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For Network Personnel Only

TECHNICAL INFORMATION BULLETIN

THE MANNED SPACE FLIGHT NETWORK

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First Man On Moon - July 21 At 2:17 AM

The flight plan for the AS-506 (Apollo 11) lunar landing mission, scheduled for launch on July 16, calls for touchdown on the Moon at 4:23 p.m. EDT July 20.

Nine hours and 54 minutes later--at 2:17 a.m. July 21--Apollo 11 Commander Neil A. Armstrong, 38, is to step onto the Moon's surface.

Two revolutions of the Moon have been added to the flight plan for the Apollo 11 mission to improve communications during critical maneuvers and to allow more time for decontamination of equipment exposed to the lunar environment.

Adding a revolution just before the Lunar Module (LM) undocks from the Command/Service Module (CSM) will bring the LM within view of the 210-foot Pioneer tracking antenna at Goldstone, during its descent to the lunar surface.

A second added revolution after redocking and before the LM is cast off will give astronauts Neil A. Armstrong and Edwin E. Aldrin an additional two hours to brush and vacuum Moon dust from the lunar sample boxes and other items before transferring them to the CSM for return to Earth.

This revision of the flight plan increases the planned revolutions of Moon to 30 for a total time in lunar orbit of 59 hours 30 minutes. It is expected that the added four hours will be made up by a faster return journey.

Subject to change before launch, the time line for Apollo 11 has been announced by NASA. While the CM Pilot, USAF Lt. Col. Michael Collins, 38, orbits the Moon, Armstrong and Aldrin, LM Pilot, will gather a large amount of

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Index To NOD To Be Published

The alphabetical index to the NOD is presently being prepared and will be distributed to MSFN stations early in July.

As designed the alphabetical index will provide the means for locating the references that are made throughout the NOD to a specific subject and is designed to provide the user with a rapid means of researching any major topic related to MSFN operations.

In organizing the index, only those subjects most commonly sought by MSFN personnel were included. Subjects will appear in the form most familiar to network personnel. Any one subject may be listed in the index in several forms; thus, references to the ARIA ComTech at Cape Kennedy may be found by looking under "ARIA/ComTech"; "ARIA/Ground Support/DOD ComTech"; or under "Cape ComTech, ARIA".

When a major system is listed, it is followed by a list of applicable subtopics.

The alphabetical index also contains listings of general categories of information such as "Teletype formats", "Contingency procedures", "Forms", and "Scheduling" which are further broken down into specific topics.

Grand Canary In MSFN From The Beginning

For almost a decade, the MSFN Grand Canary Island station has been a part of America's manned space exploration program.

The station was built to support Project Mercury missions. In September 1959, a survey team selected a site just west of the Maspalomas lighthouse on the southern coast of the island.

Construction began in March 1960, and in January of 1961, the station was fully equipped to support Mercury missions.

For Project Gemini the existing facility was modified. Rebuilding began in early 1964, and by August 1964, the station had been checked out for Project Gemini.

A new unified S-band facility - approximately two miles from the Project Gemini station - was built for Project Apollo. Construction began in August 1966. During the relocation period, the instrumented ship Rose Knot served as a temporary replacement for the tracking station at Grand Canary.

CYI is one of seven Apollo stations that makeup the Solar Particle Alert Network (SPAN). Two other stations, in addition to Grand Canary, Carnarvon, Australia and Houston, Texas, are equipped with both a solar radio telescope and a solar optical telescope for detection of high radiation solar proton flares emitted during periods of lunar exploration.

The MSFN station on Grand Canary Island has supported manned space flight during Projects Mercury, Gemini, and Apollo. The Apollo station, pictured here, is about two miles from the station that supported Projects Mercury and Gemini.

Grand Canary Island is located off the northwest coast of Africa in the Atlantic Ocean at approximately the same latitude as Cape Kennedy. Volcanic in origin the island is semi-arid to arid. The island is roughly circular with a diameter of 28-30 miles and a perimeter of 120 miles. A mountain peak rises to a height of 6,000 feet in the central part of the island.

The seven Canary Islands is a Spanish archipelago 65 miles from the African coast.

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samples of lunar surface materials for return to Earth.

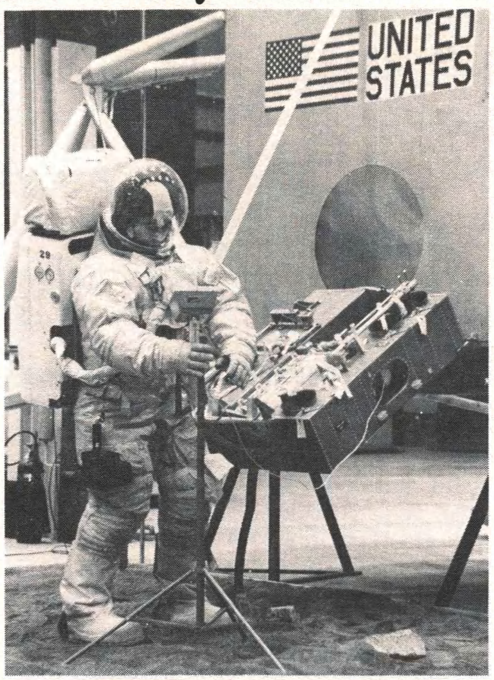
They are also scheduled to make photographs and leave an experiments package on the Moon which will include a laser reflector and instruments for measuring seismic activity.

Armstrong and Aldrin are to leave the Moon at 1:50 p.m. EDT July 21, rejoin the CM and complete the eight-day mission with splashdown in the Pacific Ocean at 12:49 p.m. July 24, for a total ground elapsed time of 195 hours, 20 minutes and 42.2 seconds.

All of the Apollo 11 crew members are veterans of the two-man Gemini space flight series flown during 1965-66. Backup crew members are USN Capt. James A. Lovell, USAF Lt. Col. William A. Anders and Civilian Fred W. Haise. Lovell and Anders, both Gemini veterans, were Command Module and Lunar Module Pilot, respectively, on the Moon-circuling Apollo 8 mission last December. Haise has not flown in space.

Probable touchdown point for the Apollo 11 LM is Landing Site 2, located in the southwest corner of the Moon's Sea of Tranquillity, which was photographed by the Apollo 10 crew from an altitude of about 50,000 feet.

Apollo 11's sequence of events follows closely the flight plan of Apollo 10 during which the astronauts tested all components which will be used in the lunar landing.



Astronaut Harrison H. Schmitt, wearing an extravehicular mobility unit (EMO) simulates the deployment of the lunar surface television camera.

Grand Canary

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The NASA station director at CYI is Charles A. Rouiller, the M&O supervisor is David Wilkins; George Cantrell is assistant M&O. Other supervisory positions are held by M. Harris, administrative assistant; J. Waldo logistics; C. Manville, training; R. Lutz, communications; R. Lee, data systems; J. McCarthy, USB; and J. Best, facilities.

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Doc Status

MSFN operations documentation distributed recently includes:

Change 4 to Revision 2 of the NOD--distributed June 19.

Annex C to the NOD (ALSEP operation)--distributed June 23.

Station Readiness Test (Land stations)--distributed June 4.

Station Readiness Test (Class 19 ships)--distributed June 5.

Univers of Command and Telemetry System manual--distributed June 11.

Moon View tabulations for AS-506 mission--distributed June 12.

Maintenance and operations memorandums No. 1--distributed June 20.

Pioneer E NOP--distributed June 10.

Documentation scheduled for distribution includes:

Alphabetical index to the NOD

Postmission Report for AS-504 mission

Network Loss

The Manned Space Flight Network and the space program suffered a deep loss with the deaths of two veterans recently.

John Cook, site director of the Network Test and Training Facility, died on June 15, 1969, and Alva E. Smith, head, Operations Support Branch died June 18, 1969. Their offices are under Manned Flight Operations Division, GSFC.

Network Training Schedule

The NTTF resident training schedule for July through December 1969 is as follows: (Request for student enrollment may be made by course number or name.

Course	Course Dates
110 MSFTP-2	28 Jul - 26 Aug
200 642B Computer	29 Sep - 28 Oct
	28 Jul - 03 Sep
	29 Sep - 05 Nov
210 1218 Computer	28 Jul - 22 Aug
	03 Nov - 02 Dec
230 RSDP Peripheral	13 Jun - 18 Jul
	04 Sep - 07 Oct
	06 Nov - 11 Dec
320 USB Land Antenna	11 Aug - 29 Aug
	27 Oct - 14 Nov
330 Receiver/Exciter	16 Jun - 18 Jul
	02 Sep - 03 Oct
	17 Nov - 19 Dec
340 Power Amplifier	21 Jul - 08 Aug
	06 Oct - 24 Oct
350 Digital Ranging	25 Aug - 12 Sep
	03 Dec - 23 Dec
360 TDP/APP	28 Jul - 22 Aug
	03 Nov - 02 Dec
510 MSFN Recorders	07 Jul - 08 Aug
	16 Sep - 17 Oct
	03 Nov - 05 Dec
520 Apollo Timing	09 Jun - 03 Jul
	15 Sep - 10 Oct
600 Apollo Program	23 Jun - 27 Jun
	04 Aug - 08 Aug
	25 Aug - 29 Aug
	29 Sep - 03 Oct
	10 Nov - 14 Nov
610 Digital Computer Fundamentals	30 Jun - 25 Jul
	02 Sep - 26 Sep
	06 Oct - 31 Oct
620 M&O Supervisor	30 Jun - 10 Jul
	02 Sep - 11 Sep
	03 Nov - 12 Nov
132 Network Data Flow	18 Aug - 21 Aug
	20 Oct - 23 Oct
640 MSFNOC	22 Aug - 27 Aug
	24 Oct - 29 Oct

The following courses are on a scheduled upon request (SOR) basis July thru December 1969.

Course	Duration
100 MSFTP-1	3 Weeks
120 RF Telemetry	3 Weeks
PAM/TLM	8 Days
205 Computer Programming	5 Weeks
300 Acquisition Aids	3 Weeks
310 USB Ship Antenna	2 Weeks
400 Teletype Operations	8 Days
420 112A Key Intercom	2 Weeks
430 Data Modems	3 Weeks
470 RF Command	2 Weeks
631 NASA Hand Soldering	1 Week