

TECHNICAL INFORMATION BULLETIN

MANNED SPACE  FLIGHT NETWORK

GODDARD SPACE FLIGHT CENTER, GREENBELT, MARYLAND

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NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

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...meet TIB from Goddard

The delivery of this first edition of the TECHNICAL INFORMATION BULLETIN (TIB) marks the beginning of a biweekly news bulletin that is being published for the benefit of the network by the Manned Space Flight Support Division of NASA's Goddard Space Flight Center.

The network has clearly demonstrated its ability to function as a tightly knit team, a team made up of personnel from NASA, the Department of Defense, Australia's Weapons Research Establishment, and a sizeable number of contractors and indigenous personnel. Banding together these dissimilar groups into a functional unit requires a maze of

official communication devices and channels. TIB affords an opportunity to encourage cohesiveness and to disseminate interesting and instructive information more directly and informally than can appropriately be done through other existing official media.

This paper is being published in response to many requests from personnel at Goddard and at the sites. All sites and organizations that make up the network will be contacted soon to solicit your help and cooperation in an effort to publish a paper that you will look forward to receiving.

MA-9 Site Assignments Released

Site assignments of CapComs, Systems Monitors, and Aeromedes for the MA-9 tentatively are as follows:

BDA—R. Brown, CapCom; J. Moser, Systems; W. Shea, Aeromed.

CYI—W. Platt, CapCom; R. Rembert, Systems; C. Kratochvil, Aeromed.

KNO—D. Pendley/G. Muse, CapCom; A. Barker, Systems; L. Blackburn, Aeromed.

ZZZ—J. Tomberlin, CapCom; M. Rosenbluth/H. Smith, Systems; D. Graveline, Aeromed.

JJC—C. Lewis, CapCom; H. Sfenfors, Systems; W. Bishop/F. Holmstrom, Aeromed.

CTN—G. Parks, CapCom; C. Amos/J. Caselli, Systems; G. Luchinna, Aeromed.

CSQ—J. Glenn, CapCom; C. Rumbaugh, Systems; E. Beckman, Aeromed.

RKV—D. Hunter, CapCom; J. Walsh, Systems; H. Bratt, Aeromed.

HAW—M. Carpenter/J. Roach, CapCom; J. Strickland/E. Davis, Systems; R. Moser, Aeromed.

CAL—T. White, CapCom; E. Dunbar, Systems; G. Kelly, Aeromed.

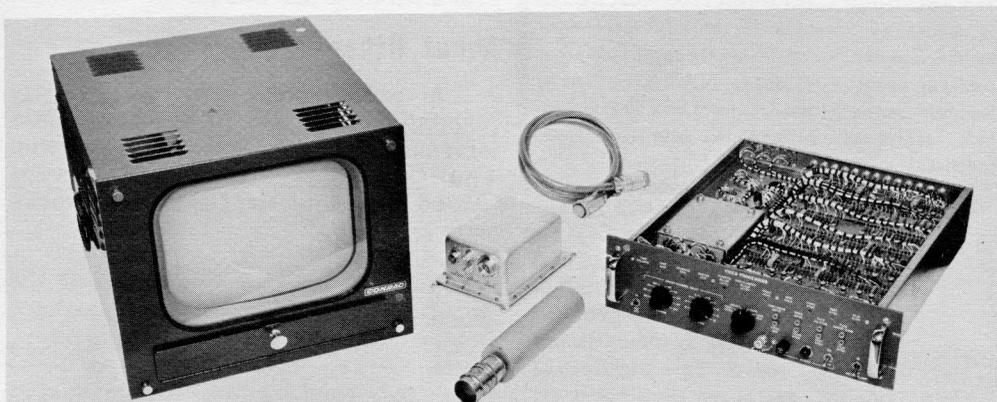
GYM—V. Grissom, CapCom; L. Wafford, Systems; G. Smith, Aeromed.

TEX—D. Bray, CapCom; L. White, Systems; V. Benson, Aeromed.

Telecasts From Space Due For MA-9

The scope of the next Mercury mission has now been expanded to include transmission of television signals from space. A moveable camera in the capsule will be able to observe the astronaut, capsule instruments, and objects outside the capsule window. The pictures that are taken once every two seconds by the TV camera will appear on the ground monitor like a series of still photographs taken in rapid succession. The video output of the camera will be used to modulate an FM transmitter in the capsule to a peak deviation of 125 KC. The high deviation requires the use of the wide-band telemetry receivers on the ground. The center frequency of the transmitter will be TM HI.

The "video direct" output of the receivers will be used to obtain the television signal. This video output, which is capable of passing the low frequencies required to obtain good television video, will be fed to a video processor. The video processor will condition the signal for monitoring and recording and will also act as a sync separator. Two tracks of the FR 114B recorder on site will be used for recording the video: one track will use the FM electronics and the other will use the direct-recording electronics. This method of recording will be required to obtain the high- and low-frequency components of the video signal. At the same time the signal is being recorded, it can be viewed on a slow-scan monitor. The monitor has a high-persistence phosphor, which is necessary because of the slow scan rate. The tape may also be played back and viewed on the monitor. The video processor will be installed at three sites: MCC, CSQ, and CYI. MCC and CSQ will have monitors. MCC will also have a film recording rack and a scan converter. The film recording rack will take one 35-mm photograph per frame of television. The scan converter will convert the slow-scan picture to commercial standard rates by using a memory tube. This converted picture will then be fed to monitors in the control room to be viewed by the flight controllers.

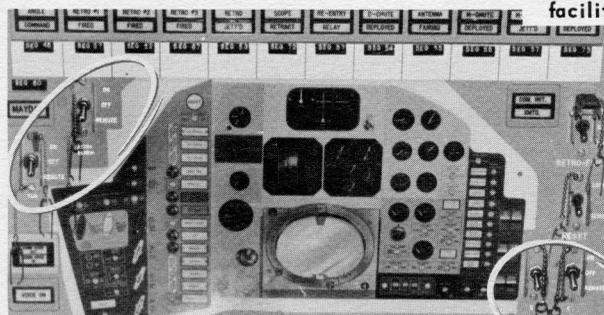


SLOW-SCAN TV EQUIPMENT—Spacecraft TV hand camera and associated components are shown in center. The 17-inch monitor (left) and the video processor (right) have been installed on the Coastal Sentry.

Power Conservation Vital for One-day Mission

The advent of twenty-four hour or longer manned spacecraft flight requires maximum conservation of onboard electrical supplies. To aid in power conservation, various spacecraft transmitters and related ground equipment are being modified so that spacecraft transmitters can be individually turned on by either the astronaut or by ground command. When this command modification is completed, the network command sites will be able to turn on the telemetry system and C-band and S-band beacons and transmit astro-alarm command signals. The telemetry R and Z calibration commands will automatically be transmitted for the first fifteen seconds of each TM ON command, after a thirty-second warmup, whenever the telemetry transmitter is turned on. All spacecraft transmitters will automatically shut down six minutes after they have been turned on, unless overridden by the astronaut. This system allows ground stations with command functions to track and observe spacecraft systems during the astro-sleep period without disturbing his rest. An additional command will enable the ground station to wake the astronaut at scheduled times or whenever the station chooses.

To accomplish this change, the three command tone channels previously associated with the R and Z calibrations have been separated and are used individually to control the telemetry transmitter and the C-band and S-band transponders. The ASTRO ALARM is initiated by using two channels associated with the TORF clock. Transmission of the astro alarm will sound the alarm and also condition the clock for a time change. Since the clock does not receive further instructions as to how much to change, it will remain in its precommand condition. This system of course will not allow sending an astro alarm and a clock change at the same time. Also, whenever a clock change is sent, the onboard astro alarm will be triggered. Procedures for sending commands to control the various functions described are being prepared and will be made available for use for the next mission.



Training Center Renovating for Gemini



Building N-161, home of the MSF Network Training program at Wallops Station in the Chincoteague-Assateague area of Virginia. . . land of the wild pony drives and excellent fishing. . . the "oyster capital" of the country.

NASA Station Directors Visit GSFC

The site directors from the NASA-managed sites were at GSFC during most of the week of February 25 to review (1) the Incentive Evaluation Plan, (2) the training program, (3) Gemini requirements, and (4) a variety of other subjects. Directors attending were O. Womick, GYM; D. D. Webb, BDA; C. A. Rouiller, CYI; A. E. Smith, KNO; T. K. Spencer, ZZB.

HF Voice Test Made

The NCG-132 HF Voice Frequency Monitoring Test was conducted March 4, 1963, between spacecraft No. 20 at CNV and stations BDA, CYI, GBI, GTK, GYM and TEX. All stations received a good readable signal except CYI where no signal was received. The first part of the test was conducted using the standard bicone antenna and the second using the dipole antenna. The results from the dipole were considerably clearer than the bicone. CYI detected a signal for the dipole portion of the test, but the signal was unreadable.

The recordings made of this test were mailed to the data section at CNV for evaluation.

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Candid photo of the modified Events Sequence Light Panel on the CapCom console of the Rose Knot. The ASTRO ALARM and the TLM toggle switches (upper left) and the S-BAND and C-BAND BEACON switches (lower right) were added. This modification is being made to the command sites. So far, the RKV and CSQ have been modified.

The MSFN Engineering and Training Center at Wallops Station, Wallops Island, Virginia, is now undergoing major rebuilding, primarily to meet engineering and training requirements made necessary by equipment modifications and additions for Project Gemini. By adding a second floor to the existing offices and making other renovations to the existing building, additional environment-controlled classrooms and space for the new equipments will be provided to support the expanding curriculum. Rebuilding is expected to be completed by the end of June.

Being prepared as part of the new curriculum are (1) new courses in solid state techniques, digital logic, PCM telemetry, digital command and the new acquisition system; (2) a new Training Manual MT-200, to replace MTP- will be available for use in April; and (3) a complete on-site cross-training program.

About Instruction Manuals...

One of the first of the major tasks under the present GSFC program of bringing instruction manuals up to date is nearing completion. A completely rewritten and up-to-date edition of instruction manual ME-131 covering the MSFN antenna systems will be completed and shipped to the network stations during the week of March 11. As an indication of the new and additional information in the new edition J. C. Jackson of the Procedures and Evaluation Branch at GSFC reports that the manual now has about 350 pages compared to 150 in the old edition.

Results from two other major tasks in this program also will be seen in the near future. Completely new edition of manuals ME-129 and ME-134 covering the acquisition aids will be off the press within a few weeks.

About Other Documentation...

A preliminary copy of the Data Acquisition Plan and final pointing data information for the MA-9, and Revision 4 to Operations Directive 61-1 were mailed to each of the sites a few weeks ago.

You will soon receive copies of the Results of the Third U. S. Manned Orbital Space Flight, October 3, 1962, NASA SP-12. This is the third "blue book" published by MSC and printed at the Government Printing Office.