                    Are you ready with the updates?
                    Rog, we're ready if your in ACCEPT.
     CAP COM
                    You've got it.
     SC
                    Thank you. (pause) Donn, we're in a
     CAP COM
keyhole right now, it will be coming up in a couple of min-
utes.
                    Okay. (pause)
                                    I'm standing by for the
maneuver pad whenever you have it.
     CAP COM
                    Rog, okay. I'll give it to you as soon
as I get it.
     SC
                    Oh, you don't have it yet. I see, no
sweat.
                                        I have maneuver pad
                    Apollo 7, Houston.
     CAP COM
when you're ready to copy.
     SC
                           Go ahead.
                    Okay.
     CAP COM
                           164 dash 1 alpha retrofire,
                    Roger.
259 39 1594 minus 02071 minus 00000 plus 02822 2350 minus
0260 03305 24010 minus 071 minus 134 012 30 3058 314 259
00 0000 minus 2447 plus 06813 1561 180 180 000. Comments,
sextant star not visible after 259 + 21. Another comment.
backup align stars are north set. I do have boresight star
information.
                    Roger, let's skip the boresight informa-
     SC
tion for now. Ah, readback is follows: 164 dash 1 alpha,
259 39 1594 minus 02071 minus all balls plus 02822 2 (garble)
0 minus 0260 03305 24010 minus 071 minus 134 (garble)
12 30 (garble) 8 314 259 00 0000 minus 2447 plus 06813
1561 180 180 zeros.
                    Roger, check on a couple of them on
     CAP COM
noun 42 apogee 2350 and in noun 48 Y-trim 1334.
                    Roger, that's what I got.
     SC
     CAP COM
                    Readback is correct.
```

Rog, thank you.

You've got a very loud squeal in your

SC

transmitter there.

CAP COM

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APOLLO 7 COMMENTARY, 10/22/68, GET: 25515 (CDT 1:19)
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742/1

CAPCOM Apollo 7, Houston. SC Roger, go Bill. CACCOM Right, Donn. We could get the SPS line heaters to AB. SC Okay, line heaters on, right? CAPCOM Right. SC ...could get all the way down to 60 degrees. CAPCOM Apollo 7, now that we have the rest nav and targets in, the computer is yours. One minute LOS Antigua. We'll have Canaries at 20. Roger, Bill understand. I've got the computer back here...you've got a very loud squeal. Okay, I'm checking on it. CAPCOM SC ... your transmitter is real bad. CAPCOM Roger. PAO This is Apollo Control, 255 hours, 17 minutes into the mission of Apollo 7. On that pass we heard Astronaut Eisele indicate that voice communications were not too good because there was a loud squeal on the CAPCOM Pogue indicated that we're checking on it. We have acquisition coming up with Canary Islands Tracking Station in about 2 minutes. So we'll standby for the Canary Islands Pass. CAPCOM Apollo 7, Houston. Would you put a block please? Apollo 7, Houston, through Canary. Apollo 7 Houston, if you read - go to block. Apollo 7, Houston, 2 and 1/2 minutes LOS Canary. We'd like block on the up link when you can get around to it please. Apollo 7, Houston did you call? Negative, Bill. I was just trying one of my helmets to see if it fits. CAPCOM Okay, would you go to block please? SC I did. CAPCOM Thank you. SC Houston, Apollo 7. How do you read? CAPCOM I read you five square. Okay, fine. I just had my other helmet on and I just wanted to check it out. CAPCOM Roger. About 1 minute LOS Canaries. We'll have Carnarvon at 55 and confirm going to block now. Roger. We're in block now.

PAO This is Apollo Control, 255 hours, 28 minutes into the mission of Apollo 7. We've lost acquisition at Canary Islands. We're anticipating our next acquisition point to be Carnarvon at 25555. We're now in our one hundred sixty first revolution. After the completion of this revolution we have two more to go for the Apollo

7 mission. At 25529, this is Apollo Control.

Thank you.

CAPCOM

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This is Apollo Control 255 hours 54 min-
     PAO
utes into the mission of Apollo 7. We're just coming up on
acquisition with Carnarvon; let's listen in.
                    Houston, Apollo 7, did you call?
     CAP COM
                    Rog, Apollo 7, Houston through Carnarvon.
                    Roger. We're up and at 'em here. I've
     SC
got my lumpy suit on and Walt and Wally are crashing around
in the LAV getting something to eat.
     CAP COM
                    Rog, understand. And, ah, Donn, in
behalf of the GOLD team here in Mission Control, we wish to
extend our congratulations to the crew and wish you every
good wish for a nice soft landing and we'll see 'ya tomorrow.
                    Well, thank you pardner. Thanks a lot
     sc
                    Who's your flight director there.
for helping us out.
     CAP COM
                    It's Jerry Griffin.
     SC
                    Is Jerry there?
                    Jerry, air ground two.
     CAP COM
                    Yeah, I'm here.
     GRIFFIN
     SC
                    Hey, how 'ya doin', buddy?
     GRIFFIN
                    Fine.
                    Good, sure appreciate all the fine help
you gave us up here.
                    Well, thank you and we're looking forward
     GRIFFIN
to seeing you when you get back to the ranch.
                    Yeah, I'll say. We'll have to -- right,
Walt and Wally send their regards, Jerry, to you and all the
other fellas down there. They're not suited up yet and don't
have their com on so I'll just pass it along.
                    Okay, thanks much, Donn. See 'ya later.
     GRIFFIN
     SC
     GRIFFIN
                    You going off duty, Bill.
     SC
                    Rog, I'm staying here though. Jack will
     CAP COM
be talking with you now.
                    I see, okay.
     SC
     CAP COM
                    I'll be watching you from here.
     SC
                    Yeah, I guess you would at that, wouldn't
you?
     CAP COM
                    Good morning, Donald.
                                            Good morning,
Donn.
                    Hi, Jack.
     CAP COM
                    Apollo 7, Houston.
     SC
                    Roger, Jack.
                    Ah, Donn, just so it doesn't startle you
     CAP COM
you're getting close to a master alarm on fuel cell two.
It's the TCE.
     SC
                    Okay, we were just talking about that
up here. Walt's of the opinion that we ought to take that
```

SC mother off line when it goes over limit and save it until later. What do you guys think?

CAP COM Okay, stand by. (pause) Apollo 7,

Houston.

SC Go.

CAP COM Okay, Donn. On fuel cell two, there's been a lot of discussion on that down here and they feel that with the trends that they've seen that the T sub CE should top out about 185 and they would just as soon leave it on the line to keep from any switching transients there. Ah, and you shouldn't reach any higher than 185 at retrofire.

SC Okay, we're reading 181 right now.
CAP COM Okay, that's about - you're about 4 degrees higher than the actual there. Our value down here now is 177.

CAP COM Apollo 7, Houston. We're about one minute to LOS Carnarvon. Do you want to turn S-band volume up we'll pick up Honeysuckle for a long pass here.

SC Okay.

APOLLO 7 COMMENTARY, 10/22/68, GET: 25604 (CDT: 2:10a 744/1

Apollo 7, Houston one minute LOS CAPCOM Honeysuckle. We'll pick up Guaymas at 36. This is Apollo Control 256 hours, 12 PAO minutes into the mission of Apollo 7. We are losing acquisition at Honeysuckle, anticipating Guaymas at 2536. During our Carnarvon pass we heard astronaut Eisele indicating that Schirra and Cunningham were eating and the spacecraft. And Eisele is presently in his suit - in his lumpy suit, as he put it. The whole team offered congratulations and the Apollo 7 crew responded and send regards and talked to the flight director, Griffin. Astronaut Swigert is now on as CAPCOM as the pime came - the launch team comes on duty here at the Control Center. Astronaut Swigert indicated fuel cell number 2 is close to the master alarm but that they should not be concerned about it on board. Eisele came back indicating that Schirra would possibly like to take fuel cell number 2 off the line for now and let the temperatures go down and put it on the line prior to re-entry. And astronaut Swigert, the CAPCOM, indicated no that it won't reach more than 185 degrees during rtro fire and therefore there is no concern. At 256 hours, 14 minutes into the mission this is Apollo Control.

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This is Apollo Control, 256 hours,
36 minutes into the mission of Apollo 7. We're coming upon
the completion of revolution 161. After this there are
two more to go for reentry. We should have acquisition
at Guaymas, Mexico very shortly. Let's listen in.
                    Apollo 7, Houston, through Texas. Stand-
     CAPCOM
ing by.
                    Roger, Jack. How do you read? Are we
     SC
hard to hear?
                    I read you five by, Walt.
     CAPCOM
                    How's it going this morning?
     SC
                    It's going very well. How's things
     CAPCOM
with you?
                    Fine. Are you there? Are you familiar
with the fuel cell performance on yesterday's burn?
                    Roger, Walt. I am.
     CAPCOM
                    Okay, I guess - if it goes on up to 200
     SC
and we're in a retro countdown, I'm not going to sweat it
anyway. I'm going to let it run on. I guess - it seems to
me if we went ahead and open circuit here for the next hour
and a half we'd - maybe for the next 2 hours, a little
longer around minus 30 or minus 35 minutes we'd have little
or no problem with it.
                    Roger. I don't think from what we have
     CAPCOM
been talking about that you'll have to worry. It will get
up over 200 and if it does we have been given the Go to let
it go ahead and - go over 200.
                    Roger, that's my intention.
                    Okay, we concur.
     CAPCOM
                    It's a shame we can't get that one back
     SC
and take a look at it.
                    I agree. From all data they have a
     CAPCOM
pretty good idea of what it is.
                    Very good.
                    Apollo 7, Houston. Apollo 7, Houston.
     CAPCOM
                    Roger, Jack. Go ahead.
     SC
                    Okay, Walt, at 258 here when you activate
     CAPCOM
the secondary loop - we'd like you to configure the suit
heat exchanger for bypass on the primary loop and for flow
on the secondary loop.
                    Already set up.
```

You're way ahead of me.

END OF TAPE

SC

CAPCOM

APOLLO 7 COMMENTARY, 10/22/68, GET: 2564600 (CDT 2:50a) 746/1

CAP COM Apollo 7, Houston, one minute LOS Bermuda, we pick up the Canaries in about three minutes.

SC Rog, Jack. (pause) Hey, Jack, give me 20 clicks on the water now.

CAP COM Okay, Walt.

PAO This is Apollo Control 256 hours 52 minutes into the mission of Apollo 7. We are beginning the 162nd revolution, we will complete this revolution, go one more, retrofire and land Apollo 7. Next point of contact will be Canary Islands, it will only be about 2-1/2 minutes from this time so we'll stand by for any possible voice contact. At 256:53 this is Apollo Control.

CAPCOM Apollo 7, Houston, through the Canaries. SC Roger, Jack. (garble) CAPCOM Okay will fine, Walt. I'd like to bring you up to date on the canister change. We did the canister change 21... CAPCOM Okay Walt, you got cut out there, copied canister change 21. We put it off until we had 3 mm or something like that on the CO2 partial pressure. Anyhow, it is written down on the DTO book which I can't quite get at now. Hang on for a second. Hey Jack, at 245 hours, and 56 minutes we did our last - put our last fresh canister in. in the next hour or so we are going to recycle number 1 back-CAPCOM Okay fine. Could you bring me up to date on the -SC We sure had a square of unfilled air. CAPCOM Okay you're right. SC We're actually two canisters short on this flight. CAPCOM Roger, Walt. SC It seems impossible, doesn't it? CAPCOM It kind of does. Could you bring me up to date on the - how you're coming on stowage? Roger. Stowage is all but complete. We took the three bio...and stowed them in the fecal canister where we have been taking out the fresh fecal bag. And we're going to be getting unsuited in the water as soon as we get a change on there, assuming we all come out of it in a nice smooth shape. And we have two temporary stowage bags up with the - coveralls in the temporary stowage bags. CAPCOM Okay. SCEverything else is stowed in its nominal place. CAPCOM Okay, you got the gloves stowed and helmets on? The helmets we don't have on. We're going to try the helmets. The general feeling now is that we will probably not be wearing those helmets. We're going to make one more stab when we get the couch down to the launch position and see what we can do about clearing our ears. I'm probably in better shape than the other guys and I'm not too sure about my ears. By the way Wally and Don talked they are in a little bit worse shape than I am. And if they go with their helmets off, that's the way I'll go to. We don't want to get the suit loop as the way it is supposed

CAPCOM Okay,
SC There are still a few items still left

to act.

```
APOLLO 7 COMMENTARY, 10/22/68, GET: 25656 (CDT 3:00) 747/2
                     to be stowed that put in shape. That's
     SC
like the data file, the temporary stowage items - the F -
                     Is that an P item, Don.
     CAPCON
                     F one and F two still have a couple of
small items that we are going to have put back in the right
place when Wally gets to the couch. And he is about suited
and he will be on calm shortly.
                     Okay, Wally. How about the oxygen masks?
     CAPCON
Are they put away?
                     They are all stowed.
     SC
     CAPCON
                     Okay.
                     If we do not wear the helmets, the hel-
mets will be tied down at the foot of the couch in front of
each guy's couch will be below the level of the canisters
down there. So it's out of the couch envelope.
                     Okay. We're not concerned about
     CAPCON
                       We're concerned about your heads.
hurting the helmets.
                     Roger, we understand and we're trying
to make a go of it all the way. We haven't gotten in the position to try them on in the couch in the boost position
yet. However, we do feel if we go with the helmets off,
we'll have pretty dammed good protection set up around us.
                     I'd say we're about 1 minute LOS
     CAPCOM
Canaries. We'll pick up Tananarive about 1 niner.
                     Right. (garble)
     SC
                     Go ahead, Don. You've taken the last
     CAPCOM
actifed at 257 here?
                     Talking about actifed, we all took it.
                     Okay, real fine.
     CAPCON
                     We've still got our nausea pills left
     SC
to take.
                            The carrier reports waves-one
                     Okay.
     CAPCOM
foot out there.
                     That sounds almost good enough for the
     SC
Air Force.
                     We've got a little bit of chop. Let's
     CAPCOM
break the landing just a little bit.
                     If you've got a chariot, watch out, we'll
be coming down his stack. What's the carrier call?
                     All right, carrier call was essex.
     CAPCOM
                     How could you...02?
     SC
                     I'll be giving you a run down on whether
     CAPCOM
the call signs says - we go a little bit further here.
                     (garble)
     SC
                     Roger, five by, Wally. We're just about
     CAPCOM
to lose you.
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APOLLO 7 COMMENTARY, 10/22/68, GET: 25731 (CDT 3:35a)
                    This is Apollo Control Houston 257 hours
     PAO
             We've just tagged up on Carnarvon.
31 minutes.
                    Fuel cell is still climbing, 184 my
gauge.
                    Yeah, we're considering open circuit.
     CAP COM
We want to get a few data - ah, a little bit of data flow
here before we make any decision.
                    We'll take 10 degrees flaps, too.
                    Rog. Okay, you ready on the entry up
     CAP COM
there Walt?
                     Read it.
     SC
                    Okay. 164 dash 1 alpha 190 000 042
     CAP COM
000 10635 25954 16 plus 20 plus 2763 minus 06417 16 plus 49
minus 02846 55/55 19 plus 22 17 plus 02 19 plus 58 24 plus
12 043 minus 18/plus 40.
                     Roger, Jack, readback follows:
dash 1 able 190 000 042 000 10635 25954 1620 plus 2763
minus 06417 1649 minus 02846 55 55 1922 1702 1958 2412 043
minus 18/plus 4 zero. And I have a question on your maneuver
update remarks.
                     Okay, stand by. Go ahead.
     CAP COM-
                     Roger, at the top of remarks is SCS 259
and I've got written in here 21 on the pad, shouldn't that
probably be 41 if this is for SCS burn backup.
                     Ah, that was for the sextant star not
      CAP COM
visible after 259 plus 21 plus 00.
                     Oh, okay that's for the star 259 + 21.
      SC
Thank you.
      CAP COM
                     And the entry update readback was correct?
      SC
                     Ah, perfect.
      CAP COM
                     Gotta do something right.
CAP COM Okay, Walt, ah, we're recommending omni A for the burn and omni C for post set.
      SC
                     Understand, wilco.
      SC
                     And you'll be Simplex A for reentry, and -
      CAP COM
                     That's affirmed.
                     And cabin fans, that's a crew option.
      CAP COM
 You can have no fans, one fan or two fans. Your choice.
                     We'll have no fans, however, I am a
 little bit interested in bringing on the secondary loop
 loops ... the suit is a little bit warm.
                     Okay, stand by.
      CAP COM
                     Hey Jack. On the maneuver pad, the
 velocity counter setting is different from what showed up
 on the DSKY with the Delta V by 19.5 feet-per-second, I
 think, and you have Delta V tailoff at 19.
```

Okay, stand by, Walt, we'll get a

CAP COM

reading on that. (pause) Okay, Walt, CAP COM on your last question on the Delta V counter, ah, that 19 feet a second is our value for the adjusted tailoff and what you should be reading in the Delta  $\tilde{V}$  counter after the burn is over.

I understand that, Jack, but the Delta VC that you sent on is generally different from the G&N reading by that tailoff amount.

Right. (pause) Okay, I guess I missed CAP COM it Walt, why don't you go over it again. I guess I missed

your question.

Okay. In doing P30 in one of the displays SC it shows the Delta V and we set the Delta V counter to be equal to the Delta V minus the Delta V tailoff. In this case, from your maneuver pad, they were different by 19-1/2 feet-per-second, which would indicate that there was 19-1/2 feet-per-second tailoff. I commented on it at the time because it seemed kind of large and now the Delta V at tailoff on the entry pad is 19.

Okay, Walt. CAP COM

It's a small point but I'd like to know SC ' which is which in case I have to update my entry chart. Okay, we'll discuss that, we're about

CAP COM one minute LOS Carnarvon you want to turn up S-band so we can get Honeysuckle.

Okay. SC

Okay, Walt, on that question there, CAP COM what has happened is the Delta V tailoff coming out of the CMC could be off by as much as one foot per second because we didn't update it yesterday. We chose not to do it because we felt it was accurate enough.

Okay, then I will update my entry chart based on how it differs from 19 feet per second, is that

correct?

That is correct. CAP COM Understand. SC

APOLLO 7 COMMENTARY, 10/22/68, GET: 25741 (CDT: 3:45a) 749/1

Apollo 7, opposite OMNI CAPCOM

Apollo 7, Houston. CAPCOM Go ahead Chuck. SC

ORay, Wally. We'd like to have you turn CAPCOM

the H2 fans and heaters OFF now.

OFF not AUTO. That's done. SC Roger, OFF not AUTO O F F, and Walt, we'd CAPCOM

like to have you open circuit fuel cell 2, our plans are to probably bring it back on line over the states.

Understand. Welcome to the club.

Okay, we'd like to have you purge all fuel CAPCOM cells. First make an 02 purge on all fuel cells before the secondary loop activation.

Okay, I'll go ahead and purge them now so SC

that I can purge 2 before I take it off.

Okay, we concur. CAPCOM

Rog. SC

And Walt, on your question on the secondary CAPCOM loop activation, you can bring that loop on line any time after you've done the 02 purge of the fuel cells. Apollo 7, we're about one minue LOS Honeysuckle. We pick up the Huntsville at .04.

Roger. SC

Apollo Control here. That fuel cell PAO temperature climbed about a hundred and eighty nine degrees We've seen it higher in the flight but for various reasons, mainly a look see, a chance to give the cell some time to Thats why they decided to take it off line and let cool down. it cool down before they reach the stateside area again. At 257 hours 47 minutes, this is Apollo Control, Houston.

APOLLO 7 COMMENTARY, 10/22/68, GET: 25804 (CDT 0:09a) 750/1

PAO This is Apollo Control Houston 258 hours 04 minutes into the flight. We are due to acquire here just any second via Guaymas, via the ship Huntsville first and then break into Guaymas, let's tune in and listen.

CAPCOM Apollo 7, Houston through Huntsville,

standing by.

SC Roger, loud and clear.
CAPCOM Okay, you are about 3 by, Wally.

SC Roger

SC Huntsville, Apollo 7. We are going to

lock up now.

CAPCOM Apollo 7, apposite omni.

CAPCOM Apollo 7, Houston.

SC Go ahead.

CAPCOM Okay, Wally, we are ready to bring fuel

cell 2 back on the line.

SC

It's been setting down both busses, down around 26.3 volts, Jack. I think it may be a little bit safer if we wait another 1/2 hour or so to bring it on.

What do you think?

CAPCOM Well, we are mulling it over here.

SC See, fuel cells 2 and 3 are both heating up. They should pick it up, well, we ought to go ahead and turn it on, I guess, we keep triggering the main buss undervoltage down there.

CAPCOM Okay, we concur.

Okay, it started happening when I turned the secondary cold loop pump on. It was just enough to pull it down.

CAPCOM Roger, we were watching it.

Roger, we were watching it. CAPCOM It's back on the line. SC Okay, we're watching. CAPCOM PAO

Apollo Control here. Fuel cell number 2 as you heard it back on the line, it's temperature when we took it off the line. Back at Australia it was about 189 degrees, it's now 169 degrees compared to fuel cells 1 and 3. Both of which read - a temperature of 163. Fuel cells starts its gentle climb up again, it's prone to run a little warmer than the other two. It has been throughout the flight. The load sharing is quite evenly distributed around 33 percent. And the amps are shown also in equal distribution - 27 to 28 amps from each cell. In a very few minutes we'll start what might in this olympic year be called the gun lap. The final lap and if it is anything like some past manned flight - we can expect the crew to be giving a sign off to the ground stations as they pass over them. You heard some of that activity last night. As the crew said good-bye and thanked the ship Mercury, the Guam station, the Redstone, other stations that will not be seen today. Flight Director is asking his positions. Now for any last minute instruction, to speak now or be quiet. And for the record, the Flight Director has said we know of no more configuration requirements. Here is the COM again.

Is your configuration - stowage config-CAPCOM

uration for reentry now?

Okay, we're all stowed, have the helmets still below our feet and we're rigged up, we're not strapped

Okay. Are the O2 masks stowed some place where they might be accessible in case of RCS ingest on the chutes?

They are at the normal point. SC

Okay. CAPCOM

And tell everybody to stop wringing their We're happy. We've practiced this quite a few times. Practiced what? Apollo 7, Houston. Okay. CAPCOM

Go ahead. CAPCOM Okay, Walt and Wally and Don, I give you a 164-weather I'll update it. Weather is generally good, 1500 foot broken, 10 miles on the vis, winds are 210 at 15 knots. Wave height is 4 feet. You got a carrier on station, three helicopters, two rescue aircraft.

And what is the carrier call? SC

Essex. CAPCOM

They have a call, Jack, in lieu of a name. SC

All right, standby Wally. CAPCOM

Roger. Like we're Apollo 7 - they're thinking of putting names on them.

751/2

Okay, standby. Okay, Wally - the call sign for the carriers just the essex. Your rescue aircraft is Kindley Rescue I and Kindley Rescue II. And the helicopters are recovery 1, 2, and 3.

Very good. SC

And I'll give you an update on the CAPCOM

weather further along.

We're a special case the carrier's

is using our name.

CAPCOM Roger.

Mark, and the crew is beginning the hundred and sixty third revolution around the earth.

Hello, Jack do you read.

SC Okay, go ahead Wally. CAPCOM

We all feel very good and chipper up here. all had a lot of good sleep. And we're well hydrated. We had SC a lot of food so there ain't much more to do but let the computer work for us.

Okay, I think we are all the same down CAPCOM

here.

Very good. This is Apollo Control, Houston. PAO will wrap up the conversation for this pass as the crew makes additional final checks on their stowage list. We're getting some information on one of the rescue aircraft - Kindley Kindley rescue 1 - I think I heard had some which took off very long ago. And had some engine trouble shortly after take off, has returned to Kindley and will be replaced. Its replacement apparently has not yet left but - we'll give you more information on that as we get it. This is Apollo Control, Houston.

APOLLO 7 COMMENTARY, 10/22/68, GET: 25832 (CDT 4:37a) 752/1

This is Apollo Control Houston 258 hours 32 minutes. We should have acquisition by the Canaries for this last circuit just any second; here goes the first call.

Standing by. CAP COM

Roger. SC

Apollo 7, Houston. CAP .COM Go ahead, Houston.

Okay, Walt, you can turn the SPS line SC heaters off now, we're showing a valve temp of 60 which is CAP COM okay.

Rog, turn 'em off. (pause) Houston, this is Apollo 7. I'll be prepared to talk about the whole mission when we get back.

Roger, Wally. (pause) 7, we're about one minute LOS Canaries, we'll pick up Tananarive at 51. Roger, we changed cannister number one

and put it back in.

Okay, copy that. CAP COM

And, that will wrap up any communication possibilities via Canaries. Be back up in about 6 or 7 minutes through Tananarive.

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APOLLO 7 COMMENTARY, 10/22/68, GET: 25851 (CDT 4:55a) 753/1
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PAO This is Apollo Control Houston 258 hours 51 minutes into the flight and just any second we should get our last tag up through Tanamarive.

CAP COM Apollo 7, Houston through Tananarive

standing by.

SC Reger. (pause) Mouston, Apollo 7, do you read at Tananariye, over.

CAP COM Reger, Walt, we're reading you about

4 by.

sc Okay, we'll come up over Carnarvon, we are set for splashing down. Standing by for power alarm and I assume that you will insure that we leave Carnarvon with a clean tape for reentry and if you don't will you let me know so I can command reset and get it going before we deorbit.

CAP COM Gkay, we'll do it. (pause) Apollo 7,

Hous ton.

SC Go shead, Jack.
CAP COM Okay, Walt, we didn't see you initiate

the DAP with a verb 46 there.

SC I did initiate the DAP.
CAP COM Okay, that's all we wanted.

SC Cleared or what? I'll send another one.

I loaded the DAP right after P30 instead of rev 46. We're checking. CAP COM Okay, we just didn't see it and we wanted

to confirm it.

SC (garbled)

CAP COM Right. (pause) Apollo 7, we're one minute LOS Tananarive, Carnarvon at zero six.

PAO And that will wrap it up via Tananarive.

```
APOLLO 7 COMMENTARY, 10/22/58, GET: 25906 (CDT 5:11A) 754/1
                     Apollo Control Houston. The first call
     PAO
is going out by Carnarvon.
                     Apollo 7 Houston through Carnarvon
     CAPCOM
standing by.
                     Roger, are we go for pyro?
                     Okay, stand by, we want to look at it here.
     SC
     CAPCOM
                     Roger.
                     Schirra has armed his pyro technics,
     SC
we're going to check them on the ground through Carnarvon.
                     Apollo 7 you are 60 for pyro arm.
     CAPCOM
                     Thank you, Jack.
     SC
                     Pyro on.
     SC
                     Pyro A on.
     SC
                     Pyro B on.
     SC
                     01 on and 02 on.
                     That's kind of a lot of fun to hear that.
     ·SC
     SC
                     We've pressurized our command module
      SC
      We seemed to have a chattering regulator for a while.
SCS.
                     Roger
      CAPCOM
                      And she's up to pressure.
      SC
                      Houston Apollo 7.
      SC
                      Go ahead 7.
                      Did you ever have a Model A on a cold
      CAPCOM
      SC
      That's what it sounded like.
 day?
                      Roger.
                      We could hear it go through the lines.
      CAPCOM
      SC
 We are happy with the CM RCS.
                      Houston, this is Apollo 7. Do you monitor
 our helium pressures on rings 01 and 02?
                      Affirm.
                      Roger, we're reading 35 Check list calls
      CAPCOM
     · SC ·
 for 4 to 4.
                      Calls for 4,000?
      SC
                      It looks like it may be warming up.
                      Do you concur with the 4,000 check list,
      SC
      SC
 Houston?
                      Affirm, we're watching it here. We'll
       CAPCOM
 let you know.
                      Roger, Okay.
       SC
                      We don't have a pump on the end so we
       SC
 use what we've got.
                       Apollo 7 Houston.
       CAPCOM
                       Go ahead, Jack.
       SC
                       Stand by, Wally. Apollo 7 Houston.
       CAPCOM
       CAPCOM
                       Go ahead.
       SC
                       Donn, our telemetry here shows that the
       CAPCOM
  RCS dap has not been initiated.
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APOLLO 7 COMMENTARY, 10/22/68, GET: 25906 (CDT 5:11A) 754/2
                       Okay, we'll do it again.
     SC
                       Okay.
     CAPCOM
                       Okay, we'll check your telemetry up.
     SC
      CAPCOM
                       Roger.
                       What does that look like?
     SC
                       Stand by.
      CAPCOM
                       Okay 7, we show it running now.
     CAPCOM
                       Very good, the call was worth it.
     SC
                       Roger.
      CAPCON
                       We did initiate that before.
                                                          We were
     SC
quite surprised,
                       Roger,
      CAPCOM
                       Apollo 7, the DSC is yours and it's clean.
     CAPCOM
SC Roger, thank you. Will you people initiate it's motion prior to the deorbit burn?
CAPCOM Okay, Walt, you'll need to hit high bit rate and up telemetry to command reset at that time.
```

Roger, that's fine.

Carnarvon, you want to turn up S-band for Honeysuckle?

Okay.

Okay, we'll do it then, and we'll do it.

Apollo 7, we're about 2 minutes LOS

END OF TAPE

CAPCOM

CAPCOM

30 seconds prior to burn.

This is Apollo Control Houston; we are PAO about to lose signal by the Honeysuckle Station in Australia for the last trip in this 163rd rev. We'll make Hawaii at 259 hours, 33 minutes, about 14 minutes from now. The weather out there in the recovery area this morning is quite good; the seas are described by news almost a dead calm. Wave heights on the order of 1 foot. They have had some showers in the area, but they are somewhat overcast, 15 hundred feet and broken. Gentle winds - the recovery point about 950 miles east of Cape Kennedy. We have just talked to the flight deck of the Essex; they are all set. We are sure the airplanes and the helicopters have been deployed and they are ready for their recovery role. In addition to the Essex, there is the destroyer The Storms, which is running with the Essex at 1500 yards to the East to rescue aircraft, Rescue 1, Rescue 2, operating out of Kinley Airforce Base in Bermuda. There is an AIRA aircraft, radar aircraft, capable of cummunicating and receiving signals from space; that aircraft is out of Patrick Air Force Base in Florida and the recovery helos, you'll hear reference to them, they are recovery 1 and recovery 2, both of which are backups, recovery choppers; recovery 3 will be the prime recovery chopper this morning. All 3 are Sikorsky helicopters; that will carry 5 - a crew of 2 or 3; and about 3 swimmers. In addition, the helicopters designated 1, a Sikorsky 3D helicopter, and finially and the most important helicopter, that one designated Air Boss. And it's entirely possible Air Boss will provide us with a running on scene copy, overview or commentary of the action. If that's a good signal, we will patch it right out to you, because obviously they have the best vantage point. At 259 hours, 22 minutes, this is Apollo Control Houston.

```
This is Apollo Control Houston 259
                   In just any moment, we should acquire
     PAO
hours 33 minutes.
the spacecraft via Hawaii and then there will be a handover
to the ship Huntsville as we start our course across the
States. You have heard, in the last few days, a lot of
discussion about the pressure on the eardrum. That pressure,
the pressure will change in the cabin and it should go from
5 pounds starting its climb to sea level pressure of about
       The change will occur at around 27,000 feet and by
the time we are down to 10,000, we should very nearly be
at 14 pounds. So if our communication with the spacecraft
is good back from the recovery area, we may be able to get
a report on how the ears fared while the crew is on main
        The first call has gone out to the spacecraft but
we have not heard their return call. We will stand by un-
til we get that.
                    Apollo 7, Houston through Hawaii.
                    Roger, just completed a gimbal (garble)
     CAPCOM
Three, verify rate command. (garble). Okay, looks good.
(garble) 1, 2, and 3.
                     We are in what is called a keyhole,
this communication will improve we are in the peripheral
area of Hawaii acquisition circle, which accounts for the
bad communication.
                     Thank you for the long hours of support,
      SC
                     Okay, it's been real fine, Walt.
 Jack.
 a final update on the weather in the recovery area, 2000
      CAPCOM
 broken, winds 270 at 20, wave height is 3 feet.
                     Roger.
                     9, 8, 7, 6, 5, 4, 3, 2, 1, mark. T-20
      SC
      CAPCOM
 minutes.
                     FDAI scale 55.
      SC
                     55.
      SC
                     Delta-V charts A and B normal.
      SC
                     A normal, B normal.
      SC
                     Hand controllers armed.
      SC
                      Armed. Number 1 armed.
      SC
                      Okay, standing by for up telemetry
 command reset. I'll get that at 45 seconds.
      SC
                      60 seconds.
       SC
                      Mark 1 minute from the deorbit burn,
 within 2 minutes after that deorbit burn, the spacecraft
  and the service module should separate. The spacecraft
 will be in a pitchdown 48 degree attitude at the time of
  the deorbit burn, about a 300 foot per second burn, some
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30 seconds, DMS delta-V in auto.

10 seconds duration.

SC

```
APOLLO 7 COMMENTARY, 10/22/68, GET: 25933 (CDT 5:39a) 756/2
     SC
                     Delta-V in auto.
     SC
                     Flight quad recorder on.
     SC
                     Flight recorder is on.
     SC
                     PIPA's are counting.
     SC
                     14 ullage in 15 seconds.
     SC
                     Roger.
     SC
                     15 seconds.
     SC
                     Ullage, and delta-V is counting.
10, 9, 8, 7, 6,
     PAO
                      5, 4, 3, 2, 1, retrofire. Schirra says
we are burning right on the mark And we show that indica-
tion here on the ground with 4 good ball values, cutoff and to emphasize the point, Wally added "Very good." Good
retroburn. We are reading 259 hours 39 minutes, and already
we are 35 seconds counting up from the retrofire point,
35 seconds from it. We will take -
                     - residuals to 110.
     SC
     SC
                     Roger.
     SC
                     Delta-V thrust A and B off. Spacecraft
control to SCS.
     SC
                     SCS.
                     Gimbal loaders are off, circuit breakers
near auto control, 4 open.
     SC
                     4 open.
     SC
                     AC servo power, 1 and 2 off.
     SC
                     1 and 2 off.
     SC
                     Rotation hand controller number 1 lock.
     SC
                     Controller locked.
     SC
                     EMS mode, stand by. I've logged the
residual.
     SC
                     Okay, 199.
                     That is Walt Cunningham you hear cal1-
ing out those checklist items, and primarily Wally Schirra
answering, Donn Eisele answering a few of them.
     SC
                     Call program 61.
     SC
                     We've got the loop 39, 29.
     SC
                     Primary glycol to radiator pole, Wally.
     SC
                     My big handle, okay. She's cold, Dave.
     CAPCOM
                     Okay.
     PAO
                     That retroburn took place at an alti-
tude of about 180 miles, 180 miles, and at a point on
earth of about 500 miles east of Hawaii.
     SC
                     Okay, adjust my (garble) off.
                     We are standing by for some word on
separation.
             Still do not have confirmation on that event.
```

APOLLO 7 COMMENTARY, 10/22/68, GET: 25943 (CDT: 5:49a) 757/1

pao The spacecraft is still about a thousand miles west of the Baja California coast approximately over New Orleans; we'll be at 400 000 feet of 80 miles up, and at that point it will begin the warmer part of its journey. About 3 minutes after New Orleans, it will be over the Florida Coast and will be at an altitude of about 35 miles, and it will be quite warm. We will lose it during this 3 minutes, that will be our black out period.

CAPCOM Roll, pitch and yaw to T and A.

SC (garble)

SC Reading you by 5 Jack; you are reading

hunkey dorey.

CAPCOM Okay, we lost you there for about 2 minutes. SC Stand by for a post burn update.

CAPCOM Okay.

SC We had a main bus A and main bus B under voltage at set and we got all 3 batteries on but all we can do are really 25.2 volts.

CAPCOM Copy that.

PAO And that confirms separation of that last communication from Cunningham. We don't know the time on it, but it is confirmed the service module and the command module have separated.

SC 25954.

PAO And as we go over the West Coast of the lower California Pennisula we are at about 120 miles altitude, and descending rapidly down what's come to be known as vacuum hill.

SC Go ahead.

CAPCOM 7, we'll have the voice burn pad for you in about 2 minutes.

SC Everything working beautifully Jack.
CAPCOM Roger; looking good. Coming right down the line.

SC There's a slap in the face of the ship rate.

CAPCOM Roger.

PAO And we are 9 - 10 minutes from deorbit burn, we are at a hundred miles altitude; we are now over the Mexican mainland, and proceeding east. The line of flight will bring us across southern Texas, right over Houston, on east to New Orleans, and along the Florida coast. Flight director advises the deorbit maneuver was normal in all respects. This is Apollo Control standing by.

PAO The spacecraft has reported heads down; the pilots are heads down, and they have just started a roll attitude, a roll left maneuver, controlled by the computer, and they will roll up to about 55 degrees and hold that, for whatever a period of time the computer believes is necessary and then they will execute the opposite maneuver

ς,

APOLLO 7 COMMENTARY, 10/22/68, GET: 25943 (CDT: 5:49a) 757/2

It's called about a half lift reentry. Max G on the order of 3. This is Apollo Control, Houston. Standing by.

CAPCOM Apollo 7, Houston.

SC Ready to copy.

CAPCOM Roger. Go with the preburn pad; you are

that close.

SC Thank you.

CAPCOM How about that.

CAPCOM You are looking real good Wally; coming right down the line.

SC This is riding (garble) We are on main entries. Really nice control system.

CAPCOM Roger; copy that.

SC Garble

PAO Apollo Control here. We have a very happy crew and the navigation of this maneuver is proving exactly as preplanned. We are at 60 miles altitude, and very close to Houston, almost right overhead, proceeding towards New Orleans. It's 14 minutes - we should be directly over New Orleans at the 400 000 foot mark, proceeding on east; blackout begins 3 minutes - less than 3 minutes from now. And it will last just under 3 minutes. The 05G point should be acquired at about a minute and half from now.

pao The O5 G point should be upon us about a minute and a half from now, 60 miles altitude. I think earlier I had given an indication the blackout would occur between the New Orleans and Florida area, let's move that out between the Florida coast and about half way out, two thirds of the way out to Bermuda, about 700 miles. That will be the sector where we will not have communication. Hopefully we will then as we get on main chute.

SC flying a pink cloud.

SC Cut

PAO Earlier Wally Schirra reported separation was a real slap on the face, and you probably heard him just a second ago saying "We're flying a pink cloud." We are almost to our begin blackout point, about 40 seconds away from it. Flight Director has just adjusted the blackout time to 17 minutes and 30 seconds after the deorbit burn, now there is some question over the seconds. I think we will now stick to 17 02 after the deorbit, which would be right now, and now we do have confirmation they are in the blackout area. The spacecraft is right over the Florida Peninsula.

PAO This is Apollo Control. This is the quiet time here, even the Flight Director, all the voices are subdued. 18 minutes and 17 seconds since deorbit, and about a minute and a half from now we should be out - out of blackout.

PAO This is Apollo Control here now. The crew should beginning - should start beginning to feel the G buildup, and it will peak out, it's a very comfortable 3G's but still that will be the peak load approximately the time that we leave the blackout zone. According to our clocks that's 10 or 15 seconds from now.

This is Apollo Control. Jack Swigert, the CAPCOM, has put out a call, no answer. 20 minutes 25 seconds since deorbit, and there goes the second call. Bermuda reported has acquisiton of signal. Bermuda acquisition 259 hours 59 minutes and 55 seconds, most all 59s. And we think we can detect the crackle of the Comm carrier in the ear phones, we have data from Bermuda, we've not voice yet, but we do have data, we have positive acquisiton of the spacecraft. We are told the steering errors look real good from the telemetry. The flights dynamics officer and the retro fire officer are confident that we will be very close to target. Retro just said we're looking right at the target point. 22 minutes since deorbit. Flight reports - flight dynamics officers says that during the manuevers they observed 50 degrees roll in either direction left and right banks, and they estimate drogue chute coming out in about 2 minutes.

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PAO

According to the computer solution here he was - the spacecraft was within 3 miles of target when we lost lock - lost data lock - with the spacecraft only seconds ago from Bermuda. Still no voice contact with the spacecraft. This is not unusual. They probably configured for their recovery voice circuit which we can also monitor. Flight Director reminds us the drogue chutes should come out in about 1 minute, 50, 000 foot point and down to 20 for the main chutes. Mark 24 minutes since deorbit. Still no voice and it is very quiet on the recovery circuit. You can see those choppers though by television. It's absolutely quiet here in the Control Center as everybody simply watches and waits to hear that transmission.

PAO We should have main chute deploy. chutes due out at 25 minutes. Recovery reports via Kinley Rescue two in aircraft we have an electronic contact. An electronic contact from one of our C-136's operating out of Kinley Air Porce Base. And now from the deck of the carrier we get the word from our recovery force that they are monitoring voice from the spacecraft, they're on chutes and all is well. From the Essex, we get a report that the spacecraft is reporting their windows are slightly steamed up, apparently net yet on the water. And now from the Essex, they advise the crew's report being "The wheels are down and locked". Would be a navy - typical Schirra navy approach to landing "the wheels are down and locked" they apparently are preparing to hit that water. Apollo 7 now is in contact with Air Boss, the recovery helicopter over the scene. The carrier says they haven't had a report for a minute or so now but apparently they got very steady reports 2 000 feet altitude. 2 000 feet, And now from the Essex we're told the crew has been reading our calls from here loud and clear. We have not heard from them, however, the Essex has. And Apollo 7 now reporting an altitude of 600 feet, six zero zero feet. Altitude 300 feet, this is the crew reporting to us back via the Essex. The carrier was just queried to see if they have any visual sightings yet and they reported they had not which is confirmed by our television view. And we should be on the water or very very close to SPLASH. We still have received no direct voice contact from here. As we said before, the Essex has been in touch and we would assume they are on the water.

And this is Apollo Control Houston, we have not established an electronic contact by our recovery helicopters as yet, the Sarah beacon is a little search beacon that the spacecraft puts out. They had glod voice com between the various recovery units right up to SPLASH and since then we just don't know but the ceiling and the cloud conditions could have some effect on their operation out there today. Certainly the visual sighting.

There is some question as to whether the spacecraft had turned on its rescue beacon, its recovery beacon. The last voice contact was at 300 feet. We got no visual sightings, several electronic sightings coming in. We're just standing by and waiting like everyone else. We have a report from the Essex that Recovery Two and Recovery Three, the helicopters, are reporting intermittant signals, they are trying to plot a bearing right now, they think they have something in sight, they think they're reading something on their scopes. Stand by. Ah, Rescue Two is proceeding on a bearing which they think is the spacecraft. As yet we have

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pao no range estimate. Now from the Essex, we get the report that Recovery Three has lost contact momentarily with their target. Our target point indicator shows 64 degrees by 27, very nearly 27, as the likely SPLASH area. And now, Recovery helicopter three has a new contact and they are proceeding to run it down. And now Air Boss and Recovery Three are tracking bearings, proceeding on the target. We as yet have had no estimate on the range and apparently no voice contact on the water.

Now Recovery Two is proceeding on a bearing of two one zero and our voice circuit out to the Essex is getting a little noisy in the last few minutes, which is making it difficult to hear.

PAO From the deck of the Essex they advise very cautiously that they are looking now at a very tentative splash point. This tentative bearing turns out to be a point about 18 miles from the Essex, about 18 miles, and the Essex emphasizes that this is a tentative bearing. The voice our voice line to the Essex is now restored. We can tit is an intelligible transmission. We lost it there for a few minutes. This is Apollo Control in Houston, when we get more information we will be right back to you.

PAO And this is Apollo Control Houston. Now Recovery 1 has established electronic communication with

Apollo 7.

PAO Now we have a report from the Essex that the spacecraft was in what's called stable 1 in NASA talk. That means they were heads down. They were submerged there with their bottom side up towards the air, which probably precluded a lot of transmission, however, they have - apparently inflated their right bags, or their floatation bags. They are now apex up floating and they are establishing electronic contact. Recover 1 has positive contact and now we got the picture. Everybody gets faked out by "recorded picture". Again now the Essex reports that the spacecraft is floating upright and at last reports the spacecraft is about 18 miles north of the aiming track.

Now from the Essex we get a report that recovery Hilo 1 has been in communication with the spacecraft all is well. Our voice circuit out there is getting a little erratic again. Now we are getting a report 17 miles from the That's 17 miles and apparently north of the aiming point from the Essex. Now Recovery 2 has a Sarah beacon and this would account for the fact that we got no electronic contact during those early minutes on the water. The spacecraft had submerged. This was something that had been anticipated. It was practiced with the crew practiced in a number of engineering tests in the development of the spacecraft. The fact that the spacecraft could submerge apex down, in which case we would have to right it in order to get electronic contact. We may hear a little later here as we move through this recovery operation from somebody who will be called simply Airboss. that's Commander William C. Haskell, of Norwich, New York. He will be in command of the Airboss helicopter.

And Apollo Control here and Recovery 3 - Recovery 2 correct that, has a visual sighting now on the spacecraft about 17 miles north of the Essex. Recovery 2

Now Recovery 3 is reporting they are on top of the Command Module. The chopper under the command of Commander Edward A. Scobee, Edward A. Scobee, of Pueblo, Colorado, is reporting that he is right on top of the Command Module.

This is Apollo Control Houston now we are in touch. We are hearing the spacecraft. We hear Wally Schirra talking with the Recovery Helo. Just to give you an idea of how noisy this voice circuit is let's bring it up so we can all hear it. We may have deafened a lot of people, but that's what we're listening to this morning.

Now our Recovery - one of our Recovery Helos is all set to deploy swimmers. Swimmers, swimmers are in the water and we'll assume that they are from Recovery

Helo 3, which is the prime Recovery Helo.

Now this is Apollo Control Houston. swimmers are installing the flotation collar at this time. Now the flotation collar is fully inflated and around the spacecraft.

And Apollo Control Houston here. We've just gotten a report from Airboss. That report was, "there is no visible damage, no visible damage from the trip in space to the Command Module", it is riding nicely now on its flotation collar. Now we have a report ...

Now we have a report that one of the crew PAO members may be a little nauseated, a little nauseated. could not make out which crew member that was. Control Houston here. The Essex reports they are reading the helicopter and the spacecraft quite clearly now. There is some joshing going on now about Schirra getting his first submarine service, a reference to the inverted spacecraft. I don't think in his long naval career he has had any submarine service, but 16 miles I think we copied. 16 miles and the collar is fully inflated. This is Apollo Control now. Now the Essex is giving us new position, they are 5 miles from the spacecraft, 5 miles and proceeding directly on it. Now we have a report from the Essex. They report the flight crews have tagged up, their physical status is good, they say they are all in good shape. This is Apollo Control Houston here. We are, at last report, 4 miles from the spacecraft. The crew will go aboard the Essex via helicopters. They will be picked up by probably Rescue 3, whose swimmers are now in the water. This is Apollo Control Houston. Our circuit out to the Essex is quite garbled at this point, but we believe he said they are dropping a ladder, one of the recovery helos dropping a ladder to the crew. we'll see if we can't get confirmation on that here. Apollo Control Houston, here. They are reporting from the Essex a light rain shower in the area, and they also got a question the Bssex wants to know if we're seeing the television picture back here in Mission Control, and of course we are. We've advised that we'd like to see a spacecraft on that television screen, just like everybody else. They are estimating now 5,000 yards, 5,000 yards on a cloudy day. Apollo 7 has just advised the Essex they are going off the air. They are turning off their radios and securing, and we've been advised the crew is getting ready to open the hatch of their spacecraft. The next step would of course be to enter the helicopter, and the astronauts have already expressed congratulations to the recovery forces before they turned off their on-the-water This is Apollo Control Houston, the hatch is open. and the pilots are moving in to a helicopter. The first astronaut is now getting into a helicopter. This is Apollo Control Houston, and now we are advised the swimmers are arrayed around outside the spacecraft on the collar, but they are just waiting for apparently additional astronauts to emerge. They are also looking in the area for the Apex cover from the spacecraft. The crew reported a little slow getting out of the command module. Now we are getting a report down range that one of the pilots is stepping into the life raft, but we don't know which one yet. Now we're getting the report the second astronaut is getting out of the spacecraft. This is frequently a problem out there because

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know the the pilots by a visual sighting, so they can only report first astronaut, second astronaut. An astronaut is on his way up into the helicopter, is being hoisted by a net. Now we have a pilot about to enter the door to the helicopter and the last, a third and last astronaut, probably Wally Schirra, is leaving the command module now. And now we have a report that a second astronaut is in the helicopter, second astronaut is in the helicopter. Now Wally Schirra is reported out of the command module. It's not clear to us whether he's in the raft or on the ladder. The second astronaut is reported fully aboard the recovery helicopter. That would leave only Wally, who at last report was on the raft and waving vigorously.

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PAO Now we are getting a report that all three astronauts are aboard the helicopter and if that is the case, they should be proceeding directly to the Essex.

PAO This is Apollo Control Houston. We have a report from the scene that the hatch is now being closed by the swimmers. The spacecraft has been secured, all three pilets are in the helicopter. From the AIRBOSS hovering over the scene just advised that the helicopter is about 3 miles from the carrier and is proceeding now towards the Essex, recovery 3, with the three astronauts proceeding now toward the Essex at 2-1/2 miles out.

PAO This is Apollo Control Houston. We now have a report from the helicopter that it should be on deck in about 3 minutes, estimating 3 minutes to the deck of the carrier. They are deviating to avoid some shower activity out in the area. Looks like we have got it in sight now. We clocked the pickup at something on the order of 50 minutes after splash - the pilots were in the helicopter.

Captain Walter Schirra, Commander Donn **PRESIDENT** Eisele, and Major Walter Cunningham, this is the President. We here in the Capitol, and all over this country and world are so very proud of you this morning. The skies there have been opened upon you showing the hopes of the world lifted to you, and in this universal gladness there is the making of a human partnership. Where space technology and science will serve as instruments of man's peace in the world. And that's really enough for the United States, to excel in space. And today despite our trials we have only our fingertips on the latch to unlock a world of miracles both practical and profound. So the blessings we already hold in our hands, we know that neither complacency nor conceit can stay our hands from reaching higher. So, your fellow countrymen are happy to welcome all of you home with that encouragement. We salute the three of you, as well as the thousands of your space team led by Mr. Webb and others, have great admiration and affection and when you have finished your debriefings, Mrs. Johnson and I hope to receive you where we can talk about your experiences without having to go through a Houston switchboard. Thank you very much.

SCHIRRA Thank you very much, Mr. President and over to Donn Eisele.

EISELE Thank you very much, Mr. President. CUNNINGHAM Thank you very much, Mr. President it was our pleasure and honor to make the trip.