NEWS RELEASE LOG

NUMBER	TITLE	RELEASE DATE	REMARKS
64-1	Gemini Flashing Beacon	1-8-64	GENERAL
64-1A	RCA Contract for High Vacuum Chamber	1-3-64	LOCAL
64-2	Gemini Test Vehicle Arrival	1-6-64	LOCAL
64-3	Laser Tracking Study for Deep Space	1-7-64	GENERAL
64-4	Gemini Static Firing Tests	1-7-64	LOCAL
64-5	Dr. Berry's Speech to C Of C, Alice, Tex	1-8-64	SPECIAL
64-6	Mars Mission Study	1-10-64	GENERAL
64-7	Tech Services Division Move	1-9-64	LOCAL
64-8	Progress of MCC at Clear Lake	1-11-64	General
64-9	Bendix Cont. for Shock Absorbing Device	1-15-64	Local
64-9A 6410	Titan II Static-Firing Environmental Chamber Door Frame to Place	1-15-64 1-17-64	
64-11	Main Drive Motor in Flight Acceleration Facility	1-16-64	Special
64-12	Transistorized micro-circuit signal in Gemini measuring system (blood)	1-16-64	Local
64-13	Elms Resigns	1-17-64	General
64-14	George Low Named Deputy Director	1-19-64	Hqs
64-15	Am Machine and Foundry Co Contract for free fall platform	1-22-64	LOCAL
64-16	Educational - Mercury ECS Release		EDUCATIONAL PROGRAMS RELEASE
64-17	Contract amendment for const. & Modification of bldgs. at Downey, to S&TD, NAA	1-23-64	Local
64-18	Acceptance of 7 floors of Project Management Bldg. at Clear Lake	1-24-64	General
64-19	Training astronauts egress from Gemini Spacecraft	1-24-64	Local
64-20	Faith 7 spacecraft to Jackson, Miss.		EDUCATIONAL PROGRAMS RELEASE
64-21	Westinghouse Contract for study to produce unlimited angular motion	1-27-64	General
64-22	Razor and vacuum cleaner to be used in space, patented by Shav-Air International	1-31-64	General
64-23	Astros physical stress	1-31-64	GENERAL

NEWS RELEASE LOG

NUMBER	TITLE	RELEASE DATE	REMARKS
64-24-A	Faith 7 Tour	2-4-64	Educational Pro. Release
64-24	14 new astronauts reporting in for training	2-3-64	LOCAL
64-25	Airesearch Mfg. Co. Contr. for extra-vehicular Pressurization Ventilation System for Gemini	2-6-64	GENERAL
64-26	Faith 7 Tour		Educational Programs
64-27	Flying the LEM standing in harnesses	2-12-64	General
64-28	Astros receive statuettes from/ Boy Scouts	2-15-64	Local
64-29	(Mass move of personnel begins) Personnel to move to CLS Feb. 20	2-11-64	General
64-30	Apollo spacecraft levt NAA for Cape	2-17-64	Local
64-31	Faith 7 in Santa Fe, N. M.	2- -64	Educational Pro Release
64-32	Fuel Cell	2-17-64	General
64-33	Apollo boilerplate arrived Cape from NAA	2-19-64	Local
64-33	Faith 7 in Phoenix, Arizona.	2-64	Educational Programs
	MEMO TO EDITORS on do you or do you want our NR's	2-20-64	General
64-35	300 to move on Feb. 28 to Site	2-24-64	General
64-36	Hjornevik & Mathews to speak in		
	Fort Worth/ Gen. Dyn/Fort Worth	2-26-64	Special
64-37	Proposals for lunar survey experiments	2-26-64	Special
64-38	MSC accepts Life Systems Lab.	2-27-64	General
64-39	Apollo boilerplate CM arr'd WSMR	3-2- 64	Local
64-40	Appt. Dr. Berry ( )	3-2-64	General
64-41	Faith 7 in Sacramento		Educational Programs
64-42	Faith 7 in Carson City, Nev.		Educational Programs
64-43	Faith 7 in Honolulu, Hawaii.		
64-44	Faith 7 in Juneau, Alaska		

NEWS RELEASE LOG

NUMBER	TITLE	RELEASE DATE	REMARKS
64-45	Dr. RR Gilruth & 500 to move 3-6	3-9-64	General
64-46	8 contracts in excess of $25,000 awarded in Jan.	3-5-64	General
64-47	Mechanical mating of G=1 - GLV-1 on Launch Complex No. 19 at Cape	3-5-64	General Local
64-48	18 astros in Grand Canyon to learn geology	3-6-64	Local
64-49	Salt waterproof recovery interphone	3-6-64	General
64-50	Don Green to speak in Galveston	3-9-64	Special
64-51	225 personnel to move week of 3-9	3-10-64	General
64-52	Cost Reduction Program by Center	3-11-64	General
64-53	reclaimed urine, someday drinkable	3-64	General
64-54	Hard-vacuum will be sought in an ultra-high vacuum chamber to bebuilt	3-17-64	General
64-55	Lister to spak in Hearne	3-23	Special
64-56	LORL (Douglas)	3-13-64	Bob Button
64-58	Xenon flashing light	3-24-64	Local
64-59	Personnel at Clear Lake site reaches approximately 2,000	3-25-64	General
64-60	$100,000 maintenance contract to Link for Gemini		
64-60-A	Shortage of "Girls Friday" at MSC	3-25-64	Local
	Note to Editors: 16 astros to Alpine Texas for training in geology.	3-31-64	Called out

NEWS RELEASE LOG

NUMBER	TITLE	RELEASE DATE	REMARKS
64-61	Meteorite found in Fisher County, Tex.	3-30-64	General
64-62	Reorganization of MSC Ops. at Cape	3-30-64	General
64-63	Dr. Berry to address Teachers Assoc in St. Louis	3-31-64	Special
64-64	Faith 7 in Olympia, Washington		Educational Programs
	Statement: Postponement of GT-1		
	for no earlier than 4-8-64	4-2-64	Call out
64-65	Hard Suit (with pix)	4-8-64	General
64-67m	Space Environmental Sim.Lab. capped	4-7-64	General
64-68	LLRV completed by Bell Aerosystems	4-7-64	Local
64-69	GEMINI SPACECRAFT OCCUPANTS CHEW GUM	5-8-64	
64-70	FAITH 7 SPACECRAFT DISPLAY IN SALEM, OREGON		
64-71	FAITH 7 SPACECRAFT DISPLAY IN BOISE, IDAHO		
64-72	FAITH 7 SPACECRAFT DISPLAY IN HELENA, MONT+		
64-73	ROBERT J. WARD SPEAKS TO LIBERTY C OF C	4-9-64	
64-74	STRUCUURES AND MECHANICS LAB MOVES TO SITE	4-10-64	
	MEMO TO EDITORS PHONE CHANGES IN NEWS BUREAU BRANCH	4-11-64	
	RESPONSE TO QUERY FROM NASA HQS. NOT TO BE VLNTRD GT-1 RE-ENTRY	4-13-64	
64-75	MSC MOVED FIRST REAL-TIME COMPUTER TO MCC	4-11-64	
64-76	FOURTY-FOUR ENGINEERS AND TECHNICAL AUTHORS OUTLINES LATEST TECHNOLOGIES IN RACE FOR THE MOON -- FAIRCHILD PUBLICATIONS, INC+	4-14-64	

NEWS RELEASE LOG

NUMBER	TITLE	RELEASE DATE	REMARKS
64-77	JOE T. DOKE ADDRESSES LIVINGSTON CLUB	4-14-64	
64-78	MSC PARTICIPATES IN REGIONAL AND STATE		
	SCIENCE FAIRS	4-16-64	
64-79	FAITH 7. SPACECRAFT DISPLAY IN MAINE		
64-80	APPRENTICE TRAINING PROGRAM	4-20-64	
64-81	G AND C DIV. MOVES--AUDITORIUM BAPTISED	4-21-64	
64-82	TV PRESENTATION - MEDICAL SUPPORT OF MAN ..	4-20-64	
	MEMO TO EDITORS		
	PARASAIL TEST SCHEDULED	4-22-64	
64-83	DR. GILRUTH AND DR+ J. SHEA PRESENTS PAPERS AT 4TH NATIONAL CONFERENCE ON PEACEFUL USES		
	OF SPACE IN BOSTON--APRIL 29 TO MAY 2-64	4-22-64	
64-84	3 AEROSPACE PHYSICANS PRESENTS TV PROGRAM	4-24-64	
	RESPONSE TO PARASAIL QUERY		
	GEMINI-SIZED BOILERPLATE DROP TEST	4-29-64	
64-85	FULL-SCALE PARAGLIDER DEPLOYMENT TEST FLIGHT	4-30-64	
64-86	APOLLO BOILERPLATE SM AND A ARRIVES FOR TEST	5-1-64	
64-87	DR. SHEA ADDRESSES EDITORIAL CARTOONISTS	5-5-64	
64-88	DON GREEN ADDRESSES SAN LEON C OF C	5-5-64	
64-89	29 DISTINGUISHED FOREIGN VISITORS GUESTS MSC	5-6-64	
64-91	FAITH 7 SPACECRAFT DISPLAY IN DENVER. COLO		
64-92	FAITH 7 SPACECRAFT DISPLAY IN CHEYENNE, WY.		
64-93	GEMINI SPACECRAFT BOILERPLATE ROUGH WATER EGRESS TEST	5-9-64	
64-94	Cancelled		
64-95	Carpenter to participate in Navy's Project Sea Lab I	5-14-64	
64-96	Not issued		

NEWS RELEASE LOG

NUMBER	TITLE	RELEASE DATE	REMARKS
64-97	A. J. MAYER SPEAKS TO WICHITA, KANS. CLUBS	5-13-64	
	RESPONSE TO QUERY SA-6 LAUNCH POSTPONED --EQUIPMENT FAILED	5-26-64	
64-98	C. D. SWORD RESIGNS	5-14-64	
64-99	NASA MSCS OPEN HOUSE	5-25-64	
64-100	Faith 7 Spacecraft Display		
64-101	FAITH 7 SPACECRAFT DISPLAY IN BISMARK, N.D.		
64-102	FAITH 7 SPACECRAFT DISPLAY IN ST. PAUL, MINN		
64-103	FAITH 7 SPACECRAFT DISPLAY IN LINCOLN, NEB.		
64-104	CENTRIFUGE IS ABOUT 50 PER CENT FINISHED	5-27-64	
64-105	T-38 HIGH PERFORMANCE JETS ARRIVES AT ELLINGTON	5-28-64	
64-106	2ND FULL-SCALE PARAGLIDER TEST AT EDWARDS	5-28-64	
64-107	DR. COONS SPEAKS IN MONTREAL, CANADA	6-1-64	
64-108	CONTROL DATA CORPORATION OF MINNEAPOLIS GETS CONTRACT FOR 10 AEC GROUND STATIONS	6-8-64	
64-109	GEONAUTICS INC. GETS CONTRACT TO STUDY HOW LUNAR SPACECRAFT MIGHT BE FLOWN BY REFERENCE TO LANDMARKS ON THE MOON-- 2-65 COMPLETION	6-9-64	
64-110	BOILERPLATE L5 ARRIVES AT KSC 6-11-64	6-10-64	
64-111	C. W. MATHEWS RPORTED TODAY FIRST MANNED GEMINI SPACECRAFT IS ESSENTIALLY COMPLETE	6-11-64	
64-112	FIRST GEMINI RECOVERY OPERATIONS SCHOOL	6-22-64	
64-114	OVER 700 MSC EMPLOYEES MOVE 6-24-64	6-24-64	
64-115	ROBERT O. PILAND RECEIVES GOLDEN PLATE AWARD	6-24-64	
64-116	SECURITY CONTRACT TO M AND T OF PHILADELPHIA	6-23-64	
64-117	FAITH 7 SPACECRAFT DISPLAY AT TOPEKA, KANS.		

NEWS RELEASE LOG

NUMBER	TITLE	RELEASE DATE	REMARKS
64-118	Faith 7 Spacecraft in Des Moines		
64-119	Faith 7 Spacecraft in Madison, Wis.		
64-120	Faith 7 in Lansing, Michigan		
64-121	water-cooled undergarment tested	7-8-65	
64-122	LING-TEMCO-VOUGHT TO DELIVER SIMULATOR	7-1-64	
64-123	NASA REPORTS SATURN LAUNCH RESULTS	7-2-64	
64-124	DR. GILRUTH SPEAKS AT PLANETARIUM OPENING	7-8-64	
64-125	New Astronaut Assignments	7-9-64	
64-126	NASA's Gemini Launch Vehicle	7-10-64	
64-127	Gemini Launch Vehicle is erected	7-14-64	
64-128	Faith 7 display in Harrisburg, Pa.		
64-129	Faith 7 display in Albany, New York		
64-130	Faith 7 display in Montpelier, Ver.		
64-131	Desert Survival Training	7-21-64	
64-132	Project Apollo Space Travelers	7-22-64	
64-133	Appointment of Wesley E. Messing	7-23-64	
64-134	Appointment of Christopher C. Kraft	7-29-64	
64-135	Two Successful Test Flights	7-29-64	
64-136	A Study to Get More Mileage--Apollo	7-30-64	
64-137	An Impact Attenuation Experiment	8-3-64	
64-139	Two Test Vehicles Arrived at Cape	8-14-64	
64-140	Apollo Missions Simulations	8-20-64	
64-141	Faith 7 display in Concord, N.H.		

NEWS RELEASE LOG

NUMBER	TITLE	RELEASE DATE	REMARKS
64-142	Faith 7 display in Boston, Mass.		
64-143	Faith 7 display in Providence, R.I.		
64-144	Faith 7 display in Hartford, Conn.		
64-145	NASA Spacemobile in South Dakota		
64-146	Tracking Station Declared Operational	8-28-64	
64-147	Space Technology Starts Apprentice	8-27-64	
64-148	New Merritt Island complex	8-17-64	
64-149	Extension of Project Apollo Spacecraft contract	9-4-64	
64-150	New flight directors to serve during Gemini and Apollo spaceflight missions	9-4-64	
	Launch of the 7th Saturn	9-10-64	
64-151	Design and installation of data acquisition equipment	9-11-64	
64-152	Correction on Release No. 64-149	9-11-64	
64-153	Randolph Wester in a test	9-15-64	
	NASA to Negotiate with Brown & Root/Northrop for MSC contract	9-17-64	
	Scott Carpenter as Executive Assis.	9-17-64	
	Donn Eisele--a simple dislocation of left shoulder during training	9-16-64	
	Delivery of Gemini Spacecraft #2	9-17-64	
64-153	William A. Anders-grounded by doctor	9-21-64	
64-154	Sunday--open house at NASA	9-24-64	
64-[illegible]	[illegible]	[illegible]	
64-159	NASA has contract with the Space and Information Systems Division	9-25-64	

NEWS RELEASE LOG

NUMBER	TITLE	RELEASE DATE	REMARKS
64-160	Gemini Water Suitability Test	9-28-64	
64-161	Inspection of a full-scale mock-up of the Apollo command and service	10-1-64	
64-162	New manager of NASA White Sands operations	10-3-64	
64-163	Major test of tracking network	10-5-64	
64-164	A full scale metal mock-up of the Lunar Excursion Module	10-8-64	
64-165	Control and Guidance for the Little Joe II booster	10-8-64	
64-166	Systems test on Gemini-Titan 2 Launch Vehicle	10-7-64	
64-170	Over-water Test Firing	10-13-64	

NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER

Houston 1, Texas

WAlnut 8-2811
Extension 3751

MSC 64-1
January 7, 1964

HOUSTON, TEXAS -- A flashing beacon about the size of a volleyball is undergoing tests on a T-33 aircraft for evaluation of similar beacons for use in Gemini rendezvous operations.

The white sphere weighs ten pounds and has a flashing power of 12 candle-seconds.

Purpose of the tests, according to NASA Manned Spacecraft Center engineers, is to obtain more positive information on how readily astronauts can acquire the light. A similar test series was run prior to the Mercury flight of Astronaut Gordon Cooper. The flashing beacon experiment also was a part of Cooper's MA-9 flight.

T-33 aircraft tests so far have disclosed that the beacon can be seen as far as 18 miles distant under good visibility conditions.

The beacon is operated by a high voltage triggering circuit which allows a capacitor to discharge electric current through the xenon gas tubes. This produces the flash.

dg

NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER

Houston 1, Texas

WAlnut 8-2811
Extension 3751

MSC 64-[illegible]
January 3, 1964

HOUSTON, TEXAS -- Radio Corporation of America, Camden, New Jersey, has been selected by the NASA Manned Spacecraft Center to build and install an ultra high vacuum chamber and associated equipment. The fixed price type contract for the work is $245,000.

The system is being built for the Manned Spacecraft Center at Clear Lake. The chamber, which looks like an over-size tootsie roll, is 13 feet long and seven feet in diameter. It will be installed horizontally and stand on steel support columns more than 16 feet above the floor.

The system will be capable of producing vacuum conditions equivalent to approximately 400 miles in space. It is being built for MSC's Structures & Mechanics Division and will be installed temporarily at Ellington Air Force Base.

dg

NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER

Houston 1, Texas

WAlnut 8-2811
Extension 3751

MSC 64-2
January 6, 1964

HOUSTON, TEXAS -- A Gemini test vehicle built to familiarize and train astronauts in recovery procedures to be employed after water or land landings of the two-man spacecraft arrived recently at the NASA Manned Spacecraft Center.

The full scale vehicle comprises the re-entry portion of the spacecraft including the crew compartment. It is a replica of all that portion of the Gemini vehicle that will re-enter earth's atmosphere and return to earth.

The test vehicle has aboard all systems needed for recovery including communications; environmental control; radio beacons and flashing lights. The test vehicle is configured to resemble the operational model.

With the vehicle, astronauts will practice methods of entering the capsule and departing from it after landing. Water tests will take place in Galveston Bay. Recovery teams also will use the vehicle to develop techniques for post-landing recovery of the spacecraft as well as astronauts.

dg

WA8-2811
Extension 3575

MSC 64-2 A

HOUSTON, TEXAS - Faith 7, Mercury spacecraft flown by Astronaut L. Gordon Cooper in his earth circling 22 orbit flight last May will be on display January 16 through January 19 in Atlanta, Georgia.

The four day stop in Atlanta is the thirteenth of 50 state capitol visits that the National Aeronautics and Space Administration has scheduled for Cooper's spacecraft. Close to 2,000,000 persons have already seen the spacecraft since it began its cross country tour in Cooper's home state of Oklahoma.

The NASA Manned Spacecraft Center at Houston, Texas, has set Faith 7 on a stand which permits easy viewing of the inside of the spacecraft. A section of the base of the heat shield and portions of the outer skin have been cut away permitting the first public look at the inner structure of a Mercury spacecraft.

The spacecraft - inside and out - is exactly as it was when it splashed down into the Pacific near Midway Island on May 16, 1963. Nothing has been changed. The spacecraft shingles - its outer skin made of a new metal rene'41 - shows the effects of the 1,000 degree heat which blanketed the spacecraft during re-entry into earth's atmosphere.

Add 1
MSC 64-2

The heat shield - a mixture of glass fibers and resin- at the base of the spacecraft withstood maximum temperatures of 3,000 degrees farenheit when Cooper directed Faith 7 on its return to earth.

Also on display with the spacecraft are the cameras Cooper carried and the astronaut Survival Kit which rode on Faith 7's 546,185 mile earth-circling flight. Samples of the food Cooper ate during his day and a half in space will also be on display.

The 13 month tour, ending in the nation's capitol on November 1, 1964, will cover approximately 20,000 miles, a distance Faith 7 covered in space in approximately 80 minutes.

NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER — NASA — Houston 1, Texas

WAlnut 8-2811
Extension 3751

MSC 64-3
January 7, 1964

HOUSTON, TEXAS -- If a deep space mission is to be successful, the pilots that will explore the planets beyond the Moon must have continuous communications with the control center on Earth.

To achieve this is the ojb ect of a study called from industry by the NASA Manned Spacecraft Center. The request asks for proposals for a deep space laser acquisition and tracking study from time of launch to a mean range of 50,000,000 nautical miles.

Study specifications, due at MSC by January 22, call for high priority development of laser tracking techniques between Earth and a Manned Deep Space Vehicle (MDSV) or between a satellite and two MDSV's.

The system must be capable of handling two-way telemetry and voice communications, as well as spacecraft to ground television.

Four communications links are to be considered, MSC told industry. They are:

1. From an Earth station to MDSV via laser beam.

-more-

2. From Earth to satellite by radio frequency (RF) and relay to MDSV via laser beam.

3. From Earth to a lunar station via RF and relay to MDSV by laser.

4. Communications between two or more space vehicles for distances up to 300 nautical miles on deep space missions.

Other considerations should include power requirements, weight, size and reliability.

Application of laser--short for light amplification by stimulated emission of radiation--could if harnessed properly advance the state-of-the-art in almost every field of optics.

Using ultra-narrow beams, a laser devise could penetrate fantastic distances more accurately than microwave devices. MDSV transceivers that sense deviations of the spacecraft attitude relay correcting signals almost instantaneously over the million mile range.

In space where there is no atmosphere to limit its beam, the laser can perform without hindrance. Laser is handicapped within the atmosphere where it contends with fog, dust and other visible particles. Therefore, the MSC proposal calls for studies using the RF as well as laser.

Proposals are to be made in two documents; one covering the technical aspects of the problem and the other the business management.

A fixed price research and development type of contract is contemplated and the space agency has alloted approximately $75,000 for the performance of the study. It is to be completed between six to nine months.

A total of 22 companies were invited to bid.

WAS-2811
Extension 3575

MSC 64-3 A

HOUSTON, TEXAS - Faith 7, Mercury spacecraft flown by Astronaut L. Gordon Cooper in his earth circling 22 orbit flight last May will be on display January 23 through January 26 in Tallahassee, Florida.

The four day stop in Tallahassee is the fourteenth of 50 state capitol visits that the National Aeronautics and Space Administration has scheduled for Cooper's spacecraft. Close to 2,500,000 persons have already seen the spacecraft since it began its cross country tour in Cooper's home state of Oklahoma.

The NASA Manned Spacecraft Center at Houston, Texas, has set Faith 7 on a stand which permits easy viewing of the inside of the spacecraft. A section of the base of the heat shield and portions of the outer skin have been cut away permitting the first public look at the inner structure of a Mercury spacecraft.

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Also on display with the spacecraft are the cameras Cooper carried and the astronaut Survival Kit which rode on Faith 7's 546,185 mile earth-circling flight. Samples of the food Cooper ate during his day and a half in space will also be on display.

The 13 month tour, ending in the nation's capitol on November 1, 1964, will cover approximately 20,000 miles, a distance Faith 7 covered in space in approximately 80 minutes.

NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER

Houston 1, Texas

WAlnut 8-2811
Extension 3751

MSC 64-4
January 7, 1964

The National Aeronautics and Space Administration announced today that both stages of the first Gemini Titan II launch vehicle will be static-fired on Gemini Launch Complex 19 at Cape Kennedy, Florida, no earlier than Friday, January 10, 1964.

The test will mark an important milestone in the NASA Manned Spacecraft Center's schedule to launch the first unmanned Gemini spacecraft into orbit early this year.

The scheduled static-firing test will evaluate overall Gemini launch vehicle systems performance.

The USAF Space Systems Division, through which NASA is buying the Gemini launch vehicles, is responsible for the development, test and launch of the Titan II in the NASA Gemini program.

For this test firing, both Gemini launch vehicle stages will be mounted side-by-side on separate mounts.

Each stage of the launch vehicle will be fired for 30 seconds.

The Gemini program is the second major step in the Nation's manned space flight program. The Gemini spacecraft is being developed for two-man, earth-orbital missions of long duration and for rendezvous and docking missions.

NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER

Houston 1, Texas

WAlnut 8-2811
Extension 3751

MSC 64-5
January 8, 1964

HOUSTON, TEXAS -- Dr. Charles A. Berry, Chief of the Center Medical Operations Office at the NASA Manned Spacecraft Center, will address members of the Alice, Texas, Chamber of Commerce at the organization's annual banquet January 20.

Berry's speech is entitled, "Space Medical Operations."

As medical operations officer, Dr. Berry is responsible for the biomedical support of pilots during space flight, as well as for routine safety and medical support at the Center.

Dr. Berry joined the National Aeronautics and Space Administration July 1, 1962. Prior to that he was a lieutenant colonel in the United States Air Force and was assigned to the Project Mercury space program.

Dr. Berry, a native of Rogers, Arkansas, was born September 17, 1923. His family moved from Arkansas to California where Dr. Berry spent his early life.

He attended the University of California in Berkeley where he received a bachelors of arts degree, and was awarded a doctor of medicine degree from the university's medical school in San Francisco. In addition, Dr. Berry holds a master of public health degree, cum laude, from the Harvard School of Public Health.

Dr. Berry entered the USAF in 1951 and for 11 years held various positions in aviation medicine. He has written nearly 30 aerospace medical papers.

dg

NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER

NASA

Houston 1, Texas

WAlnut 8-2811
Extension 3751

MSC 64-6
January 10, 1964

HOUSTON, TEXAS -- While one group of engineers at the NASA Manned Spacecraft Center here ponders ways to land men on the moon, another is investigating a method of bringing our astronauts back -- from Mars.

A preliminary design for a spacecraft to return men from Mars during the years 1971-75 has been submitted after a six-month study by Lockheed Missiles and Space Company, Sunnyvale, California.

An odd-shaped Earth Re-entry Module designed by Lockheed would make the entire 13-month journey to Mars and back, but would be used only for about eight hours.

It will have to withstand re-entry heating of about 35,000 degrees Fahrenheit -- more than three times hotter than the sun's surface -- at entry speeds up to about 44,000 miles per hour. Project Mercury astronauts re-entered the earth's atmosphere at less than 17,000 miles per hour, subjecting their spacecraft to temperatures of about 3,000 degrees Fahrenheit.

Inside the 500 cubic foot conical spacecraft, four to six astronauts will be protected by an ablative heat shield about 3 1/2 inches thick which will keep operating temperatures during re-entry to about 80 degrees inside the inner pressure vessel. The inner vessel is protected by a main shell of sandwiched stainless steel.

The forebody or main heat shield of the spacecraft is a blunted circular cone, raked off at a suitable angle to provide lift. The afterbody is an elliptical cone fitted to the other.

The Earth Re-entry Module will return into a 10-mile-wide corridor at the top of the earth's atmosphere, then begin a descent after being "captured" by the earth's gravity. It's flat surface will provide lift as well as drag to slow it down and allow it to maneuver inside the atmosphere. It would have enough lift -- plus attitude control rockets -- to fly 16,000 miles downrange and make lateral changes of 1,000 nautical miles. This means that if the original landing site was in the Mojave desert, an alternate site could be as far away as Australia.

Designed to carry four astronauts, the module could carry as many as six. Control would be mostly automatic, but the module could be controlled manually by the crew. Navigation and guidance would be achieved by using the earth, stars and radar. The module would contain communications and related electronics; thermal control and life support equipment, plus room for about 800 pounds of scientific equipment used on Mars during the main mission.

Similar design studies are under way at North American Aviation, Inc., Downey, California, for the Mars Mission Module, and at Ford Aeroneutronics, a division of Philco, Newport Beach, California, for the Mars Excursion Module.

The mission might begin by assembling the three modules while in orbit around the earth, or a large Nova-type launch vehicle may be developed to hurl the entire three-module configuration to the distant planet.

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NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER

Houston 1, Texas

WAlnut 8-2811
Extension 3751

MSC 64-7
January 9, 1964

HOUSTON, TEXAS -- Woodworking, foundry and other heavy machinery used by the Technical Services Division of the NASA Manned Spacecraft Center is being moved from the temporary facilities at Ellington Air Force Base and Houston to Clear Lake.

The relocation will take approximately three weeks. Shop equipment will be moved into the new Technical Services Shop, now nearly completed at the Center. As the heavy machinery becomes operational, aerospace technicans assigned to operate it will relocate.

The move is handled by the Westheimer Rigging and Heavy Hauling Company of Houston under a $16,000 contract awarded December 9, 1963.

dg

NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER NASA Houston 1, Texas

WAlnut 8-2811
Extension 3751

MSC 64-8
January 11, 1964

HOUSTON, TEXAS -- Construction of the Mission Control facility (MCC) at the NASA Manned Spacecraft Center, Clear Lake, Texas, has progressed sufficiently to permit cable and pneumatic tube installation by the Philco Corporation, prime contractor for flight control equipment.

The control center complex consists of a Missions Operations Wing, Lobby Wing and an Administration Wing. It's three stories high and contains 245,000 square feet of space.

In addition a 6,300-square-foot MCC Mechanical and Electrical Control Building has been constructed and heating plant expansion is in progress under terms of the MCC building contract.

The mechanical and electrical building will assure power for the control center under any conditions during a mission, and the heating plant expansion will provide steam and coolant water for the control complex.

Two mission control rooms, located on the second and third floors, are in the windowless operations wing. The rooms, similar in configuration, each contain 7,800 square feet of space. Identical control rooms are required because of the detailed control preparation that will go into the missions, frequency and length of the flights and the extensive training programs that are essential to mission success.

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Gemini rendezvous and Apollo flights will be directed by the new control center just as Project Mercury's flights were run by Mercury Control at Cape Kennedy, Florida.

MCC will be the focal point for the entire ground operational support system. From it the manned spacecraft and the network of world wide tracking stations will be directed.

The center will consist of several major electronic subsystems: communications, displays, computers, simulation and training. Philco will tie the entire complex together into an integrated operational system.

The computer complex and communications center are located on the first floor. Computer driven data displays will provide quantities of real-time data which can be plotted and displayed on hugh control panels. The displays will use television and back lighted projection techniques extensively.

Fewer than 20 controllers will be in the control room during a flight, but upwards of 250 technical and administrative people will be involved in carrying on supporting functions in adjacent rooms. These include recovery control, communications, meteorology, trajectory data, network support, life support and vehicle systems personnel.

Installation of the flight control equipment is being performed under a $35,136,565 fixed fee contract. The work is being conducted at four Philco locations: Western Development Laboratory, Palo Alto, California; the Communications and Electronics Division, Philadelphia, Pennsylvania; the Aeronutronics Division, Newport Beach, California and Houston.

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The real-time computer is being built by the Federal Systems Division of International Business Machines Corporation, Bethesda, Maryland, under a $21,220,000 cost plus fixed fee equipment contract.

Construction of the MCC building is in two parts. Part One was with Peter Kiewit Sons Company of Omaha, Nebraska and W. S. Bellows Construction Corporation of Houston for foundation and structural steel work. This contract, in the amount of $795,555, was completed May 29, 1963.

The remainder of the building construction is with Ets Hokin and Galvin Company, San Francisco, California. Through December 31, the space agency has committed $7,938,609 for facility construction under this contract.

Cooperation from the Weather Man has sent the control center rocketing toward completion ahead of schedule. If no significant delays occur, flight control engineers will occupy the Administration Wing of the complex by mid-64. Personnel assigned to MSC's Ground Systems Project Office, as well as the Flight Control, Recovery Operations and Mission Analysis Divisions of the Assistant Director for Flight Operations are scheduled to move in on June 26.

To date 13 facilities at MSC's Clear Lake site have been certified as operational or ready for occupancy. Included are the Technical Services Shop; the Central Data Office Building; support offices, interim facilities, the fire station and utility plants.

The major move into Clear Lake is scheduled to take place in March. About 2,500 workers will be relocated. MSC will vacate all leased buildings in Houston by July 1.

--more--

Completion work on many of the administrative buildings will come during February and March with several of the laboratories and test facilities following in July and September.

Total value of construction and equipment at Clear Lake stands at $147,452,700. Of this amount, $62,561,488 has been committed to the contractors as of December 31, 1963.

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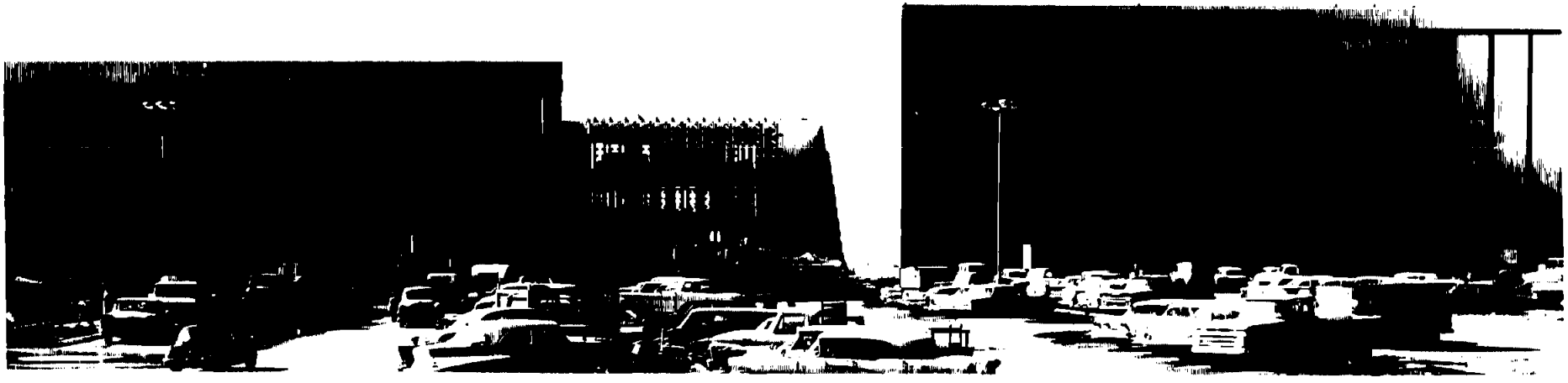
NASA
S-63-23632



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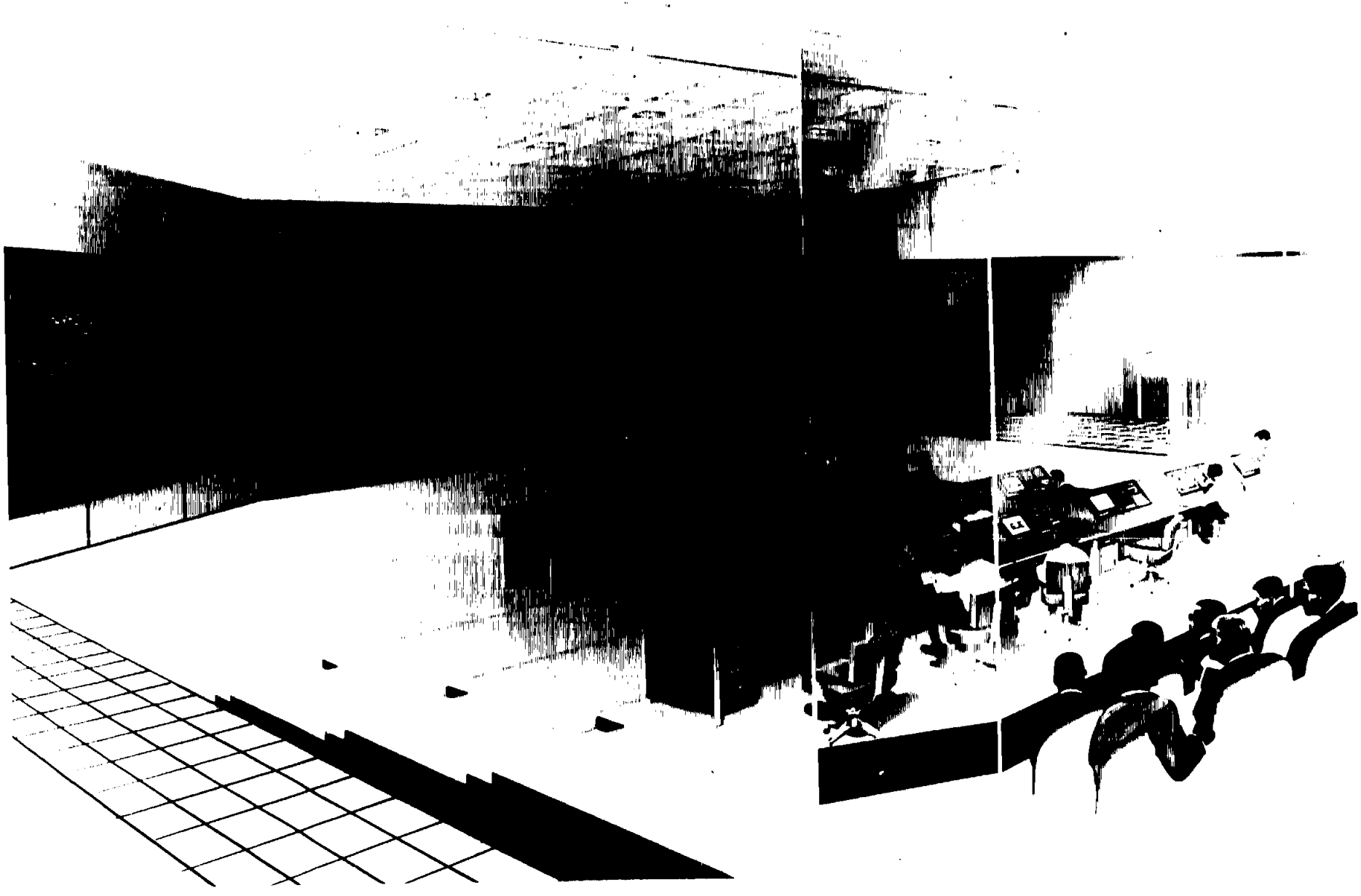

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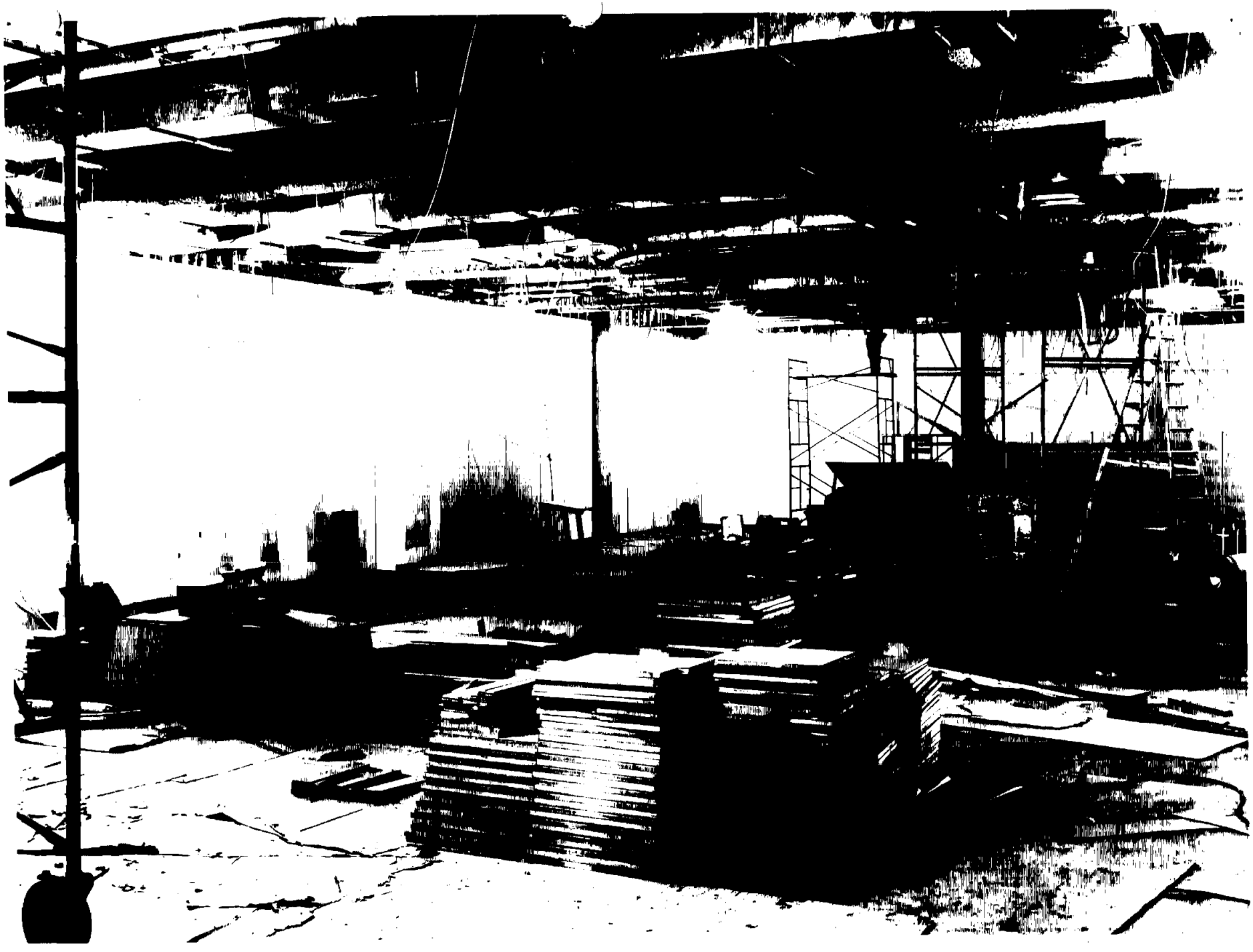

NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER

Houston 1, Texas

WA8-2811
Extension 3575

MSC 64-8

HOUSTON, TEXAS - Faith 7, Mercury spacecraft flown by Astronaut L. Gordon Cooper in his earth circling 22 orbit flight last May will be on display January 30 through February 2 in Montgomery, Alabama.

The four day stop in Montgomery is the fifteenth of 50 state capitol visits that the National Aeronautics and Space Administration has scheduled for Cooper's spacecraft. Close to 2,500,000 persons have already seen the spacecraft since it began its cross country tour in Cooper's home state of Oklahoma.

The NASA Manned Spacecraft Center at Houston, Texas, has set Faith 7 on a stand which permits easy viewing of the inside of the spacecraft. A section of the base of the heat shield and portions of the outer skin have been cut away permitting the first public look at the inner structure of a Mercury spacecraft.

The spacecraft - inside and out - is exactly as it was when it splashed down into the Pacific near Midway Island on May 16, 1963. Nothing has been changed. The spacecraft shingles - its outer skin made of a new metal rene'41 - shows the effects of the 1,000 degree heat which blanketed the spacecraft during re-entry into earth's atmosphere. The heat shield - a mixture of glass fibers and resin - at the base of the spacecraft withstood maximum temperatures of 3,000 degrees farenheit when Cooper directed Faith 7 on its return to earth.

Add 1
MSC - 64-8

Also on display with the spacecraft are the cameras Cooper carried and the astronaut Survival Kit which rode on Faith 7's 546,185 mile earth-circling flight. Samples of the food Cooper ate during his day and a half in space will also be on display.

The 13 month tour, ending in the nation's capitol on November 1, 1964, will cover approximately 20,000 miles, a distance Faith 7 covered in space in approximately 80 minutes.

NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER

Houston 1, Texas

WAlnut 8-2811
Extension 3751

MSC 64-9
January 15, 1964

HOUSTON, TEXAS -- The NASA Manned Spacecraft Center has awarded a $99,973 study contract to Bendix Products Aerospace Division, South Bend, Indiana, for a shock absorbing device which will permit a soft landing on the moon.

The work involves testing full-scale crushable aluminum honeycomb structures under the various environmental conditions which scientists expect spacecraft to encounter during a moon mission.

In the study program, Bendix engineers will test various sizes and shapes of shock absorbing capsules of the aluminum material to determine the performance characteristics.

Engineers explain that a shock absorbing system for a lunar gear must be able to soften the landing shock, but must not contribute rebound which would make the moon craft bounce in the light gravity of the moon.

Aluminum honeycomb is under study because it crushes on impact and is almost non-elastic. Thus, it reduces rebound problems. The aluminum honeycomb also offers advantages of light weight and high reliability.

To carry out the MSC study, Bendix will build a new testing device which will permit the company to observe the material in operation under vacuum conditions in temperatures ranging from minus 260 degrees to plus 300 degrees Fahrenheit.

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NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER

Houston 1, Texas

WAlnut 8-2811
Extension 3751

MSC 64-9 A
January 21, 1964

HOUSTON, TEXAS -- The National Aeronautics and Space Administration (NASA) said today that both stages of the first Gemini Titan II Launch Vehicle were static-fired on Gemini Launch Complex No. 19 at Cape Kennedy, Florida. Both stages produced a combined total thrust of more than half a million pounds, marking an important milestone in the NASA Manned Spacecraft Center's schedule to launch the first unmanned Gemini spacecraft into orbit.

Charles W. Mathews, the Manned Spacecraft Center's Gemini Program Manager, said, "Early indications show the static firing as a success; however, the final report will not be available until after a complete study of the collected data."

The purpose of today's test was to evaluate the over-all Gemini Launch Vehicle system performance -- fueling, countdown, engine start and shutdown commands, guidance control, and telemetry; and to verify engine performance via thrust generation, and engine gimbaling (directional thrust control to steer the Gemini Launch Vehicle).

Each stage was static-fired for 30 seconds. The engines, manufactured by the Aerojet General Corporation, developed the same amount of

-more-

thrust expected during actual flight -- 430,000 pounds by first stage engines, and 100,000 pounds by the second stage engine.

For this test firing, both Gemini Launch Vehicle stages were mounted side-by-side on separate mounts. Both stages were held to their mounts by four one and one-half-inch bolts; for actual flight, these bolts will be blown apart by small explosive charges to effect lift-off of the entire vehicle and for first and second stage separation.

Today's countdown extended to 300 minutes -- just as it will during an actual launch.

At T minus Zero, the first stage propellant line valves opened. The Gemini Launch Vehicle fuel and oxidizer rushed together and ignited upon mixing in the thrust chambers. These storable hypergolic propellants (a blend of hydrazine and unsymmetrical dimethyl hydrazine as fuel, and nitrogen tetroxide, N_2O_4, as oxidizer) ignite when mixed.

An electrical signal stopped the first stage engine after 30 seconds, then started the second stage engine. The second stage, in turn, was shut down by radio signal from a ground computer just as in actual flight.

Officials of the United States Air Force and the Martin Company, builders of the Gemini Launch Vehicle systems, are now continuing with plans for the next step in the checkout schedule of the Gemini Launch Vehicle, its new launch complex and blockhouse equipment.

-more-

Add 2
MSC 64-9

Supporting NASA in the Gemini Program, the Air Force Space Systems Division (AFSSD) is responsible for development, test, and launch of the Gemini Launch Vehicle. The Martin Company's Baltimore Division is performing the research and development, manufacturing, assembly, and ground testing under contract to AFSSD. The Martin Company's Cape Kennedy Division is responsible for launch complex preparation, checkout and launch preparation of the Gemini Launch Vehicle.

The Gemini Program is the second major step in the Nation's manned space flight program. The Gemini spacecraft is being developed for two-man, Earth-orbital missions of long-duration (up to two weeks) and for rendezvous and docking missions. Gemini missions are scheduled to begin early this year with the first of two proposed unmanned flights.

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NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER

Houston 1, Texas

WAlnut 8-2811
Extension 3751

MSC 64-10
January 17, 1964

HOUSTON, TEXAS -- The huge stainless steel frame for the entrance door to Chamber A in the Space Environment Simulation Laboratory has been lowered into place at the NASA Manned Spacecraft Center's Clear Lake site.

Installation was by Chicago Bridge and Iron Company of Oak Brook, Illinois, contractor for chamber construction in the environmental building.

The frame weighed approximately 97 tons. It had to be raised more than 150 feet above the ground, moved over guy lines before being mounted.

Chamber A is the larger of two vacuum chambers under construction. A full size spacecraft of the Apollo class can be tested in it. The chamber is tubular in shape, 172 feet long and 65 feet in diameter. Approximately 82 feet of the facility will be below ground. Diameter of the door is 38 feet.

Within this chamber, solar simulation units will achieve the effect of the sun on the lunar surface. Other simulated effects will be the extreme cold and airlessness of outer space. These extremes range from a minus 253 degrees to 121 degrees centigrade -- a variation of 374 degrees. The vacuum will be equivalent to approximately 75 miles out from earth's surface.

- more -

A smaller chamber also is under construction. Identified as Chamber B, it is nearly 42 feet long and has a 35-foot diameter. Entrance into Chamber B will be from the top.

Total value of construction and equipment for the simulation laboratory is $3,423,397. Of this amount, $2,293,820 had been committed to the contractors as of December 31, 1963.

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NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER

Houston 1, Texas

WAlnut 8-2811
Extension 3751

MSC 64-11
January 16, 1964

HOUSTON, TEXAS -- A direct current motor designed to develop 10,700 horsepower and 5,000,000 pound/feet of torque is under construction for the NASA Manned Spacecraft Center.

Built by Westinghouse Electric Corporation in East Pittsburgh, Pennsylvania, the main drive motor will be installed in the Flight Acceleration Facility at MSC's Clear Lake site.

The motor will drive the flight acceleration simulator, principal training device in the building. The simulator will be made up of a gondola, a 50-foot arm to which the gondola is attached and the drive motor. The simulator will reach acceleration forces up to 30 times the force of gravity.

Astronauts will train for space flight by riding in the gondola. They will be subjected to simulated conditions encountered during launch and reentry of their spacecraft.

dg

NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER

Houston 1, Texas

WAlnut 8-2811
Extension 3751

MSC 64-12
January 16, 1964

HOUSTON, TEXAS -- A transistorized micro-circuit signal conditioning device, about the size and weight of an average cigarette lighter, has been developed by the Garrett-AiResearch Corporation, Los Angeles, California, as the prime component in the Gemini program blood pressure measuring system.

Garrett-AiResearch is producing the Blood Pressure Measuring System (BPMS) for the NASA Manned Spacecraft Center at Clear Lake, Texas.

Each astronaut will carry one of the units within his space suit during the manned flights of Project Gemini. The BPMS will permit a rapid determination of the systolic and diastolic blood pressure levels of the Gemini astronauts. Blood pressure measurement constitutes one of the more important physiological parameters used in assessing the functional status of the cardiovascular system.

Heart of the BPMS is a pneumatic-electronic signal conditioner which senses blood pressure and pulse beats, translates these data into electric signals and transmits via telemetry to earth recording stations.

When blood pressure reading is desired, the astronaut will inflate an occluding cuff around his arm with a manual pressure bulb -- much the same as would be done in a doctor's office. Blood pressure and pulse automatically are telemetered to the ground stations. The BPMS operates within the astronauts pressure suit.

- more -

The signal conditioner weighs 1.6 ounces compared to the 24-ounce system used during Mercury flights.

Seven prototypes of the system have been delivered and are now being tested.

dg

NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER

Houston 1, Texas

WAlnut 8-2811
Extension 3751

MSC 64-13
January 17, 1964

HOUSTON, TEXAS, -- MSC Director Robert R. Gilruth today announced "with great regret" that his deputy, James C. Elms, will return to private industry in February, having completed his primary mission of reorganizing the management structure of the space center. Elms' replacement will be named within the immediate future.

"Like all growing organizations, the Manned Spacecraft Center reached a point in its evolution about one year ago, where a major management reorganization was necessary to more expeditiously carry forward the Gemini and Apollo spacecraft programs," Gilruth said.

"Because he had a remarkable background of experience in the field of industry organization and general management, I requested Jim Elms to assist me with this task. Jim agreed, provided he would be free to resume his career in industry when the job was completed. Jim has done an extraordinary job here," Gilruth said. "Our center, our agency, and our nation owe him a great debt for his accomplishment. I cannot adequately express to him my own deep and personal appreciation. I sincerely wish that he could be persuaded to devote further time with us. I do

- more -

understand, however, the urgency of the personal consideration which compelled him to set a time limit on his services to our center.

"We worked on the management structure for about one year and announced our reorganization on November 1. We have since noted with great satisfaction the increased efficiency that is now being generated by our management team," Gilruth said.

"I have enjoyed my tour at MSC and my association with Bob Gilruth more than any other year of my career," Elms said. "At MSC we have a managerial team that I consider to be unparalleled in the country. I am certain they will get us to the moon and back successfully."

Elms said his future plans would be announced shortly.

Elms joined the MSC staff on February 11, 1963. He had been Director of Space and Electronics at the Aeronutronic Division of Ford Motor Company. He has served in key management roles at North American Aviation, Inc., in the development of radar bombing systems and at the Denver Division of the Martin Company on the Titan I missile. Later, he was executive vice president of the Crosley Division of AVCO. As deputy director of the Manned Spacecraft Center he was charged with responsibility for general management of the Center under Dr. Gilruth. While working in Houston, his family has remained at the family residence in Newport Beach, California.

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WASHINGTON, D.C. For Release, Sunday, January 19, 1964.

NASA today named George M. Low to be Deputy Director of the Manned Spacecraft Center at Houston, Texas. He replaces James C. Elms, who resigned Friday to return to private industry.

Low is Deputy Administrator for Manned Space Flight at NASA Headquarters in Washington, D.C. He will assume his new duties as Deputy Director of the Houston center when Elms leaves in February, and in addition will continue to act in his post as Deputy Associate Administrator until May 1.

In the announcement, made simultaneously in Houston and in Washington, D.C., Dr. George E. Mueller, Associate Administrator for Manned Space Flight, said, "George Low has been a strong right arm for me in Washington. The smooth transition during our recent management realignment in Manned Space Flight was due in no small way to his leadership. We will miss Mr. Low at Headquarters, but knowing that his background and talent are still available to us gives me further assurance that we will be successful in achieving our goals in the manned lunar landing program."

Dr. Robert R. Gilruth, Director of the Manned Spacecraft Center, stated, "I am delighted to have a man of Mr. Low's great capabilities and long experience in manned space flight programs join us here in Houston as my Deputy. He was Chairman of the Select Committee which performed the original studies leading to the manned lunar landing program, and he is thoroughly familiar with all aspects of our programs at the Manned Spacecraft Center." The Manned Spacecraft Center is responsible for development of NASA manned spacecraft, the execution of manned space flight missions and for training of the astronauts.

Low joined the National Advisory Committee for Aeronautics, predecessor of NASA, at the Lewis Research Center in Cleveland, Ohio, in 1949. There he specialized in research in the fields of aerodynamic heating, boundary layer theory and transition, and internal flow in supersonic and hypersonic aircraft. During his years at the Lewis facility, he was head of the Fluid Mechanics Section, and later Chief of Special Projects Branch.

In October 1958, when NASA was established, he was assigned to the headquarters office as Assistant Director for Manned Space Flight Programs. Since that time he has held several positions of increasing responsibility in the NASA

Headquarters of Manned Space Flight, culminating in his most recent assignment as Deputy Associate Administrator for Manned Space Flight. He was responsible to the Associate Administrator for Manned Space Flight for the overall management and direction of the Manned Space Flight programs (Gemini, Apollo and advanced missions) and the field centers directly associated with these programs.

The author of numerous technical papers and articles, Low is an associate fellow of the American Institute of Aeronautics and Astronautics. He was awarded NASA's Outstanding Leadership Medal and the Arthur S. Fleming Award, for his contribution to Project Mercury.

Low is 37 years old. He attended Rensselaer Polytechnic Institute, where he earned a bachelor of aeronautical engineering degree in 1948 and a master of science aeronautical engineering degree in 1950.

Low is married to the former Mary R. McNamara. With their five children, they reside at 7204 Broxburn Drive, Bethesda, Maryland, and plan to move their home to the Houston area at the conclusion of the present school term.

NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER

Houston 1, Texas

WAlnut 8-2811
Extension 3751

MSC 64-15
January 22, 1964

HOUSTON, TEXAS -- The American Machine and Foundry Company, Santa Barbara, California, was selected by the NASA Manned Spacecraft Center to build a guided free fall platform to investigate effects of impact on space pilot's equipment.

The fixed price research and development contract is for $185,800.

American Machine was one of eight firms bidding. The others were: Barnes and Reinecke, Incorporated, Chicago, Illinois; Aircraft Armaments Company, Cockeysville, Maryland; Franklin Research Institute, Philadelphia, Pennsylvania; Mechanics Research Division of General American Transportation Corporation, Niles, Illinois; Monterey Research Laboratories, Monterey, California; Southwest Research Institute, San Antonio, Texas and Technology, Incoporation, Dayton, Ohio.

After detailed technical review of the various proposals by competing companies, American Machine was selected as offering the best method of fabricating, testing and installing the device.

The free fall platform is capable of containing up to 2,000 pounds of equipment. It is four feet wide by seven long, large enough to hold a couch, harness and test manikin. The platform can be hoisted 26 feet above floor level and then dropped, impacting on a piston located in a fluid-filled cylinder.

- more -

Add 1
MSC 64-15

American Machine will install the device in MSC's Life Systems Laboratory at Clear Lake, Texas. The contract calls for completion of the work by December 21, 1964.

It is being built for the Crew Systems Division.

dg

NEWS RELEASE
NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
MANNED SPACECRAFT CENTER
Houston 1, Texas

WA8-2811, Ext. 3575
Houston, Texas

MSC-64-16

MERCURY ECS RELEASE

Air conditioning is taken for granted these days in office buildings and in homes. But the Mercury spacecraft's environmental control system was more than a creature-comfort, for without the system, man's survival in the hostile airless and pressureless regions outside the earth's atmosphere would be impossible.

The Mercury Environmental Control System will be one of the exhibits highlighted at the _____(fair, program, etc)

_____(date).

The Mercury Environmental Control System (ECS for short) is actually a dual system, one for spacecraft cabin air conditioning and one for the astronaut's pressure suit. Both circuits of the ECS operate simultaneously to provide suit and cabin with ventilation, pressurization and a 100 per cent oxygen atmosphere for breathing.

Freon coolant is fed to the ECS through the spacecraft umbilical prior to liftoff, but once off the pad and in orbit, heat exchangers using evaporative water provide cooling.

Cabin pressure stabilizes at 5.1 pounds per square inch while the spacecraft is in orbit, and the suit is kept at the same pressure. Should the cabin lose its pressurization, the suit would remain pressurized at 4.6 pounds per square inch even though cabin pressure dropped to the partial vacuum of the orbit altitude.

Solids and moisture are removed from the circulated air by a series of filters and traps. Carbon dioxide is removed from the circulating breathed air by a lithium hydroxide cannister, while odors are removed by a cannister of charcoal pellets -- much like an overgrown cigaret filter.

The ECS oxygen supply is stored at 7,500 pounds per square inch and reduced to the 5.1 pounds working pressure by regulators.

The Mercury Environmental Control System was developed by the Crew Systems Division of NASA Manned Spacecraft Center, Houston, and was manufactured by AIResearch Corporation.

NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER

Houston 1, Texas

WAlnut 8-2811
Extension 3751

MSC 64-17
January 23, 1964

HOUSTON, TEXAS -- A contract amendment in the amount of $9,200,000 has been issued by the NASA Manned Spacecraft Center to the Space and Information Systems Division of North American Aviation, Inc., for construction and modification of buildings at Downey, California.

MSC is supervising research and development work on two major NASA contracts held by NAA. These cover the Apollo command and service modules and the paraglider system for Gemini. The contract amendment calls for the construction of seven new buildings and modifications to existing structures to permit expansion of the research and development effort.

North American is the prime contractor for the Apollo Command and Service module program, holding a $934,400,000 definitive contract which was signed with MSC August 14, 1963.

The company also has a $20,015,000 research and development contract for the paraglider, one of the landing systems being developed for the Gemini spacecraft.

The amended contract runs through June 30, 1964. The original award was negotiated between NAA and the NASA Western Operations Office.

Add 1
MSC 64-17

Project Apollo is this nation's effort to send three astronauts to the vicinity of the moon; land two pilots on the lunar surface, and then return the three to earth. In the Gemini program, two astronauts will orbit the earth for periods up to two weeks to practice rendezvous techniques and to observe the physiological effects of prolonged periods of space flights.

dg

NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

...ANNED SPACECRAFT CENTER

NASA

Houston 1, Texas

WAlnut 8-2811
Extension 3751

MSC 64-18
January 24, 1964

HOUSTON, TEXAS -- Seven floors of the nine-story Project Management building at the NASA Manned Spacecraft Center, Clear Lake, Texas have been accepted for occupancy with minor construction remaining on the other floors before the building is ready.

The headquarters, in which will be offices of MSC Director Dr. Robert R. Gilruth, the spacecraft program managers and assistant directors, contains 194,191 square feet of space. Solar gray window panels are a predominate feature of the 254-foot long building.

In addition to the Apollo and Gemini program offices, personnel assigned to the Director's staff, Procurement and Contracts Division, and administrative offices will occupy the building.

Nerve center of the building began December 5, 1962. If no significant delays occur, the $4,466,579 structure will be ready for tenancy on February 20.

Leavell, Morrison-Knudson and Hardeman Company of El Paso, Texas is the prime contractor.

Nearly a half dozen buildings included in a contract for Phase 3 of the MSC construction will be completed about the same time. These are the Auditorium, Cafeteria, Flight Crew Operations Office, Technical Services Office

- more -

and Life Systems Laboratory.

To date 13 facilities at MSC's Clear Lake site have been certified as operational or ready for occupancy and nearly 270 employees are working in new offices. The major move is scheduled to take place in March when more than 2,000 persons will be relocated.

In addition to the construction of the administrative buildings, the space agency is building flight test facilities, a thermochemical test complex and space environmental chambers.

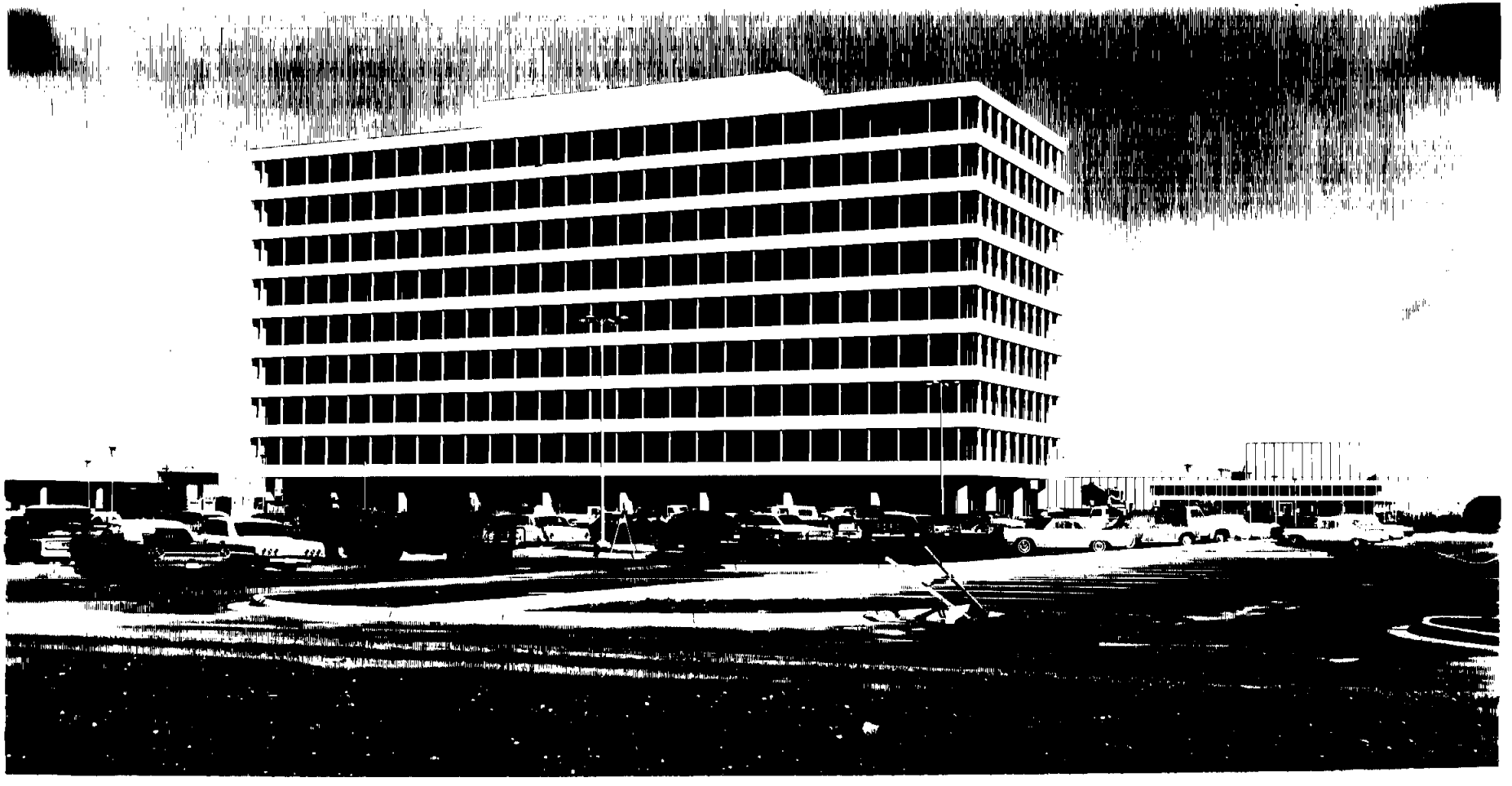
Total value of construction and equipment at Clear Lake stands at $147,452,700 and the National Aeronautics and Space Administration has requested an additional $25,166,000 from Congress for construction at MSC during fiscal year 1965.

The funding request and estimated dollar value would cover: a Lunar Mission and Space Exploration Facility, $2,647,000; Flight Crew Operations Facility, $1,764,000; Electronic Systems Components Facilities, $4,110,000; Technical Services Facility, $2,240,000; Cafeteria, $706,000; and modifications to Environmental Test Laboratory, $9,416,000; Central Data Office extension, $2,658,000, and extensions to the Heating plant and warehouses, $1,625,000.

Out of the 147 millions obligated, MSC has paid contractors $62,561,488 as of January 31, 1964.

dg

NASA
S-63-23605



NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER

Houston 1, Texas

WAlnut 8-2811
Extnesion 3751

MSC 64-19
January 24, 1964

HOUSTON, TEXAS -- The development of training techniques to teach astronauts egress from a Gemini spacecraft got underway at the NASA Manned Spacecraft Center this week.

In the program, engineers from MSC's Landing and Recovery Division are seeking optimum methods for leaving a space capsule that is in the water. They use a tethered boiler plate version of the Gemini spacecraft.

The boiler plate has the same configuration and mass as a production model. Only the weight differs. It has been modified for egress and includes mock-up seats and an instrument panel.

In the test the capsule floats in a 24-foot in diameter tank. At a given moment, the two subjects who are in the closed vehicle are ordered to egress and the manner, procedure and times it takes to get out is recorded for study.

Development of egress training techniques will lead to tests later this year involving astronauts and another training version of the Gemini capsule. The complete training course will be conducted over a period of several weeks to permit all astronauts to participate.

Paul T. Chaput is the project engineer and James Lovell is monitoring the program for the astronauts.

dg

WAS-2811
Extension 3575

MSC-64-20

HOUSTON, TEXAS - Faith 7, Mercury spacecraft flown by Astronaut L. Gordon Cooper in his earth circling 22 orbit flight last May will be on display February 6 through February 9 in Jackson, Mississippi.

The four day stop in Jackson is the sixteenth of 50 state capitol visits that the National Aeronautics and Space Administration has scheduled for Cooper's spacecraft. Close to 2,550,000 persons have already seen the spacecraft since it began its cross country tour in Cooper's home state of Oklahoma.

The NASA Manned Spacecraft Center at Houston, Texas, has set Faith 7 on a stand which permits easy viewing of the inside of the spacecraft. A section of the base of the heat shield and portions of the outer skin have been cut away permitting the first public look at the inner structure of a Mercury spacecraft.

The spacecraft - inside and out - is exactly as it was when it splashed down into the Pacific near Midway Island on May 16, 1963. Nothing has been changed. The spacecraft shingles - its outer skin made of a new metal rene' 41 - shows the effects of the 1,000 degree heat which blanketed the spacecraft during re-entry into earth's atmosphere. The heat shield - a mixture of glass fibers and resin - at the base of the spacecraft withstood maximum temperatures of 3,000 degrees farenheit when Cooper directed Faith 7 on its return to earth.

Also on display with the spacecraft are the cameras Cooper carried and the astronaut Survival Kit which rode on Faith 7's 546,185 mile earth-circling flight. Samples of the food Cooper ate during his day and a half in space will also be on display.

The 13 month tour, ending in the nation's capitol on November 1, 1964, will cover approximately 20,000 miles, a distance Faith 7 covered in space in approximately 80 minutes.

NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER

NASA

Houston 1, Texas

WAlnut 8-2811
Extension 3751

MSC 64-21
January 27, 1964

HOUSTON, TEXAS -- A new concept in motion simulation, the first to produce unlimited angular motion for a large heavy vehicle is being studied for the NASA Manned Spacecraft Center by the Aerospace Division of Westinghouse Electric Corporation, Pittsburgh, Pennsylvania.

Developed under a contract with MSC, the study also calls for a 34-inch diameter working model of the full scale device which will be used to prove the feasibility of the simulation concept.

The simulator has six sets of steerable dual aircraft wheels which are driven and steered by hydraulic motors. The wheels are affixed to the outside of the superstructure within which a spacecraft is mounted. The entire assembly rotates within a cup-like open hemispherical base to give the spacecraft unlimited angular motion about any axis.

A computer would accept inputs from the spacecraft control systems and, in turn, control hydraulic motors that drive and steer the simulator's wheels. A hydraulic pump driven by a 65 horsepower gas turbine supplies power to the motors.

- more -

After intensive testing, the space agency will determine if procurement of a full scale assembly is necessary. If the final full scale assembly is ordered, it will be 23 feet in diameter, large enough to accept spacecraft the size of the Apollo Command Module.

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NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER — NASA — Houston 1, Texas

WAlnut 8-2811
Extension 3751

MSC 64-22
January 31, 1964

HOUSTON, TEXAS -- There'll be no five-o-clock shadow for the man on the moon.

Engineers at the NASA Manned Spacecraft Center here are evaluating a combination razor and vacuum cleaner which will not only shave the astronauts, but capture weightless whiskers and prevent them from floating freely inside the spacecraft.

The device, patented by Shav-Air International of Charlotte, North Carolina, is being studied to see if it can be adapted to space use.

It's turbine motor is driven by vacuum.

Where does this vacuum come from?

From Space. It's all vacuum.

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NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER NASA Houston 1, Texas

WA 8-2811
Extension 3751

MSC 64-23
January 31, 1964

HOUSTON, TEXAS -- Athletes undergo more physical stress during competition than astronauts do during space flight.

That's how it appears to scientists at the NASA Manned Spacecraft Center here. Experiments conducted with sports car drivers at nearby tracks indicate that the drivers work more strenuously during a race than any of the Project Mercury astronauts did during orbital flight.

But the key here is physical activity. An astronaut, in top physical shape and well conditioned to the rigors of high-performance flight, is physically restricted in his spacecraft. The bulk of his activity is in concentration and timing. An athlete's heart rate increases with his muscular activity -- and with the heat of intense competition.

Studies conducted for the Manned Spacecraft Center by Bio-Dynamics, Inc., of Cambridge, Massachusetts, seem to bear out that sky divers, hockey players, skiiers, polo players and track athletes also experience more physical stress than spacemen.

--more--

And a report published recently in "The Journal of Sports Medicine and Physical Fitness" by two University of Michigan investigators emphasizes that athletic competition is extremely demanding on the cardio-vascular system.

Handball, the report says, is more strenuous than paddleball, but paddleball is more demanding than badminton; tennis, though less strenuous than badminton, is more exerting than volleyball; bowling is less demanding than the other sports studied in the report, but still seemingly more physically exerting than orbital flight.

Bowlers, according to the University of Michigan report, were found to range between 82 and 132 heartbeats per minute during competition, with a mean heart rate of 99.

Astronaut L. Gordon Cooper, during his 34-hour orbital flight, ranged from 55 to 180 beats per minute, but his mean heart rate was only 89 beats per minute.

And during an hour-long 60-lap sports car race, one of the drivers monitored by Bio-Dyanmics, Inc., experienced a mean heart rate of 200 beats per minute during segments of the race.

None of the Project Mercury astronauts during orbital flight reflected a heart rate higher than 184 beats per minute, and then only for a few seconds during re-entry -- the most rigorous part of his space ride.

Normally, a well conditioned athlete's heart rate -- and that of an astronaut -- is between 50 and 60 beats per minute. And for the sake of perspective, one NASA scientist explained that a perfectly normal, healthy person -- neither athlete nor astronaut -- sometimes experiences heart rates of 180 beats a minute and higher while getting his teeth drilled in the dentist's office.

--more--

To get this comparative information members of the Space Medicine Branch at the NASA center, under the direction of Dr. Lawrence F. Dietlein, and scientists at Bio-Dynamics in Cambridge, taped electrodes to the chests of performing athletes. These sensors monitored heart and respiration rates and radioed them through small transmitters to receivers which converted the information into readable physiological data.

During space flight astronauts are similarly monitored to keep NASA physicians constantly aware of a pilot's physical well being during flight.

Miss Rita Rapp of Dr. Dietlein's Experimental Medicine Section has been gathering physiological data from sports car drivers with the assistance of two Baylor College of Medicine doctors, V. P. Collins, head of the Radiology Department, and his assistant, Zoltan Petrany. Dr. Collins and Dr. Petrany are sports car drivers and perform as subjects while collecting information on physiological stress. Later this month longer duration tests will be conducted at the Daytona Beach International Sports Car Association's big race in Florida where subjects will perform for as long as 12 hours at a stretch under severe stress.

Not only are telemetered heart and respiratory information collected, but athletes provide blood and urine specimens before and after competition to give NASA a broader picture of their physical conditions.

When completed these studies will help NASA determine the degree of physical stress individuals can accept, and its effect upon their performance.

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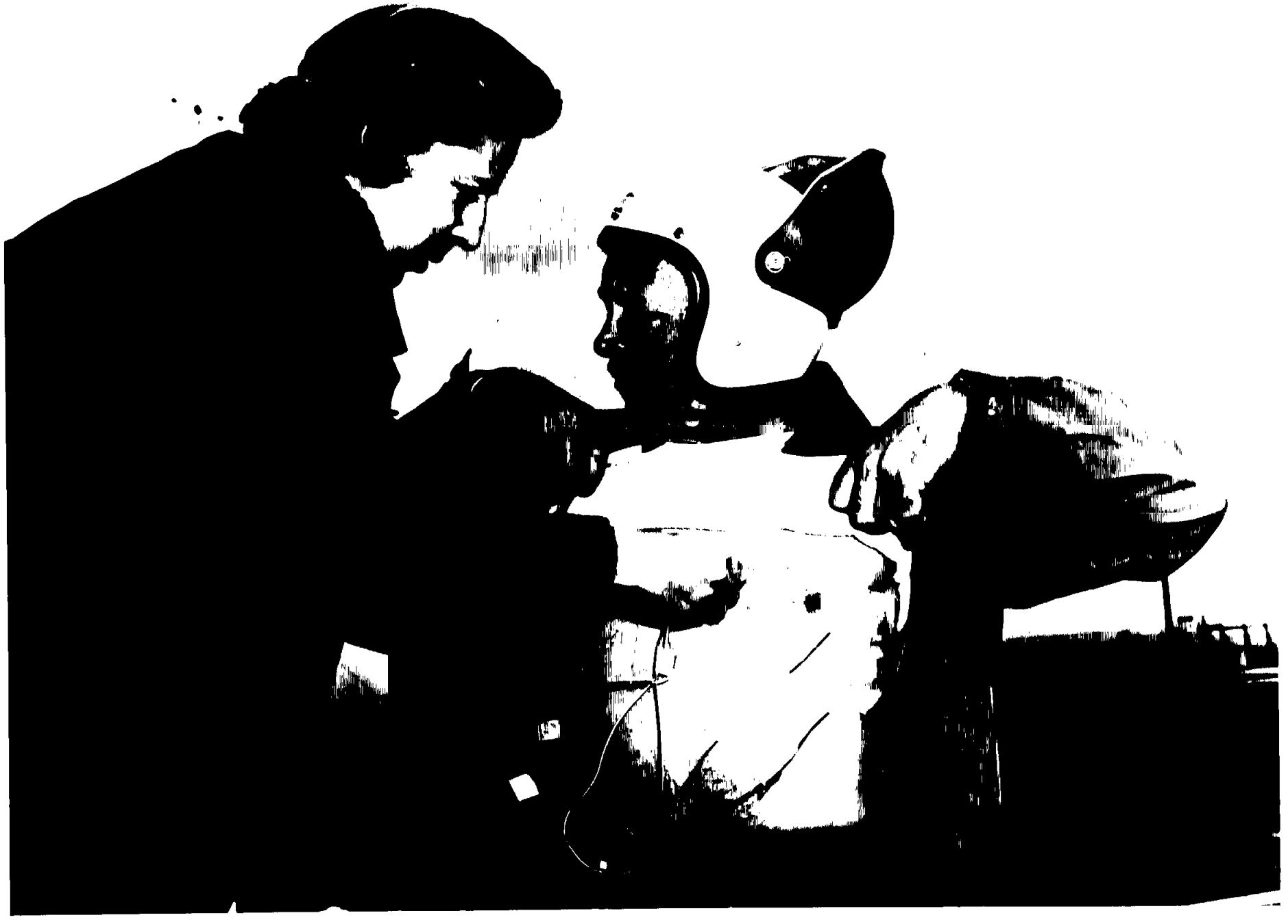
NASA
S-64-11948



NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER

Houston 1, Texas

WA 8-2811
Extension 3751

MSC 64-24
February 3, 1964

HOUSTON, TEXAS -- Fourteen new members of the Gemini and Apollo space flight crew pool reported to Manned Spacecraft Center today to begin their training as astronauts.

The new men, selected from among about 270 volunteers last October, bring the total of astronauts in training for the two MSC manned space flight programs to 29.

Reporting for duty as astronauts are civilians Russell Louis Schweickart and Ronnie Walter Cunningham; Air Force Major Edwin Eugene Aldrin, Jr., Capt. William Alison Anders, Jr., Capt. Charles Arthur Bassett, II, Capt. Michael Collins, Capt. Donn Fulton Eisele, Capt. Theodore Cordy Freeman, and Capt. David Randolph Scott; Navy Lt. Cmdr. Richard Francis Gordon, Lt. Alan LaVern Bean, Lt. Eugene Andrew Cernan and Lt. Roger Bruce Chaffee; and Marine Corps Capt. Clifton Curtis Williams.

Initial training phase for the new astronauts will be similar to that of the previous groups, basic science and technology courses related to space flight development.

These will include geology, flight mechanics, rocket propulsion, aerodynamics of space flight, digital computers, astronomy, communications, physics of the upper atmosphere and space, medical aspects of space flight and space-related meteorology.

-- more --

There will be during this phase also field trips associated with various aspects of the training, as well as operational orientation trips to various government, institutional and industrial installations involved in space flight development in MSC programs.

The first phase of training will continue until about mid-June, after which the new astronauts will begin concentrated activity in relation to the specific missions of Manned Spacecraft Center, the Apollo lunar landing mission and the Gemini Earth-orbital long duration and rendezvous flights.

All of the new men will undergo the standard survival courses designed for astronauts, tropical, desert and water survival. All will go through helicopter flight training in preparation for hovering practice which will be required for the lunar mission and all will train on Gemini and Apollo mission simulators.

In addition, like the previous groups, the 14 will be required to maintain space flight readiness in high-performance airplanes.

Over-all direction of the astronaut training will be by Donald K. Slayton, one of the original Mercury astronauts and now Assistant Director of MSC for Flight Crew Operations. Astronaut Walter M. Schirra, chief of operations and training, will supervise the new group's training, assisted by Astronauts Elliott See, Neil Armstrong and Thomas P. Stafford.

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WAlnut 8-2011
Extension 3575

MSC-64- 24 A

HOUSTON-TEXAS - Faith 7, Mercury spacecraft flown by Astronaut L. Gordon Cooper in his earth circling 22 orbit flight last May will be on display February 13 through February 16 in Baton Rouge, Louisiana.

The four day stop in Baton Rouge is the seventeenth of 50 state capitol visits that the National Aeronautics and Space Administration has scheduled for Cooper's spacecraft. Close to 2,600,000 persons have already seen the spacecraft since it began its cross country tour in Cooper's home state of Oklahoma.

The NASA Manned Spacecraft Center at Houston, Texas, has set Faith 7 on a stand which permits easy viewing of the inside of the spacecraft. A section of the base of the heat shield and portions of the outer skin have been cut away permitting the first public look at the inner structure of a Mercury spacecraft.

The spacecraft - inside and out - is exactly as it was when it splashed down into the Pacific near Midway Island on May 16, 1963. Nothing has been changed. The spacecraft shingles - its outer skin made of a new metal rene' 41 - shows the effects of the 1,000 degree heat which blanketed the spacecraft during re-entry into earth's atmosphere. The heat shield - a mixture of glass fibers and resin - at the base of the spacecraft withstood maximum temperatures of 3,000 degrees farenheit when Cooper directed Faith 7 on its return to earth.

Add 1
MSC-64-24

Also on display with the spacecraft are the cameras Cooper carried and the astronaut Survival Kit which rode on Faith 7's 546,185 mile earth-circling flight. Samples of the food Cooper ate during his day and a half in space will also be on display.

The 13 month tour, ending in the nation's capitol on November 1, 1964, will cover approximately 20,000 miles, a distance Faith 7 covered in space in approximately 80 minutes.

NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER NASA Houston 1, Texas

WAlnut 8-2811
Extension 3751

MSC 64-25
February 6, 1964

HOUSTON, TEXAS -- Manned Spacecraft Center has awarded a contract to the Garrett Corporation's AiResearch Manufacturing Company Division for design and production of an extra-vehicular Pressurization Ventilation System for Gemini astronauts.

The contract is a cost-plus-incentive-fee award with a total target price of $133,358, with incentive features on both cost and delivery performance.

AiResearch will perform the contract in four phases over a period of 11 months. The first phase calls for completion of a design mockup, followed by production of two prototype articles. If MSC approves the results of the first two phases, AiResearch will then construct four prototype articles in the third phase and two flight-qualified articles in the fourth phase.

The primary objective of the contract is to develop a system to provide a life-supporting environment within the Gemini pressure suit assembly while exposed to free space, with maximum functional response, reliability, material integrity and minimum weight and volume.

Use of the life support system will come during the Gemini program when the astronaut crewmen open their spacecraft and one of their moves outside it in an experimental effort marking man's first entry into free space in only a pressure suit.

--more--

Add 1
MSC 64-25

Major objectives of the Gemini Spacecraft Program are development of rendezvous and docking techniques in space and investigation of the effects of long-duration space flight.

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/Lewis Branch

MAS-2811
Extension 3575

MSC-64-26

HOUSTON, TEXAS - Faith 7, Mercury spacecraft flown by Astronaut L. Gordon Cooper in his earth circling 22 orbit flight last May will be on display February 20 through February 23 in Austin, Texas.

The four day stop in Austin is the fifteenth of 50 state capitol visits that the National Aeronautics and Space Administration has scheduled for Cooper's spacecraft. Close to 2,550,000 persons have already seen the spacecraft since it began its cross country tour in Cooper's home state of Oklahoma.

The NASA Manned Spacecraft Center at Houston, Texas, has set Faith 7 on a stand which permits easy viewing of the inside of the spacecraft. A section of the base of the heat shield and portions of the outer skin have been cut away permitting the first public look at the inner structure of a Mercury spacecraft.

The spacecraft - inside and out - is exactly as it was when it splashed down into the Pacific near Midway Island on May 16, 1963. Nothing has been changed. The spacecraft shingles - its outer skin made of a new metal rene'41 - shows the effects of the 1,000 degree heat which blanketed the spacecraft during re-entry into earth's atmosphere. The heat shield - a mixture of glass fibers and resin - at the base of the spacecraft withstood maximum temperatures of 3,000 degrees farenheit when Cooper directed Faith 7 on its return to earth.

Add 1
MSC 64-26

Also on display with the spacecraft are the cameras Cooper carried and the astronaut Survival Kit which rode on Faith 7's 546,185 mile earth-circling flight. Samples of the food Cooper ate during his day and a half in space will also be on display.

The 13 month tour, ending in the nation's capitol on November 1, 1964, will cover approximately 20,000 miles, a distance Faith 7 covered in space in approximately 80 minutes.

NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER NASA Houston 1, Texas

WAlnut 8-2811
Extension 3751

MSC 64-27
February 12, 1964

HOUSTON, TEXAS -- Two Ex-Army sergeants who slogged through the Korean conflict on their feet have designed a system that will require American astronauts to land on the moon standing up.

The two former Infantrymen, now design engineers at the NASA Manned Spacecraft Center here, have eliminated seats in the Apollo lunar excursion module (LEM) in favor of harnesses.

Pilots aboard the LEM will fly the spacecraft much the same as trolley cars are driven here on earth.

The savings in weight allows more latitude in the design of the LEM, and reduction of its overall volume. And this means even more weight reduction. The LEM is being built in Bethpage, N. Y., by Grumman Aircraft Engineering Corp.

George C. Franklin, 35, head of the Crew Station Arrangement Section, and flight systems engineer Louie G. Richard, 38, suggested the harness concept after investigating contour couches, "bicycle seats," and even "barstool configurations" for the first Americans to ride down from lunar orbit to the moon's surface from an Apollo spacecraft later this decade.

Since LEM pilots will spend most of their time weightless -- and will probably not exceed forces of one gravity (1-G) during flight -- seats are unnecessary.

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"This means the pilots can stand closer to the window," Franklin remarked, "and allows us to reduce the window area by 20 square feet."

Astronauts M. Scott Carpenter and Charles Conrad, Jr., responsible for providing astronaut point-of-view to cockpit engineers, consider the "trolley car configuration" a major breakthrough.

"From our viewpoint it's ideal," Conrad said. "We get much closer to the instruments without our knees getting in the way, and our vision downward toward the moon's surface is greatly improved."

When flying the LEM pilots are connected to the ceiling by straps that attach to their pressure suits; other straps anchor them to the floor.

"This way," Conrad added, "we can wear self-contained equipment for use outside the spacecraft after the lunar landing, and we don't have to worry about putting it on and taking it off as we would if we were seated."

Franklin and Richard both worked on cockpit arrangements for jet aircraft before coming to NASA's Manned Spacecraft Center.

Franklin, a native of California, has bachelor of science degrees in Zoology from Tulane University, and in mechanical engineering from the University of Arizona. Richard, of Sulphur, Oklahoma, has a bachelor of science degree in mechanical engineering from Oklahoma State University. Both served in Korea during the height of the conflict in 1950-51.

"We've come full circle," Richard laughed, "from standing up in trolley cars, to sitting down in jets and back to standing up in spacecraft."

"I guess it's the Infantry in us."

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NASA
S-64-14253

NASA
S-64-14252

NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER

Houston 1, Texas

WAlnut 8-2811
Extension 3751

MSC 64-28
February 15, 1964

HOUSTON, TEXAS -- Cub Scout Zachary Howard, 8, of 7717 Yoe Drive, Houston, Texas, presents a statuette to Astronaut Wally Schirra in appreciation for "personal help and inspiration" to Scouting during 1963, while Boy Scout Donald Klaus, 12, of 7709 Yoe Drive, Houston, left and Explorer Scout Ronald Pogue, 16, of 7140 Orville, Houston, look on. Schirra accepted the statuettes on behalf of Astronauts Scott Carpenter, Virgil Grissom and Alan Shepard, at the ceremonies at Ellington. These scouts represent 43,000 Cubs, Boy Scouts and Explorers in the Sam Houston Council, Boy Scouts of America.

Harry Bovay, Council President and Minor Huffman, Scout Executive officiated at the ceremonies.

The astronauts also received neckerchiefs and patches illustrating the Sixth National Jamboree to be held July 17 through 23, 1964 at Valley Forge, Pennsylvania. Some 50,000 scouts and leaders will be present from all over the United States and the free world.

Astronauts Gordon Cooper, John Glenn and Donald Slayton previously were presented with statuettes.

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NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER NASA Houston 1, Texas

WAlnut 8-2811
Extension 3751

MSC 64-29
February 11, 1964

HOUSTON, TEXAS -- Nearly 280 employees of the NASA Manned Spacecraft Center will vacate leased offices in Houston on February 20 as the mass move of personnel, furniture and supplies into the Clear Lake site gets underway.

Engineers and administrative persons assigned to the Apollo Spacecraft Program Office, the Procurement and Contracts Division and the Public Affairs Office will move. They will occupy portions of the Project Management Building and the office wing of the Auditorium.

The Apollo group -- numbering some 220 persons -- and Procurement personnel assigned to the Apollo office will be the first to occupy the nine-story headquarters building.

Another major move will take place February 28. This one involves more than 300 persons. Other moves will follow through March and April until nearly 2,500 employees are relocated.

Fifteen facilities at MSC's Clear Lake site have been certified as operational to date. The latest buildings to be completed are the Cafeteria, which began operation this week, and the office wing of the auditorium.

With the February 20 move, some 550 persons will have been relocated.

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NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER

Houston 1, Texas

WAlnut 8-2811
Extension 3751

MSC 64-30
February 17, 1964

HOUSTON, TEXAS -- The Apollo spacecraft that will be sent into space to explore an exit from earth for later manned spacecraft to the moon left North American's Space Division at Downey, California, today by airlift for Cape Kennedy, Florida.

Heavily instrumented, the Apollo command module's mission will be to radio back vital launch and environmental data which it will encounter on its pass through the earth's atmosphere and as it is thrust into space more than 115 miles high this spring. It will be launched by a Saturn I rocket.

The Apollo spacecraft will be made up of instrumented command and service modules, an adapter, and a launch escape system with a live jettison motor.

Primary objective of the test will be to obtain launch and exit environmental data. That is, scientists want to determine how the spacecraft and launch vehicle will act under actual launch conditions.

First order test objectives for the launch listed by NASA's Manned Spacecraft Center are:

1. Demonstrate the physical compatability of the launch vehicle and spacecraft under preflight and flight conditions. (Determine how well mechanical and electrical instruments work with the launch vehicle).

--more--

2. Measure the performance of the launch and exit environment to verify design criteria. (Instrumentation will measure the aerodynamic pressures, temperatures and vibrations).

Other objectives listed for the flight include: demonstrate the structural integrity of the launch escape system under flight loading conditions, demonstrate the jettison of the launch escape tower, and determine how well communications and instrumentation systems function with the launch vehicle.

The Apollo command module will contain its own electrical power, communications, instrumentation and environmental control systems.

No recovery is planned for the spacecraft, which will be injected into a circular orbit.

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Walnut 8-2811
Extension 3975

MSC 64-31

HOUSTON-TEXAS - Faith 7, Mercury spacecraft flown by Astronaut L. Gordon Cooper in his earth circling 22 orbit flight last May will be on display February 27 through March 1 in Santa Fe, New Mexico.

The four day stop in Santa Fe is the eighteenth of 50 state capitol visits that the National Aeronautics and Space Administration has scheduled for Cooper's spacecraft. Close to 2,450,000 persons have already seen the spacecraft since it began its cross country tour in Cooper's home state of Oklahoma.

The NASA Manned Spacecraft Center at Houston, Texas, has set Faith 7 on a stand which permits easy viewing of the inside of the spacecraft. A section of the base of the heat shield and portions of the outer skin have been cut away permitting the first public look at the inner structure of a Mercury spacecraft.

The spacecraft - inside and out - is exactly as it was when it splashed down into the Pacific near Midway Island on May 16, 1963. Nothing has been changed. The spacecraft shingles - its outer skin made of a new metal rene' 41 - shows the effects of the 1,400 degree heat which blanketed the spacecraft during re-entry into earth's atmosphere. The heat shield - a mixture of glass fibers and resin - at the base of the spacecraft withstood maximum temperatures of 3,000 degrees fahrenheit when Cooper directed Faith 7 on its return to earth.

Add 1

MSC 64-31

Also on display with the spacecraft are the chairs Cooper carried and the astronaut Survival Kit which rode on Faith 7's 546,185 mile earth-circling flight. Samples of the food Cooper ate during his day and a half in space will also be on display.

The 13 month tour, ending in the nation's capital on November 1, 1964, will cover approximately 20,000 miles, a distance 7 with 7 covered in space in approximately 80 minutes.

NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER — NASA — Houston 1, Texas

WAlnut 8-2811
Extension 3751

MSC 64-32
February 17, 1964

HOUSTON, TEXAS -- When American astronauts depart for the moon later this decade, chances are they will carry no drinking water aboard their Apollo spacecraft.

That's because engineers at the NASA Manned Spacecraft Center here plan to install a system aboard Apollo to produce all the water the three spacemen will need.

Called a "fuel cell," the ingenious system is designed to replace conventional batteries in spacecraft which must remain in space beyond the useful life span of the battery.

Fuel cells convert chemical energy into electrical energy, using hydrogen and oxygen gasses. These gasses are fed into separate electrodes in a chamber, causing an electro-chemical reaction.

And this reaction, which produces enough power to operate all the spacecraft's electronic equipment, results in quantities of water as a by-product.

Engineers expect fuel cells in the Apollo to provide about 60 gallons of potable water during a 14-day journey -- to the moon and back.

Two firms are developing fuel cells for NASA spacecraft. General Electric Corporation, Lynn, Mass., is developing cells for Gemini two-man earth-orbital spacecraft; Pratt and Whitney Corporation, East Hartford, Conn., is perfecting cells for Apollo.

--more--

Add 1
MSC 64-32

Not only are fuel cells six times lighter than batteries of equivalent power, but they eliminate the need for generators, and do away with the requirement for storing large quantities of water aboard the spacecraft.

A miracle of modern science?

Not quite. The first recorded work on fuel cells was done by England's Sir William Grove more than 100 years ago.

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NEWS RELEASE
NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
MANNED SPACECRAFT CENTER
Houston 1, Texas

WAlnut 8-2811
Extension 3751

MSC 64-33
February 19, 1964

HOUSTON, TEXAS -- The three-phase airlift of a National Aeronautics and Space Administration boilerplate Apollo spacecraft from the North American Aviation S&ID plant at Downey, California, to the NASA facility at Cape Kennedy, Florida, was completed today.

Three separate USAF aircraft transported the boilerplate launch escape system, command module, service module, related ground service equipment and adapter to Cape Kennedy where they will be checked out and mated with a Saturn I launch vehicle in preparation for SA-6, the first orbital space flight of the Apollo spacecraft.

The test flight, scheduled for the spring, is one of a series in the Apollo program which will place Americans on the moon by 1970.

Coincidentally, the barge "Promise" will arrive at Cape Kennedy today with the SA-6 booster and instrument units. The 1.5 million-pound-thrust first stage and instrument unit started the 2,000-mile barge trip from Huntsville, Alabama, Feb. 6.

The main purposes of the SA-6 flight are to test further the first stage (S-1), to demonstrate separation of the S-1 stage and the second stage (S-IV), and to test the functions of the S-IV propulsion system, which uses liquid hydrogen to provide a performance more than a third greater than conventional fuel used in the S-1 stage.

--more--

The flight test will demonstrate the primary mode of the launch escape tower jettison, using the escape tower jettison motor; determine the launch and exit environment parameters; demonstrate the physical compatability of the Saturn I launch vehicle and the Apollo spacecraft under pre-flight and flight conditions.

In addition to the more than 1,000 Saturn vehicle measurements, Apollo spacecraft systems used in the test flight will include an instrumentation system which will measure launch and exit environmental conditions, an environmental system which will control temperatures of the instrumentation system, an AM-FM telemetry system which will transmit launch and exit environmental information to ground receiving stations, and a C-band transponder to be used for vehicle tracking purposes.

Towering 190 feet in height, the Apollo/Saturn I vehicle will be launched from Cape Kennedy with a lift-off weight of about 565 tons and a thrust of approximately 1,500,000 pounds from the S-I stage's H-1 liquid propellant rocket engines. The giant space vehicle will ascend to approximately 230,000 feet in less than two and a half minutes. At this point first stage (S-1) engine burnout will occur. The S-I stage will be jettisoned at an altitude of over 230,000 feet, and the second stage (S-IV) will ignite. It's six RL-10 engines will continue to accelerate the Apollo spacecraft with a combined thrust of 90,000 pounds. At an altitude of about 275,000 feet the launch escape tower will be jettisoned and the S-IV stage engines will continue to burn until the spacecraft has attained some 115 statute miles in altitude. At this point the space vehicle will be injected into an orbit around the earth and S-IV engine cutoff will occur.

No recovery of the Saturn launch vehicle or the boilerplate Apollo spacecraft is planned for this test flight. It is anticipated that the entire orbiting space vehicle will disintegrate upon reentry.

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WAlnut 8-2811
Extension 3575

MSC-64-34

HOUSTON, TEXAS - Faith 7, Mercury spacecraft flown by Astronaut L. Gordon Cooper in his earth circling 22 orbit flight last May will be on display March 5 through March 8 in Phoenix, Arizona.

The four day stop in Phoenix is the nineteenth of 50 state capitol visits that the National Aeronautics and Space Administration has scheduled for Cooper's spacecraft. Close to 2,700,000 persons have already seen the spacecraft since it began its cross country tour in Cooper's home state of Oklahoma.

The NASA Manned Spacecraft Center at Houston, Texas, has set Faith 7 on a stand which permits easy viewing of the inside of the spacecraft. A section of the base of the heat shield and portions of the outer skin have been cut away permitting the first public look at the inner structure of a Mercury spacecraft.

The spacecraft - inside and out - is exactly as it was when it splashed down into the Pacific near Midway Island on May 16, 1963. Nothing has changed. The spacecraft shingles - its outer skin made of a new metal rene' 41 - shows the effects of the 1,000 degree heat which blanketed the spacecraft during re-entry into earth's atmosphere. The heat shield - a mixture of glass fibers and resin - at the base of the spacecraft withstood maximum temperatures of 3,000 degrees farenheit when Cooper directed Faith 7 on its return to the earth.

Add 1

MSC 64-34

Also on display with the spacecraft are the cameras Cooper carried and the astronaut Survival Kit which rode on Faith 7's 546,195 mile earth-circling flight. Samples of the food Cooper ate during his day and a half in space will also be on display.

The 13 month tour, ending in the nation's capitol on November 1, 1964, will cover approximately 20,000 miles, a distance Faith 7 covered in space in approximately 80 minutes.

NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER

NASA

Houston 1, Texas

Feb. 20, 1964

Memo to Editors:

HOUSTON, TEXAS -- Effective February 21, the News Services Branch of the Public Affairs Office will move to its news offices at Clear Lake.

The new telephone number will be: Area Code 713, HUnter 3-0123.

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The News Services Branch of the Public Affairs Office periodically updates its news media mailing list.

If you DO wish to continue receiving news of the activities of the NASA Manned Spacecraft Center, please place your name and address in the space below and mail to:

News Services Branch
Public Affairs Office
NASA Manned Spacecraft Center
Houston, Texas

Howard Gillespie for
Ben Gillespie
Chief, News Services Branch
Public Affairs Office

NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER NASA Houston 1, Texas

HU 3-4241

MSC 64-35
February 24, 1964

HOUSTON, TEXAS -- Moving Day -- the magic phrase that hundreds of space center workers have been waiting for -- will come February 28 for another 300 NASA Manned Spacecraft Center employees.

The move, the second major relocation in a week, will take spacecraft center workers from leased facilities in Houston and Ellington Air Force Base to the gleaming new buildings at the permanent home at Clear Lake. With this move, more than 900 space agency workers will have been relocated.

Workers assigned to the Personnel Division will move from the East End State Bank to the nine-story Project Management Building. More procurement personnel will move, as well as the Small Business Office, the Program Analysis and Resource Management Division, Facilities Division, the Center Medical Operations Office, Legal Office and Office Services Division.

The Technical Services Office -- now ready for occupancy -- will house the Safety and Occupational Health Branch of the medical group, additional elements of the Technical Services Division (some have already moved into the Technical Services Warehouse) and the Engineering Division.

Since the spacecraft center made its move from the Langley Research Center in Virginia, employees have been occupying some 15 different buildings in Southeast Houston and at Ellington. Some are more than 20 miles from each other. For most workers, the move to the new home is most welcome.

--more--

Add 1
MSC 64-35

To date 17 facilities at MSC's Clear Lake site have been certified as ready for occupancy or operational by the United States Corps of Engineers, the agency supervising the construction of the Center. The latest structures to be completed are the Life Systems Laboratory and the Technical Services Office.

Some 280 workers moved into the Center on February 20. Included were those who will put the first Americans on the moon -- the Apollo Spacecraft Program Office, elements of the Procurement and Contracts Division and the Public Affairs Office.

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NEWS RELEASE
NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
MANNED SPACECRAFT CENTER
Houston 1, Texas

HUnter 3-4241

MSC 64-36
February 26, 1964

HOUSTON, TEXAS -- Two NASA Manned Spacecraft Center officials -- Wesley Hjornevik, Assistant Director for Administration, and Charles W. Mathews, Gemini Program Manager -- will be featured speakers at the co-sponsored conference of the National Management Association and General Dynamics/Fort Worth Management Club to be conducted Saturday, February 29, 1964, in the Grand Ballroom of the Hotel Texas in Fort Worth.

Hjornevik's speech is entitled "The Nation's Manned Space Program and Its Management." Mathews will speak on "Management Aspects of The Gemini Program."

Hjornevik, a native of Minneapolis, Minnesota, was appointed to his present position with MSC in June 1961. He graduated from North Dakota State College in 1949 with a BS degree in economics. At MSC, he is responsible for working relationships with other agencies, industry, and state and local governments; development of management relationships between NASA and contractor groups in aerospace research and development functions; planning and directing the financial management program; and directing internal administrative support services including personnel, security, and administrative services.

Hjornevik and his wife have five sons.

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Mathews, born in Duluth, Minnesota, received his BS degree in aeronautical engineering from Rensselaer Polytechnic Institute, Troy, New York, in 1942. He has been with NASA since 1943. During his early career, he was engaged in airplane flight research -- exploratory research to determine airplane configurations suitable for use at supersonic speeds; through this research the first verification in this country of the performance capabilities of sweptback wings was achieved. Later, his concentration was shifted to flight research in the areas of automatic control of airplanes -- the improvement of airplane flying qualities through automatic control devices and the development of automatic systems for use in the interception of enemy bombers.

Mathews became involved with spacecraft studies during the time of the first Sputnik flights; he conducted early studies on reentry of orbital manned spacecraft. He served as chairman for the group which developed specifications for the Mercury spacecraft. His work in this program involved directing the team which established the operating concepts for early space missions, and directing the early flight tests. Some of his additional activities involved the concept and requirements for the worldwide Mercury tracking network and the Mercury Control Center at Cape Kennedy. The planning of facilities and procedures for flight preparation of the Mercury spacecraft were developed under his direction.

Prior to his March 1963 assignment as Gemini Program Manager, Mathews served as Deputy Assistant Director of MSC for engineering and development and as Chief of the MSC Spacecraft Technology Division. This division contributed to early phases of the Apollo lunar landing program, the spacecraft and its mission.

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Mathews' Gemini Program, the Nation's current step into space, employs a two-man spacecraft for long-duration missions and for orbital rendezvous and docking experiments. The first three Gemini flights, two of them unmanned, are scheduled for this year. Gemini will provide flight experience and technical knowledge that will be applied to the Apollo program and to more advanced space flight missions.

Mathews and his wife have two children, a son and a daughter.

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NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER NASA Houston 1, Texas

HUnter 3-4241

MSC 64-37
February 26, 1964

HOUSTON, TEXAS -- The NASA Manned Spacecraft Center has asked for proposals from aerospace companies for a study on how to perform lunar survey experiments once astronauts have landed on the moon's surface.

Proposals, to be submitted by March 5, 1964, call for maximum use of equipment presently planned for the Lunar Excursion Module and the Command Module. This includes an inertial measurement unit, a guidance computer, a space sextant, scanning telescope, coupling unit and electronic packages.

Called selenodetic measurements study, it will examine the use of applied mathematics to determine by observation and measurement the exact position of points and areas of large portions of the moon surface.

The study seeks answers on how to perform lunar surveys, the size and shape of the moon, and how to locate points on the lunar surface for the purpose of future navigation.

For the purpose of the study, it is assumed only one astronaut will explore the area in the LEM's immediate vicinity. The second space pilot will remain inside the lunar module and the third astronaut will be on board the Command Module.

A fraction of the 250 pounds of scientific apparatus which the LEM will carry will be alloted to selenodetic equipment and it must be capable of normal operation in a hard vacuum.

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According to the study, the orbital plane of the mother ship may be inclined as much as ten degrees to the lunar equator with landing sites selected between a plus or minus ten degrees latitude.

The study does not include fabrication of equipment but it may include plans, cost estimates and development-time estimates required for the construction equipment.

MSC has alloted approximately $99,000 for the performance of the study which has been requested by the Advanced Spacecraft Technology Division. Work is to be completed by six months after receipt of a notice to proceed. An additional month will be allowed for submission of the final report.

To date more than 50 aerospace firms, including several small businesses, have been solicited. MSC's request contains two major sections: cost and technical. Of these, the technical proposal is considered the more important.

MSC will specifically consider the following factors in the technical evaluation:

a. complete coverage of all requirements,

b. technical feasibility of the approach to the requirement, and

c. the scientific experience of the personnel to be assigned to the program.

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NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER

Houston 1, Texas

HUnter 3-4241

MSC 64-38
February 27, 1964

HOUSTON, TEXAS -- The NASA Manned Spacecraft Center has accepted the Life Systems Laboratory at the Clear Lake site and certified it as ready for occupancy.

Carrying a $892,266 price tag, the structure will house personnel for the Crew Systems Division. Moving day is March 11, 1964. Leavell, Morrison-Knudson and Tordeman Company of El Paso, Texas is the prime contractor.

The Life Systems Laboratory contains more than 39,000 square feet of space. It is 245 feet long by 105 feet wide and has a 47-foot high bay area running the length of the building.

A space environmental simulator occupies one end of the high bay area. Included also are several drop towers now being acquired.

Surrounding these test facilities are the following laboratories necessary for their operations:

The Space Suit Laboratories where work on operational suit projects and advanced space suit projects will be done. The operational unit will directly support all manned tests performed in the laboratory, while the advanced unit will investigate development concepts.

The Environmental Systems Instrumentation Laboratory will test payload instrumentation.

Elements of the Chemistry Laboratories.

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The Materials and Survival Equipment Laboratory where prototype and flight survival equipment will be fabricated and tested.

The Restraint Laboratory where new couch concepts will be developed and human tolerance levels tested.

The man-rated space environmental chamber is 17 feet high and 20 feet in diameter. It is being built under a $514,030 contract with the Chicago Bridge and Iron Company of Oak Brook, Illinois. When completed it will permit simulating effects on man and equipment of altitudes up to 225,000 feet. A second chamber, eight feet in diameter, will be able to simulate altitudes up to 125,000 feet.

The systems laboratory is the ninth building accepted out of 13 programmed for construction under the Phase 3 contract. The Project Management Building, Office wing of the Auditorium, Central Cafeteria, Technical Services Office, Technical Services Warehouse, Support Office Building, Support Shops and Warehouse and Garage Building were built and accepted under this contract.

Up to this time the space agency has committed $20,693,710 for construction under the Phase 3 contract.

MSC spent $4,752,858 to prepare the Clear Lake site before the first foundation was laid. The work, under a Phase 1 construction contract, consisted of relocation of oil pipe lines and a canal; grading and roads, installation of storm sewers, water and gas mains, a water pumping plant and storage tanks, utility tunnels and a field office for the U.S. Corps of Engineers.

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Add 2
MSC 64-38

Phase 2 work in the amount of $4,891,475 included the construction of the water treatment and sewage plants, a heating and cooling plant, the fire station and the Central Data Office building.

Another utility which had to be built before the construction of buildings could be undertaken was the 138 KV electrical sub-station. This facility was funded under a separate contract at a cost of $756,950.

Out of the $147,452,000 obligated to the space agency for construction by Congress, MSC has paid contractors $62,877,469 as of February 15, 1964.

The National Aeronautics and Space Administration has requested an additional $25,166,000 for construction at MSC during fiscal year 1965.

The funding request and estimated dollar value would cover: a Lunar Mission and Space Exploration Facility, $2,647,000; Flight Crew Operations Facility, $1,764,000; Electronic Systems Components Facility, $4,110,000; Technical Services Facility, $2,240,000; Cafeteria, $706,000; and modifications to Environmental Test Laboratory, $9,416,000; Central Data Office extension, $2,658,000, and extensions to the Heating plant and warehouse, $1,625,000.

With the occupancy of the Life Systems Laboratory, more than 900 space agency employees will have moved to Clear Lake.

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NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER → Houston

[illegible] → [illegible], Texas

HUnter 3-4241

MSC 64-39
March 2, 1964

HOUSTON, TEXAS -- The Apollo Spacecraft boilerplate command module and related equipment, which will be used in the first full-scale test flight of the National Aeronautics and Space Administration's Apollo spacecraft launch escape system, arrived today at the NASA Manned Spacecraft Center facility, White Sands Missile Range, New Mexico.

Previously delivered were the Little Joe II launch vehicle, the boilerplate service module and the launch escape system. The total test configuration will weigh over 28 tons.

The purpose of the test flight will be to demonstrate the operation of the launch escape system at high dynamic pressure in the transonic speed range. Maximum loads are predicted in this speed range, during the trajectory of the launch escape vehicle, subsequent to abort initiation. The conditions at abort initiation will duplicate conditions predicted for a Saturn S-11 boost trajectory.

Launched by the ignition of all Little Joe II motors simultaneously, with nearly 300,000 pounds of thrust, the vehicle will ascend to approximately 22,000 feet in slightly more than 30 seconds. The abort will be initiated and the command module, which would house the three-man crew in a manned Apollo mission, will separate from the service module. At this time the escape motor and the Pitch control motor will be ignited, propelling the 4½ ton command module to an altitude of over 24,000 feet. The launch escape system will then separate from the command module,

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the landing system will be actuated, and the command module will descend to the ground by means of three 88-foot ringsail parachutes at a rate of 24 feet per second.

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NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER

Houston 1, Texas

HUnter 3-4241

MSC 64-40
March 2, 1964

HOUSTON, TEXAS -- Appointment of Dr. Charles A. Berry, M. D., as Chief of Center Medical Programs for the NASA Manned Spacecraft Center has been announced by Dr. Robert R. Gilruth, MSC Director.

The promotion to the newly established position places Dr. Berry in charge of all medical matters concerning MSC. He will advise the Director on medical and physiological questions influencing mission plans or hardware design.

In his new post, Dr. Berry will be the senior medical officer present and serve as the Director of Medical Operations during manned flight; review for the Director all MSC aeromedical development programs; establish procedures

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for Center representation at meetings and conferences with medical organizations, and approve speakers and their medical presentatons for these organizations.

Dr. Berry will also establish MSC medical standards and policies governing the selection of flight crews; develop criteria governing the appointment of crews to specific manned spaceflight missions; establish standards governing the assignment of personnel to hazardous testing, and retain overall responsibility of the safety programs for all Center workers.

Promoted into the position vacated by Dr. Berry is Dr. D. Owen Coons, M. D., formerly the Deputy Chief.

Dr. Berry has been with the National Aeronautics and Space Administration since July 1, 1962. At that time he was on loan from the United States Air Force where he held a commission as lieutenant colonel. When the post of Chief of the Medical Operations Office was established as a civil service position in August, 1963, Dr. Berry was offered the job and he accepted the appointment, resigning his commission for that purpose.

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In September of that year, he reported for duty in the Aerospace Medicine Division, Office of the Surgeon General, USAF. In December -- same year -- he was selected as an Aeromedical Monitor for the Manned Spacecraft Center's Project Mercury operations. Since that time, he has served as prime monitor at the Canary Island and Bermuda sites and has trained other medical monitors at these sites.

Dr. Berry is a member of the American Medical Association, the American Academy of General Practice, the AIAA and the Association of Military Surgeons. He is on the Aerospace Medicine Committee of the American Medical Association. He is a Fellow of the Aerospace Medical Association, a member of the Space Medicine Branch of that Association, and a member of the Committee on Aviation Health and Safety. He is a Fellow of the American College of Preventive Medicine. He is a member of Delta Omega (Honorary Public Health Society) and Nu Sigma Nu, and is an Associate Fellow of the American College of Physicians. He is a member and is on the Board of Governors of the Society of USAF Flight Surgeons.

Dr. Berry's community activities have included chairmanship of a Boy Scout Troop Committee, Trustee of the School Board and a member of the Board of the First Methodist Church, Seabrook, Texas.

He is rated as a Senior Flight Surgeon and has been awarded the American Campaign Medal, World War II Victory Medal, National Defense Service Medal, Navy Good Conduct Ribbon, the Commendation Ribbon and Wings of the Nicaraguan Air Force.

On April 26, 1961, he was presented the Arnold D. Tuttle Award for his articles on original research published in Aerospace Medicine in 1959 and 1960.

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On February 9, 1962, he was awarded the USAF Certificate of Achievement in recognition of outstanding qualifications in the speciality of Aviation Medicine. Dr. Berry has been author or co-author of nearly 30 aerospace medical papers and several chapters of book length works.

A native of Rogers, Arkansas, Dr. Berry spent most of his life prior to entering military service in the Coachella Valley, Indio, California. He now resides in Seabrook, Texas with his wife and their three children.

Dr. Coons is a native of Hamilton, Ontario, Canada, and received his medical degree from the University of Toronto in 1948. After an internship in Hamilton, Ontario, he became a senior officer in the Royal Canadian Air Force serving at stations in Camp Borden, Ontario; St. Jean, Quebec from 1949-53 and with the No. 1 Fighter Wing in England and France, 1953-55.

In 1951, he received his wings as a qualified pararescue physician.

From 1955-56 he was a post-graduate student at Harvard University where he received a masters degree in public health. He was director of aviation medicine, RCAF Hq., Ottawa from 1956-59, and then until 1962 he served as staff officer, Medical Services, Canadian Joint Staff in Washington, D. C.

Serving as principal medical officer and flight surgeon on the Royal Canadian Navy aircraft carrier, HMSC Bonaventure, during 1962-63, he participated in the rescue in September 1962 of the survivors of the ditched Flying Tiger Constellation in the North Atlantic.

Some of his papers have appeared in the Canadian Medical Journal, Canadian Services Medical Journal and the NATO Agardograph. He is a certificated specialist in aviation medicine, American Board of Preventive Medicine and the Canadian Forces Medical Service.

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Add 4
MSC 64-28 64-40

Dr. Coons is a Fellow in Aviation Medicine, Aerospace Medical Association; American College of Preventive Medicine; and the Royal Society of Medicine.

He holds membership in the Aerospace Medical Association, Canadian Aeronautics and Space Institute, Royal Society of Medicine and Alpha Kappa Kappa medical fraternity.

Married to the former Betty Jean Bower of Hamilton, the couple has two children.

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NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER

Houston, Texas

SP3

HUnter 3-4344 MSC-64-41

HOUSTON, TEXAS - Faith 7, Mercury spacecraft flown by Astronaut L. Gordon Cooper in his earth circling 22 orbit flight last May will be on display March12 through March 15 in Sacremento, California.

The four day stop in Sacremento is the twentieth of 50 state capitol visits that the National Aeronautics and Space Administration has scheduled for Cooper's spacecraft. Close to 3,000,000 persons have already seen the spacecraft since it began its cross country tour in Cooper's home state of Oklahoma.

The NASA Manned Spacecraft Center at Houston, Texas, has set Faith 7 on a stand which permits easy viewing of the inside of the spacecraft. A section of the base of the heat shield and portions of the outer skin have been cut away permitting the first public look at the inner structure of a Mercury spacecraft.

The spacecraft - inside and out - is exactly as it was when it splashed down into the Pacific near Midway Island on May 16, 1963. Nothing has changed. The spacecraft shingles - its outer skin made of a new metal rene' 41 - shows the effects of the 1,000 degree heat which blanketed the spacecraft during re-entry into earth's atmosphere. The heat shield - a mixture of glass fibers and resin - at the base of the spacecraft withstood maximum temperatures of 3,000 degrees farenheit when Cooper directed Faith 7 on its return to the earth.

Add 1
MSC 64-41

Also on display with the spacecraft are the cameras Cooper carried and the astronaut Survival Kit which rode on Faith 7's 546,185 mile earth-circling flight. Samples of the food Cooper ate during his day and a half in space will also be on display.

The 13 month tour, ending in the nation's capitol on November 1, 1964, will cover approximately 20,000 miles, a distance Faith 7 covered in space in approximately 80 minutes.

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

HUnter 3-4344

MSC-64-42

HOUSTON, TEXAS - Faith 7, Mercury spacecraft flown by Astronaut L. Gordon Cooper in his earth circling 22 orbit flight last May will be on display March 19 through March 22 in Carson City, Nevada.

The four day stop in Carson City is the twenty-first of 50 state capitol visits that the National Aeronautics and Space Administration has scheduled for Cooper's spacecraft. Close to 3,050,000 persons have already seen the spacecraft since it began its cross country tour in Cooper's home state of Oklahoma.

The NASA Manned Spacecraft Center in Houston, Texas, has set Faith 7 on a stand which permits easy viewing of the inside of the spacecraft. A section of the base of the heat shield and portions of the outer skin have been cut away permitting the first public look at the inner structure of a Mercury spacecraft.

The spacecraft - inside and out - is exactly as it was when it splashed down into the Pacific near Midway Island on May 16, 1963. Nothing has changed. The spacecraft shingles - its outer skin made of a new metal material - shows the effects of the 1,000 degree heat which blanketed the spacecraft during re-entry into earth's atmosphere. The heat shield - a mixture of glass fibers and resin - at the base of the spacecraft withstood maximum temperatures of 3,000 degrees farenheit when Cooper directed Faith 7 on its return to the earth.

Also on display with the spacecraft are the cameras Cooper carried and the astronaut Survival Kit which rode on Faith 7's 546,185 mile earth-circling flight. Samples of the food Cooper ate during his day and a half in space will also be on display.

The 13 month tour, ending in the nation's capitol on November 1, 1964, will cover approximately 20,000 miles, a distance Faith 7 covered in space in approximately 80 minutes.

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER

Houston 1, Texas

HUnter 3-4344

MSC-64-43

HOUSTON, TEXAS - Faith 7, Mercury spacecraft flown by Astronaut L. Gordon Cooper in his earth circling 22 orbit flight last May will be on display April 2 through April 5 in Honolulu, Hawaii.

The four day stop in Honolulu is the twenty third of 50 state capitol visits that the National Aeronautics and Space Administration has scheduled for Cooper's spacecraft. Close to 3,050,000 persons have already seen the spacecraft since it began its cross country tour on Cooper's home state of Oklahoma.

The NASA Manned Spacecraft Center at Houston, Texas, has set Faith 7 on a stand which permits easy viewing of the inside of the spacecraft. A section of the base of the heat shield and portions of the outer skin have been cut away permitting the first public look at the inner structure of a Mercury spacecraft.

The spacecraft - inside and out - is exactly as it was when it splashed down into the Pacific near Midway Island on May 16, 1963. Nothing has changed. The spacecraft shingles - its outer skin made of a new metal rene' 41 - shows the effects of the 1,000 degree heat which blanketed the spacecraft during re-entry into earth's atmosphere. The heat shield - a mixture of glass fibers and resin - at the base of the spacecraft withstood maximum temperatures of 3,000 degrees farenheit when Cooper directed Faith 7 on its return to the earth.

Also on display with the spacecraft are the cameras Cooper carried and the astronaut Survival Kit which rode on Faith 7's 546,185 mile earth-circling flight. Samples of the food Cooper ate during his day and a half in space will also be on display.

The 13 month tour, ending in the nation's capitol on November 1, 1964, will cover approximately 20,000 miles, a distance Faith 7 covered in space in approximately 80 minutes.

NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER — Houston 1, Texas

HUnter 3-4343 MSC-64-44

HOUSTON, TEXAS - Faith 7, Mercury spacecraft flown by Astronaut L. Gordon Cooper in his earth circling 22 orbit flight May 1963 will be on display 19 November through 22 November in Juneau, Alaska.

The four day stop in Juneau is the 49th of 50 state capitol visits that the National Aeronautics and Space Admin stration has scheduled for Cooper's spacecraft. Close to 4,000,000 persons have already seen the spacecraft since it began its cross country tour in Cooper's home state of Oklahoma.

The NASA Manned Spacecraft Center at Houston, Texas, has set Faith 7 on a stand which permits easy viewing of the inside of the spacecraft. A section of the base of the heat shield and portions of the outer skin have been cut away permitting the first public look at the inner structure of a Mercury spacecraft.

The spacecraft - inside and out - is exactly as it was when it splashed down into the Pacific near Midway Island on May 16, 1963. Nothing has changed. The spacecraft shingles - its outer skin made of a new metal rene-41 - shows the effects of the 1,000 degree heat which blanketed the spacecraft during re-entry into earth's atmosphere. The heat shield - a mixture of glass fibers and resin - at the base of the spacecraft withstood maximum temperatures of 3,000 degrees farenheit when Cooper directed Faith 7 on its return to the earth.

Also on display with the spacecraft are cameras Cooper carried and the astronaut Survival Kit which rode on Faith 7's 546,135 mile earth-circling flight. Samples of the food Cooper ate during his day and a half in space will also be on display.

The 13 month tour, ending in the Nation's capitol on Nov. 1, 1964, will cover approximately 20,000 miles, a distance Faith 7 covered in space in approximately 80 minutes.

NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER NASA Houston 1, Texas

HU 3-4231

MSC 64-45
March 9, 1964

HOUSTON, TEXAS -- Dr. Robert R. Gilruth, Director of the NASA Manned Spacecraft Center, and more than 500 other center workers moved into new offices at the Clear Lake site March 6.

With the completion of this move -- the third installment of mass relocation, more than 1,400 space agency employees have moved from temporary quarters in Houston.

Latest group included workers assigned to the Crew Systems Division, Gemini Program Office, the Astronaut Office and the top management staff. They occupied offices in the headquarters building, Flight Crew Operations Office and the Life Systems Laboratory.

The first mass move consisted of some 280 persons on February 20. More than 300 moved on February 28. Earlier, approximately 270 workers were at the space agency's new home.

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NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER NASA Houston 1, Texas

HU 3-4241

MSC 64-46
March 5, 1964

HOUSTON, TEXAS -- Eight contracts in excess of $25,000 were awarded during January by the NASA Manned Spacecraft Center to firms and agencies in four states. Total value of the contracts was $5,069,145.

Three of the four contracts awarded in Texas went to the U.S. Army Corps of Engineers District Office in Fort Worth for subsequent payment to construction contractors for facilities construction at Manned Spacecraft Center. Two contracts went to Connecticut firms and one each to Illinois and New York concerns.

Contract amounts, firms or agencies and items or services contracted for are as follows:

$2,912,752 to U.S. Army Corps of Engineers. Fort Worth, for Center support facilities construction by W. S. Bellows Construction Co. and Peter Kiewit Sons, Houston.

$1,608,200 to Corps of Engineers for mission simulation and training facility to be built by W. S. Bellows Construction Co. and Peter Kiewit Sons, Houston.

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$120,000 to Corps of Engineers for design of project engineering facility by Wyatt C. Hedrick and Associates and Bernard Johnson, Inc., Houston.

$38,753 to General Services Administration, Fort Worth, for office furniture.

$35,340 to United Aircraft Corporation, Windsor Locks, Conn., for design study.

$249,000 to Perkin Elmer Co., Norwalk, Conn., for carbon dioxide measuring systems.

$66,100 to Sangamo Electric Co., Springfield, Ill., for data recording systems.

$39,000 to U.S. Department of Health, Education and Welfare, Staten Island, N. Y., for collection of heat stress data.

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NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

Manned Spacecraft Center, Houston, Texas

HU 3-4231

MSC 64-47
March 5, 1964

HOUSTON, TEXAS -- The National Aeronautics and Space Administration's (NASA) Manned Spacecraft Center announced today the mechanical mating of the first Gemini spacecraft (Gemini-1) with the Gemini Launch Vehicle (GLV-1) on Launch Complex No. 19 at Cape Kennedy. The spacecraft and launch vehicle are being prepared for the initial unmanned Gemini Earth-orbital mission scheduled for this spring.

Primary purpose of the first Gemini-Titan (GT-1) flight will be to test spacecraft-launch vehicle compatibility -- the ability of the launch vehicle to place the spacecraft into orbit. The Gemini spacecraft for this mission will not separate from the second stage of the launch vehicle. Recovery of the vehicle is not planned.

Gemini-1, covered with a protective plastic shroud, was moved from Hangar AF to the base of the concrete-and-steel launch stand on March 3. There, a crane lifted it to the first deck of the service structure.

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Under supervision of MSC Florida Operations engineers, disconnected from a smaller crane and connected by cables to a bridge crane atop the 140-ton, 140-foot erector. The bridge crane hoisted the spacecraft to the eighth level of the launch erector 109 feet above the launch pad. The spacecraft then was eased through the north door of the erector white room and into position above GLV-1. Here electrical mating was accomplished.

Today Gemini-1 was lowered until the connection ring on the bottom of the spacecraft settled gently on top of the GLV-1 second stage, where it will ride into Earth orbit.

At the mating line, twenty 5/16th-inch bolt holes were aligned. The nuts and bolts were alternately tightened; these will hold the spacecraft and second stage together during the GT-1 flight.

At the conclusion of this mating, the work platforms were secured around the spacecraft, and the white room door was closed.

The white room, a 50-foot-high 25-ton enclosure, provides controlled temperature and a clean atmosphere for final service and checkout of the spacecraft.

Prime contractor for the Gemini Launch Vehicle is the Martin Company. The GLV, a modified USAF Titan III, is supplied to NASA by the Air Force. The Gemini Spacecraft was produced by McDonnell Aircraft Corp.

Add 2
MSC 64-47

The Gemini Program, the second major step in this Nation's manned space flight effort, is under technical direction of the Gemini Program Office, at the Manned Spacecraft Center, Houston.

Prime objectives of the Gemini Program are early rendezvous capabilities and long-duration (up to two weeks) manned-flight experience, both necessary for the Apollo Program and for advanced manned space flight programs.

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NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER

HU 3-4241

MSC 64-48
March 6, 1964

HOUSTON, TEXAS -- Eighteen astronauts descended into Grand Canyon, Arizona, yesterday to learn geology in one of nature's most spectacular classrooms.

They left here Wednesday night to study rock formations whose hundreds of layers retell the geological history of the earth.

It's all part of a course in geology that NASA Manned Spacecraft Center and the U.S. Geological Survey began for astronauts three weeks ago. Between now and July 1, the astronauts will undergo about 58 hours of classroom instruction, and make several more field trips.

The purpose is to equip them with geological knowledge so they can selectively obtain samples of the lunar surface to help shed knowledge on the origin and history of the moon. The United States intends to land men there in this decade.

Only half the earth's history -- back about two billion years -- is reflected in rock formations throughout the more than 5,000-foot depth of Grand Canyon. But scientists here feel the moon may be

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able to shed more light on the origin of the earth-moon system which dates back 4½ billion years. They believe the moon's crust contains many elements found on earth.

The course emphasizes the study of impact features and volcanic rock because of the probable importance of these phenomena on the structure of the lunar surface.

For years most scientists thought the moon was pock-marked by volcanoes which formed huge craters. Later, other opinions, such as the impact theory, came to light. Many scientists believe that meteors created the larger craters on impact, and that ejected lunar material falling back to the surface caused the smaller craters.

But the truth is that no scientist on earth knows for sure.

Nor does science know whether the moon's surface is coated with dust, large rocks or an asphalt-like crust.

Only a thinking man, capable of selecting the most valuable surface samples, photographing the most significant objects close-up, can bring back the answers.

And he must be trained to avoid returning from the moon with samples of meteoroid material available right on earth.

This is one reason men are going to the moon.

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Earth-bound scientists have yet to see a feature of the moon smaller than a tenth of a mile in diameter, even through the most powerful telescopes.

One portion of the course, covering "Principles of Terrestrial and Lunar Geology," is supervised by Dr. E. Dale Jackson of USGS. It covers geologic processes, stratigraphy, earth and moon structures and land forms, geologic mapping and geophysical properties of the earth and moon.

The other part, "Elements of Mineralogy and Petrology," is taught by three NASA geologists of the Lunar Surface Technology Branch at Manned Spacecraft Center: Dr. Ted H. Foss, Uel S. Clanton and Elbert A. King, Jr. It deals with the study of minerals and rocks expected on the lunar surface, and trains the astronauts to recognize the most significant s ples to bring back from the moon for analysis.

Astronauts participating in the Grand Canyon field trip were: M. Scott Carpenter, Alan B. Shepard, Jr., Neil A. Armstrong, Elliot M. See, Jr., Edwin E. Aldrin, Jr., William A. Anders, Charles A. Bassett, II, Michael Collins, Theodore C. Freeman, David Randolph Scott, Donn F. Eisele, Alan L. Bean, Eugene Andrew Cernan, Roger B. Chaffee, Richard F. Gordon, Jr., Clifton C. Williams, Jr., R. W. Cunningham and Russell L. Schweickart.

NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER

NASA

Houston 1, Texas

HU 34241

MSC 64-49
March 6, 1964

HOUSTON, TEXAS -- Gemini astronauts will not have to resort to hand signals for communicating with rescue teams parachuted into the landing area.

Manned Spacecraft Center of the National Aeronautics and Space Administration in Houston is asking equipment manufacturers to come up with a lightweight, salt waterproof recovery interphone. Rescue crews will plug into the Gemini spacecraft for direct voice communications instead of using clumsy hand signals or round-about radio relays.

Pararescue teams have the job of securing flotation gear to the spacecraft after water landings and for monitoring the safety of the flight crew.

The Recovery Interphones will be used in water landings prior to installation of flotation gear, and aboard ship after the spacecraft has been hoisted to the deck in preparation for opening the spacecraft's hatches. For dry land postlanding operations, the interphones will be used to talk with the astronauts before the hatches are opened.

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Add 1
MSC 64-49

Not only must the battery-powered Gemini interphones be compact buoyant but they must be capable of operating after extended submersion in sea water and have parts that are readily available from standard stocks. High-visibility colors will be used on the interphone cases.

Another requirement for the interphone is that it use a speaker-microphone system rather than a headset.

Would-be suppliers of the Gemini interphones have until March 9 to submit their design and cost proposals for producing 125 interphone sets.

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NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER (NASA)

Houston 1, Texas

HU 3-4231

MSC 64-50
March 9, 1964

HOUSTON, TEXAS -- Don J. Green, information specialist in the Public Affairs Office of the NASA Manned Spacecraft Center, will address members of the Galveston Kiwanita Club on March 17.

Green's speech, entitled "Why Space," will examine the potential impact space flight has on this country.

Green joined the National Aeronautics and Space Administration in January, 1963. In his present position, he has the information responsibility in the fields of flight operations, flight crew training, medicine and Center construction.

Prior to joining NASA he served as an aerospace writer and also was night editor with a news service in Chicago.

Green was born in Omaha, Nebraska on November 22, 1919. He received a Bachelor of Arts degree in History from Hastings College and worked on a Master of Science degree in Journalism at Northwestern University, Evanston, Illinois.

As a newsman working in Chicago, Mr. Green specialized in military and aviation subjects and worked on general assignments. He

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worked for the City News Bureau of Chicago, a metropolitan news service. His previous experience included employment with daily newspapers, as well as weeklies. Green has contributed aerospace articles to national and technical magazines and the smaller dailies as a free-lance author.

He holds an Air Force Reserve commission with assignment as an Information Staff Officer with 12th Air Force, Tactical Air Command, Waco, Texas. He is a veteran of World War II.

During his youth, Mr. Green was a member of the Boy Scouts and has remained active in scouting activities. He currently is Advancement Chairman of Troop 409, League City, Texas. He lives in League City, Texas with his wife, Laura, and their two children.

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NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER

NASA

Houston 1, Texas

HU 3-423.

MSC 64-51
March 10, 1964

HOUSTON, TEXAS -- Another 225 personnel of the NASA Manned Spacecraft Center will move into their new home at Clear Lake near Houston this week of March 9.

With this move -- the fourth major relocation since February 20 -- more than 1,700 persons will have occupied the new buildings at the permanent home.

Personnel of the Flight Crew Support Division comprise the bulk of those moving. They will occupy quarters in the Flight Crew Operations Offices building. More Office Services Division personnel will move, as well as the Audio-Visual Branch of the Public Affairs Office and the Management Analysis Division.

From the 1,600-acre site, National Aeronautics and Space Administration scientists and engineers will plan, execute and control future American space flights by the civilian agency, including long duration and rendezvous missions in orbits around the earth and flights to the moon.

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Of the 60 facilities that ultimately will comprise the space center, 19 are complete and the balance are in various stages of construction or awaiting budget action by Congress. Through fiscal year 1964, more than $147 million has been authorized for plant construction and a $25,166,000 construction request for fiscal year 1965 is pending.

The Flight Crew Operations Office building, a three story building, is the latest to be accepted from the contractor.

Containing more than 97,700 square feet of laboratory and office space, the flight building is 245 feet long by 133 feet wide. As in nearly all Center construction, solar gray window panels are a feature of the new structure.

The building was constructed for personnel of the Flight Crew Support Division, the Crew Systems Division, astronauts and others associated with planning and operational supervision of flight crews.

Several life support test labs are on each of the floors. Included are physiological, biochemical, life support, stress test, hemotology and histology facilities. A digital computer area also is located in the building.

The flight building is the tenth accepted out of 13 facilities programmed for construction under the Phase 3 contract. It cost $2,025,300. Leavell, Morrison-Knudson and Hardeman Company of El Paso, Texas is the prime contractor.

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NASA
S-64-17068

NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER NASA Houston 1, Texas

HU 3-4231

MSC 64-52
March 11, 1964

HOUSTON, TEXAS -- A savings of $2 million in the cost of operating the NASA Manned Spacecraft Center is expected to result from a cost reduction program initiated by the Center's director, Dr. Robert R. Gilruth. The savings will be made during the Fiscal Year 1964 budget period in response to President Johnson's plea for increased emphasis on economy in government.

Dr. Gilruth last month appointed Charles F. Bingman, Chief of the Center's Management Analysis Division, as Cost Reduction Officer.

General objective of the program is to reduce overall costs at the Center while maintaining maximum quality and reliability.

This includes reducing the cost of support and administrative operations, specifying only what is needed for any job or program, obtaining needs at the lowest realistic cost, educating employees in cost consciousness and cost control techniques, and increasing and improving applications of cost reduction techniques.

To make the cost reduction program work, Dr. Gilruth stated that an important part of the job of every line supervisor and staff officer

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is to perform his responsibility in the most economical manner possible, consistent with effective performance of his work.

In carrying this through, "each line supervisor should make constant positive efforts to seek and identify ways by which costs can be kept to a minimum and that no unnecessary expenditures are incurred," Dr. Gilruth said.

He also said that, "each staff office head serving the needs of the Center should analyse the items coming to him for action to determine the most economical means of accomplishment and to make recommendations to originators on how his needs can be met at the least cost to the government."

"However," Dr. Gilruth continued, "the ultimate responsibility for prudent expenditure of government funds rests with the individual employee. Even though an employee may not be directly responsible for committing the expenditure of funds he can improve his own work methods, increase his working efficiency and refrain from generating expenses which are not really necessary."

Specific program objectives for the MSC plan to save $2 million includes review of the cost reduction plans, developing employee cost consciousness, a cost reduction reporting system and cost reduction training for key supervisors.

Also called for is a study of successful cost reduction programs elsewhere and strengthening and tightening of the regular MSC internal cost programs.

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Another specific objective will be to focus internal managements study and audit on cost reduction potentials not previously covered.

The savings are to be effected in the following areas for FY 1964:

Personnel compensation -- The reduction in the personnel area is due to a freeze on hiring placed on MSC in the second quarter FY 64, and extension of hire beyond FY 64.

Travel and transportation of persons -- The reduction resulted from establishment of a travel control center which effected a reduction in the number of personnel traveling to the same destination on like business, and a reduction in the use of vehicle rental while in a travel status.

Rents, communications, and utilities -- Rental of conference rooms reduced by use of facilities now available at Ellington Air Force Base and the Clear Lake site, more ffective use and purchase of additional business equipment resulting in a reduction for rental of such equipment, reduction in communications requirements for MSC-White Sands Missile Range by deletion of requirements, and through savings on the maintenance of rental equipment.

Printing and reproduction -- Other savings will be realized in the reduction of printing and reproduction requirements.

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Add 3
MSC 64-52

Services -- Savings will result from decreases in contract requirements for FY 64 in exhibits, chart and related art, management surveys, and maintenance and repair of office and shop equipment, buildings and grounds.

Supplies and materials -- Additional savings will be realized due to a more modest increase in the level of inventory buildup.

Equipment -- Other savings will come about as a result of the deletion of many individual items of equipment not needed during FY 64.

In addition to the above savings, MSC will implement a contractors cost reduction plan which will be developed at NASA Headquarters by Walter L. Lingle, Jr., Deputy Associate Administrator.

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NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER NASA Houston 1, Texas

HU 3-4241

MSC 64-53
March 1964

HOUSTON, TEXAS -- Space explorers may someday be able to drink reclaimed urine, purer than water now used in many American communities, according to scientists at the NASA Manned Spacecraft Center.

Making urine potable is simply a matter of removing impurities. And the process of purifying contaminated water for drinking takes place continuously at every major city in the United States to meet the standards of the U.S. Public Health Service.

Reclaimed water aboard future manned spacecraft can also meet -- and even surpass -- those standards, using small chemical reclamation units.

One such device is being developed by Resin Research Laboratories, Inc., of Newark, N. J., for study at Manned Spacecraft Center. It weighs less than five pounds, and automatically produces potable water from urine without using mechanical, electrical or heat energy from the spacecraft.

The system consists of separate resin beads which attract ions of solubles like salts and urea from waste liquid; a mechanical separator isolates suspended particles of albumin and other organic waste.

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The result: A soft, tasteless potable water.

Other purification systems have been investigated during the past 15 years for use in spacecraft, and even for potential use in Civil Defense shelters.

They include such concepts as freezing, boiling, condensing, vaporizing, compressing, vacuum distilling, and such exotic methods as electrodialysis, ultrafiltration and osmosis.

All of them work -- some better than others -- to purify contaminated water, such as urine and sea water. Some can be adapted to spacecraft. Others cannot because of their weight, bulk and power requirements.

Officials at Manned Spacecraft Center are looking into urine purification for NASA's Office of Advanced Research and Technology, with an eye to manned flights lasting many months.

Richard Johnston, Chief of the MSC Crew Systems Division, said a reclamation system will not be needed for Project Apollo, the manned lunar exploration mission, but that an Apollo flight may be used to test the first flight articles.

Apollo astronauts will depend on chemically produced water from fuel cells which are expected to provide all the drinking water necessary for the lunar mission.

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NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER NASA Houston 1, Texas

HU 3-4241

MSC 64-54
March 17, 1964

HOUSTON, TEXAS -- Answers to questions on how space flight equipment performs in the hard-vacuum environment of space between the earth and the moon will be sought in an ultra-high vacuum chamber to be built at the NASA Manned Spacecraft Center.

Components of Apollo moon mission spacecraft will be tested for periods up to 30 days in the proposed chamber in a vacuum as near that of space between the earth and the moon as can be simulated by present technology.

Industrial firms specializing in the design and construction of environmental test equipment have been asked to submit technical proposals for the chamber to the Center by May 1.

NASA environmental simulation people at the Houston center require that the chamber be capable of testing components ranging up to six feet in diameter, six feet high, and weighing up to 2,000 pounds. Vacuum pumps must be able to evacuate the atmosphere in the chamber to the desired simulated space environment within a 24-hour period.

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In addition to the hard vacuum of cislunar space, the chamber will be capable of subjecting test objects to simulated solar irradiation up to intensities of 140 watts per square foot, approximately the same as at earth orbit altitude.

Among other NASA requirements for the chamber are ease of operation and maintenance, economy and a flexibility for upgrading the chamber for tougher jobs as new technology develops.

The Space Environment Simulation chamber will be housed in a building to be constructed adjacent to environmental test facilities now under construction at Manned Spacecraft Center.

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NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER

Houston 1, Texas

HU 34231

MSC 64-55
March 23, 1964

HOUSTON, TEXAS -- "Opportunities in Space Exploration" will be the subject of Jack Lister of the NASA Manned Spacecraft Center when he speaks at the annual meeting of the Texas State Association of the National Honor Society in Hearne April 4.

Lister is head of the Training Branch at the Center. His talk will include a briefing on the overall manned space flight program.

He received his Bachelors degree in education from Jacksonville State College, Jacksonville, Alabama, and did graduate work at the University of Alabama. Lister served with the U.S. Eighth Army in Korea.

The NASA Manned Spacecraft Center in Houston has the responsibility for developing manned spacecraft, training space flight crews to man these craft and for conducting space flight missions. The Center is currently involved in Project Gemini, the two-man earth orbital long-duration space flight program, and Project Apollo in which it is planned to land American astronauts on the moon before 1970.

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NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER

Houston 1, Texas

HUnter 3-4241

64-56
March 13, 1964

HOUSTON, Texas, March 13 -- Design recommendations for a zero-gravity Orbital Research Laboratory that could accommodate 24 crew members in NASA missions lasting up to five years were announced today by the Douglas Aircraft Company's Missile & Space Systems Division.

Details of the laboratory were outlined in a report submitted to NASA's Manned Spacecraft Center, climaxing a six-month study carried out by Douglas in conjunction with the Federal Systems Division of IBM Corporation.

Called LORL for Large Orbital Research Laboratory, the new Douglas spacecraft is the largest zero-gravity space station now under consideration by the United States, and was formerly known as "MOSS," (Manned Orbital Space Station).

According to the Douglas-IBM study, LORL could be developed without major technological breakthrough and could be operational as early as 1968. Its design takes maximum advantage of zero-g (the weightless state), with crew stations and equipment located without regard to conventional concepts of up or down.

But its operational feasibility depends upon whether astronauts can survive and function properly without artificial gravity over long periods. If it is determined that they can, the zero-g concept offers important advantages in performances and design over alternative configurations.

The Douglas LORL would be launched unmanned by a two-stage Saturn V booster.

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Its own propulsion system would inject the cylindrical vehicle, 33 feet in diameter and 140 feet long, into an orbit of 260 nautical miles in a nose-toward-earth position. Huge paddle-like solar arrays then would unfold, catching the sun's ray to operate a solar-cell battery power plant.

Once aloft, the space laboratory would normally be manned by a crew of 24, but could support 36. Personnel would arrive by a six-man, Apollo-type logistical ferry-craft or via 12-man space vehicles either of the ballistic or lifting-body type.

From the structural standpoint, its development would be relatively simple, the study indicates. As it would not require complicated rotation mechanism to provide the full station with continuous artificial gravity, its weight could be cut, it would have greater flexibility in orientation, and it would require less fuel for stabilization and control, Douglas space engineers said.

In addition to its efficiently arranged interior and simplified structural design, its resupply requirements are fewer by virtue of better cabin sealing preventing altitude leakage. LORL would carry its own water and oxygen regenerating system, further trimming its load.

The habitable portion of the space station would be pressurized to a full-time shirtsleeve environment and would measure 70 feet in length, divided into living quarters and laboratory areas. These compartments would be separated by spherical-segment bulkheads and connected by an access tunnel running the length of the big cylinder at its core.

According to the Douglas-IBM recommendations, LORL's midsection would be compartmentized into (1) the station operations center; (2) laboratories for scientific experimentation and engineering development, and (3) living quarters for the crew.

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The operations center and the laboratories would provide interfaces, in the form of special consoles and control stations, between the crew and an integrated electronic data management system worked out by IBM who had responsibility for navigation, guidance stabilization and control, data processing, communications and tracking portions of the LORL study.

As envisioned by IBM, a single electronics system would handle the flow of data generated by all these functions. The heart of this system would consist of a central, onboard data processor fabricated with miniaturized circuits similar to those within IBM's Saturn computer. For communications between space stations and Earth, IBM proposes an S Band (common carrier) system in which transmissions from the space station are routed to a single ground station over a single channel each time the vehicle passes overhead. Ground tracking and control facilities for LORL would require only minor adaptation of existing or planned facilities, according to IBM.

The aft section would be used as a hangar, pressurized for short periods so that functions such as cargo unloading and ferrycraft maintenance could be accomplished. A dome-like door would seal this area from the outside, opening to admit or discharge ferrycraft shuttling to and from Earth. Up to four of the Apollo-type logistic support spacecraft could be docked in the hangar at one time.

A conical nose fairing 40 feet long at the forward section would be unpressurized but would be joined to the traffic shaft of the main laboratory by a small airlock.

Crew quarters contain a dispensary, sick bay, toilets, and storage area. Also provided are lounge and recreation facilities. Another section is for private sleeping cubicals, each with a body restraint system for sleep and passive activities such as reading and writing.

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A possible body restraint could be similar in construction to the seat of a spaghetti chair, which holds the astronaut firmly but softly within its pliable grip.

In the absence of gravity, occupants would otherwise have to be strapped to the mattress of a bed or bunk.

Work station restraints, probably of a saddle-and-seatbelt-type, would be positioned at the control instead of chairs. Movement from one area to another throughout the laboratory probably would be facilitated with handholds, and rails or cables, the Douglas-IBM report stated.

Normal earth-like walking with the use of adhesive or magnetic shoes was not generally recommended.

Although the space station is based on the zero-g concept, it would contain a 15-foot radius onboard centrifuge which could alleviate potential adverse effects of weightlessness on crew members. It also would precondition members for the high-g force of reentry, could be used for many experimental purposes, and be of assistance in accomplishing some tasks best performed in a gravity environment, such as eating or drinking.

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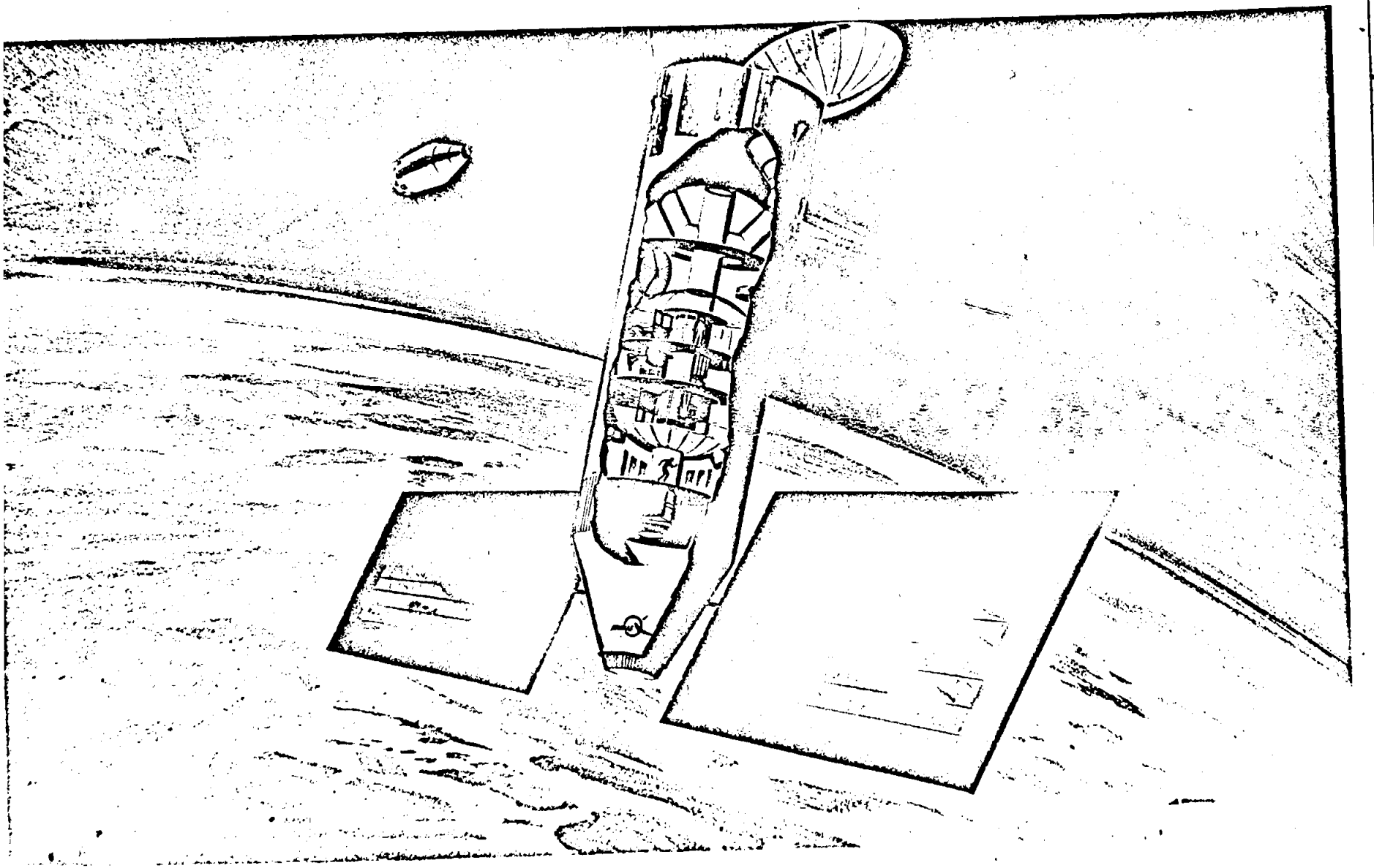
NASA
S-64-17720



NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER NASA Houston 1, Texas

HU 3-4231

MSC 64-57

HOUSTON, TEXAS -- The program at hand -- provide a possible land landing capability for the Gemini Spacecraft. The mission -- conduct an air-drop test of a new rocket landing system.

Called a Parasail, or gliding controllable parachute, it will be attached to a full scale model of a Gemini Spacecraft and dropped from an Air Force C-119C aircraft into the water of Trinity Bay, twenty-two miles from Galveston.

This is the first time a full scale test will be made using an eight foot diameter Parasail and a Gemini boilerplate configured and weighted to actual spacecraft requirements.

As the name suggests, the Parasail contains a series of vents which spill the captured air rearward as it descends. In addition, the Parasail is constructed of a special taffeta fabric of low porosity. Directional control is achieved because the escaping air is used more efficiently.

The gliding parachute landing rocket program, active since 1961, got a big assist from the Parasail design by the French inventor,

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Pierre La Moigne. Recent tests have been conducted with one-third scale models. Now the Parasail is ready for the 4,742 pound Gemini boilerplate and a full scale test.

Test instrumentation includes thirteen motion picture cameras, telemetry of eighteen channels of data, onboard tape recording of engineering data during splashdown, and a television system to provide a spacecraft pilot's view for the ground controller.

After take-off and when drop altitude has been reached, the Air Force plane will be joined by a photo aircraft so that close photographic coverage is possible throughout the test.

The Gemini boilerplate is carried heat shield aft in the aircraft. A cradle, similar to the one used to drop Mercury boilerplates will support the test vehicle and will allow it to be dropped without releasing any support equipment.

Depending upon weather conditions and cloud coverage, a drop is planned for 11,400 feet altitude; however the Gemini boilerplate may be released as low as 5,000 feet.

The first at-altitude flight over the target will be a 'dry run'. At countdown a red crepe paper draft streamer is released to check wind compensation.

Down below, in the Trinity Bay test area, the motor vehicle retriever boat, with photographic and data recording equipment, is in standby readiness.

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Two minutes before the Gemini boilerplate is dropped, it is switched to internal power.

At 'zero' drop, a static line deploys the test vehicle's ring-slot drogue-pilot chute.

Eight seconds after drop, the parachute container for the Para-sail is disconnected pyrotechnically.

At ten seconds the ringslot reefing line is cut and the para-chute container floats down separately.

Fifteen seconds after drop the main canopy is disreefed with the spacecraft in a re-entry attitude.

At twenty-eight seconds the Gemini Spacecraft is inverted to a thirteen degree nose down horizontal attitude.

At thirty-five seconds the ground controller on the retriever boat activates the radio control system. This allows him to make programed turns with the Parasail by radio control within the Gemini Spacecraft. Depending upon the altitude in which the test vehicle is dropped, the ground controller will have several minutes in which to make directional maneuvers.

At splashdown and impact, an emergency system in the spacecraft disconnects the Parasail so that it may be recovered by the retriever boat without damage.

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Add 3
MSC 64-57

A turbo-craft from the retriever boat moves quickly to the side of the spacecraft upon impact. Technicians will determine the safety of the external pyrotechnics and aid in the protection of the Para-sail.

Engineers of the Manned Spacecraft Center expect to recover all units of the Para-sail-Gemini Package, so that the Parasail Landing Rocket Program may continue on schedule.

This air drop test mission consisted of the Parasail and a deployment sequence system for programed turns. Subsequent drop tests will include among others, a directional control system, landing rockets, and a firing height sensor.

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NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

HU 3-4231

MSC 64-58
March 24, 1964

HOUSTON, TEXAS -- A test aimed at determining the best possible light intensity for acquiring the Agena target vehicle in the Gemini rendezvous program will be conducted this week by the Flight Crew Support Division of the NASA Manned Spacecraft Center.

The MSC engineering team will do the nighttime experiments at Hondo because of the favorable meteorological climate of the southwest Texas town. Hondo is remote from horizon glow produced by metropolitan areas, the engineers point out, and is subject to better year-round visibility.

In the program, a xenon flashing light will be mounted on a stand two miles from the test subject. The observer, wearing goggles with neutral density filters to simulate even greater distances will seek the light on command, looking through an aperture which simulates the field of view from a Gemini spacecraft window.

A test conductor who stands beside the subject will initiate radio command to start the flashing light. At the same time, a stop watch will record lapse time from initiation to acquisition. In each succeeding experiment, light intensity will be reduced until the light can no longer be acquired. Different test subjects also will be used.

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The xenon flash lamp which will be used in the test has variable light intensity and can be operated at several different flash rates. Short duration flashing is more attractive, engineers claim, because the periodic light conserves Agena electrical power. The light also is more easily detected than a steady burning light.

The present Agena light provides an intensity up to 20 nautical miles approximately equal to that of the North Star. Visual acquisition techniques will be not only for Gemini but also for Apollo, the manned lunar landing program.

Test conductor for the experiments is John McKee.

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lead to local media
3-25-64

NOTE TO EDITORS:

HOUSTON, TEXAS -- NASA's newest fourteen astronauts will be at Morehead Planetarium, Chapel Hill, N. C., Thursday and Friday, March 26-27, for training in star recognition and celestrial navigation.

Attending the two-day training course will be Astronauts Edwin E. Aldrin, Jr., William A. Anders, Charles A. Bassett, II, Alan L. Bean, Eugene Cernan, Roger B. Chaffee, Michael Collins, R. Walter Cunningham, Donn F. Eisele, Theodore C. Freeman, Richard F. Gordon, Russell L. Schweickart, David R. Scott, and Clifton C. Williams, Jr.

The training course will include familiarization with optical instruments, aspects of the celestial sphere, retrograde and diurnal motions, moon phasing, constellations, elements of the Solar System, special effects and devices developed for the Mercury Program and and atmospheric and celestial phenomena.

Similar training at Morehead was conducted for the two groups of astronauts selected previously. Purpose is to acquaint astronauts with celestial aspects in preparation for Gemini and Apollo flight programs.

Paul Haney
Public Affairs Officer
Manned Spacecraft Center

NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER NASA Houston 1, Texas

HU 3-4241

MSC 64-59
March 25, 1964

HOUSTON, TEXAS -- The work force of personnel at the NASA Manned Spacecraft Center's Clear Lake site has risen to approximately 2,000 with the move of the Advanced Spacecraft Technology Division.

The ASTD group occupies portions of the Spacecraft Research ffice and Laboratory, a complex of two connected buildings containing about 80,000 square feet of space. One structure is a two story office wing and the other is a high bay laboratory.

This complex is designed for research and development in the area of space communications, instrumentation, structures and mechanical systems. Work on guidance and control equipment and aerodynamic stability testing also will be done here.

The building will house analog and digital computer equipment used by the research groups. A mock-up area is set aside in the laboratory for scaled models of spacecraft and boosters to be used in communications and instrument testing. Computer equipment will be moved in starting March 23 and continuing for three weeks.

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Add 1
MSC 64-59

As in most buildings at the site, solar gray window panels are a feature of the exterior construction of the office wing. It is 271 feet long by 132 feet wide.

The laboratory is 115 feet long, 76 feet wide and 40 feet high. Inside is an overhead bridge crane capable of traversing the length of the laboratory. The crane has a capacity of 20 tons.

One-third of the 60 facilities that ultimately will comprise the space center have been certified by the United States Corps of Engineers as operational or ready for occupancy. The balance are in various stages of construction or awaiting budget action by Congress.

Spacecraft Research Office and Laboratory cost $1,586,415. It is the 11th accepted out of the 13 facilities programed for construction under the Phase 3 contract with Leavell, Morrison-Knudson and Hardeman Company of El Paso, Texas.

The major move into new facilities began on February 20. During that time Dr. Robert R. Gilruth, the Director; the Gemini and Apollo spacecraft program offices, and numerous other space center groups have been relocated. Moving of personnel will continue through April when about 2,500 workers will be in their new home. The balance will be located at Ellington Air Force and three leased buildings in Houston until June.

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NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER

NASA

Houston 1, Texas

HU 3-4241

MSC 64-60
March 27, 1964

HOUSTON, TEXAS -- Simulators and other training devices for Project Gemini, the Nation's two-man, long-duration space flight program, will be maintained and serviced under a $100,000 contract signed recently by the NASA Manned Spacecraft Center and the Link Division of General Precision, Inc., of Binghamton, New York.

Initial phase of the contract covers maintenance, repair and updating of Gemini mission simulators located at Cape Kennedy and at the Manned Spacecraft Center in Houston. These simulators and other training devices operated by the Center's Flight Crew Support Division include the Gemini Mission Simulator complexes at the Cape and in Houston, the Gemini Translation and Docking Trainer, the Gemini Part-Task Trainer, and the Gemini Systems Trainers.

Among the components in the group of simulators are such systems as visual displays, telemetry systems, analog and digital computers, closed-circuit TV systems, plotters and recorders, suit pressurization systems, and air bearing and pneumatic systems.

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The contract also calls for Link to develop, design and construct minor alterations and improvements for the simulators, and to furnish electro-mechanical design, electrical drafting and clerical services. Link will also be responsible for installation of modification kits supplied by the simulator manufacturers.

Astronauts and flight operations technicians will log hundreds of realistic simulated space flight hours in the Gemini simulators before the first manned Gemini flight lifts off at Cape Kennedy late this year. The two-man Gemini spacecraft is a more sophisticated vehicle than the one-man craft flown in the now-completed Project Mercury. Later missions in Project Gemini will include flights lasting up to 14 days and development of the techniques of rendezvous with a second spacecraft previously placed in orbit.

As flight simulation equipment for Project Apollo is installed at the Cape and in Houston, it is anticipated that the contract with Link will cover the same services as called for on the Gemini simulators. Project Apollo is the lunar landing program now in its development stages in which American astronauts will land on the surface of the moon before 1970. The three-man Apollo spacecraft is actually made up of three components or modules, and will be launched into lunar trajectory by the seven-and-a-half million pound thrust Saturn V.

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March 31, 1964

NOTE TO EDITORS:

HOUSTON, TEXAS -- Sixteen of NASA's 29 astronauts will be in the Big Bend National Park area near Alpine, Texas, April 2 and 3, for field training in geology.

Participating in the two-day tour will be Astronauts Edwin E. Aldrin, Jr., William A. Anders, Charles A. Bassett, II, Alan L. Bean, Eugene Cernan, Roger B. Chaffee, Michael Collins, L. Gordon Cooper, R. Walter Cunningham, Donn F. Eisele, Theodore C. Freeman, Richard F. Gordon, Russell L. Schweickart, Alan Shepard, Jr., David R. Scott, and Clifton C. Williams, Jr.

The field trip -- second in the astronaut training course in geology -- is designed to illustrate such geological structures as faulting and folding and to inspect volcanic rock features.

The NASA Manned Spacecraft Center and the U. S. Geological Survey have been holding courses in geology since mid-February. Purpose is to teach astronauts so they can selectively obtain samples of the lunar surface to help unlock the secrets of the origin and history of the moon.

Between now and July 1, the space pilots will undergo about 58 hours of classroom instruction in geology.

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NEWS RELEASE
NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
MANNED SPACECRAFT CENTER
Houston 1, Texas

HU 3-4231

MSC 64-60-A
March 25, 1964

HOUSTON, TEXAS -- "Girls Friday" are in short supply at the NASA Manned Spacecraft Center on the south edge of Harris County. Part of the shortage apparently stems from the reluctance of secretaries living in Houston to drive the 50-mile round trip to the Center at Clear Lake.

The commuting distance seems to discourage prospective new hires, but has not had any apparent effect upon secretaries and stenographers already on the Center's staff. Relocation of the Center from temporary quarters in Houston to Clear Lake has not increased the number of secretarial jobs to be filled, but has made it more difficult to keep authorized jobs filled that open up because of normal turnover.

Filling the clerk-stenographer openings, ranging in starting salaries from $3,880 to $4,215 a year, is the job of the U. S. Board of Civil Service Examiners. The board administers the competitive written examinations taken by applicants for the secretarial openings. Typing qualifications for these jobs may be met by certificates from

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typing instructors of high schools or from business schools accredited by the National Association of Business Schools. The Civil Service Board at the Center serves not only NASA but also other federal agencies in 21 East Texas counties.

Initial forms for applying for an examination may be obtained from any first class Post Office.

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NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER

Houston 1, Texas

HU 3-4231

MSC 64-61
March 30, 1964

HOUSTON, TEXAS -- A chunk of outer space which slammed into a Texas farm more than two years ago has finally found its way to the NASA Manned Spacecraft Center here.

Mr. and Mrs. Bernard W. Neeper said the suspected meteorite was found on their farmland north of Sweetwater about two years ago. Theirs was the first meteorite ever reported from Fisher County, Texas.

The couple turned the four-pound specimen over to Manned Spacecraft Center geologists after reading that MSC experts at the Lunar Surface Technology Branch are seeking natural space objects for examination.

Experts identified the Neeper Meteorite as a stoney meteorite, probably from the asteroid belt out between the planets, or from a "meteorite shower" left in the wake of a comet which crossed the earth's orbital path.

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Add 1
MSC 64-61

The Neeper's specimen has a dark brown fusion crust where it was partially melted upon entering the earth's atmosphere, and is mostly dark brown to black stone, with about 15 percent nickel-iron.

The couple has donated the meteorite to MSC to study. Such space samplings are rare, and only about 1500 are in museums around the world.

They are sometimes only fragments. The stones may be flecked with bright nickel-iron, or may be light with almost no metal at all. Usually they have no voids -- pores -- as do many artificial slags which are sometimes mistaken for meteorites.

Iron meteorites, on the other hand, are easy to spot because they are so heavy for their size, and usually weather on the outside to a dark rust brown.

Manned Spacecraft Center geologists have requested that any suspected meteorites -- or chips of them -- be sent to the Lunar Surface Technology Branch for examination. The samples will be returned after careful testing, if desired, and the identity provided.

Similar specimens are expected to be found on the lunar surface during manned exploration of the moon, and early study of meteorites is helpful in determining their physical properties and mineralogy.

Meteorite investigations at MSC are undertaken in cooperation with the U.S. National Museum.

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NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER

NASA

Houston 1, Texas

HU 3-4231

MSC 64-62
March 30, 1964

HOUSTON, TEXAS -- Dr. Robert R. Gilruth, Director of the NASA Manned Spacecraft Center here, today announced the reorganization of MSC operations at Cape Kennedy, Florida. The change is part of a broad NASA organizational realignment aimed at strengthening the Gemini and Apollo management structures at Washington, Houston and Florida.

The new organization, renamed MSC-Florida Operations, is headed by G. Merritt Preston. Preston has been in charge of MSC operations at the Cape since 1961. He is responsible for all MSC operations at the John F. Kennedy Space Center, and for the 327 MSC employees there. Preston has been with NASA and its predecessor, NACA, since 1939.

Dugald O. Black has been named deputy manager. He is former technical assistant and acting manager of the PACE-S/C project office.

Three assistant managers were named, one each for Gemini and Apollo, and another in charge of engineering. John J. Williams is assistant manager for Gemini; Jacob C. Moser for Apollo. William Durrett is Chief Engineer for the new office. Durrett's deputy A. M. Busch.

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Add 1
MSC 64-62

Four new divisions, organized with personnel from the former Pre-Flight Operations Division, have been established. Arthur M. Busch was named Chief of the Mechanical and Propulsion Systems Division, with W. R. Meyer as deputy. Durrett is acting Chief of the Electrical Electronics Systems Division, with M. A. Wedding as deputy for telecommunications and W. T. Risler, deputy for electrical guidance and navigation. The position of Chief, Electronic Ground Support Division is vacant at present. Division deputy is H. G. Johnson.

J. T. Garofalo has been named to head the Support Systems Division. H. E. McCoy was named deputy. All four divisions will support the Gemini and Apollo program offices.

Other key positions include: Paul C. Donnelly, head of the test conductor's office; John Janokaitis, operations engineering; F. M. Crichton, inspection and quality control; W. E. Williams, systems test integration office; B. Porter Brown, operations support, plans and programs, and Floyd D. Brandon, business manager.

Responsibilities of the reorganized MSC/Florida Operations unit are similar to those performed by the predecessor organization during Project Mercury, but include also acceptance testing at contractor factories and at all launch sites.

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NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
MANNED SPACECRAFT CENTER
Houston 1, Texas

HU 3-4231

MSC 64-63
March 31, 1964

HOUSTON, TEXAS -- Charles A. Berry, M.D., Chief of Center Medical Programs for the NASA Manned Spacecraft Center will address members of the St. Louis Suburban Teachers' Association April 3 in St. Louis.

Berry's speech will cover training of astronauts and human factors in space exploration.

As Chief of Center Medical Programs, Dr. Berry is the senior officer at the space center and he serves as Director of Medical Operations during manned flight.

He also establishes medical standards and policies governing the selection of flight crews; develops criteria governing the appointment of crews to specific manned space flight missions; and retains overall responsibility of the safety programs for all Center workers.

Dr. Berry has been with the National Aeronautics and Space Administration since July 1, 1962. At that time he was on loan from the United States Air Force where he held a commission as lietuenant colonel. When the post of Chief of Medical Operations Office was established as a civil service position in August, 1963, Dr. Berry was offered the job and he accepted the appointment, resigning his commission for that purpose.

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News

Number 3-4-64 MSC-64-64

HOUSTON, TEXAS - Faith 7, Mercury spacecraft flown by Astronaut L. Gordon Cooper in his earth circling 22 orbit flight last May will be on display April 30 through May 3 in Olympia, Washington.

The four day stop in Olympia is the twenty fifth of 50 state capitol visits that the National Aeronautics and Space Administration has scheduled for Cooper's spacecraft. Close to 3,500,000 persons have already seen the spacecraft since it began its cross country tour in Cooper's home state of Oklahoma.

The NASA Manned Spacecraft Center at Houston, Texas, has set Faith 7 on a stand which permits easy viewing of the inside of the spacecraft. A section of the base of the heat shield and portions of the outer skin have been cut away permitting the first public look at the inner structure of a Mercury spacecraft.

The spacecraft - inside and out - is exactly as it was when it splashed down into the Pacific near Midway Island on May 16, 1963. Nothing has changed. The spacecraft shingles - its outer skin made of a new metal René 41 - show the effects of the 1,000 degree heat which blanketed the spacecraft during re-entry into earth's atmosphere. The heat shield - a mixture of glass fibers and resin - at the base of the spacecraft withstood maximum temperatures of 3,000 degrees Farenheit when Cooper directed Faith 7 on its return to the earth.

MSC-3-63

Also on display with the spacecraft are the cameras Cooper carried and the astronaut survival kit which rode on Faith 7's 546,169 mile earth-circling flight. Samples of the food Cooper ate during his day and a half in space will also be on display.

The 13 month tour, ending in the nation's capitol on November 1, 1963, will cover approximately 20,000 miles, a distance Faith 7 covered in space in approximately 80 minutes.

Statement April 2, 1964

For Release at 1:45 p.m. (cst)

Cape Kennedy, Florida -- The flight of the first Gemini-Titan has been postponed until no earlier than April 8, NASA Operations Director Dr. Walter C. Williams announced today.

A short circuit in the ground support energy power equipment at launch Complex 19 caused the postponement of the flight, which had been scheduled for launch as early as April 7.

Over the coming weekend, the spacecraft will be demated for final check of instrumentation in the adapter section.

NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER

Houston 1, Texas

HUnter 3-4241

MSC 64-65
April 8, 1964

HOUSTON, TEXAS -- Space-age tailors have designed a pressure suit for lunar wear, using technology which smacks of Buck Rogers and King Arthur, with a touch of Hans Brinker for the shoes.

It's aluminum apparel, styled more for practicality than appearance, and technicians at NASA's Manned Spacecraft Center call it a "hard suit" for want of a nickname.

Officially it's a "constant volume, rigid, articulated, anthropomorphic protective suit."

It looks like a suit of armor, and its appearance almost defies the use of words like "mobility" and "comfort."

But it is comfortable and mobile, and is the most advanced space suit yet introduced into the astronauts' prospective wardrobe.

A prototype suit is undergoing a two-month evaluation at Manned Spacecraft Center to determine whether it will be considered for wear on the moon -- or perhaps the planets.

The rigid suit concept was originally introduced by Litton Industries of Beverly Hills, California, back in 1956 for use in pressure chambers. With adaptations and improvements, an advanced version for space use was proposed to NASA by Litton last year.

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Until now, pressure suits have been of fabric materials. Fabric still seems the most practical for wear inside a spacecraft. But for moon-wear the one-piece hard suit may be more practical.

The hard suit can be pressurized to more closely duplicate atmospheric conditions here on earth. Nitrogen can easily be added to the oxygen breathing system, again closely copying sea-level atmosphere.

Because it is solid, normal arm and leg movements will not cause pressure changes inside the suit, so pressure remains constant. In most conventional suits, bending the torso or limbs causes pressure changes throughout the suit.

Less oxygen may be needed to keep the hard suit under pressure because it has no zippers, only one main "clamshell" opening through which the astronaut dons the suit. A single latch closes the suit and makes it airtight and leakproof.

Joints are fan-like. When an elbow is bent, for instance, the joint contracts one way and expands another to keep volume constant. Universal joints allow movement in nearly any position a human body can assume.

And the shoes actually were designed from a pair of wooden Dutch shoes provided by the Netherlands government. They represent the "best state of the art" for the purpose, officials explain.

"We keep just three things in mind when we go after a suit," said Robert Steele, head of the Advanced Technology Section of the Crew Systems Division at MSC. --more--

"Safety, comfort and mobility."

Steele was quick to point out that the hard suit is not planned for any particular program or mission, such as Gemini two-man earth orbital flights, or Apollo, the three-man lunar exploration mission scheduled within the decade.

"This is strictly an advanced concept," he said. "But we think it has good potential for use on the moon's surface.

"It won't snag or tear like others might; it's much more comfortable than a conventional suit, and is more adaptable for mounting the portable life support equipment an astronaut must wear outside of his spacecraft."

Despite its appearance, the hard suit is not meant to provide armor against meteoroids, but experts feel it will offer "at least as much protection" as fabric suits, possibly more.

Besides these advantages, Steele said the suit has a telescoping torso and limb arrangement, making it fit a wide range of sizes.

But because of its bulk, the hard suit would most likely be donned only for use outside a spacecraft -- on the moon or the planets.

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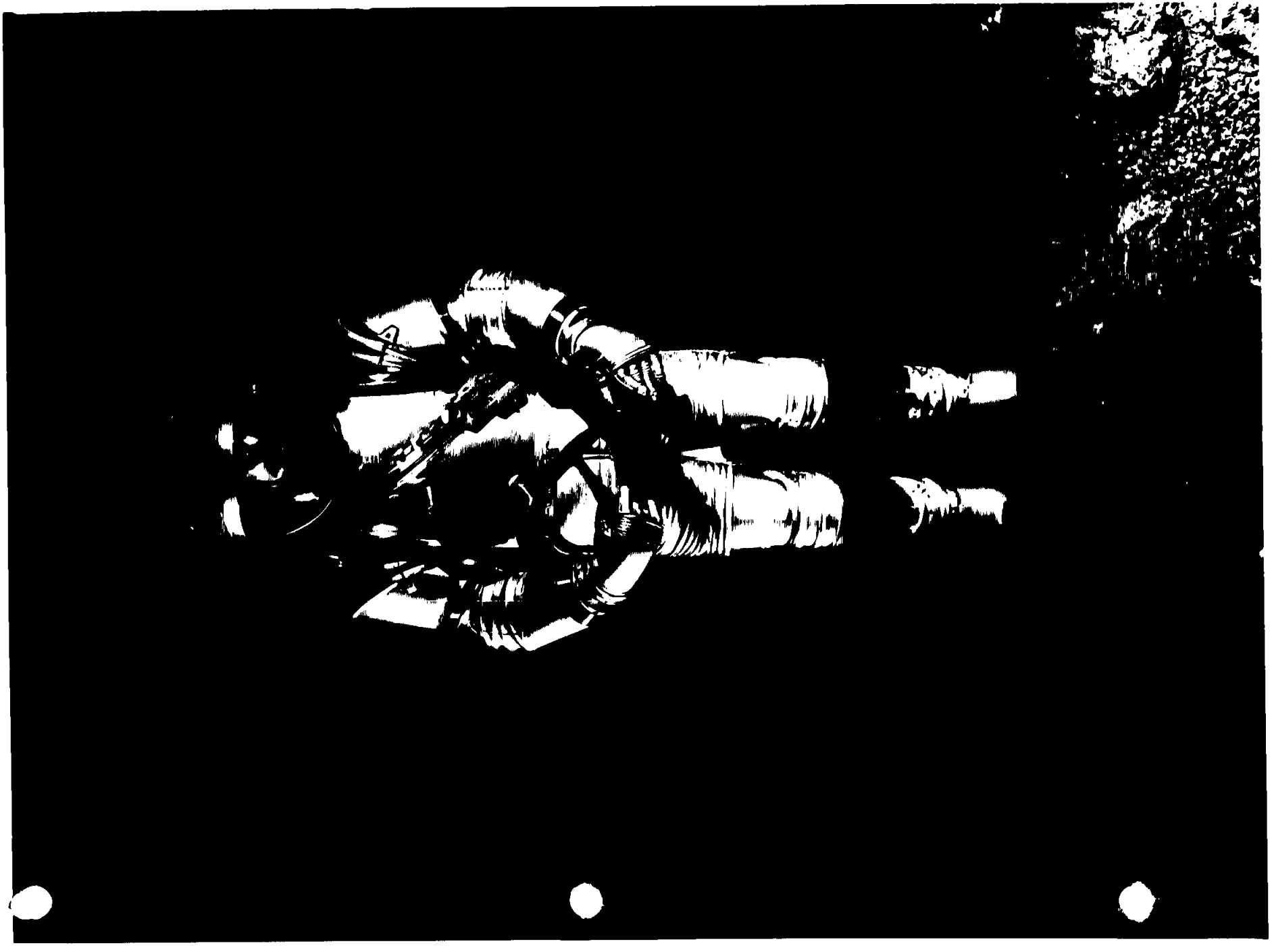
NASA
S-64-14070



NEWS RELEASE

..ATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER NASA Houston 1, Texas

HUnter 3-4231

MSC 64-66
April 9, 1964

HOUSTON, TEXAS -- The widow of a famous Swiss-American balloonist and scientist of the upper atmosphere has been appointed as a consultant at NASA's Manned Spacecraft Center here.

Dr. Jeannette Piccard of St. Paul, Minnesota, long a participant with her husband, the late Dr. Jean Felix Piccard of the University of Minnesota, in research in the outer limits of the Earth's atmosphere, will advise Dr. Robert R. Gilruth, Manned Spacecraft Center Director, and members of his staff in the development of a program that will keep the nation's scientific community and the general public informed of events and results of manned space flight development at MSC.

She will assist in assuring that the program has the proper content to maintain effective communication with the country's scientists and the public.

An experienced scientific researcher herself, Dr. Piccard has had long association with the world's scientific circles and currently maintains this association, which is based on her personal

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participation in scientific projects with her husband, including riding a balloon with her husband to an altitude of 57,579 feet in 1934. Dr. Piccard was given the Clifford B. Harmon International Trophy for her exploit.

In addition, Dr. Piccard has had broad experience in speaking to and writing for scientific groups, as well as the general public, and understands the interest and needs of the scientific community and the public.

Dr. Piccard earned a Bachelor of Arts degree in philosophy and psychology from Bryn Mawr College, Bryn Mawr, Pa.; a Master of Arts degree from the University of Chicago; and a Ph.D. degree from the University of Minnesota. Her chief graduate-level subjects were organic chemistry and education.

She has done research consultant work for the Department of the Navy in Washington. In addition, she has worked in the field of personnel administration and has been active in school administration. She is currently President and Chairman of the Board of St. Paul's Episcopal School in St. Paul.

Because of this background, Dr. Gilruth stated, Dr. Piccard should provide great assistance to him and his staff. "Since the opportunity has arisen to gain the use of Dr. Piccard's outstanding talents, we wish to take full advantage of it."

Add 2
MSC 64-66

In her consultant capacity, which began today it is expected Dr. Piccard will be employed on an intermittent basis in formulation of an effective program of providing information to the scientific circles of the nation.

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NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER

Houston 1, Texas

HUnter 3-4231

MSC 64-67
April 7, 1964

HOUSTON, TEXAS -- Like a giant umbrella, the stainless steel top to the small chamber in the Space Environmental Simulation Laboratory was lowered into place at the NASA Manned Spacecraft Center's Clear Lake site.

The chamber is part of a mammoth building that will soon be able to simulate lunar trips with almost as much realism and detail as an actual flight.

To simulate outer space for such projects, contractors are building two such chambers -- one of them, the larger, is tubular in shape, 172 feet long and 65 feet in diameter. It was capped recently in two sections which together weighed over 100 tons.

The smaller chamber is 42 feet long and has a 35-foot diameter. It will be ready for tests this fall.

Heat and cold manufacturing units will achieve temperature differences within both chambers ranging from 240 degrees above zero to 400 below zero. A turntable which produces the effect of tumbling in space, has a capability of rotating 180 degrees. Pumping equipment will have the capability of creating a vacuum equivalent to 75 miles from earth's surface.

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The inside of the chamber will be painted black. Along the top are solar radiation units which will beam rays similar to the sun into the chamber.

Both chambers are being built so that man can perform tasks while subjected to conditions as nearly like outer space as possible.

The simulation laboratory consists of four buildings. There is an administration wing, refrigeration wing, a pumping wing and the high bay area containing the chambers and labs. The high bay area is 261 feet long and 81 feet wide. It is the equivalent of ten stories high and will be the tallest structure at the Center.

Three contractors have teamed up to build the lab. They are: Chicago Bridge and Iron Company of Oak Brook, Illinois -- chamber construction,

Ets-Hokin and Galvin, San Francisco, California -- foundation and buildings,

And Industrial Contractors, Diversified Fisher Construction, Houston -- pumping and cryogenic equipment.

Other companies will install the computers and electronics equipment.

Total value of construction and equipment for the simulation laboratory is $41 million. Of this $14,756,777 has been paid to contractors through March 15.

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NASA
S-64-13920

NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER

Houston 1, Texas

HUnter 3-4231

MSC 64-68
April 7, 1964

HOUSTON, TEXAS -- The first of two Lunar Landing Research Vehicles (LLRV) built for the NASA Manned Spacecraft Center by Bell Aerosystems Company in Buffalo, New York was completed today.

Resembling an oversized spider, the vehicle will soon be delivered to the National Aeronautics and Space Administration's Flight Research Center at Edwards, California. A second unit will follow.

The lunar landing research program is in direct support of Project Apollo, the space program designed to land two men on the moon.

LLRV will have the three-fold purpose of exploring problems associated with lunar landing, providing data to aid in design of the Lunar Excursion Module (LEM), which actually will land on the moon; and training astronauts in the correct procedure of approach, hover and touchdown on the surface of the moon.

The research vehicle is slightly more than 10 feet high. It has four welded aluminum alloy truss legs with a spread of 13 feet, four inches. The legs support a glass-covered crew compartment. The vehicle will weigh about 3,600 pounds when loaded with fuel and instruments.

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A turbofan engine and hydrogen peroxide rockets provide the thrust which enables the vehicle to take off; hover and then descend to earth in simulated lunar landings.

Two basic differences between the moon and earth had to be considered in the design of LLRV. These are the low lunar gravity-about one-sixth that of the earth's--and the moon's low atmospheric pressure which produces virtually no aerodynamic forces on the vehicle.

A variable stability autopilot system will enable pilots to fly the test vehicle on earth and get virtually the same reactions and sensations as if they were operating in a lunar environment.

The automatically controlled turbofan engine provides lift equal to five-sixths of the vehicle's gross weight. Thus, this engine counteracts five-sixths of the earth's gravity. The remaining one-sixth is comparable to the gravity on the moon.

Lift for the remaining one-sixth of the vehicle's weight is provided by two rocket motors with 500 pounds thrust each. Controlled by the pilot, these rockets are throttleable and simulate those used for lunar landings. LLRV also is equipped with six additional 500-pound rockets as a back-up landing system in case of engine failure.

Attitude control is achieved through use of reaction control rockets similar to those used on all of the nation's manned spaceflights.

Various sections of the vehicle such as pilot display panel and controls, can be removed and replaced by actual LEM hardware, if desired.

LLRV testing will be conducted at Edwards because of the availability of support equipment and personnel.

MSC's Flight Crew Support Division has responsibility for the LLRV.

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NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER — NASA — Houston 1, Texas

HUnter 3-4231

MSC 64-69
May 8, 1964

HOUSTON, TEXAS -- When manned Gemini spacecraft begin orbiting the earth, chances are the occupants will spend some of their time performing masticatory manipulations.

Chewing gum, that is.

Scientists at the NASA Manned Spacecraft Center here are investigating the use of chewing gum for astronauts who, because they must spend long periods in a gravity-free environment, cannot use tooth paste or mouth wash.

"Chewing gum won't prevent cavities," admitted Dr. Elliott S. Harris of the Manned Spacecraft Center's environmental physiology branch, "but it will help stimulate dental tissues and freshen the astronaut's mouth during long-duration space flights."

"Besides," he added, "we don't expect serious tooth decay to develop during flights of two weeks or less."

The Systems Division of Whirlpool Corporation, St. Joseph, Michigan, recommended a sugarless gum be chewed periodically during

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space flight, and that an interdental stimulator -- a rubber prong -- be used to remove food particles.

About the sticky problem of disposing of chewing gum in spacecraft?

The astronauts can swallow it.

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HUnter 3-4344 MC 64-70

HOUSTON, TEXAS - Faith 7, Mercury spacecraft flown by Astronaut L. Gordon Cooper in his earth circling 22 orbit flight last May will be on display May 7 through May 10 in Salem, Oregon.

The four day stop in Salem is the twenty sixth of 50 state capitol visits that the National Aeronautics and Space Administration has scheduled for Cooper's spacecraft. Close to 3,550,000 persons have already seen the spacecraft since it began its cross country tour in Cooper's home state of Oklahoma.

The NASA Manned Spacecraft Center at Houston, Texas, has set Faith 7 on a stand which permits easy viewing of the inside of the spacecraft. A section of the base of the heat shield and portions of the outer skin have been cut away permitting the first public look at the inner structure of a Mercury spacecraft.

The spacecraft - inside and out - is exactly as it was when it splashed down into the Pacific near Midway Island on May 16, 1963. Nothing has changed. The spacecraft shingles-its outer skin made of a new metal rene'41-shows the effects of the 1,000 degree heat which blanketed the spacecraft during re-entry into earth's atmosphere. The heat shield - a mixture of glass fibers and resin - at the base of the spacecraft withstood maximum temperatures of 3,000 degrees farenheit when Cooper directed Faith 7 on its return to the earth.

Also on display with the spacecraft are the cameras Cooper carried and the astronaut Survival Kit which rode on Faith 7's 546,185 mile earth-circling flight. Samples of the food Cooper ate during his day and a half in space will also be on display.

The 13 month tour, ending in the nation's capitol on Nov. 1, 1964, will cover approximately 20,000 miles, a distance Faith 7 covered in space in approximately 80 minutes.

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MSC 64-71

HUnter 3-4344

HOUSTON, TEXAS - Faith 7, Mercury spacecraft flown by Astronaut L. Gordon Cooper in his earth circling 22 orbit flight last May will be on display May 14 through 17 in Boise, Idaho.

The four day stop in Boise is the twenty seventh of 50 state capitol visits that the National Aeronautics and Space Administration has scheduled for Cooper's spacecraft. Close to 3,600,000 persons have already seen the spacecraft since it began its cross country tour in Cooper's home state of Oklahoma.

The NASA Manned Spacecraft Center at Houston, Texas, has set Faith 7 on a stand which permits easy viewing of the inside of the spacecraft. A section of the base of the heat shield and portions of the outer skin have been cut away permitting the first public look at the inner structure of a Mercury spacecraft.

The spacecraft-inside and out-is exactly as it was when it splashed down into the Pacific near Midway Island on May 16, 1963. Nothing has changed. The spacecraft shingles - its outer skin made of a new metal rene'41 - shows the effects of the 1,000 degree heat which blanketed the spacecraft during re-entry into earth's atmosphere. The heat shield - a mixture of glass fibers and resin - at the base of the spacecraft withstood maximum temperatures of 3,000 degrees farenheit when Cooper directed Faith 7 on its return to the earth.

Also on display with the spacecraft are the cameras Cooper carried and the astronaut Survival Kit which rode on Faith 7's 546,185 mile earth-circling flight. Samples of the food Cooper ate during his day and a half in space will also be on display.

The 13 month tour, ending in the nation's capitol on Nov. 1, 1964, will cover approximately 20,000 miles, a distance Faith 7 covered in space in approximately 30 minutes.

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HUnter 3-4344 MSC 64-72

HOUSTON, TEXAS - Faith 7, Mercury spacecraft flown by Astronaut L. Gordon Cooper in his earth circling 22 orbit flight last May will be on display May 21 through May 24 in Helena, Montana.

The four day stop in Helena is the twenty eighth of 50 state capitol visits that the National Aeronautics and Space Administration has scheduled for Cooper's spacecraft. Close to 3,650,000 persons have already seen the spacecraft since it began its cross country tour in Cooper's home state of Oklahoma.

The NASA Manned Spacecraft Center at Houston, Texas, has set Faith 7 on a stand which permits easy viewing of the inside of the spacecraft. A section of the base of the heat shield and portions of the outer skin have been cut away permitting the first public look at the inner structure of a Mercury spacecraft.

The spacecraft - inside and out - is exactly as it was when it splashed down into the Pacific near Midway Island on May 16, 1963. Nothing has changed. The spacecraft shingles - its outer skin made of a new metal Rene'41 - shows the effects of the 1,000 degree heat which blanketed the spacecraft during re-entry into earth's atmosphere. The heat shield - a mixture of glass fibers and resin - at the base of the spacecraft withstood maximum temperatures of 3,000 degrees farenheit when Cooper directed Faith 7 on its return to the earth.

Also on display with the spacecraft are cameras Cooper carried and the astronaut Survival Kit which rode on Faith 7's 946,185 mile earth-circling flight. Samples of the food Cooper ate during his day and a half in space will also be on display.

The 13 month tour, ending in the Nation's capitol on Nov. 1, 1964, will cover approximately 20,000 miles, a distance Faith 7 covered in space in approximately minutes.

NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER

Houston 1, Texas

HUnter 3-4231

MSC 64-73
April 9, 1964

HOUSTON, TEXAS -- Robert J. Ward of the National Aeronautics and Space Administration's Manned Spacecraft Center Apollo Program Office will speak before the Liberty Chamber of Commerce on April 16.

Ward will outline the responsibilities of MSC in the nation's manned space flight programs and will present a step-by-step explanation of a typical Apollo lunar landing and exploration mission.

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NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER

Houston 1, Texas

HUnter 3-4231

MSC 64-74
April 10, 1964

HOUSTON, TEXAS -- Employees of the NASA Manned Spacecraft Center's Structures and Mechanics Division have moved into new offices in the Systems Evaluation Laboratory at the Clear Lake site -- a two story building with adjoining laboratories that cost $1,624,831.

The complex is designed to conduct experimental investigations on advanced materials, spacecraft structural parts and complete assemblies of spacecraft. Structural testing will be conducted under simulated space environmental conditions.

SMD offices are located in a building which is 186 feet long and 130 wide. The high bay building, containing laboratories, is 198 feet long by 92 wide, and 40 feet high. Inside is an overhead crane capable of transversing the length of the laboratory.

The systems laboratory is the next to last building to be turned over to the National Aeronautics and Space Administration of 15 constructed under Phase 3 of the Center construction program. It was built by Leavell, Morrison-Knudson and Hardeman Company of El Paso, Texas.

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Add 1
MSC 64-74

With the relocation of the approximately 160 SMD personnel, the MSC work force has risen to approximately 2,300 at Clear Lake. Another 200 workers will move during April. The balance will be located at Ellington Air Force Base and -- until June -- in three leased buildings in Houston.

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NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER

NASA

Houston 1, Texas

mailed 4-11-64

Memo to Editors:

HOUSTON, TEXAS -- For your information, the telephone numbers of the News Services Branch of the Public Affairs Office are as follows: Area Code 713, HUnter 3-4231 or HUnter 3-4241. These are direct in-dialing numbers. During off-duty hours, call HUnter 3-0123 for the MSC operator.

###

April 13, 1964 2:00 pm

RESPONSE TO QUERY FROM NASA HQS. NOT TO BE VOLUNTEERED

GT-1, spacecraft and second stage booster, decayed in orbit and reentered earth atmosphere about 4:00 pm est Sun. over the South Atlantic approximately midway between South American and Africa.

NOTE: In event of question did any portion of the spacecraft or stage survive reentry? The response is "We have no evidence of this."

NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER — NASA — Houston 1, Texas

HUnter 3-4231

MSC 64-75
April 11, 1964

HOUSTON, TEXAS -- The Manned Spacecraft Center has moved its first real-time computer system into the Mission Control Center (MCC) at Clear Lake, Texas.

Consisting of 27 units, the 7094 computer was relocated from leased facilities in Houston. It was built for MSC by the Federal Systems Division of International Business Machines Corporation, Bethesda, Maryland.

MCC will be the focal point for directing Gemini and Apollo flights after all the electronic equipment is installed. When the new center is finished, space missions will be controlled just as Project Mercury flights were run by Mercury Control at Cape Kennedy, Florida.

Telemetry and communications will emanate from the spacecraft; be picked up by a world-wide network of tracking stations, and relayed to MCC. Computer driven data will be shown and plotted on hugh control panel where a team of flight controllers will make mission decisions.

The information in turn will be transmitted through the tracking network and into the spacecraft.

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Attitude control is achieved through use of reaction control rockets similar to those used on all of the nation's manned spaceflights.

Various sections of the vehicle such as pilot display panel and controls, can be removed and replaced by actual LEM hardware, if desired.

LLRV testing will be conducted at Edwards because of the availability of support equipment and personnel.

MSC's Flight Crew Support Division has responsibility for the LLRV.

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NEWS RELEASE
NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
MANNED SPACECRAFT CENTER
Houston 1, Texas

HUnter 3-4231

MSC 64-76
April 14, 1964

HOUSTON, TEXAS -- Forty four engineers and technical authors assigned to the NASA Manned Spacecraft Center are collaborating with Fairchild Publications, Inc., of New York in the publication of a new book that outlines latest technologies involved in the race for the moon.

Title of the book will be "Engineering Design and Operation of Manned Spacecraft." The authors are men who have been closely associated with all of the U.S. efforts in manned space flight to date. They are engineers whose energies and genius produced the vehicles which carried the first Americans into space and brought them back safely during the Mercury Program.

The editors, who are organizing and coordinating the material are:

Paul E. Purser, Special Assistant to the Director of NASA's Manned Spacecraft Center,

Maxime A. Faget, Assistant Director for Engineering and Development at MSC, and,

Norman F. Smith, Technical Assistant to Faget.

All three editors have been associated with the government's research and development work in this area for close to 20 years. They

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were attached to the National Advisory Committee for Aeronautics (NASA predecessor) when American aviation first moved into the era of supersonic flight and rockets.

Purser and Faget have made many notable contribution to space technology and spacecraft design. They first worked together on a program of high speed research with rocket tests from Wallops Island, Virginia.

They jointly conceived the Little Joe solid propellant launch vehicle used in the Project Mercury development tests.

Faget is "father" of the Mercury spacecraft and has been honored for his original work on the design and for his contributions to the various spacecraft systems.

Both Purser and Faget graduated from Louisiana State University of Baton Rouge and are members of the Tau Beta Pi Association, national engineering honor society.

Norman Smith graduated from Purdue University of Lafayette, Indiana with distinction and has specialized in research in high speed and supersonic aerodynamics.

The 41 other authors each will contribute a chapter to the book.

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Add 2
MSC 64-76

The text is based largely on a series of lectures given by authors at University of Houston, Rice University of Houston, Texas and Louisiana State University. It is being printed under a private publishing contract with publication dates set for September.

Dr. Robert Gilruth, MSC Director, has written the Foreword.

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NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER

Houston 1, Texas

HUnter 3-4231

MSC 64-77
April 14, 1964

HOUSTON, TEXAS -- Joe T. Doke of the National Aeronautics and Space Administration's Manned Spacecraft Center Apollo Spacecraft Program Office will address the Pilot Club of Livingston, Texas, April 20, 1964.

Doke will describe America's space exploration program with emphasis on the Apollo manned lunar exploration program.

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NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER NASA Houston 1, Texas

HUnter 3-4231

MSC 64-78
April 16, 1964

HOUSTON, TEXAS -- Youngsters in an eight-state region who are more interested in space sciences than in spending their time under the hood of a hot-rod or reading movie magazines are given encouragement and guidance by scientists and engineers working in the nation's manned space flight program. The Manned Spacecraft Center here is participating in 24 regional and state science fairs being conducted this spring for youngsters in grammar and high schools.

Students entering exhibits in science fairs affiliated with National Science Fairs-International are eligible to compete for science awards made by the National Aeronautics and Space Administration through its field Centers. The NASA Centers not only provide Certificates of Merit and aerospace mementos in the form of tie clasps, pins or cuff links, but technical experts from the Center serve as judges in 24 of the science fairs.

Manned Spacecraft Center provided or will provide awards to winners in 53 science fairs in the eight-state region which includes

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Texas, North Dakota, South Dakota, Nebraska, Kansas, Colorado, Oklahoma and New Mexico. Most of the fairs are regional or state fairs, and include private and parochial as well as public school students.

NASA awards are made to students whose exhibits are judged best in six different categories: Aerodynamics and Space Flight, Space Vehicles, Space Propulsion Systems, Space Life Sciences, Space Physical Sciences and Space Electronics and Communications. Entries are judged on the basis of creative ability, scientific thought, thoroughness, skill and dramatic value.

Each NASA award winner will have the opportunity to take part in an orientation program at the Manned Spacecraft Center, but travel to and from Houston will be at the student's own expense.

NASA hopes that through the science fair awards youngsters will be inspired to follow space science disciplines in planning their college education.

Certificates and awards are also presented to science fair winners by other government agencies, such as the Air Force, Navy, Army and the Civil Aeronatics Board.

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News

[illegible] 3-4343 MSC [illegible]-79

[illegible] — Faith 7, Mercury spacecraft flown by Astronaut L. Gordon Cooper in his earth circling 22 orbit flight last May will be on display September 3 through September 6, 19[illegible] in Augusta, Maine.

The four day stop in Augusta is the forty second of 50 state capitol visits that the National Aeronautics and Space Administration has scheduled for Cooper's spacecraft. More than 3,500,000 persons have already seen the spacecraft since it began its cross country tour in Cooper's home state of Oklahoma.

The NASA Manned Spacecraft Center at Houston, Texas, has set Faith 7 on a stand which permits easy viewing of the inside of the spacecraft. A section of the base of the heat shield and portions of the outer skin have been cut away permitting the first public look at the inner structure of a Mercury spacecraft.

The spacecraft - inside and out - is exactly as it was when it splashed down into the Pacific near Midway Island on May 16, 1963. Nothing has changed. The spacecraft's shingles -- its outer skin made of a new metal rene'41 - shows the effects of the 1,000 degree heat which blasted the spacecraft during re-entry into earth's atmosphere. The heat shield - a mixture of glass fibers and resin - at the base of the spacecraft withstood maximum temperatures of 3,000 degrees Fahrenheit when Cooper directed Faith 7 on its return to the earth.

Also on display with the spacecraft are cameras Cooper carried and the astronaut [illegible] which rode on Faith 7's 546,185 mile earth-circling flight. Samples of the [illegible] Cooper ate during his day and a half in space will also be on display.

The [illegible] month tour, ending in the Nation's capitol on Nov. 1, 196[illegible], will cover [illegible] miles, a distance Faith 7 covered in space in approximately [illegible] minutes.

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NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER

Houston 1, Texas

HU 3-4231

MSC 64-80
April 20, 1964

HOUSTON, TEXAS -- Through the centuries since man learned to create with his hands, apprentice training has been a vital part of getting new talent into a trade or profession. Such training is still vital in the space age, with its automation, transistors and black boxes that do miraculous chores.

Apprentice training leading to journeyman certification in four rades will be conducted in a Technical Institute at the NASA Manned Spacecraft Center beginning in September, 1964. Through on-the-job and classroom training, qualified apprentices in four years may reach journeyman skill as electronic instrument makers, wood and plastic modelmakers, experimental machinists and spacecraft metalsmith.

Applicants for the apprentice training program must have a keen interest and some experience in the mechanical, electrical, wood-working or metal working trades.

Written examinations will be held at Beaumont, Hempstead, Houston, Huntsville, Livingston, Lufkin, Orange, Port Arthur and Wharton. The five-hour examinations will cover high school algebra, physics, geom-try, English usage and grammar, mechanical principles and use of tools,

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and pattern matching. Deadline for application to the Civil Service Board of Examiners at Manned Spacecraft Center is May 6. Applicants will be notified of the time and place to take the written examination.

Forms for applying for the examination can be obtained from the Board of U.S. Civil Service Examiners at Manned Spacecraft Center, Houston, or from the Civil Service Regional Office in Dallas. Forms are also available from any Post Office.

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NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER

Houston 1, Texas

HUnter 3-4231

MSC 64-81
April 21, 1964

HOUSTON, TEXAS -- Nearly 100 more Manned Spacecraft Center employees moved to the Clear Lake site during the past week bringing the total of relocated persons to just over 2400.

Personnel assigned to MSC's Guidance and Control Division occupied new offices in the Spacecraft Research building. This complex of two connected buildings was occupied earlier by other Center employees.

Research in the areas of space communications, spacecraft instrumentation, guidance and control will be done in these buildings.

Another space agency structure -- the Auditorium -- received its occupational baptism this past week when the announcement was made there that Astronauts Virgil Grissom and John Young would be the prime crew for the first manned Gemini flight and Astronauts Wally Schirra and Thomas P. Stafford would serve as back-up crew.

The 800-seat auditorium is a part of a complex which contains MSC's Public Affairs Office. The Auditorium is 192 feet long and 135 wide. It has 46,000 square feet of space including the stage.

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Two recording studios are on either side of the stage. A large section in the front of the building has been set aside for Press use during manned missions. At other times, this section will contain exhibits.

The Auditorium was built by Leavell, Morrison-Knudson and Hardeman Company of El Paso, Texas, at a cost of $1,126,930.

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Hunter 3-4701

MSC 64-82
April 20, 1964

HOUSTON, TEXAS -- "Medical Support of the Man in Space," will be the subject of a televeision presentation on April 25 by a team of Manned Spacecraft Center doctors at the annual convention of the Texas Medical Association.

The program is under the direction of Charles A. Berry, M. D., Chief of MSC's Center Medical Programs. It will be beamed via closed circuit television to the convention at the Shamrock Hilton hotel. Assisting Dr. Berry are D. Owen Coons, M. D., Howard A. Minners, M. D., and Dr. Richard Pollard.

Subject matter to be presented to the 1500 doctors includes a discussion of the physician's role during manned space flight; a demonstration of electro-cardiogram readings received from a flight; sensoring and suiting of a space pilot, and a demonstration of a medical debriefing.

As Chief of Center Medical Programs for MSC, Dr. Berry is the senior physician during manned space flights. He reviews all aero-medical development programs for Dr. Robert R. Gilruth, Center Director, and establishes medical standards and policies governing the selection of flight crews.

###

'EMO TO EDITORS: April 22, 1964

The parasail test still is scheduled for April 23. Newsmen interested in covering are requested to be at Building No. 1, Clear Lake at 8:00 am. MSC has a direct line with the Test Command Post and, at that time, will have the latest word as to when the drop is set.

If the drop progresses without interruption, it will go at 1:00 pm. However, delays could set it back to as late as 3:00 pm.

A 40-foot crew boat leaving from the George Light Boat Service, Seabrook has been scheduled for the press. This boat is faster and should permit the crews to get copy into their offices with less delay.

Newsmen are reminded to bring food and drink.

The Public Affairs Office contact for this trip is Don Green HUnter 3-4231. Home telephone League City 932-3486.

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NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER

Houston 1, Texas

HUnter 3-4231

MSC 64-83
April 22, 1964

HOUSTON, TEXAS -- Dr. Robert R. Gilruth, Director of Manned Spacecraft Center, and Dr. Joseph F. Shea, Apollo Spacecraft Program Manager, will deliver papers at the Fourth National Conference on Peaceful Uses of Space in Boston April 29 to May 2, 1964.

Dr. Gilruth and Dr. Shea will be among a number of National Aeronautics and Space Administration Officials taking part in the program.

Sponsored by the New England community and NASA, the conference will include a session on April 29 devoted to Manned Space Exploration, chaired by D. Brainerd Holmes, senior vice president, Raytheon Co. Papers to be presented will include those by Gilruth on "The U.S. Manned Space Flight Program from Inception to Date," and Dr. Shea, on "The Development of the Spacecraft and the Mission."

Other papers will be presented by Dr. George E. Mueller, NASA Associate Administrator for Manned Space Flight; Dr. Werner von Braun, Director, Marshall Space Flight Center; and Dr. Kurt H. Debus, Director, Launch Operations Center.

In addition to the presentations by top NASA officials, leading scientists, businessmen and educators will report on the Nation's space program.

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Add 1
MSC 64-83

Other topics covered by the conference include Machines in Space; the Role of Satellites; What the Space Age Means to the Nation and New England; NASA's Impact on Industry, Education and Society; International Cooperation in Space; Medical Aspects of Space; The Transfer of Space Technology to Industry; and Education for the Space Age.

###

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
MANNED SPACECRAFT CENTER
Houston 1, Texas

HUnter 3-4231

MSC 64-84
April 24, 1964

HOUSTON, TEXAS -- Three aerospace physicians assigned to the NASA Manned Spacecraft Center Saturday will present an hour-long television program on space flight for the Texas Medical Association's annual convention.

The trio includes Charles A. Berry, M.D., Chief of MSC's Center Medical Programs; D. Owen Coons, M.D., Deputy to Dr. Berry, and Dr. Richard Pollard of the Center Medical Office.

The program will be beamed via closed circuit television from Ellington Air Force Base, where NASA still has temporary facilities, to the convention at the Shamrock Hilton Hotel. Subject matter covers the physician's role during manned space flight.

Acting as "anchor man" during the program is Dr. Berry.

Opening segment of the telecast consists of an explanation by Dr. Berry of the doctor's role supporting the astronaut during his perilious venture into space. The audience next will see a bio-sensoring demonstration using a test subject. Dressing the man in a space suit is next.

In the fourth part of the program, a medical team will analyze electrocardiogram readings in a simulated space flight. Finally, a medical debriefing with a test subject posing as an astronaut will close the telecast.

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Add 1
MSC 64-84

Theater Network Television, Inc. of New York is producing the program, working with personnel from the Center Medical Programs staff.

###

Response to Parasail Query April 29, 1964

A Gemini-sized boilerplate was dropped into Trinity Bay Wednesday using a radio-controlled steerable parasail and early results indicate the experiment was a success. Final evaluation will depend upon a study of the telemetry information.

In the experiment, maneuvering systems on board the boilerplate were tested for the first time. The systems functions as planned and the turning rates were within the range required for parasail use.

The 5,310 pound capsule was dropped from an aircraft at 11,000 feet shortly after 11 a.m. A pilot chute opened immediately and within five seconds separated the rendezvous and recovery can; thereby initiating deployment and inflation of the 81-foot parasail.

Complete inflation occurred within 12 seconds from boilerplate release by the aircraft. The capsule -- steered by radio command from the NASA Motor Vessel Retriever -- landed within 200 yards of the bullseye.

The test was conducted by MSC's Landing and Recovery Division with a C-119 aircraft supplied by the 446th Troop Carrier Wing from Ellington Air Force Base. Fred Coons was the test director.

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NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
MANNED SPACECRAFT CENTER
Houston 1, Texas

HUnter 3-4231

MSC 64-85
April 30, 1964

HOUSTON, TEXAS -- The National Aeronautics and Space Administration (NASA) announced today a full-scale paraglider deployment test flight at Edwards AFB, California. This was an evaluation test of paraglider deployment from a test vehicle simulating a Gemini spacecraft.

The test consisted of a launch from a USAF C-130 carrier aircraft, separation of the Gemini test vehicle from its launch sled, timer-initiated paraglider deployment and then paraglider separation, and finally parachute recovery of the test vehicle.

Charles W. Mathews, Gemini Program Manager, NASA Manned Spacecraft Center, Houston, Texas, said, "From initial observation, the test appears completely successful. We'll know the final results as soon as all data are evaluated."

The paraglider is a recovery system being developed by North American Aviation's Space and Information Systems Division, Downey, California, under a research and development contract with MSC.

Five similar tests have been conducted since late January. These tests resulted in uncovering development problems in the

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deployment sequence. Local areas of the paraglider -- sail fabric, cable connections, etc. -- have been "beefed-up" by minor modifications are part of a "de-bugging" process and are considered a normal part of a new research and development program.

During today's test, the C-130 aircraft carried the unmanned Gemini test vehicle, resting upon a sled just forward of the aircraft's tail gate. As predetermined, a sled-extraction parachute popped open behind the aircraft, pulling the sled-carried Gemini test vehicle free to fall from 33,000 feet altitude. At T+6 seconds, the Gemini vehicle separated from the sled and trailed a reefed paraglider drogue parachute -- at about 32,700 feet.

Twenty-four seconds later, the Gemini rendezvous and recovery canister separated, and the paraglider fabric immediately spilled from the top of the Gemini. It remained suspended in an inverted "U" shape, its nose and boom and keel trailing edges held to the Gemini test vehicle to prevent opening-shock damage.

Boom and keel trailing edges released at T+52 seconds -- about 22,000 feet. At about T+57 seconds, the paraglider was unfurled into its "bat-wing" shape.

During deployment and during the glide period following, all systems operations were telemetered to ground stations and were

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recorded for evaluation by scientists and engineers.

The glide period ended at about T+150 seconds, at approximately 18,600 feet. At this point, the paraglider was jettisoned by radio command as predetermined. Twin drogue parachutes then deployed to stabilize the test vehicle during descent to 10,000 feet. The main parachute, 84 feet in diameter, opened at about T+181 seconds.

The Gemini test vehicle touched down at about T+440 seconds, a little over seven minutes out of the aircraft. A helicopter retrieved the jettisoned paraglider after it settled to earth.

Direct objectives of this test were to evaluate the deployment of the paraglider -- evaluate drogue parachute stabilization of the Gemini vehicle; evaluate separation of the paraglider from its canister, and obtain data on wing stresses during deployment and during transition to glide.

NASA is continuously evaluating the paraglider program. No decision has been made to date to remove the paraglider from research and development status or to put it into production status.

Manned tow test vehicle (TTV) experiments (towed by helicopter with pre-inflated wing) will begin later, depending upon additional "hop tests" now underway at Edwards AFB.

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NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER

Houston 1, Texas

HUnter 3-4231

MSC 64-86
May 1, 1964

HOUSTON, TEXAS -- The Apollo boilerplate service module and adapter which arrived at the NASA Manned Spacecraft Center on April 20 is now undergoing vibration tests in the high-bay area of the newly completed Systems Evaluation Laboratory.

Conducted by MSC Strucutres Facilities Branch personnel, the tests will determine the resonance frequencies, mode shapes and damping of the service module. These dynamic characteristics must be known in order to evaluate data obtained from the BP-22 test flight to be conducted at the White Sands Missile Range, New Mexico, in the first quarter of 1965.

A modal vibration system will be used in the tests. This system consists of six 150-force-pound electrodynamic shakers with individual power amplifiers and auxiliary control equipment.

The boilerplate test structure (service module and adapter) is a cylindrical shell stiffened by six equally spaced longerons. Twelve ring frames of varying dimensions provide stiffness around the circumference. The entire structure is constructed from steel.

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Add 1
MSC 64-86

Resonance frequencies will be determined by operating each of the six shakers individually at a slow frequency sweep-rate and recording the response of the structure at several predetermined locations.

Mode shapes will be obtained by finely tuning all six shakers on a chosen frequency and surveying the response of the structure with hand-held vibration pickups.

Structural damping will be obtained for each frequency surveyed by disconnecting the armature on all operating shakers and recording on all oscillograph the response decay of the structure at approximately ten locations.

The tests are scheduled to be completed by mid-summer.

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NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER

Houston 1, Texas

HUnter 3-4231

MSC 64-87
May 5, 1964

HOUSTON, TEXAS -- Dr. Joseph F. Shea, manager of the National Aeronautics and Space Administration's Manned Spacecraft Center Apollo Program Office in Houston, will address the Association of American Editorial Cartoonists convention May 8, at New Orleans, Louisiana.

In his presentation, Shea will outline the role of MSC in the area of manned space flight. He will also describe a typical Apollo manned lunar exploration mission. The Apollo program's aim is to place Americans on the moon and return them safely to earth before 1970.

As manager of the Apollo Spacecraft Program Office, Shea is responsible for the management of the overall design and development of the Apollo spacecraft.

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NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER

Houston 1, Texas

HUnter 3-4231

MSC 64-88
May 5, 1964

HOUSTON, TEXAS -- Don J. Green, information specialist in the Public Affairs Office of the NASA Manned Spacecraft Center, will address members of the San Leon Chamber of Commerce at their annual banquet on May 8.

Green's speech, entitled "Why Space," will examine the potential impact space flight has on this country.

Green joined the National Aeronautics and Space Administration in January 1963. In his present position, he has the information responsibility in the fields of flight operations, flight crew training, medicine and Center construction.

Prior to joining NASA he served as an aerospace writer and also was night editor with a news service in Chicago.

Green was born in Omaha, Nebraska on November 22, 1919. He received a Bachelor of Arts degree in History from Hastings College and worked on a Master of Science degree in Journalism at Northwestern University, Evanston, Illinois.

As a newsman working in Chicago, Mr. Green specialized in military and aviation subjects and worked on general assignments. He

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worked for the City News Bureau of Chicago, a metropolitan news service. His previous experience included employment with daily newspapers, as well as weeklies. Green has contributed aerospace articles to national and technical magazines and the smaller dailies as a free-lance author.

He holds an Air Force Reserve commission with assignment as an Information Staff Officer with 12th Air Force, Tactical Air Command, Waco, Texas. He is a veteran of World War II.

During his youth, Mr. Green was a member of the Boy Scouts and has remained active in scouting activities. He currently is Advancement Chairman of Troop 409, League City, Texas. He lives in League City, Texas with his wife, Laura, and their two children.

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NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER (NASA) Houston 1, Texas

HUnter 3-4231

MSC 64-89
May 6, 1964

HOUSTON, TEXAS -- Twenty-nine distinguished foreign visitors will be guests of the NASA Manned Spacecraft Center Thursday for a series of briefings and a tour of Center facilities.

The group is one a nationwide tour of aerospace installation to become better acquainted with the latest developments in space sciences. The tour is sponsored by Major General Richard L. Bohannon, Surgeon General of the United States Air Force.

During the one-day visit to MSC, the guests will hear from Director Robert R. Gilruth, Charles A. Berry, M.D., Dr. Joseph Shea, Charles Mathews and Richard S. Johnston.

Dr. Berry is Chief of Center Medical Programs; Dr. Shea and Mathews are managers of the Apollo and Gemini programs respectively, while Johnston heads MSC's Crew Systems Division.

Following the briefing, the visitors will tour several of the Center laboratories. In the group are representatives of several NATO Nations, as well as Latin American and Far East countries.

Before visiting Houston, the party visited Air Force installations in Texas and Ohio. They will leave here for a tour of the Air Force Missile Test Center at Cape Kennedy, Florida.

Dr. Berry and the Center Medical staff are their MSC hosts.

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FOR RELEASE [illegible]

MSC 63-91

HOUSTON, Texas - Faith 7, Mercury spacecraft flown by Astronaut L. Gordon Cooper in his earth circling 22 orbit flight in May 1963 will be on display June 4 through June 7 in Denver, Colorado.

The four day stop in Denver is the twenty ninth of 50 state capitol visits that the National Aeronautics and Space Administration has scheduled for Cooper's spacecraft. Close to 3,750,000 persons have already seen the spacecraft since it began its cross country tour in Cooper's home state of Oklahoma.

The NASA Manned Spacecraft Center at Houston, Texas, has set Faith 7 on a stand which permits easy viewing of the inside of the spacecraft. A section of the base of the heat shield and portions of the outer skin have been cut away permitting the first public look at the inner structure of a Mercury spacecraft.

The spacecraft - inside and out - is exactly as it was when it splashed down into the Pacific near Midway Island on May 16, 1963. Nothing has changed. The spacecraft shingles - its outer skin made of a new metal number - show the effects of the 1,000 degree heat which blanketed the spacecraft during re-entry into earth's atmosphere. The heat shield - a mixture of glass fibers and resin - at the base of the spacecraft withstood maximum temperatures of 3,000 degrees Farenheit when Cooper directed Faith 7 on its return to the earth.

Also on display with the spacecraft are cameras Cooper carried and the astronaut survival kit which rode on Faith 7's 546,385 mile earth-circling flight. Samples of the food Cooper ate during his day and a half in space will also be on display.

The 13 month tour, ending in the Nation's capital on November 1, 1963, will cover approximately 20,000 miles, a distance Faith 7 covered in space in approximately minutes.

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HUNTER 3-4343 MSC 64-92

HOUSTON, TEXAS - Faith 7, Mercury spacecraft flown by Astronaut L. Gordon Cooper in his earth circling 22 orbit flight in May 1963 will be on display June 11 through June 14 in Cheyenne, Wyoming.

The four day stop in Cheyenne is the thirtieth of 50 state capitol visits that the National Aeronautics and Space Administration has scheduled for Cooper's spacecraft. Close to 3,000,000 persons have already seen the spacecraft since it began its cross country tour in Cooper's home state of Oklahoma.

The NASA Manned Spacecraft Center at Houston, Texas, has set Faith 7 on a stand which permits easy viewing of the inside of the spacecraft. A section of the base of the heat shield and portions of the outer skin have been cut away permitting the first public look at the inner structure of a Mercury spacecraft.

The spacecraft - inside and out - is exactly as it was when it splashed down into the Pacific near Midway Island on May 16, 1963. Nothing has changed. The spacecraft shingles - its outer skin made of a new metal rene' - show the effects of the 1,000 degree heat which blanketed the spacecraft during re-entry into earth's atmosphere. The heat shield - a mixture of glass fibers and resin - at the base of the spacecraft withstood maximum temperatures of 3,000 degrees farenheit when Cooper directed Faith 7 on its return to the earth.

Also on display with the spacecraft are cameras Cooper carried and the astronaut Survival Kit which rode on Faith 7's 546,185 mile earth-circling flight. Samples of the food Cooper ate during his day and a half in space also will be on display.

The 13 month tour, ending in the Nation's capitol on November 1, 1964, will cover approximately 30,000 miles, a distance Faith 7 covered in space in approximately

NEWS RELEASE
NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
MANNED SPACECRAFT CENTER
NASA
Houston 1, Texas

HUnter 3-4231

MSC 64-93
May 9, 1964

HOUSTON, TEXAS -- A rough water egress test using a boilerplate version of a Gemini spacecraft ended successfully recently in the Gulf of Mexico.

The experiment was conducted approximately 12 miles south of Galveston in waves that were running from six to eight feet.

In this test, the boilerplate with two subjects inside was lowered from the NASA Motor Vessel Retriever and allowed to float--loosely tethered--in the water. A technician dressed in a frogman's suit knocked on the hatches of the spacecraft when ready to begin the experiment.

The left door only is opened, and an engineer suited in a Gemini prototype suit egresses. He is followed by the test subject occupying the right seat. However, the subject occupying the right side must crawl over instrument pedestal and center console in order to egress. The left opening is closed and both men slide into the choppy waters.

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Add 1
MSC 64-93

Object of the egress tests is to develop spacecraft departure techniques for astronauts after they land from a Gemini space flight. In this particular series, Manned Spacecraft Center engineers were trying to find out how hard is was to get out of the two-man Gemini in rough water.

The test was conducted by MSC's Landing and Recovery Division. Test subjects were Gordon Harvey, of the Flight Crew Support Division, and Astronaut James A. Lovell, Jr.

Harvey noted that egress procedures were not as difficult as had been anticipated, and that the spacecraft took little water even though it was rolling in heavy seas.

Additional experiments are planned including several using an operational spacecraft and Gemini flotation collar.

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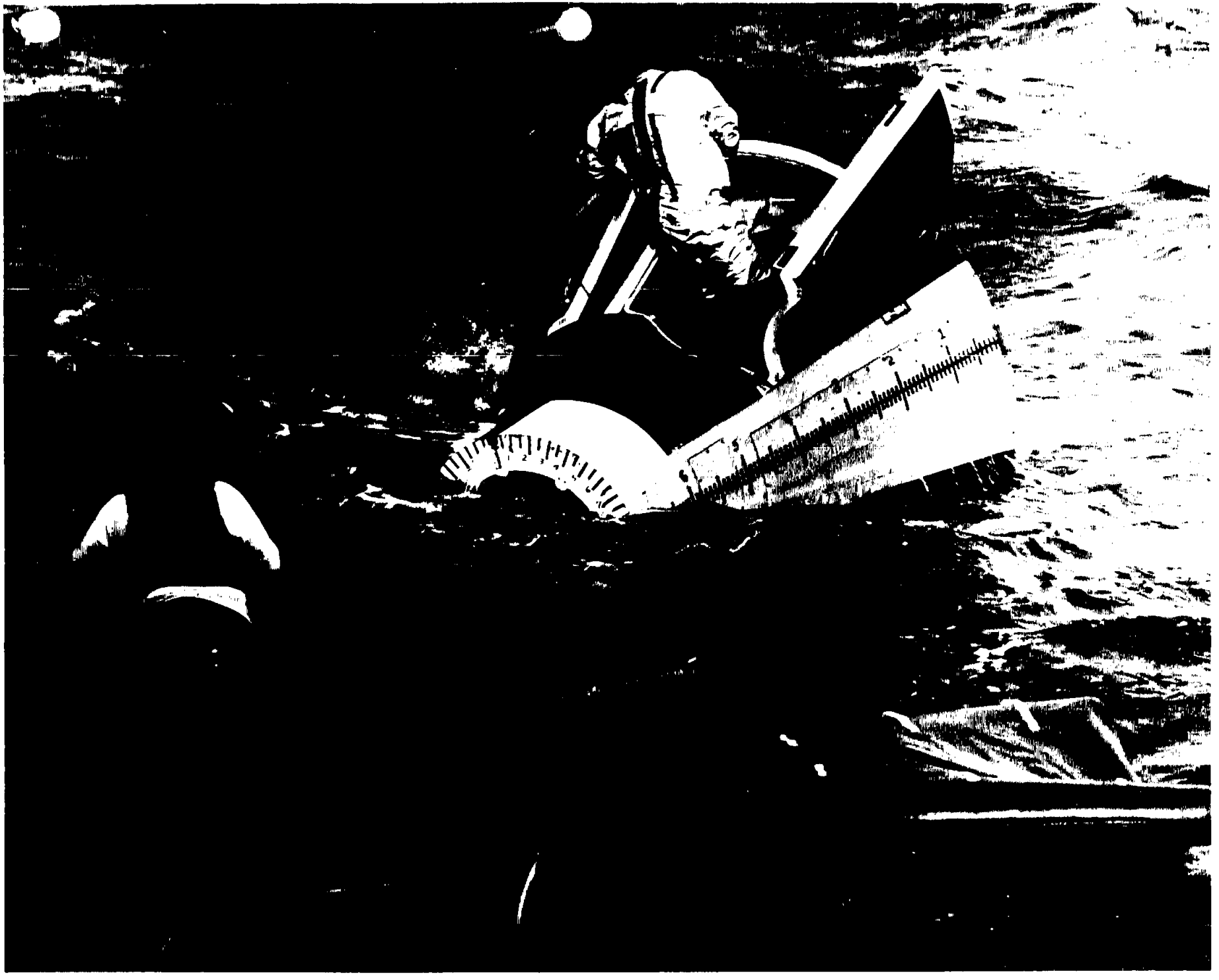

NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER

Houston 1, Texas

HUnter 3-4231

MSC 64-95
May 14, 1964
FOR RELEASE 9:30 am CST

HOUSTON, TEXAS - The Navy and NASA announced today that Astronaut M. Scott Carpenter will participate in Navy's Project Sea Lab I off the coast of Bermuda this summer.

Sea Lab I, a 40-foot undersea laboratory, is scheduled to be lowered to a depth of 192 feet on July 6 and remain submerged for a three-week period.

Carpenter, a Navy Lieutenant Commander who has been with NASA since April 1959, will join a four-man Navy team of divers for the last week of the underwater experiment. The Navy had indicated its desire to have technical assistance from NASA with the Sea Lab program. A personal interest in exploring man's capability in an underwater environment led Carpenter to volunteer his services for this assignment.

Captain George F. Bond, MC USN, who is in charge of all physiological and psychological aspects of the project, plans to utilize Carpenter's abilities as an observor in an hostile environment in the collection and evaluation of scientific data in this program.

Dr. Bond pointed out that by participating in Project Sea Lab, Carpenter will become the first human to experience the two most hostile environments known to man.

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NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER

Houston 1, Texas

HUnter 3-4231

MSC 64-97
May 13, 1964

HOUSTON, TEXAS -- Andre J. Meyer, Jr., Manager, Office of Program Control in the NASA Manned Spacecraft Center's Gemini Program Office, will be the principal speaker on May 26 at the Aerospace Materials and Process Engineers Club and on May 27 at the Boeing Supervisors Club -- both in Wichita, Kansas.

Meyer's talks will emphasize advances on Gemini concepts and mission plans.

Meyer, born in Rotterdam, the Netherlands, moved to the United States as a small child with his parents. He received his BS degree in mechanical engineering in 1943 from the University of Kentucky, then joined NASA (NACA prior to October 1958.) He has been with the manned space flight program since the beginning of Project Mercury.

Meyer and his wife, the former Loraine Landrus of Louisville, Kentucky, have four children.

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RESPONSE TO QUERY May 26, 1964

The SA-6 launch was postponed today due to failure of the compressor in the environmental control system, a part of the launch complex ground support equipment. Due to the failure the crew was unable to maintain acceptable temperaturs within the guidance system. The comperssor that failed is to be replaced. The launch has been rescheduled for no earlier than May 27, 9:00 EST.

NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER

Houston 1, Texas

HUnter 3-4231

MSC 64-98
May 14, 1964

HOUSTON, TEXAS -- C. D. Sword of the National Aeronautics and Space Administration's Manned Spacecraft Center has announced his resignation effective June 1, 1964.

Sword was Chief of the Apollo Procurement Office from December 1961, to March of this year. In March, he was appointed Chief of Procurement Operations.

Prior to his NASA service, Sword held various procuement positions with the U.S. Air Force for more than ten years. During that time he was closely associated with the B-70, KC-135, C-133, T-37 and T-38 Programs.

Sword will join the North American Aviation, Inc., Space and Information Systems Division in Downey, California. He will be Assistant to the Division Director of Material, with an initial assignment to assist in the direction of the NAA S&ID Apollo major subcontractor program.

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NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER

Houston 1, Texas

HUnter 3-4231

MSC 64-99
May 25, 1964

HOUSTON, TEXAS -- NASA's Manned Spacecraft Center will open its gates to the public for the first time from 8:00 am until 6:00 pm June 6-7, inaugurating a continuing program of weekend tours at the Clear Lake Site.

The "drive-through" tours are designed to acquaint residents of Harris and Galveston Counties, as well as area visitors, with the facilities and activities of NASA's newest center.

Because of the complex nature of work being carried on in most of the buildings and the limited availability of personnel to serve as guides, only one building will be open to the public. Large signs describing the type of work conducted in each building will be posted for easy reading by visitors.

The open building will be the Center's new Auditorium, where exhibits will be on display in the lobby and motion pictures will be shown inside each half-hour throughout the day.

Visitors will receive maps of the Center, outlining the tour route, along with a brochure containing a printed welcome to the Center from its Director, Dr. Robert R. Gilruth.

Center officials emphasize that parking spaces are limited to approximately 3,000 cars, adding that in the event all parking spaces

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are filled, visitors will be directed at a leisurely pace and out Gate 2.

"We genuinely hope this will not be necessary," Paul Haney, Center Public Affairs Officer, said, "but if it does, we hope those visitors will return another weekend for a visit to our Auditorium and displays."

Because of the large crowd anticipated on the first open weekend, the Center will open its gates at 8:00 am both Saturday and Sunday.

The schedule for future weekends calls for the gates to be opened at 1:00 pm each Sunday. Closing time will remain 5:00 pm.

"Since the Center will be open each Sunday from now on," Haney pointed out, "we hope the crowd will not be so large on this first weekend that some visitors will be able only to drive through.

"If prospective visitors to the site will wait a weekend or two, before coming, we feel sure they will find ample parking space and be able to enjoy a leisurely visit to the Center," he concluded.

The Manned Spacecraft Center is one of 10 NASA Centers throughout the United States and currently employs approximately 2500 persons at Clear Lake.

It is assigned the mission of managing manned spacecraft development, selecting and training Astronauts and planning and conducting manned space flight missions.

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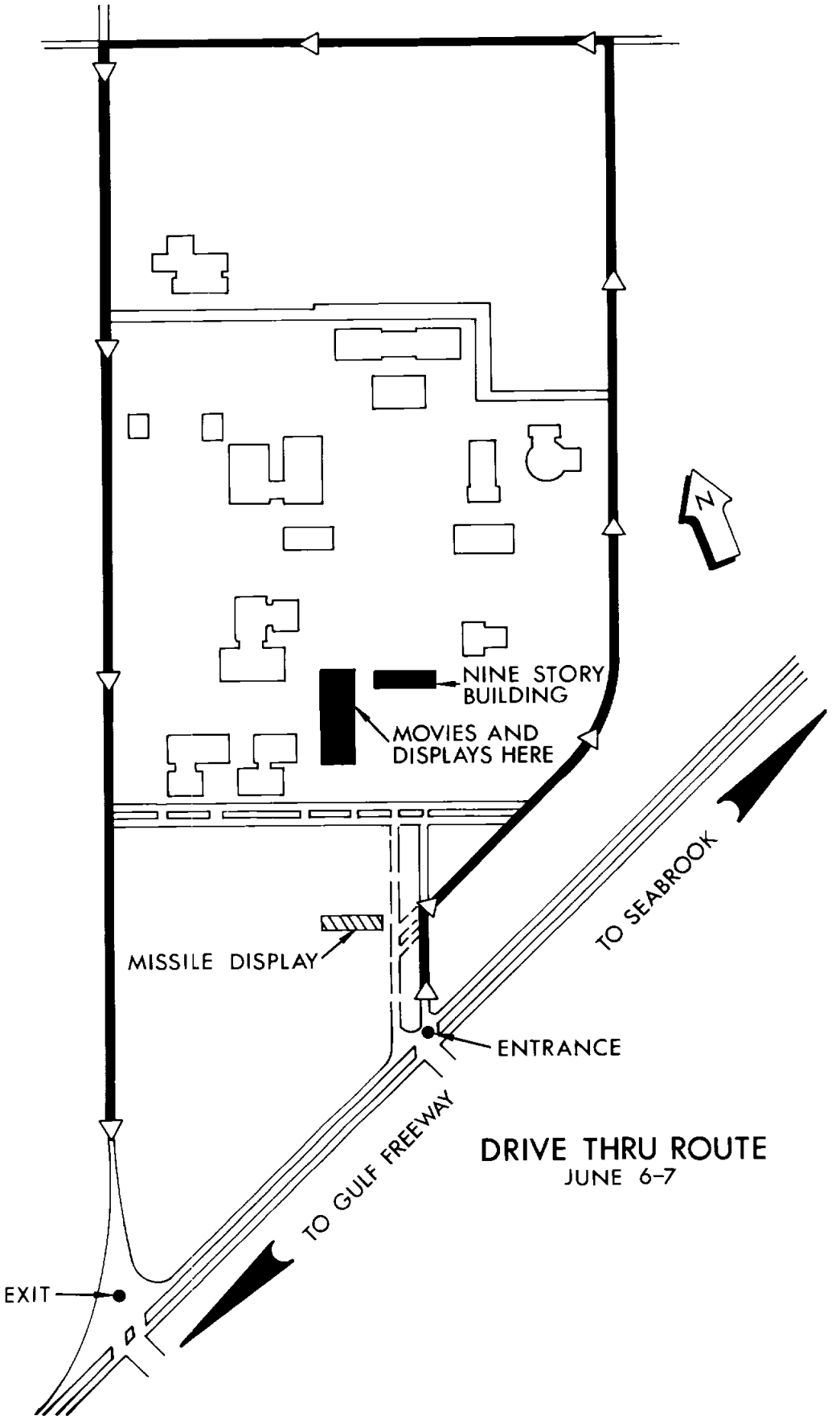

DRIVE THRU ROUTE
JUNE 6-7

NASA
S-64-25987

HUNTER 3-4343 MSC 64-101

HOUSTON, TEXAS - Faith 7, Mercury spacecraft flown by Astronaut L. Gordon Cooper in his earth circling 22 orbit flight in May 1963 will be on display June 25 through June 28 in Bismark, North Dakota.

The four day stop in Bismark is the thirty first of 50 state capitol visits that the National Aeronautics and Space Administration has scheduled for Cooper's spacecraft. Close to 3,750,000 persons have already seen the spacecraft since it began its cross country tour in Cooper's home state of Oklahoma.

The NASA Manned Spacecraft Center at Houston, Texas, has set Faith 7 on a stand which permits easy viewing of the inside of the spacecraft. A section of the base of the heat shield and portions of the outer skin have been cut away permitting the first public look at the inner structure of a Mercury spacecraft.

The spacecraft - inside and out - is exactly as it was when it splashed down into the Pacific near Midway Island on May 16, 1963. Nothing has changed. The spacecraft shingles - its outer skin made of a new metal rene' 41 - shows the effects of the 1,000 degree heat which blanketed the spacecraft during re-entry into earth's atmosphere. The heat shield - a mixture of glass fibers and resin - at the base of the spacecraft withstood maximum temperatures of 3,000 degrees farenheit when Cooper directed Faith 7 on its return to the earth.

Also on display with the spacecraft are cameras Cooper carried and the astronaut Survival Kit which rode on Faith 7's 546,185 mile earth-circling flight. Samples of the food Cooper ate during his day and a half in space will also be on display.

The 13 month tour, ending in the Nation's capitol on November 1, 1964, will cover approximately 20,000 miles, a distance Faith 7 covered in space in approximately 80 minutes.

NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER

Houston 1, Texas

HUnter 3-4343

64-102

HOUSTON, TEXAS - Faith 7, Mercury spacecraft flown by Astronaut L. Gordon Cooper in his earth circling 22 orbit flight May 1963 will be on display Aug 2 through Aug 5 in Oklahoma City, Okla.

The four day stop in Oklahoma is the 33rd of 50 state capitol visits that the National Aeronautics and Space Admin stration has scheduled for Cooper's spacecraft. Close to 350,000 persons have already seen the spacecraft since it began its cross country tour in Cooper's home state of Oklahoma.

The NASA Manned Spacecraft Center at Houston, Texas, has set Faith 7 on a stand which permits easy viewing of the inside of the spacecraft. A section of the base of the heat shield and portions of the outer skin have been cut away permitting the first public look at the inner structure of a Mercury spacecraft.

The spacecraft - inside and out - is exactly as it was when it splashed down into the Pacific near Midway Island on May 16, 1963. Nothing has changed. The spacecraft shingles - its outer skin made of a new metal rene'41 - shows the effects of the 1,000 degree heat which blanketed the spacecraft during re-entry into earth's atmosphere. The heat shield - a mixture of glass fibers and resin - at the base of the spacecraft withstood maximum temperatures of 3,000 degrees farenheit when Cooper directed Faith 7 on its return to the earth.

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NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER

Houston 1, Texas

HUnter 3-4343

64-103

HOUSTON, TEXAS - Faith 7, Mercury spacecraft flown by Astronaut L. Gordon Cooper in his earth circling 22 orbit flight May 1963 will be on display July 9 through July 12 in Lincoln, Nebraska.

The four day stop in Lincoln is the 34th of 50 state capitol visits that the National Aeronautics and Space Admin stration has scheduled for Cooper's spacecraft. Close to 3,800,000 persons have already seen the spacecraft since it began its cross country tour in Cooper's home state of Oklahoma.

The NASA Manned Spacecraft Center at Houston, Texas, has set Faith 7 on a stand which permits easy viewing of the inside of the spacecraft. A section of the base of the heat shield and portions of the outer skin have been cut away permitting the first public look at the inner structure of a Mercury spacecraft.

The spacecraft - inside and out - is exactly as it was when it splashed down into the Pacific near Midway Island on May 16, 1963. Nothing has changed. The spacecraft shingles - its outer skin made of a new metal rene'41 - shows the effects of the 1,000 degree heat which blanketed the spacecraft during re-entry into earth's atmosphere. The heat shield - a mixture of glass fibers and resin - at the base of the spacecraft withstood maximum temperatures of 3,000 degrees farenheit when Cooper directed Faith 7 on its return to the earth.

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NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER NASA Houston 1, Texas

HUnter 3-4231

MSC 64-104
May 27, 1964

HOUSTON, TEXAS -- Construction of the world's most powerful centrifuge at the NASA Manned Spacecraft Center is about 50 per cent finished on a schedule which calls for completion in March, 1965.

Called the Flight Acceleration Facility, the complex consists of a Centrifuge Chamber, Office and Support Wing, Gondola Service Wing and Motor Generator Building.

The chamber is a circular structure 170 feet in diameter and three stories tall. Able to swing a 3,000 pound payload on the end of a 50-foot arm at 42 revolutions per minute, the centrifuge will generate a maximum force of 30 g's which could be imposed for three minutes.

On the end of the centrifuge arm will be a 12-foot gondola with accommodations for three men, their acceleration couches and equipment, including a mockup of the Apollo control panel. The size of the gondola corresponds roughly to that of a room 8 by 8 by 8 feet.

The interior pressures will simulate that of a spacecraft interior when necessary and the gondola also will be used for biomedical studies on the effects of various gravitational forces on supporting systems

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and human subjects. Under certain conditions, the crew will have the capability of manipulating the gondola as they would a spacecraft during launch and re-entry.

Respiration rates, body temperature, electrocardiogram data, and blood pressure will be monitored by medical personnel during tests to insure the well-being of human subjects inside.

The facility is being constructed in three phases. The first is the centrifuge, controls and instrumentation. Phase two is the building and the third part is the construction of the electric motor and driving mechanism.

The centrifuge supporting arm will be of heavy structural steel and the gondola will turn on two axes at the end of the arm. This will allow three gravitational forces -- the normal downward pull of earth, the centrifugal force created as the gondola swings around its circle, and the backward pull of inertia -- to be combined into a single force on human subjects from front to back. This is the direction in which a man can withstand the largest loads.

More than 9,000 square feet of office space is under construction for supporting the test facility. The Office and Support Wing is a two story building with solar gray window walls, a predominant feature of the structure.

Some idea of the massive size of the 9,000 horsepower direct current electric motor and driving mechanism can be derived from its

650,000-pound-weight. The entire rig is mounted on a concrete base and weighs in excess of one million pounds. The rotor of the DC motor weighs 197,000 pounds by itself.

Four contractors have teamed up to build the Flight Acceleration Facility. They are: W. S. Bellows Construction Corporation of Houston and Peter Kiewit Sons Company of Omaha, Nebraska -- foundation and structural steel,

The Rucker Company of Los Angeles -- Centrifuge, controls and instrumentation,

Westinghouse Corporation of Pittsburgh -- electric motor and driving mechanism.

Some $5,579,215 has been obligated for equipment and construction of the Flight Acceleration Facility.

To date 27 facilities at MSC's Clear Lake site have been certified as operational or ready for occupancy, and another 14 are under construction. Total value of the construction and equipment at Clear Lake stands at $147,452,000 and the National Aeronautics and Space Administration has requested an additional $25,166,000 from Congress for construction during fiscal year 1965.

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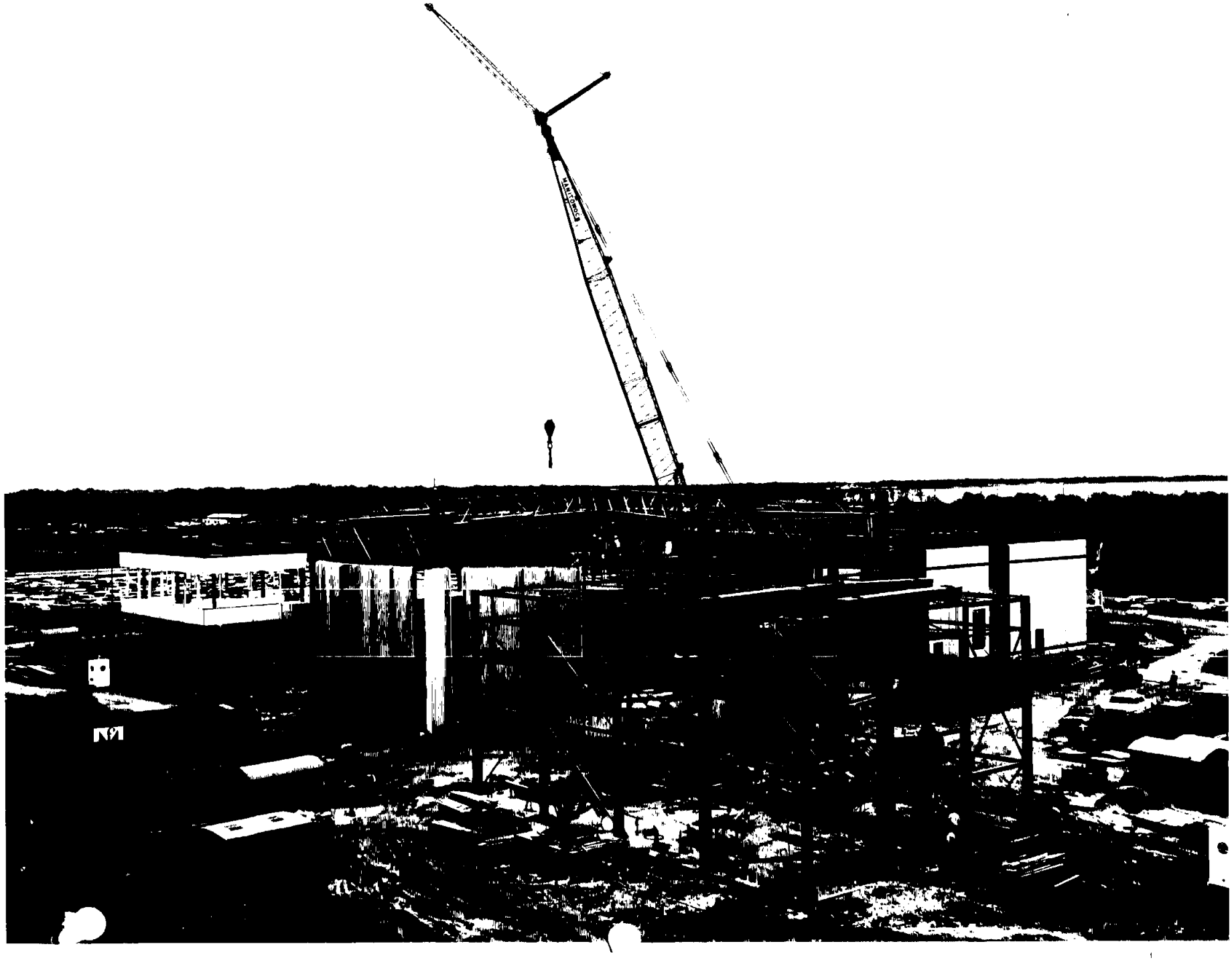
NASA
S-64-21818



NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MSC 64-105
May 28, 1964

HOUSTON, TEXAS -- The first of the T-38 high-performance jets arrived at Ellington Air Force Base Wednesday afternoon. This is the first of an expected 15 supersonic planes the Astronauts will use to maintain proficiency in high performance aircraft in which they will fly as much as 50 hours a month.

The T-38 has a crusing speed of Mach 1.3, or one and a third times the speed of sound. The T-38 is faster, flys higher and is more manueverable than the older T-33's, which it will replace.

The plane was piloted from Palmdale, California by James A. McDivitt, a member of NASA's Astronaut team.

The F-102's, TF-102's and the T-33's that are being used for training will slowly be replaced by the T-38 "Talon". Manned Spacecraft Center will get one every two weeks for a total of five planes, which are being leased from the Air Force. They expect to eventually buy these planes plus 10 more, making a total of 15.

As McDivitt alighted from his plane he commented on the crowd of people and cameramen, "If I had known this was going to be such a big deal, I would have got my hair cut and worn a clean flying suit."

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NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER

Houston 1, Texas

HUnter 3-4231

MSC 64-106
May 28, 1964

HOUSTON, TEXAS -- The National Aeronautics and Space Administration (NASA) announced today a second successful full-scale paraglider deployment test flight at Edwards AFB, California. This was the seventh in a series of evaluation tests of paraglider deployment from a test vehicle simulating a Gemini spacecraft.

The test -- as before -- consisted of a launch from a USAF C-130 carrier aircraft, separation of the Gemini test vehicle from its launch sled, timer-initiated paraglider deployment and then paraglider separation, and finally parachute recovery of the test vehicle.

Six similar test have been conducted since late January this year. The first five of these tests resulted in uncovering development problems in the deployment sequence. local areas of the paraglider -- sail fabric, cable connections, etc. -- were "beefed-up" by minor modifications as part of a "de-bugging" process. The sixth test then was successful on April 30.

The paraglider is a recovery system being developed by North American Aviation's Space and Information Systems Division, Downey, California, under a research and development contract with the Manned Spacecraft Center.

During today's test, the test vehicle was again dropped from 33,000 feet altitude. At T plus six seconds, the Gemini vehicle separated from the launch sled and trailed a reefed paraglider drogue parachute -- at about 32,700 feet.

Twenty-four seconds later, the Gemini rendezvous and recovery canister separated, and the paraglider fabric spilled from the top of the test vehicle. It remained

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suspended in an inverted "U" shape -- its nose and boom and keel trailing edges held to the Gemini test vehicle -- to prevent opening-shock damage.

Boom and keel trailing edges released at T plus 52 seconds -- at about 22,000 feet altitude. Then, at about T plus 57 seconds, the paraglider was unfurled into its "bat-wing" shape.

During deployment and during the glide period following, all systems operation were telemetered to ground stations and were recorded for post-flight evaluation.

The glide period ended at about T plus 202 seconds, at approximately 15,000 feet -- after one full minute of flight. At this point, the paraglider was jettisoned by radio command as predetermined. Twin drogue parachutes then deployed to stabilize the test vehicle during descent to 10,000 feet. The main parachute, 84 feet in diameter, ~~opened, at about T plus 181 seconds~~ then opened.

The Gemini test vehicle landed at about T plus 440 seconds, a little over seven minutes out of the aircraft. A helicopter retrieved the jettisoned paraglider after it settled to the ground.

Direct objectives of this test were to evaluate the deployment of the paraglider -- evaluate drogue parachute stabilization of the Gemini vehicle, evaluate separation of the paraglider from its canister, and obtain data on wing stresses during deployment and during transition to glide.

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NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER

Houston 1, Texas

HUnter 34231

MSC 64-107
June 1, 1964

HOUSTON, TEXAS -- D. Owen Coons, M.D., Chief of the Medical Office of the NASA Manned Spacecraft Center will address physicians attending the annual conference of the Interamerican Congress of Cardiology June 17 in Montreal, Canada.

Dr. Coon's speech will cover medical aspects of space flight during a symposium devoted to Space Travel and the Cardiovascular System.

As Chief of the Medical Office, Dr. Coons has supervisory responsibility for medical, health and safety aspects of the Center's operation including support of space missions. In this capacity Dr. Coons and his colleagues act as flight surgeons to the astronauts and monitor them in actual flight.

Dr. Coons is a native of Hamilton, Ontario, Canada, and received his medical degree from the University of Toronto in 1948. After an internship in Hamilton, Ontario, he became a medical officer in the Royal Canadian Air Force serving at stations at Camp Borden, Ontario; St. Jean Quebec from 1949-53 and with the No.1 Fighter Wing in England and France, 1953-55.

From 1955-56 he was a post-graduate student at Harvard University where he received a masters degree in public health. He was Director of Aviation Medicine at RCAF Headquarters, Ottawa from 1956-59, and then until 1962 he served as Staff Officer Medical Services, Canadian Joint Staff in Washington, D. C.

Serving as principal medical officer and flight surgeon on the Roayl Canadian Navy aircraft carrier HMCS Bonaventure, during 1962-63, he participated in the rescue in September 1962 of the survivors of the ditched Flying Tiger Constellation in the ' rth Atlantic.

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Add 1
MSC 64-107

Dr. Coons resigned his commission as a wing commander in July 1963 and joined the National Aeronautics and Space Administration as deputy chief of the medical operations office, where he served until he was named chief of the office in February, 1964.

He is a Fellow in Aviation Medicine of the Aerospace Medical Association; American College of Preventive Medicine; the Royal Society of Medicine; and holds membership in the Canadian Aeronautics and Space Institute and Alpha Kappa Kappa, medical fraternity.

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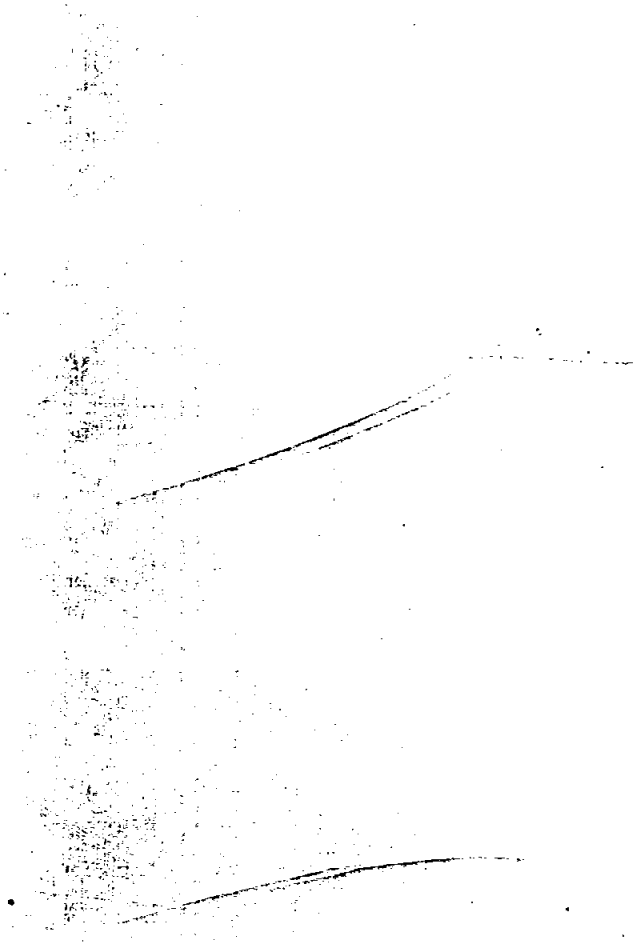

NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER NASA Houston 1, Texas

HUnter 3-4231

MSC 64-108
June 8, 1964

HOUSTON, TEXAS -- Components of the Apollo spacecraft, destined to land American astronauts on the lunar surface before 1970, will be thoroughly checked out by ten ground stations of an advanced computer and communications system.

The National Aeronautics and Space Administration Manned Spacecraft Center here has signed a contract for $13,782,986 with Control Data Corporation of Minneapolis, Minnesota, for the ten ACE (Acceptance Checkout Equipment) ground stations. Three of the ground stations will be located at North American Aviation at Downey, Calif., where the Apollo command and service modules are built. Two stations will be installed at the plant of the firm building the Lunar Excursion Module, (LEM), Grumman Aircraft Engineering Corp., Bethpage, L. I., New York.

NASA installations to receive ACE ground stations are Manned Spacecraft Center, one station, and Merritt Island Launch Area, Florida, four stations.

The new equipment to be furnished by Control Data Corporation will be integrated into present ground ACE stations to provide centralized, programmed control of spacecraft checkout operations. The stations will be capable of checking out spacecraft systems independently or with all spacecraft systems integrated. Delivery and installation of the ACE equipment is estimated to be completed by October, 1965.

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NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER NASA Houston 1, Texas

HUnter 3-4231

MSC 64-109
June 9, 1964

HOUSTON, TEXAS -- Just as windjammer mariners had to depend upon landmarks to avoid shoal waters and to find harbor channels, so must astronauts depend upon moon-marks to find safe landing spots upon the hostile and unknown surface of the moon.

Where skippers of sailing ships knew from experience or first-hand reports where navigation hazards were, the skipper of Project Apollo's Lunar Excursion Module will be getting a three-dimensional look at the moon's surface for the first time. Unmanned probes earlier will have mapped the lunar surface photographically.

Space scientists at the National Aeronautics and Space Administration's Manned Spacecraft Center here have signed a $67,261 contract with Geonautics, Inc., Washington, D. C., for a study of how lunar spacecraft might be flown by reference to landmarks on the moon. The study contract will be completed by February, 1965.

During the lunar landing phase of Project Apollo, the Lunar Excursion Module (LEM) will separate from the command and service modules and enter an elliptical lunar orbit that has the same time period as the circular orbit of the rest of the Apollo spacecraft. The near point or perilune of the LEM in its elliptical orbit will be about 50,000 feet. And it is at this critical point that techniques for pilotage by reference to lunar landmarks must be placed in use.

Not only will the study contract cover crew techniques and procedures for picking safe landing spots on the moon, but investigations will be made into possible new devices and navigational displays for use aboard the LEM.

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Other information resulting from the study will include such vital navigational data as the position and trajectory of the spacecraft by reference to the lunar surface at any given time. Also, the study will yield analysis of linear and angular errors to be expected in using various methods of navigation compared against such factors as altitude above a landmark, distance to a landmark and the value of moon maps now available for lunar missions.

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NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER

Houston, Texas

HUnter 3-4231

MSC 64-110
June 10, 1964

HOUSTON, TEXAS -- The Boilerplate 15 (BP15) Apollo Command module and launch escape tower is expected to arrive at Cape Kennedy, tomorrow (June 11), completing delivery of BP15 spacecraft components from North American Aviation, Inc., Downey, California. The service module, adapter, section, and motors for the launch escape systems (LES) arrived last week in two separate flights. The Apollo BP15 spacecraft will be launched in flight SA-7 by a Saturn I launch vehicle later this summer.

At Cape Kennedy, a team of Manned Spacecraft Center - Florida Operations - and contractor personnel will complete preparations of the BP15 spacecraft for launch. The planned integrated tests are a continuation of test operations conducted at the NAA plant since March.

The preparations will include arrival inspection, buildup of the LES, spacecraft-launch vehicle mating, integrated systems testing, and space vehicle compatability testing.

Primary objectives of the SA-7 mission are to demonstrate the physical compatability of launch vehicle and spacecraft under preflight and flight conditions and to determine the launch and exit environmental parameters to verify design criteria.

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The flight test will demonstrate the alternate mode of launch escape tower jettisoning, using the launch escape and pitch control motors. In previous Apollo spacecraft flight from Cape Kennedy, the launch escape and pitch control motors were inert.

The test also will demonstrate the structural integrity of the LES under flight loading conditions and demonstrate the compatability of the spacecraft radio frequency and instrumentation system with the launch vehicle systems.

Apollo BP 15 will be launched from complex 37B at an azimuth of 90° with a program of roll to a flight azimuth of 105 degrees. The spacecraft trajectory will be controlled by the Saturn first stage until engine cutoff. It will then ce controlled by the Saturn second stage inertial guidance thru second stage cutoff.

The escape tower will be jettisoned by means of the launch escape motor approximately 12 seconds after first stage separpation. The spacecraft with the burned out second stage will be placed into about a 100 nautical mile, earth orbit with an estimated life of 2 or 3 days, no recovery of the spacecraft is planned.

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NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER

Houston 1, Texas

HUnter 3-4231

MSC 64-111
June 11, 1964

HOUSTON, TEXAS -- The NASA Manned Spacecraft Center's Gemini Program Manager, Charles W. Mathews, reported today that the Nation's first manned Gemini spacecraft is essentially complete.

Mathew's statement followed a two-day Development Engineering Inspection (DEI) of the spacecraft at the McDonnell Aircraft Corporation plant at St. Louis, June 9 and 10.

According to Mathews, "The spacecraft is essentially complete, and some overall systems checks have already been accomplished in satisfactory fashion. The inspection revealed that the systems configuration of the spacecraft will meet the mission requirements."

The inspection team consisted of personnel from the Manned Spacecraft Center, NASA Headquarters and other NASA Centers, Department of Defense, contractor, and other government agency officials involved with the Gemini-Titan 3 (GT-3) mission.

GT-3 is scheduled for flight late this year. Astronauts Virgil I. Grissom and John W. Young, the prime crew for the mission, and Walter M. Schirra and Thomas P. Stafford, backup crew, attended

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the meeting. Other astronauts present were Alan Shepard, Chief of the Astronaut Office, and Donald K. Slayton, Assistant Director for Flight Crew Operations.

NASA officials at the DEI included George W. Low, Manned Spacecraft Center Deputy Director and Chairman of the DEI Board; Mathews, who also serves as Vice Chairman of the Board; Duncan Collins, MSC Gemini Spacecraft Manager; Christopher C. Kraft, MSC Flight Operations Director; J. J. Williams, Florida Operations; F. J. Bailey, Jr., MSC Reliability and Flight Safety; and Maxime A. Faget, MSC Assistant Director for Engineering and Development.

All Gemini spacecraft DEI's are under the supervision of the Development Engineering Inspection Board. Board members are appointed by the MSC Deputy Director and are responsible for assuring that the spacecraft is capable of performing its assigned mission.

The purpose of the DEI is to assure flight safety for the crew and the suitability of the GT-3 spacecraft and its systems to achieve all planned mission objectives. The GT-3 meeting permitted thorough inspection and review of the spacecraft and its components -- system-by-system and part-by-part -- prior to factory systems checkout and delivery to NASA.

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NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER — Houston 1, Texas

HUnter 3-4231

MSC 64-112
June 22, 1964

HOUSTON, TEXAS -- The NASA Manned Spacecraft Center this week is conducting its first Gemini Recovery Operations School in preparation for space flights scheduled for later this year.

The school is being conducted at Hamilton Air Force Base in Bermuda by the Landing and Recovery Division of the Flight Operations Directorate.

Dr. Donald E. Stullken, head of the Recovery Operations Branch, is in charge of the program which runs through june 25. Two additional days have been reserved in the event weather forces postponements.

The training course in Gemini recovery procedures is offered to selected members of the United States Air Force Air Rescue Service; the pararescue teams who will have first contact with the returning spacecraft.

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Add 1
MSC 64-112

Participating in the school will be USAF pilots and navigators, the rescue teams and maintenance personnel.

Briefings of the Gemini flights and recovery patterns will be given to the group during initial sessions. They will practice attaching the collar using a boilerplate model having a Gemini spacecraft configuration.

Included in the training will be flights in C-54 and HC-97 aircraft where navigators will "home" in on the Sarah personnel radio beacon and a Gemini prototype recovery aid. Lectures for pararescue personnel will include a session on how to assist the astroanuts, including how to remove the man's pressure suit--if necessary.

Introduction to the use of the flotation collar and the actual attaching of the devise will be done in the open seas off Bermuda. Pilots, navigators and pararescue crews will devote two days to this phase of the school.

Attending are ARS personnel from Eglin AFB, the Azores, Labrador and Kindley AFB.

NEWS RELEASE
NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
MANNED SPACECRAFT CENTER
Houston 1, Texas

HUnter 3-4231

MSC 64-113
July 1, 1964

HOUSTON, TEXAS -- Astronaut James A. Lovell, Jr. got the feel of landing a spacecraft recently, as he demonstrated his proficiency at the controls of the 1/3 scale Gemini, using a radio-controlled steerable Parasail. The early results from the Fort Hood drop indicated the experiment was a success.

This test was one in a series designed to test the maneuverability of the Parasail or "gliding controllable parachute"; however, this is the first time an astronaut has actually controlled the landings.

The Parasail is designed to provide a landing method that retains the reliability of deployment that has been achieved with parachutes while at the same time providing the crew with a maneuver capability. Planned land landings are practical only with vehicles which are equipped with maneuverable landing system.

Thus the Parasail promises to provide a spacecraft with land landing capability yet retain the light weight and reliability of a parachute.

The Parasail drop tests are being conducted to test the remote maneuvering systems (radio control), and to further test the Parasail's deployment characteristics.

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NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER NASA Houston 1, Texas

HUnter 3-4231

MSC 64-114
June 24, 1964

HOUSTON, TEXAS -- Over 700 NASA Manned Spacecraft Center employees and associated contractor personnel will start moving into the Center June 24 in the final relocation from Houston leased facilities.

Moving to Clear Lake will be 475 employees of the Flight Operations Directorate, 55 from the Information Systems Division, six Department of Defense liaison representatives and some 200 contractor personnel.

Most of these people will be located in the Manned Spaceflight Control Center, Houston (MSCC/H); formerly called the Integrated Mission Control Center.

Their offices will be in the three story Administration Wing, the Lobby Wing and the Mission Operations Wing.

Fifty five persons are scheduled to move today, followed by a Thursday move of 185 persons assigned to the Flight Control Division. Beginning Friday and continuing over a weekend, 25 people from the MSCC/H Program Office, 65 from the Landing and Recovery Division and

--more--

200 from the Mission Planning and Analysis Division will be relocated.

On June 30 the final move will be completed when contractor employees will move.

Some 600 MSC employees occupy office space at Ellington Air Force Base and will continue to be located there until their facilities are completed.

MSCC/H is the control center from which Gemini and Apollo space flight will be directed. Scheduled for operation in 1965, it will be the focal point for the entire ground operational support system. From it the manned spacecraft and the network of world wide tracking stations will be directed.

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NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER — NASA — Houston 1, Texas

HUnter 3-4231

MSC 64-115
June 24, 1964

HOUSTON, TEXAS -- Robert O. Piland, Deputy Manager of the National Aeronautics and Space Administration's Apollo Spacecraft Program Office at the Manned Spacecraft Center will be honored by the American Academy of Achievement on June 27 when he will receive a Golden Plate award at the annual "Salute to Excellence" meeting in Oceanside, California.

The award will be presented "in appreciation of his exceptional accomplishment in aerospace," and upon his nomination by the Academy's national panel on aerospace.

At the Banquet of the Golden Plate, fifty national guests of honor - "Captains of Achievement" in the sciences, the arts, the professions, business, education, and public service - will each take the spotlight to receive the Golden Plate award as the "representative of the many who excel" in his field of endeavor.

Several hundred California "Citizens of Achievement" and honor students will attend the formal affair.

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NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER

Houston 1, Texas

HUnter 3-4231

MSC 64-116
June 23, 1964

HOUSTON, TEXAS -- A $400,000 contract to provide protective security services at the NASA Manned Spacecraft Center was awarded today to the M & T Company of Philadelphia, Pa.

The contract will run from July 1, 1964, through June 30, 1965.

Present contractor is Midwest Building Services, Inc., which employs approximately 70 guards and 7 visitor control clerks at MSC. The majority of the present force is expected to be retained by the M & T Company.

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NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER

Houston 1, Texas

HUnter 3-4343

7-4-117

HOUSTON, TEXAS - Faith 7, Mercury spacecraft flown by Astronaut L. Gordon Cooper in his earth circling 22 orbit flight May 1963 will be on display July 16 through July 19 in Topeka, Kansas.

The four day stop in Topeka is the 35th of 50 state capitol visits that the National Aeronautics and Space Admin stration has scheduled for Cooper's spacecraft. Close to 3,830,000 persons have already seen the spacecraft since it began its cross country tour in Cooper's home state of Oklahoma.

The NASA Manned Spacecraft Center at Houston, Texas, has set Faith 7 on a stand which permits easy viewing of the inside of the spacecraft. A section of the base of the heat shield and portions of the outer skin have been cut away permitting the first public look at the inner structure of a Mercury spacecraft.

The spacecraft - inside and out - is exactly as it was when it splashed down into the Pacific near Midway Island on May 16, 1963. Nothing has changed. The spacecraft shingles - its outer skin made of a new metal rene'41 - shows the effects of the 1,000 degree heat which blanketed the spacecraft during re-entry into earth's atmosphere. The heat shield - a mixture of glass fibers and resin - at the base of the spacecraft withstood maximum temperatures of 3,000 degrees farenheit when Cooper directed Faith 7 on its return to the earth.

Also on display with the spacecraft are cameras Cooper carried and the astronaut Survival Kit which rode on Faith 7's 546,185 mile earth-circling flight. Samples of the food Cooper ate during his day and a half in space will also be on display.

The 13 month tour, ending in the Nation's capitol on Nov. 1, 1964, will cover approximately 20,000 miles, a distance Faith 7 covered in space in approximately 80 minutes.

NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER

Houston 1, Texas

MSC 62-118

HUnter 3-4343

HOUSTON, TEXAS - Faith 7, Mercury spacecraft flown by Astronaut L. Gordon Cooper in his earth circling 22 orbit flight May 1963 will be on display July 23 through July 26 in Des Moines, Iowa.

The four day stop in Des Moines is the 36th of 50 state capitol visits that the National Aeronautics and Space Admin stration has scheduled for Cooper's spacecraft. Close to 3,850,000 persons have already seen the spacecraft since it began its cross country tour in Cooper's home state of Oklahoma.

The NASA Manned Spacecraft Center at Houston, Texas, has set Faith 7 on a stand which permits easy viewing of the inside of the spacecraft. A section of the base of the heat shield and portions of the outer skin have been cut away permitting the first public look at the inner structure of a Mercury spacecraft.

The spacecraft - inside and out - is exactly as it was when it splashed down into the Pacific near Midway Island on May 16, 1963. Nothing has changed. The spacecraft shingles - its outer skin made of a new metal rene'41 - shows the effects of the 1,000 degree heat which blanketed the spacecraft during re-entry into earth's atmosphere. The heat shield - a mixture of glass fibers and resin - at the base of the spacecraft withstood maximum temperatures of 3,000 degrees farenheit when Cooper directed Faith 7 on its return to the earth.

Also on display with the spacecraft are cameras Cooper carried and the astronaut Survival Kit which rode on Faith 7's 546,185 mile earth-circling flight. Samples of the food Cooper ate during his day and a half in space will also be on display.

The 13 month tour, ending in the Nation's capitol on Nov. 1, 1964, will cover approximately 20,000 miles, a distance Faith 7 covered in space in approximately 80 minutes.

NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER

Houston 1, Texas

HUnter 3-4343

MSC-64-119

HOUSTON, TEXAS - Faith 7, Mercury spacecraft flown by Astronaut L. Gordon Cooper in his earth circling 22 orbit flight May 1963 will be on display July 30 through August 2 in Madison, Wisconsin.

The four day stop in Madison is the 37th of 50 state capitol visits that the National Aeronautics and Space Admin stration has scheduled for Cooper's spacecraft. Close to 3,850,000 persons have already seen the spacecraft since it began its cross country tour in Cooper's home state of Oklahoma.

The NASA Manned Spacecraft Center at Houston, Texas, has set Faith 7 on a stand which permits easy viewing of the inside of the spacecraft. A section of the base of the heat shield and portions of the outer skin have been cut away permitting the first public look at the inner structure of a Mercury spacecraft.

The spacecraft - inside and out - is exactly as it was when it splashed down into the Pacific near Midway Island on May 16, 1963. Nothing has changed. The spacecraft shingles - its outer skin made of a new metal rene'41 - shows the effects of the 1,000 degree heat which blanketed the spacecraft during re-entry into earth's atmosphere. The heat shield - a mixture of glass fibers and resin - at the base of the spacecraft withstood maximum temperatures of 3,000 degrees farenheit when Cooper directed Faith 7 on its return to the earth.

Also on display with the spacecraft are cameras Cooper carried and the astronaut Survival Kit which rode on Faith 7's 546,185 mile earth-circling flight. Samples of the food Cooper ate during his day and a half in space will also be on display.

The 13 month tour, ending in the Nation's capitol on Nov. 1, 1964, will cover approximately 20,000 miles, a distance Faith 7 covered in space in approximately 80 minutes.

NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER

Houston 1, Texas

HUnter 3-4343

MSC-64-120

HOUSTON, TEXAS - Faith 7, Mercury spacecraft flown by Astronaut L. Gordon Cooper in his earth circling 22 orbit flight May 1963 will be on display August 6 through August 9 in Lansing, Michigan.

The four day stop in Lansing is the thirty eighth of 50 state capitol visits that the National Aeronautics and Space Admin stration has scheduled for Cooper's spacecraft. Close to 3,850,000 persons have already seen the spacecraft since it began its cross country tour in Cooper's home state of Oklahoma.

The NASA Manned Spacecraft Center at Houston, Texas, has set Faith 7 on a stand which permits easy viewing of the inside of the spacecraft. A section of the base of the heat shield and portions of the outer skin have been cut away permitting the first public look at the inner structure of a Mercury spacecraft.

The spacecraft - inside and out - is exactly as it was when it splashed down into the Pacific near Midway Island on May 16, 1963. Nothing has changed. The spacecraft shingles - its outer skin made of a new metal rene'41 - shows the effects of the 1,000 degree heat which blanketed the spacecraft during re-entry into earth's atmosphere. The heat shield - a mixture of glass fibers and resin - at the base of the spacecraft withstood maximum temperatures of 3,000 degrees farenheit when Cooper directed Faith 7 on its return to the earth.

Also on display with the spacecraft are cameras Cooper carried and the astronaut Survival Kit which rode on Faith 7's 546,185 mile earth-circling flight. Samples of the food Cooper ate during his day and a half in space will also be on display.

The 13 month tour, ending in the Nation's capitol on Nov. 1, 1964, will cover approximately 20,000 miles, a distance Faith 7 covered in space in approximately 80 minutes.

July 1, 1964

NASA NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Public Affairs Office, Houston, Texas

The Science and Technology Advisory Committee for Manned Space Flight, established in December 1963 by NASA Administrator James E. Webb, convened today for its second meeting at the Manned Spacecraft Center at Clear Lake. The Committee functions in an advisory capacity to Dr. George E. Mueller, Associate Administrator for Manned Space Flight. It advises him on the scientific and technological content of NASA's manned flight program and on methods of obtaining optimum utilization of the nation's scientific and engineering talent in accomplishing that program.

Dr. Charles Townes, Provost of the Massachusetts Institute of Technology, Chairman of the Committee, selected the members to represent the major areas of science and technology applicable to manned space flight. Each is noted in his field and for his general recognition throughout the scientific committee. Each is widely informed on the scientific resources of the nation as a whole.

The purpose of meeting this week here in Houston, is to provide the overall Committee with the opportunity for delving into the general problems related to Apollo, including launch vehicle systems, spacecraft systems, launch operations, the science program and medical problems.

MEMBERS

Dr. Charles H. Townes, (Provost, MIT) Chairman

Dr. H. Stanley Bennett, (Dean of Medical School, University of Chicago)

Dr. Leo Goldberg, (Higgins Professor of Astronomy, Harvard College Observatory)

Dr. William Shepherd, (Vice President, Academic Administration, University of Minnesota)

Dr. William Shockley, (Alexander M. Poniatoff Professor of Engineering Sciences, Standford University)

Dr. William H. Sweet, (Chief of Neurosurgical Services, Massachusetts General Hospital, Boston)

Dr. J. R. Whinnery, (Former Dean of School of Engineering, University of California, has been on leave for a year and is now returning to the university as Professor of Electrical Engineering)

Dr. Kenneth Pitzer, (President of Rice University)

Dr. Gordon J. F. MacDonald, (Professor of Geophysics, Institute of Geophysics, University of California)

Dr. Lee DuBridge, (President, California Institute of Technology) (Not attending)

Dr. Francis Clauser, (Professor of Aeronautical Engineering, John Hopkins University) (Not attending)

Mr. Willis B. Foster, (Director, Manned Space Science Division, NASA Executive Secretary)

EX OFFICIO MEMBERS

Dr. George Mueller, (Associate Administrator for Manned Space Flight, NASA)

Dr. Homer E. Newell, (Associate Administrator for Space Sciences and Applications, NASA)

Dr. Raymond L. Bisplinghoff, (Associate Administrator for Advanced Research and Technology)

Dr. Harry Hess, (Chairman, Space Science Board of the National Academy of Sciences)

Dr. W. Randolph Lovelace, (Director of Space Medicine, Office of Manned Space Flight)

HENRY STANLEY BENNETT
(anatomist)

b. Tottori, Japan, Dec. 22, 1910 (parents U.S. Citizens); s. Henry James and Anna Woodruff (Jones) B.; came to U.S., 1924 Diploma, Germantown Friends Sch., 1928; A.B. Oberlin Coll., 1932; M.D. Harvard, 1936; m. Alice Helen Roosa, July 28, 1935; children - Edith Roosa, Anna Woodruff, Henry James, Patience St. John. Fellow of Nat. Research Council and research fellow, anatomy, Harvard Med. Sch., 1937-39; instr. in anatomy, 1939-42; asst. prof. of cytology, Mass. Inst. Tech., 1945-48; prof. of anatomy and chmn., dept. of anatomy, U. of Wash. School of Medicine, Seattle, 1948-60; dean div. biol. scis., U. Chgo., 1961--. Member national advisory council USPHS, 1958. Entered M.C., U.S. Navy, as lt. (j.g.), 1942; service in S. Pacific, 1943-45; disch. to Res. as comdr., Jan. 1946; captain MC, U.S.N.R. Vol. Research Res. Unit 13-1, 1948-52. Awarded Legion of Merit. Diplomate Nat. Bd. Med. Examiners. Fellow Am. Acad. Arts and Sciences, A.A.A.S.; mem. Soc. for Clin. Investigation, Am. Assn. of Anatomists (pres. 1959-60), Am. Physiol. Soc., Soc. Cell Biology, Am. Chem. Soc., Electron Microscope Soc. Am., Am. Chem. Soc., Electron Microscope Soc. Am., Am. Assn. U. Profs., Histochem., Alpha Omega Alpha, Sigma Xi. Home: 5827 Blackstone Av., Chgo. 37.

Dr. Francis Hettinger Clauser - Aeronautics

Department of Aeronautics, Johns Hopkins University. Born Kansas City, Missouri, May 25, 1913. Married 1937, 2 children. B.S. California Institute of Technology, 1934, M.S. 1935, PhD. (Aeronautics), 1937. Engineer in charge aerodynamics research Douglas Aircraft Company, 1937 - 1946; Professor, Aeronautics and Chmn. Dept., Hopkins, 1946 - . Physics Society; fel. Inst. Aeronautics Sci. Aerodynamics; flight testing; mechanics of compressible and viscous fluids; heat transfer, ballistics; non-linear mechanics; magnetohydrodynamics.

Dr. Lee Alvin DuBridge - Physics

California Institute of Technology, Pasadena, California. Born Terre Haute, Indiana, September 21, 1901. Married, 1925, 2 children. A.B. Cornell College (Iowa) 1922, ScD, 1940; A.M. Wisconsin 1924, PhD. (physics) 1926, hon. ScD., Polytech. Inst., Brooklyn, 1946, British Columbia, 1947, Wesleyan, 1946, Washington (St. Louis) 1948, Occidental College, 1952, Maryland, 1955, Columbia, 1957, California, 1957, Northwestern, 1958; hon. L.H.D., Judaism, 1958, Redlands, 1953. 1928, Assistant Professor, Washington (St. Louis), 1928-1933, Associate Professor, 1933-1934; Professor and Chmn. Dept., Rochester, 1934-1946, Dean Faculty Arts and Sciences, 1938-1942; Director Radiation Lab., Massachusetts Institute of Technology, 1940-1945; President, California Institute of Technology, 1946 - . Physical Sciences Division, National Research Council, 1936 - 1942. Associate Editor "American Physics Teacher", 1935-1938; "Physics Rev.", 1936-1939, "Rev. Sci. Instruments", 1936-1942. Trustee, Rand Corp., Member Board of Trustees, Rockefellar Foundation, 1956 - ; Mellon Inst., 1956 - . Member General Advisory Committee, Atomic Energy Commission, 1946-1952; Scientific Advisory Committee, Office Defence Mobilization, 1951-1956, National Scientific Board, 1950-1954, 58 - British Royal medal, 1946; Medal for Merit, 1946; Res. Corp. award, 1947. Nat. Acad; A. A.; fel. Physics Society (v. pres, 1946, pres. 1947), Philos. Society; fel. American Academy Biophysics; nuclear desintegration; photoelectrics and thermionic emission; direct current amplification; energy distribution of photoelectrons; theory of photoelectric effect; radar.

Dr. Leo Goldberg - Astrophysics

Harvard College Observatory, Cambridge, Massachusetts. Born Brooklyn, New York, January 26, 1913. Married, 1943, 3 children. Observatory, 1934-1935, special res. fel, 1938-1941, research associate, 1941, assistant astron., University 1935-1936; assistant, McMath-Hulbert Observatory, Michigan, 1941-1945, Assistant Professor, University, 1945-1946, Associate Professor 1946-1948, Professor Astron.,1948-1960; Higgins Professor, Harvard, 1960 - . Instructor, Wilson College, 1939; Chairman, Dept. Astron. and Director, Observatory, Michigan 1946-1960, Trustee, Cranbrook Inst. Sci, 1956 - ; Assoc. Univ., 1957 - . Vice Chairman, Advisory Committee on Astronautics, Office of Naval Research, 1949-1951, Chairman, 1951-1952, Member, Advisory Committee Sugar Grove Radio Observatory, 1960 - ; Dir. Committee Math, Physics and Engineering Sciences, National Science Foundation, 1952-1955, Vice Chairman, Nat. Astron. Observatory Panel, 1955-1957; Chairman, Organ. Committee, Asn. University. Res. Astron, 1956-1957, Consultant, 1959 - ; Financial Delegate General Assembly, Int. Astron. Union, Dublin, 1955, Chairman, U. S. Voting Delegation, Moscow, 1958, U. S. National Committee, 1956-1961, Pres. Cmn, 12, 1958 - , Member Cmn, 1944-1960 - ; Space Sciences Board, National Academy Sciences , 1958 - , Chairman, Committee Astron., 1958 - , Member Board Directors, Gould Fund, 1959 - , Committee, Draper Fund, 1959-1964; Member Scientific Advisory Board and Geophysics and Basic. Research Panels, U.S.A.F. 1959 - With Office Scientific Research and Development, U.S.N., 1944, National Academy; A. A., Astron. Soc. (v. pres. 1959-1961), Physics Society; Philos. Society; American Academy; Inst. Astron. Union (v. pres. 1958-1961). Solar Physics; infrared spectroscopy; atmospheric optics.

Dr. Grodon James Fraser McDonald - Geophysics

Institute of Geophysics, University of California. Born Mexico, D.F., Mexico, July 30, 1929; nat; Married, 1950, 1 child. A.B. Harvard, 1950, A.M., 1952, fel, 1952-1954, PhD. 1954, Asst. Prof. Geology, MIT 1954-1955, Assoc, Prof. 1955-1958; Prof. Geophysics , California, L.A., 1958- Staff Assoc. Geophysics Lab, Carnegie Inst., 1955 - Consult, NASA, 1960- Geology Society; Mineral. Society; Geochem. Society, Geophysics Union. Rotation of the earth - physics of interior of planets; use of computers in geophysics.

Dr. Kenneth Sanborn Pitzer - Physical Chemistry

Department of Chemistry, University of California. Born Pomona, California January 6, 1914, Married 1935, 3 children. B.S. California Institute of Technology, 1935, Shell Fel, California, 1936-1937, Ph.D. (chemistry) 1937, Asst. Chem., California, 1935-1936, Instructor, 1937-1939, Asst. Prof. 1939-1942, Assoc, Prof. 1942-1945, Professor, 1945 - Asst. Dean, Col. Letters and Sciences 1947-1948, Dean, College of Chemistry, 1951-1960. Technical Director, Research Labs., Office Scientific Research and Development, Maryland, 1943-1944; Assoc. Dir. Research Project, American Petrol Inst., 1944, 1947-1952, Director, 1950, 1952-1958; Director, Div. Res. U.S. Atomic Energy Commission, 1949-1951; Guggenheim fel, 1951. Member General Advisory Committee, U. S. Atomic Energy Commission, 1958-1960, (Chmn, Chem. Sect. 1959-); Chemical Society (award 1943, 1950); Philos. Society; Nuclear Society; Fel. Phys. Society, Faraday Society, fel.Inst. Chem; fel. Am. Acad; Inst. Union Pure and Applied Chemistry. Chemical thermodynamics; quantum theory and statistical mechanics applied to chemistry; molecular spectroscopy.

Dr. William Gerald Shepherd - Electrical Engineering

Department of Electrical Engineering, University of Minnesota. Born Ft. William, Ontario, Canada, August 28, 1911; nat., Married, 1936, 3 children. B. S. Minnesota, 1933, fel. 1933-1937, PhD (physics), 1937. Member Technical Staff, Bell Telephone Labs, 1937-1947; Professor Electrical Engineering, Minnesota, 1947 - , Head, Dept. 1956- , Assoc. Dean, Inst. Tech. 1954-1956. Consultant Chairman, U. S. Commission, Seven, 1957 - Physics Society; Soc. Eng. Ed.; Inst. Elec. Eng.; Inst. Radio Engineering. Microwave electronics; physical electronics, especially electron emission.

Dr. William Shockley - Physics

Shockley Transistor Clevite Corporation, Palo Alto, California. Born London, England, February 13, 1910, U. S. citizen; Married 1933, div., Married 1955, 3 children. B. Sc., California Institute of Technology, 1932; fel. MIT, 1932-1936, PhD. (physics), 1936; hon. ScD., Penn., 1954, Rutgers, 1956. Member Technical Staff, Bell Telephone Labs, 1936-1942;

Director, Research, Antisubmarine Warfare Operations, Research Group, Div. War Research, Columbia, 1942-1944; expert consultant, Office of Secretary of War, 1944-1945; Research Physicist, Bell Telephone Labs, 1945-1954, Dir. Transistor Physics Research, 1954-1955; Beckman Instruments, Inc., 1955-1958; President, Shockley Transistor Corp., 1958-1960; Dir. Shockley Transistor, Clevite Transistor Div., Clevite Corporation, 1960 - , Lectr, Princeton, 1946; Vis. Prof., California Institute of Technology, 1954; Deputy Director and Director, Research, Weapons System Evaluation Group, U. S. Department of Defense, 1954-1955. Member Scientific Advisory Panel, U. S. Army, 1951- ; U. S. Air Force, 1953 - ; Medal for Merit, Office of Secretary of War, 1946; Certificate of Appreciation, U. S. Department of Army, 1953; Nobel Prize, physics, 1956. National Academy (Comstock prize, 1954); Leibmann prize, 1952. Ferromagnetic domains; semiconductors; plastic properties of metals; theory of solids; semi-conductor amplifiers on transistors.

Dr. William Herbert Sweet - Medicine

Massachusetts General Hospital, Boston, Mass. Born Kerriston, Washington, February 13, 1910, Married 1937, 3 children. S. B. Washington (Seattle), 1930, Rhodes scholar, Oxford, 1932-1934, 1959, B. Sc., 1934, D.Sc., 1957, Cabot Fel. and M. D., Harvard, 1936. Instr. neurosurg, Billings Hospital, Chicago, 1939-1940; Commonwealth Fund fel, Harvard Medical School, 1940-1941, Acting Chief, Neurosurgery, Birmingham United Hospital, 1941-1945, Instr. Surgery, Harvard Medical School, 1945-1948, Asst. Prof. 1948-1954, Assoc. Clin. Prof. 1954-1958, Assoc. Prof. 1958 - . Lectr. Medical School, Tufts College, 1947-1951. Asst., Mass. General Hospital, 1945-1947, Asst. Neurosurgeon, 1947-1948, Assoc. Vis. neurosurgeon, 1948-1958, Vis., 1958 - Chief, Neurosurgeon serv. 1961 - ; Neurosurgeon in Chief, New England Center Hospital, 1949-1951. Regional Consultant, British Emergency Medical Serv., 1941-1945. Member, Subcommittee, Neurosurgery, National Research Council, 1949-1952, Neurol. and Neurosurgery, 1952 - . Trustee, Assoc. Univers. Inc. His Majesty's Medal for Serv. in Cause Freedom, 1945. Am. Acad. Central nervous system and its problems; research in brain tumors and fluids by means of isotopes; neurosurgery.

Dr. Charles Hard Townes - Physics

Massachusetts Institute of Technology, Cambridge, Mass. Born Greenville, South Carolina, July 28, 1915; Married 1941, 4 children. B.A. and B.S. Furman, 1935, hon. D. Litt, 1960; M.A. Duke 1937; PhD. (physics) California Institute of Technology, 1939, Asst. Physics, CIT, 1937-1939, Member Technical Staff, Bell Telephone Labs, 1939-1947, Assoc, Prof. Physics, Columbia, 1948-1950, Professor, 1950-1961, Executive Office Department, 1952-1955, Executive Director, Rad. Lab., 1950-1952; Provost, MIT, 1961 - Adams fel, 1950; Guggenheim fel, 1955-1956, Fulbright lectr., Paris, 1955-1956; Tokyo, 1956, v. pres. and dir., Res. Inst. Defense Analysis, 1959-1961; Summer lectr., Michigan, 1952. Member Scientific Advisory Board, U. S. Department of Air Force, 1958 - Award Res. Corp., 1958; Comstock award, 1959; Ballantine medal, Franklin Inst., 1959; exceptional service award, U. S. Department of Air Force, 1959, National Academy (Comstock award) 1959; A.A.; fel. Physical Society; Optical Society; Astron. Society; Philos. Society; Senior Member Inst. Radio Engineering (Liebmann Memorial prize, 1959); Am. Acad. (Rumford premium, 1961), Phys. Society, France; Phys. Society, Japan. Microwave spectroscopy; hyperfine effects; nuclear moments and structures; molecular structure; atomic time standards, electronic devices; masers; radioastronomy.

Dean John Roy Whinnery - Electrical Engineering

College of Engineering, University of California. Born Read, Colorado, July 26, 1916; Married 1944; 3 children. B. S. California, 1937, PhD (electrical engineering), 1948. Test Engineer, G.E. Company, 1937-1938, Asst. Engineer, 1938-1940, Supervisor, High Frequency Section, 1940-1942, Develop. Engineer 1942-1945, Research Engineer, 1945-1946; Lectr. Electrical Engineering, California, 1946-1948, Assoc. Prof. 1948-1952, Professor 1952 -, Dean, College Engineering 1959 - Head, Department 1956-1959. Head microwaves tube research, Hughes Aircraft, 1951-1952, Guggenheim fel, 1959, Member Advisory Group, Electron Tubes, U. S. Department of Defense 1956 - Civilian with Office Scientific Research and Development, U.S. Air Force; U. S. Navy, 1944. Phys. Society; fel. Inst. Radio Engineering. Microwave triodes and other vaccum tubes; antenna and waveguide theories; effect of input configuration on antenna impedince; traveling wave and other microwave tubes; space-charge wave propagation; electron tube noise at high frequencies.

NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER

Houston 1, Texas

HUnter 3-4231

MSC 64-121
July 8, 1964

HOUSTON, TEXAS -- The latest thing in experimental spaceware is undergoing test at NASA's Manned Spacecraft Center at Houston, Texas.

The suit, a water-cooled undergarment, was tested for the feasibility of using it over the present method of air-cooling.

This experimental undergarment, to be worn under a spacesuit, resembles a pair of "long johns" with plastic tubing sewn into it. It would be used to keep body temperature down and prevent dehydration under conditions of extreme heat.

With this type of cooling, only two pounds of water and a small 12 ounce circulation pump need be carried by the Astronaut into space.

Water enters the undergarment at 45 degrees, passes through the maze of 40 tiny plastic tubes that cover the body, and is warmed to about 55 degrees by the body heat before it leaves the suit and returns to be recooled.

Derek Burton, Human Engineering Expert of the Royal Aircraft Establishment in England, who made the first basic design said in a technical report that, "---the suit could find many uses other than space--such as firefighters, steelmill workers, miners, and underwater divers."

Prior to testing, electrodes are fastened to the surface of the skin. These electrodes transmit pulse rate, temperature on the skin surface, and inner body heat.

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NEWS RELEASE
NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
MANNED SPACECRAFT CENTER
Houston 1, Texas

After suiting up, the test subject is then placed on a treadmill which is set for two miles an hour. Under normal walking conditions this is slow, but with the 29 pound space-suit on this is exhausting. The treadmill rate simulates a high work-rate to test the suits capability of removing up to 2,000 B.T.U.'s per hour, which is the equivalent of 500 calories of heat.

The large panel board that records the testing data is nicknamed the "Comfort Board" by the testing engineers, as it controls water cooling, air cooling, humidifies or dehumidifies air, and is equipped with a heat exchanger in order to obtain the desired temperature.

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NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER NASA Houston 1, Texas

HUnter 3-4231

MSC 64-122
July 1, 1964

HOUSTON, TEXAS -- Flight crews for Gemini and Apollo space flight missions will receive realistic training -- vibration, motion, noise, everything except the smells -- in a Dynamic Crew Procedures Simulator to be built by Ling-Temco-Vought Astronautics of Dallas. NASA Manned Spacecraft Center has signed a contract with LTV-Astronautics for $1,125,040. Under terms of the contract, LTV will deliver the simulator within eleven months.

Mounted on a moving base, the simulator will be designed to satisfy two training needs by providing a flexible device for study of man-machine task assignments, and by providing a realistic launch vehicle simulator. LTV will be responsible for the design, construction, evaluation, check-out and installation of the simulator in the Center's Mission Training and Simulation Facility.

Although the simulator will be equipped initially with a two-man Gemini gondola, a three-man Apollo gondola will be fitted at a

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later date for training astronauts for lunar missions. Also, the simulator will be capable of driving the gondolas through all the spacecraft motions -- roll, pitch, yaw and vibration. Another feature of the trainer is a visual display system capable of simulating through-the-window views of star fields, earth or moon horizon, rendezvous target vehicle or landscape.

Computer equipment will be utilized to drive the moving-base gondolas and their cockpit displays in realistic "feel-of-flight" simulations. In addition to the normal motions of yaw, pitch and roll, the crew procedures simulator will feed vibrations into the cockpit to simulate lift-off, powered flight and reentry conditions. Noises attendant to these flight phases will also be fed into the crew gondolas.

NASA is buying the simulator under the Two-Step Formal Advertising method in which technical proposals from several firms were first evaluated under Step One. Under Step Two, companies whose technical proposals were found acceptable were invited to submit a price bid and the contract was subsequently awarded to the lowest bidder -- Ling-Temco-Vought's Astronautics Division.

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NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER

Houston 1, Texas

HUnter 3-4231

MSC 64-123
(NASA Hqs. Release No: 64-160)
July 2, 1964

NASA REPORTS ON SATURN LAUNCH RESULTS

HOUSTON, TEXAS -- While launch preparations on the seventh Saturn I Rocket (SA-7) are proceeding at Cape Kennedy, the National Aeronautics and Space Administration this week completed the major phase of its evaluation of the SA-6 flight records.

SA-6 was launched May 28, placing in orbit a 37,300-pound body which included an early unmanned model of the Apollo Spacecraft. It was the sixth successful Saturn flight in six attempts.

The SA-7 flight plan is, for the most part, a duplicate of SA-6. Several minor changes, some of them the result of the SA-6 flight, will be made in the launch vehicle.

Nearly 1200 measurements of vehicle performance were telemetered to ground stations during the SA-6 flight.

Marshall Space Flight Center, Kennedy Space Center and major vehicle contractors, Douglas Aircraft Co., Rocketdyne Division of North American Aviation, Inc., and Pratt and Whitney Aircraft Division of United Aircraft Corp., recently met at Marshall for a

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final review of this data, which is in the form of magnetic tapes, strip charts, oscillograms, photographs, etc.

Similar data evaluation has been in progress at the Manned Spacecraft Center, Houston, concerning the SA-6 payload, the Apollo spacecraft.

Meanwhile at Cape Kennedy's Launch Complex 37B, workmen placed the Boilerplate Apollo payload atop the SA-7 June 26 in preparation for a late summer launch.

SA-6 liftoff weight was 1,137,661 pounds. The flight went almost exactly as planned, despite the loss of a first stage engine 23 seconds before planned first stage cutoff. The Saturn's adaptive guidance system compensated for the loss of the engine.

The 80-foot body went into orbit 624.5 seconds after liftoff, one second earlier than predicted. Orbital elements -- apogee 149 statute miles, perigee 114 statute miles, period 88.6 minutes -- were close to the expected values.

The satellite reentered May 31 at 7:30 P.M. EST, 3.3 days after launch, on its 50th earth orbit. Early calculations indicated the body would orbit 4.8 days. However, that calculation was modified to 3.2 days a few days before launch.

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The most signigicant deviation from the flight plan was the loss of an inboard engine 117 seconds after liftoff but 23 seconds before it should have cutoff. This failure has been attributed to stripping of the main gear in the engine's gearbox. Although the Mark III gear box has served remarkably well in the ground test and flight program, plans were made some three years ago to replace it with another model following the SA-6 flight. The SA-7 booster carries the improved Mark III-H Model.

Failure of the engine almost duplicated an experiment carried out on the SA-4 Mission when an inboard engine was deliberately shut down after 100 seconds of flight.

The telemetry systems of SA-6 performed well. On all previous Saturn flights, an average of 2.5 per cent of the measurement were not received in meaningful form at ground stations. SA-6 required a record number of measurements, 1,186, and only 1.1 per cent were lost. The 116 measurements on the Apollo are not included.

Three tape recorders were used to store telemetry during vital portions of the flight for later transmission to the ground. This was done to assure acquisition of data at times when transmission of real-time data would be obscured. One of these recorders operated for only 12 seconds instead of the intended 27 but all the data, which required only about three seconds of recording, was obtained. However, the failure of recorder is being investigated.

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Generally, the eight motion picture cameras and two television cameras on SA-6 performed as expected. The quality of photography was improved over that from SA-5 because of minor modifications to assure clear lens. One television lens in the booster boattail area was obscured by fog part of the time. Otherwise, photo coverage was excellent and all film cameras were recovered.

Amont other slight deviations, it was noted that the horizon sensor being carried strictly as a "Passenger Experiment" did not function properly. Modifications are being made.

Two changes in the S-IV stage will be made to lighten the vehicle as a result of good performances in SA-5 and SA-6. Helium storage bottles which had been carried as a backup for the vehicle helium heater will be eliminated, saving about 1000 pounds. About 500 pounds less fuel reserve will be carried in future missions because the S-IV propelland utilization system has performed well.

In orbit, the "Payload" tumbled at three degrees per second as expected. The body's spin rate, however, was 28 degrees per second, higher than desired. It spins because the evaporating gas from propellant residuals is vented overboard, forming, in effect, a small rocket motor. In the future, opposing vents will be used instead of a single vent. This should almost cancel the spin.

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The SA-6 flight provided a severe test of the vehicle's guidance system which was used for the first time in a "Closed Loop" or active capacity. Compensation was made for the loss of an engine without detriment to the mission.

Engineers calculate that had the vehicle carried only an autopilot control system such as was flown on SA-5 the loss of the engine would have resulted in the Apollo orbiting only half a day.

SA-6 also performed well aerodynamically. The four-degree angle of attack (under zero wind conditions) which had been programmed into the vehicle, was increased to 5 1/2 degrees by the presence of a head wind. This provided the most severe structural test the Saturn I has been subjected to in flight.

The vehicle actively used both the ST-90 and the ST-124 stabilized platforms, the latter being used actively for the first time and only on the S-IV portion of the flight. Beginning on SA-7, the ST-90 will not be carried.

The SA-6 flight also demonstrated the compatability of the Apollo spacecraft configuration with the Saturn I rocket during launch and injection into orbit.

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During the countdown there were no holds caused by the spacecraft. All spacecraft subsystems operated as planned during the countdown and flight. Engineering data were received through telemetry from 116 instrumented spacecraft measurements for the full flight test period of the mission.

All mission test objectives were accomplished by the time orbit was achieved. Additional data were obtained by telemetry through the manned space flight network until the end of effective battery life in the fourth orbit.

Radar skin tracking was continued by the network until the spacecraft re-entered on the 50th orbit over the Pacific Ocean near Canton Island.

Postflight examination of strain gage, pressure, and acceleration data indicated that the spacecraft structure performed adequately during flight.

The wind-tunnel static-pressure measurements used in loads analyses were in agreement with the flight-measured static pressures. The internal pressures within the service module were within an allowable range and verified the venting method. Examination of acceleration data revealed no evidence of severe dynamic loads.

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Add 6
MSC 64-123

The SA-7 Apollo spacecraft mission will utilize an unmanned biolerplate spacecraft (BP-15) similar to BP-13, the SA-6 mission spacecraft. The reaction control system will be more fully instrumented and the launch escape subsystem will be jettisoned by using the pitch control and launch escape motors instead of the jettison rockets.

During the SA-6 countdown, peculiar wind conditions caused liquid oxygen vapor to obscure a viewing window through which alignment of the guidance system is checked. The lox vent line from the mbilical tower on Launch Complex 37 has been rerouted to a lower level, eliminating the possibility of this during the SA-7 countdown.

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NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER

Houston 1, Texas

HUnter 3-4231

MSC 64-124
July 8, 1964

HOUSTON, TEXAS -- Dr. Robert R. Gilruth, Director, NASA Manned Spacecraft Center, is scheduled to be one of the featured speakers at the ceremonial opening of the Houston Museum of Natural Science and Burke Baker Planetarium on Thursday, July 9.

In his remarks, Dr. Gilruth, who is a member of the Museum's board of trustees, will point up the importance of this type of cultural and educational facility to the Houston area.

Exhibits on the space program will be displayed at the museum by the Manned Spacecraft Center. They will include an Apollo command and service module and a Mercury spacecraft and escape tower on display outside the msueum. On the lower level of the museum will be a series of displays on Mercury, Gemini and Apollo along with a Goddard rocket.

Opening ceremonies will begin at 11:00 am with Houston's Mayor Louie Welch, Museum President E. Clyde McGraw, Astronaut R. Walter Cunningham, various county and Government school officials and representatives of the Houston area press taking part in the program.

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Add 1
MSC 64-124

The facility is located in the northwest corner of Hermann Park on Hermann Loop Drive and Caroline Street.

Described as one of the most advanced planetariums in the nation, the Burke Baker Planetarium is equipped to show the night sky as it was in the past, as it is in the present, or as it will be in the future from any point within the earth-moon system.

An open house will be held from 6 to 10 pm on Thursday for donors, trustees and members of the Museum's Ladies Guild. Special showings will be held in the planetarium.

The museum and planetarium will be open for public showings beginning Sunday, July 12.

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NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER

NASA

Houston 1, Texas

HUnter 3-4231

MSC 64-125
July 9, 1964

HOUSTON, TEXAS -- New astronaut assignments in various areas of flight specialization were announced recently by the Manned Spacecraft Center, National Aeronautics and Space Administration.

Specialty areas for the third class of space pilots were defined and, duties of the first and second groups further outlined.

Donald K. Slayton remains as the Assistant Director of MSC for Flight Crew Operations, but his extra responsibility as Chief of the Astronaut Office has been given to Alan B. Shepard, Jr. The office has been divided into three branches.

There will be a Gemini, an Apollo and an Operations and Training Branch.

Astronaut Virgil I. Grissom heads the Gemini Branch; L. Gordon Cooper, Jr. is the head of the Apollo Branch, and Astronaut Neil A. Armstrong is in charge of the Operations and Training Branch.

The third class of astronauts all are assigned to the Operations and Training Branch. Specialty areas are as follows:

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Edwin A. Aldrin, Jr., mission planning and flight trajectories.

William A. Anders, environmental control systems, thermal and radiation protection.

Charles A. Bassett, training and simulation.

Alan L. Bean, recovery systems.

Eugene A. Cernan, spacecraft propulsion and the Agena target vehicle.

Roger B. Chaffee, communications and deep space network.

Michael Collins, pressure suits and extra vehicular activity.

R. Walter Cunningham, electrical systems, sequential systems and monitoring unmanned flight experiments related to MSC programs.

Donn F. Eisele, attitude and translation control systems.

Theodore C. Freeman, boosters.

Richard F. Gordon, integration of cockpit displays.

Russell L. Schweickart, future manned programs and inflight experiments.

David R. Scott, guidance and navigation.

Clifton C. Williams, Jr., range operations and crew safety.

Also assigned to the Operations and Training Branch are:

James A. Lovell, Jr. who specializes in recovery and environmental control systems and Elliott M. See, Jr. who specializes in mission planning, guidance and navigation.

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Add 2
MSC 64-125

Assigned to the Gemini Branch are Astronauts John W. Young, Walter M. Schirra, Jr. and Thomas P. Stafford. These three and Astronaut Grissom compose the prime and backup crews for the first Gemini manned flight.

In the Apollo Branch with their specialty areas are:

Charles Conrad, Jr., lunar excursion modules of the spacecraft.

Frank Borman, boosters and launch vehicles.

James A. McDivitt, command and service modules of the spacecraft.

Edward H. White, II, control systems, communications and instrumentation.

M. Scott Carpenter is on leave from the Astronaut Office to take part in the U.S. Navy Project Sea Lab I. In this project, a 40-foot underwater laboratory will be submerged in more than 190 feet of water off the coast of Bermuda.

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NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER

Houston 1, Texas

HUnter 3-4231

MSC 64-126
July 10, 1964

CAPE KENNEDY, FLORIDA -- NASA's Gemini launch vehicle (GLV-2) is offloaded from an Air Force C-133 at the Cape Kennedy skid strip. GLV-2 will be erected at launch complex 19 early next week preparatory to boosting a Gemini spacecraft on an unmanned ballistic flight (GT-2) down the Eastern Test Range later this year.

The primary test objectives of the GT-2 flight are to demonstrate adequacy of the reentry module heat protection during a maximum heating rate reentry, structural integrity and compatibility of the spacecraft from liftoff to landing, and satisfactory performance of spacecraft systems operation.

The flight will be followed by the first manned Gemini mission (GT-3). Astronauts Gus Grissom and John Young have been selected to fly the GT-3 mission.

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NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER

Houston 1, Texas

HUnter 3-4231

MSC 64-127
July 14, 1964

CAPE KENNEDY, FLORIDA — July 13-14 -- The NASA Gemini Launch Vehicle (GLV-2) is erected at Cape Kennedy Launch Complex 19. The GLV-2 will boost the first production Gemini spacecraft (GT-2) on a unmanned ballistics flight down the Eastern Test Range later this year. This flight will be followed by the first manned Gemini mission (GT-3). The Gemini launch vehicle, manufactured by the Martin Company, Baltimore Division, under contract with the U.S. Air Force Systems Command, Space Systems Division, will be launched for the NASA by the 655th Aerospace Test Wing.

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NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER

Houston 1, Texas

HUnter 3-4343

MSC-64-128

HOUSTON, TEXAS - Faith 7, Mercury spacecraft flown by Astronaut L. Gordon Cooper in his earth circling 22 orbit flight May 1963 will be on display August 13 through August 16 in Harrisburg, Pa.

The four day stop in Harrisburg is the thirty ninth of 50 state capitol visits that the National Aeronautics and Space Admin stration has scheduled for Cooper's spacecraft. Close to 3,875,000 persons have already seen the spacecraft since it began its cross country tour in Cooper's home state of Oklahoma.

The NASA Manned Spacecraft Center at Houston, Texas, has set Faith 7 on a stand which permits easy viewing of the inside of the spacecraft. A section of the base of the heat shield and portions of the outer skin have been cut away permitting the first public look at the inner structure of a Mercury spacecraft.

The spacecraft - inside and out - is exactly as it was when it splashed down into the Pacific near Midway Island on May 16, 1963. Nothing has changed. The spacecraft shingles - its outer skin made of a new metal rene'41 - shows the effects of the 1,000 degree heat which blanketed the spacecraft during re-entry into earth's atmosphere. The heat shield - a mixture of glass fibers and resin - at the base of the spacecraft withstood maximum temperatures of 3,000 degrees farenheit when Cooper directed Faith 7 on its return to the earth.

Also on display with the spacecraft are cameras Cooper carried and the astronaut Survival Kit which rode on Faith 7's 546,185 mile earth-circling flight. Samples of the food Cooper ate during his day and a half in space will also be on display.

The 13 month tour, ending in the Nation's capitol on Nov. 1, 1964, will cover approximately 20,000 miles, a distance Faith 7 covered in space in approximately 80 minutes.

NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER

Houston 1, Texas

HUnter 3-4343

MSC-64-129

HOUSTON, TEXAS - Faith 7, Mercury spacecraft flown by Astronaut L. Gordon Cooper in his earth circling 22 orbit flight May 1963 will be on display August 20 through August 23 in Albany, New York.

The four day stop in Albany is the fortieth of 50 state capitol visits that the National Aeronautics and Space Admin stration has scheduled for Cooper's spacecraft. Close to 3,900,000 persons have already seen the spacecraft since it began its cross country tour in Cooper's home state of Oklahoma.

The NASA Manned Spacecraft Center at Houston, Texas, has set Faith 7 on a stand which permits easy viewing of the inside of the spacecraft. A section of the base of the heat shield and portions of the outer skin have been cut away permitting the first public look at the inner structure of a Mercury spacecraft.

The spacecraft - inside and out - is exactly as it was when it splashed down into the Pacific near Midway Island on May 16, 1963. Nothing has changed. The spacecraft shingles - its outer skin made of a new metal rene'41 - shows the effects of the 1,000 degree heat which blanketed the spacecraft during re-entry into earth's atmosphere. The heat shield - a mixture of glass fibers and resin - at the base of the spacecraft withstood maximum temperatures of 3,000 degrees farenheit when Cooper directed Faith 7 on its return to the earth.

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NASA RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER

Houston 1, Texas

HUnter 3-4343

MSC-64-130

HOUSTON, TEXAS - Faith 7, Mercury spacecraft flown by Astronaut L. Gordon Cooper in his earth circling 22 orbit flight May 1963 will be on display August 27 through August 30 in Montpelier, Vermont.

The four day stop in Montpelier is the 41st of 50 state capitol visits that the National Aeronautics and Space Admin stration has scheduled for Cooper's spacecraft. Close to 3,910,000 persons have already seen the spacecraft since it began its cross country tour in Cooper's home state of Oklahoma.

The NASA Manned Spacecraft Center at Houston, Texas, has set Faith 7 on a stand which permits easy viewing of the inside of the spacecraft. A section of the base of the heat shield and portions of the outer skin have been cut away permitting the first public look at the inner structure of a Mercury spacecraft.

The spacecraft - inside and out - is exactly as it was when it splashed down into the Pacific near Midway Island on May 16, 1963. Nothing has changed. The spacecraft shingles - its outer skin made of a new metal rene'41 - shows the effects of the 1,000 degree heat which blanketed the spacecraft during re-entry into earth's atmosphere. The heat shield - a mixture of glass fibers and resin - at the base of the spacecraft withstood maximum temperatures of 3,000 degrees farenheit when Cooper directed Faith 7 on its return to the earth.

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NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER

Houston 1, Texas

HUnter 3-4231

MSC 64-131
July 21, 1964

HOUSTON, TEXAS -- Fourteen of the 29 NASA astronauts at the Manned Spacecraft Center here will undergo a week of desert survival training at Stead Air Force Base, near Reno, Nevada, beginning August 10.

The nation's newest astronauts will be taking similar instruction to that given at two previous training sessions last August and in 1961.

The men will report early Monday, August 10, and spend all day getting classroom instruction from Air Force experts of the 3637th Combat Crew Training Squadron (Survival and Special Training). On Tuesday, another three hours of classroom work is scheduled.

Astronauts and instructors move to the main desert site by helicopters at noon Tuesday (August 11), then spend Tuesday afternoon and Wednesday morning participating in demonstrations in the building of shelters, and improvisation of clothing and signal equipment.

The men will move to two-man sites Wednesday afternoon and spend the next day and a half practicing survival techniques under realistic conditions, such as might be encountered if a two-man Gemini spacecraft were to parachute into the desert.

Compass work will be practiced on the final day, August 14, to prepare the astronauts to find their spacecraft -- containing food,

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water, signaling equipment -- in the event they eject from it and land separately with personal parachutes.

Scheduled to attend the course are: Edwin E. Aldrin, Jr., William A. Anders, Charles A. Bassett II, Alan L. Bean, Eugene A. Cernan, Robert D. Chaffee, Donn F. Eisele, Michael Collins, R. Walter Cunningham, Theodore C. Freeman, Richard F. Gordon, Jr., Russell L. Schweickart, David R. Scott, and Clifton C. Williams, Jr.

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NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER NASA Houston 1, Texas

HUnter-3-4231

MSC 64-132
July 22, 1964

HOUSTON, TEXAS -- Project Apollo space travelers will bear little resemblance to the men who took the first orbital steps into space during Project Mercury.

Space Suits, for instance, may be white instead of silver.

And no matter what color the space suits are, they'll be hidden by coveralls when the first American astronauts set foot on the moon.

Even enroute to the moon -- a three-day journey -- the space suit may be shed in favor of a "Constant Wear Garment," a form-fitting cross between ski suits and long underwear.

These are just a few of the concepts under consideration at NASA's Manned Spacecraft Center here where members of the Crew Systems Division are working to improve the safety, comfort and mobility of men who must venture into environments hostile to earth residents.

And many of their ideas will find application here on earth.

Take water-cooled underwear, for example. That's what astronauts may wear beneath their pressure suits on the moon. Water -- or a glycerine liquid -- will be pumped through tubing sewn into long underwear to cool the wearers and to prevent perspiration.

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Furnace workers, sports car drivers, even fire fighters may someway wear versions of this garment. Polar explorers and mountain climbers may wear it for warmth. British pilots are experimenting with the idea, too.

But NASA's engineers are mostly concerned about a wardrobe for moon travelers. Here are just a few of the concepts they're working on:

The Constant Wear Garment: long, cotton underwear to absorb sweat and act as a wick, allowing evaporation which cools astronauts in the Apollo command module while enroute to the moon.

Liquid-Cooled Undergarment: long underwear entwined with tubes of liquid to prevent perspiration and offer constant, comfortable temperatures, even during heavy workloads.

Pressure Suit: a reasonably conventional (for pilots) garment to provide oxygen for breathing and pressurization while outside the spacecraft or in the event of a failure of cabin pressure.

Thermal Garment: a monk-like coverall which covers the entire body with shirt, trousers, boot covers, mittens and hood to protect astronauts from the direct rays of the sun while on the lunar surface.

Meteoroid Garment: a covering cape-like garment which may be a separate metallic material over the thermal garment, or may be designed as part of the thermal coverall.

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Add to this a helmet, complete with microphones and earphones, a "King Arthur" visor to filter radiation and feeding port to allow space explorers to eat and drink while in a pressurized suit.

Then strap on a portable unit to supply pumps (for the liquid undergarment), oxygen (for pressure and breathing), radios (for telemetry and communications) and an evaporator (to dissipate heat).

Exotic?

Yes.

Chic?

No.

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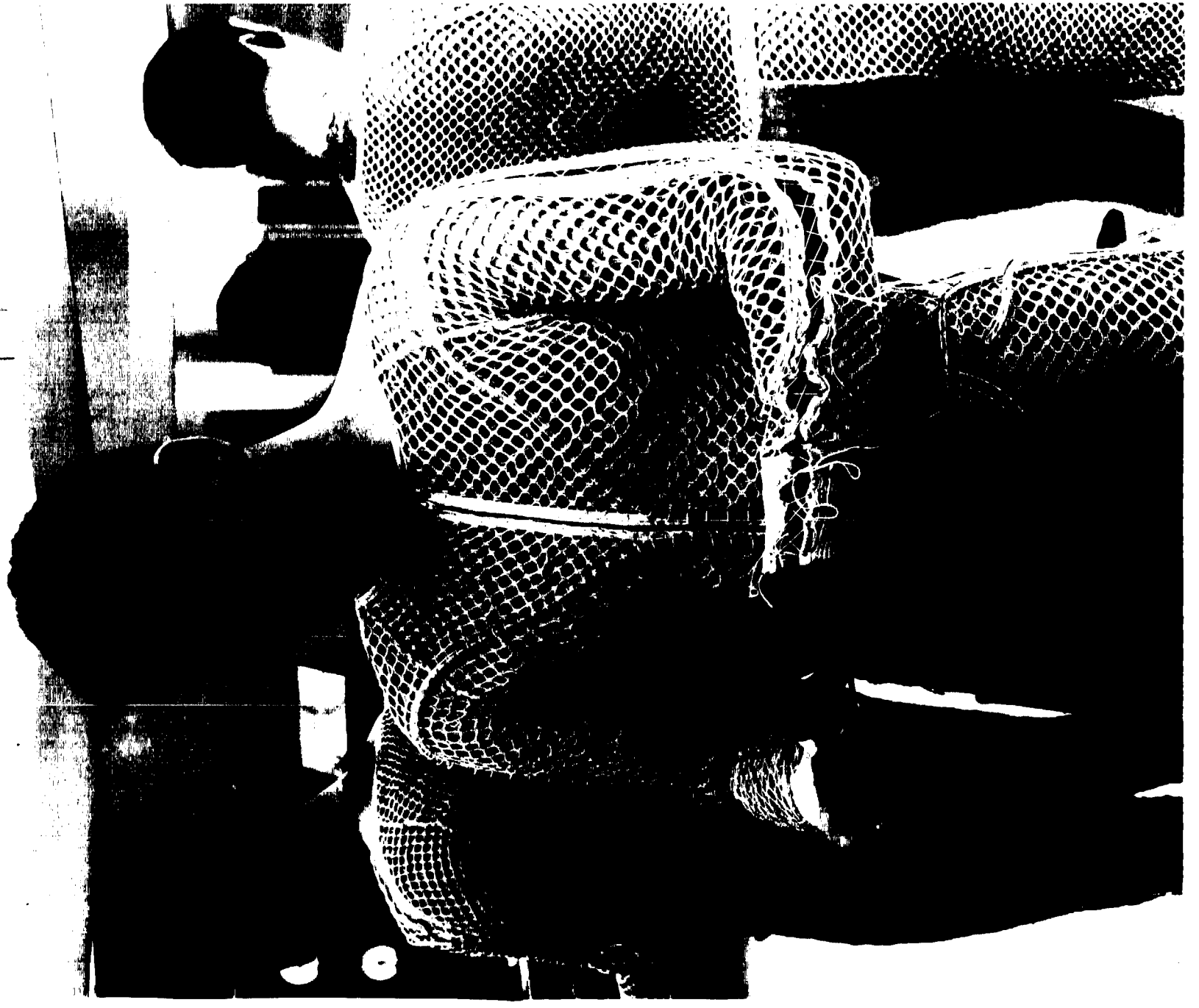
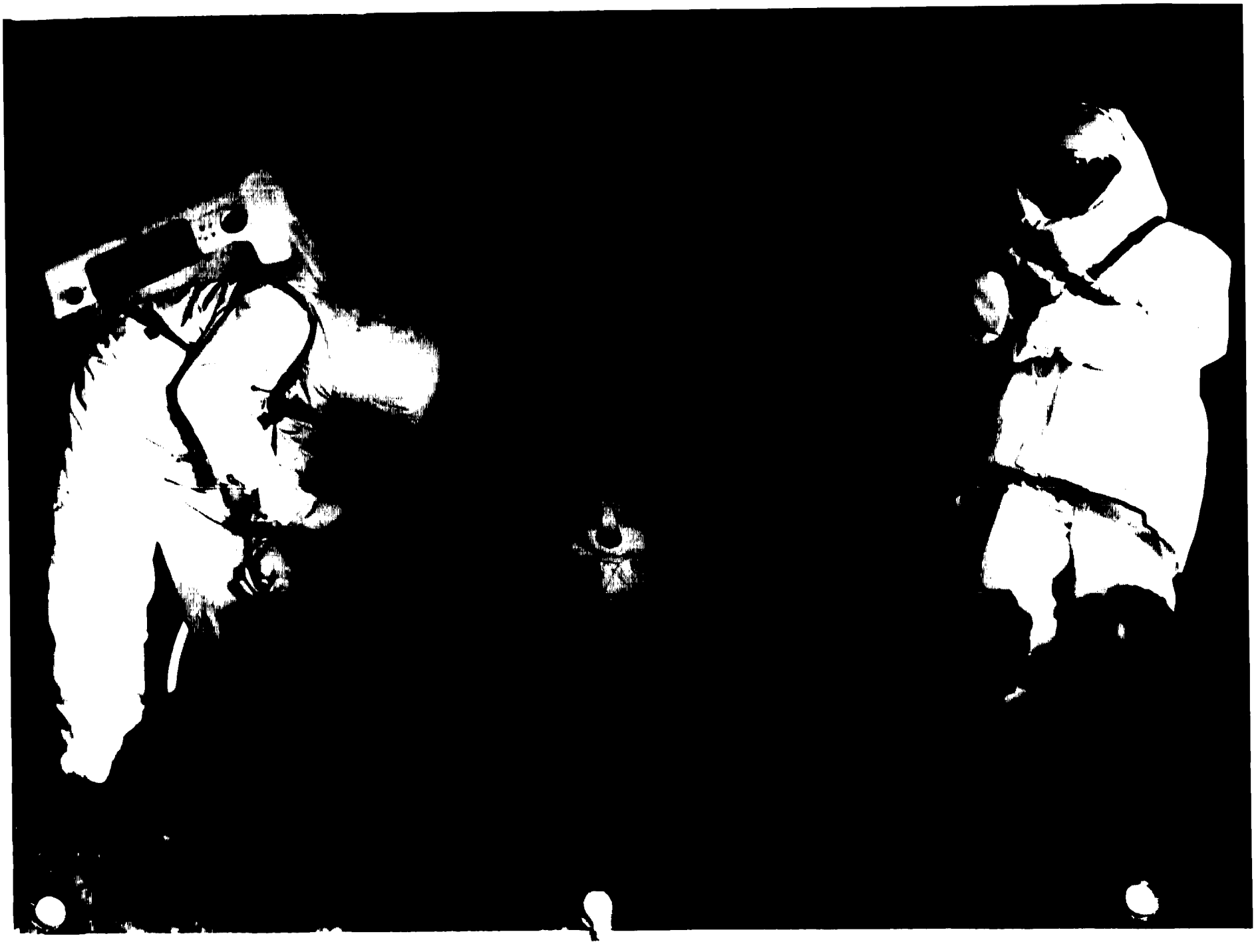
NASA
S-64-28166



NASA
S-64-23391



NASA
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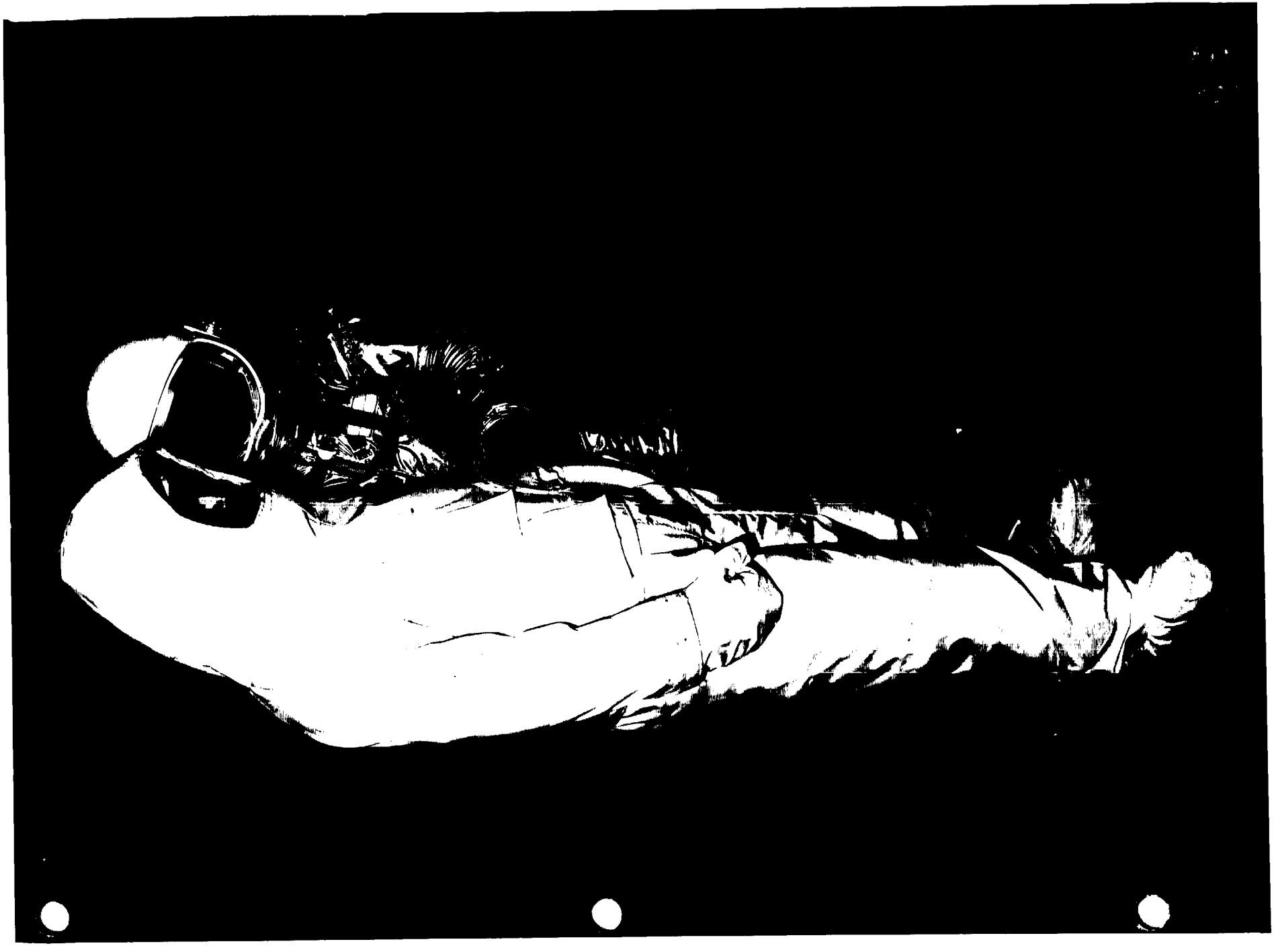

NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER NASA Houston 1, Texas

HUnter 3-4231

MSC 64-133
July 23, 1964
For Release 2:00 p.m. MST

HOUSTON, TEXAS -- Dr. Robert R. Gilruth, Director of NASA's Manned Spacecraft Center in Houston, today announced the appointment of Wesley E. Messing as Technical Assistant to G. Merritt Preston, Manager of MSC-Florida Operations at Cape Kennedy.

Messing has been Manager of MSC's White Sands Missile Range Operations in New Mexico. Paul E. Purser, special assistant to Dr. Gilruth, will serve as acting manager of MSC-WSMR until a new manager is named.

In his new role with the 450-man Florida Operations group, Messing will serve as advisor to Preston on a wide range of technical matters. The Florida group, charged with final preparation of Gemini and Apollo spacecraft for flight, is moving into new $60 million facilities this summer in the Merritt Island area of Cape Kennedy.

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Add 1
MSC 64-133

Messing has managed the 120-man White Sands MSC unit since its beginning in July 1962. In that period, he has overseen the construction and activitation of approximately $25,000,000 worth of Apollo propulsion systems test facilities there. In addition, three successful Apollo flight tests have been carried out at White Sands.

Prior to going to White Sands as manager, Messing headed a group charged with design and development of MSC's new thermo-chemical test facility in Houston. Earlier, at NASA's Edwards Flight Research Center, Edwards, California, he was Associate Research Project Engineer in the X-15 program.

Messing was born March 15, 1918, in West Hoboken, New Jersey. He received a Bachelor of Science Degree in mechanical engineering from the University of Cincinnati, Ohio, in 1943. He then joined the National Advisory Committee for Aeronautics (now NASA) at Lewis Research Center in Cleveland, Ohio.

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NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER

Houston 1, Texas

HUnter 3-4231

MSC 64-134
July 29, 1964

HOUSTON, TEXAS -- Christopher C. Kraft, Jr. today was appointed Flight Operations Director for the second Gemini Titan flight GT-2, an unmanned suborbital mission scheduled this fall by the National Aeronautics and Space Administration.

Dr. George E. Mueller, Associate Administrator for Manned Space Flight, at NASA said Kraft would have overall responsibility for direction of the flight. Kraft, Assistant Director for Flight Operations at NASA's Manned Spacecraft Center Houston, is an original member of the manned space flight team formed when the agency was created in 1958.

For the GT-2 Mission Kraft replaces Dr. Walter C. Williams, who resigned from NASA last March to become Vice President and General Manager, Manned Systems Division, at Aerospace Corp., El Segundo, California.

Kraft was responsible for flight direction from lift-off to recovery in Project Mercury, the Nation's first manned flight program and the first Gemini flight.

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Add 1
MSC 64-134

When not directing a flight, Kraft's regular responsibilities include coordinating details associated with preparing for the tracking, recovery and control of a mission.

Kraft was born February 28, 1924 in Phoebus, Virginia. He received his BS degree in Aeronautical Engineering at Virginia Polytechnic Institute, Blacksburg, Virginia in 1944.

Kraft joined the NACA Science staff of Langley Research Center's Flight Research Division in 1945 and transferred to the Manned Spacecraft Center (then the Space Task Group) when it was formed in October 1958.

Kraft is married to the former Elizabeth Turnbull of Hampton, Virginia. They have two children, Gordon Turnbull and Kristi Anne.

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NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER

Houston 1, Texas

HUnter 3-4231

MSC 64-135
July 29, 1964

HOUSTON, TEXAS -- Two successful test flights of paraglider vehicles were made today at Edwards AFB, California, NASA Manned Spacecraft Center officials said.

In a morning flight, a mockup of the Gemini spacecraft was successfully towed beneath an inflated paraglider vehicle. A similar configuration was dropped in the afternoon from an airplane to evaluate paraglider deployment characteristics. The drop was made at an altitude of 32,000 feet from a C-130 airplane.

In the drop test sequence the Gemini test vehicle was separated from its launch sled; the paraglider was automatically deployed from its contained and controlled remotely in flight from 22,000 feet down to 12,500 feet altitude. At this altitude the paraglider was separated, and the Gemini test vehicle was brought down by parachute and recover. There was no damage to either the paraglider or the Gemini test vehicle.

The paraglider recovery system is being developed by North American Aviation's Space and Information Systems Division, Downey, California, under contract to the NASA Manned Spacecraft Center.

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Add 1
MSC 64-135

Eleven full scale deployment tests have been conducted with the paraglider system since January of this year. These tests are to insure that developmental problems encountered earlier in wing structures and in sequencing have been solved successfully.

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NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER

NASA

Houston 1, Texas

HUnter 3-4231

MSC 64-136
July 30, 1964

HOUSTON, TEXAS -- A study to determine how to get literally more mileage from the Apollo spacecraft will be conducted by the Space & Information Systems Division of North American Aviation. The National Aeronautics and Space Administration Manned Spacecraft Center recently signed the study contract with North American on a fixed-price basis for $700,000.

The major portion of the study will be directed toward finding ways to modify the Apollo lunar spacecraft to extend its useful lifetime in space beyond the 14-day lunar flight version without major redesign, and to explore fully the potential for using the Apollo for a logistics vehicle as well as a mission support vehicle.

Mission durations up to 600 days, made possible through modifications to the Apollo spacecraft and its systems, will be analyzed in the course of the study. Testing and operational techniques for spacecraft subsystems operating for such long periods in space will also be developed by the engineers conducting the study.

Among the questions for which answers will be sought are such unknowns as how long can the present subsystems support the extended time in orbit, and can the time be extended with minimum modifications

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and inclusion of on-board spare components. A close look will be taken at the critical subsystems or components that limit the time that can be spent in orbit.

Another phase of the study will look at the feasibility of combining the best features of two earlier extended mission Apollo concepts, the so-called Apollo X vehicle for logistics support and the Extended Apollo Concept II mission support vehicle.

Cost and scheduling estimates resulting from modifications and changes in the Apollo and its systems will be included in the study.

Space flight missions that will be considered in the study include earth orbits in conventional west-to-east planes as well as polar orbits, and lunar orbits. Lunar missions require a higher degree of reliability and ease of aborting a mission, and thereby more system redundancy, than do missions in near earth orbit.

Extensive research and testing will be carried out in such areas as space food for long-duration missions, increasing the operational lifetime of reaction control rockets and the effects of long exposure to vacuum and radiation on materials for space use.

North American will complete the study early in 1965.

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NEWS RELEASE
NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
MANNED SPACECRAFT CENTER
Houston 1, Texas

HUnter 3-4231

MSC 64-137
August 3, 1964

HOUSTON, TEXAS -- An impact attenuation experiment in the maneuvering parachute test series ended successfully last week with the simultaneous firing of two landing rockets.

Using a full-scale, fully-weighted boilerplate, the landing rockets slowed the drop speed of the test vehicle from 25 feet-per-second (fps) to approximately seven fps.

This was the first full scale test using the landing rockets.

The rockets, mounted in the lower equipment bay on the under side of the boilerplate, where ignited when an altitude sensing device touched the ground. The sensing device, which is approximately 11 feet long, extends below the boilerplate.

The device consists of two metal cones attached to an electrical lead. At contact with earth's surface, the cones telescope and activate a circuit which ignites the two landing rockets. The rockets generate thrust in excess of 10,000 pounds. Rocket thrust is sufficient to achieve a 2½ g deceleration during the 1.5 seconds of firing time.

In the controllable parachute tests, the boilerplate is configured and weighted to Gemini spacecraft requirements. The parachute is 80 feet in diameter.

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The chute contains a series of vents which spill air rearward as the test vehicle descends. The chute is controlled by adjustment of cords which suspend the spacecraft.

In past tests, the boilerplate was dumped from a C-119 cargo aircraft from approximately 11,000 feet. As the spacecraft falls, a static line on the plane pulls a small parachute from the nose of the test vehicle. A drogue chute then pulls out the maneuvering parachute.

A small motor in the spacecraft adjusts the cords of the controllable parachute as they would be adjusted in actual flight by the pilot. Past experiments took place in Galveston Bay.

The maneuvering and landing rocket systems have been developed by the Structures and Mechanics Division of the NASA Manned Spacecraft Center. Rocket motors were developed by MSC's Propulsion and Energy Division.

The controllable parachute has a lift over drag ratio of one -- meaning it will glide one foot for every one foot of descent in a windless condition. By adjusting the cords, the pilot can turn the spacecraft and change the direction of descent.

Spacecraft direction can be changed as much as 360 degrees in increments up to 20 degrees per second. In a 10,000 foot drop on a windless day the parachute can maneuver as much as two miles in any direction. Wind conditions increase the glide distance proportionately to the velocity of the wind.

SMD's Jerry E. McCullough was the impact attenuation test engineer.

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NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER NASA Houston 1, Texas

HUnter 3-4231

MSC 64-138
August 5, 1964

HOUSTON, TEXAS -- The computer complex of the Gemini Mission Simulator (GMS) has arrived at the NASA Manned Spacecraft Center completing the delivery of the simulator component parts.

Earlier the instructor's console, crew station and auxiliary equipment were shipped from McDonnell Aircraft Corporation, St. Louis, Missouri.

The GMS is being assembled in the Flight Crew Operations building at MSC and will be ready by mid-September.

When operational the simulator will accept commands and respond with appropriate signals, as would an actual spacecraft; thus providing an integrated training program for ground operations personnel, as well as astronauts.

All crew requirements and duties can be simulated: Manual flight control, navigation, spacecraft systems management and the performance of scientific experiments. By simulating these tasks, the teams can develop and perfect procedures for specific manned space flight missions.

The digital computers in the computer complex consist of two DDP-24s, general purpose machines, and a single Mark 1. The Mark 1

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is a special purpose computer insofar as it was designed for the simulation of flight vehicles. It has a core memory of approximately 2,000 words and a drum memory of 64,000 words. The speed of the machine is the equivalent of 150,000 operations per second.

The general purpose computers have a capacity of 16,000 words memory each and a speed of about 100,000 operations per second.

The crew station is mounted on a platform that can be rotated 32 degrees from the vertical position. This increases crew comfort by putting the astronaut's head higher than any other part of his body.

An image generation and display equipment system is being purchased directly by MSC from the Farrand Optical Company of New York City. The system consists of star images, the Agena vehicle and an image of the earth. A rendezvous image also will be available.

The Agena, star and earth backgrounds each are reflected off mirrors and through a series of lenses, and the combined images -- in proper sequence -- are displayed to the pilot.

Other displays include a moving map of the world (called an orbital position indicator) located on the instructor's console, and three television screens. One screen shows the instrument panel in the crew station and two screens show the face of each of the pilots.

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The GMS is the second of two built for the National Aeronautics and Space Administration by McDonnell's Electronic Equipment Division. The other simulator has been installed at Cape Kennedy and will be used by the GT-3 crew.

Hal Parker of the Flight Crew Support Division is in charge of assembling and operation of the simulator.

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NEWS RELEASE - NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
MANNED SPACECRAFT CENTER - HOUSTON, TEXAS

HUnter 3-4231

MSC 64-139
August 14, 1964

Two Apollo spacecraft test vehicles arrived at the John F. Kennedy Space Center, Cape Kennedy, Florida, yesterday. They will be launched into orbit with the meteoroid investigation satellite Pegasus late this year and early in 1965.

The Apollo vehicles, called "Boilerplates," are engineering test models resembling the spacecraft command module which will carry American astronauts to the moon.

The service modules, which will be mated with the command module test vehicles, were shipped to the NASA Marshall Space Flight Center, Huntsville, Alabama, earlier this year to be equipped with aluminum coated Mylar wing-like panels 96 feet long and 14 feet wide. The Pegasus panels will unfold after the spacecraft is launched into orbit by a Saturn I vehicle and meteoroid penetrations will be transmitted to earth. The Apollo boilerplates were shipped to Cape Kennedy from North American Aviation, Inc., Space and Information Systems Division at Downey, California, aboard a modified 4-engine Stratocruiser called "Pregnant Guppy." Test launch escape systems for the two vehicles were shipped by truck.

Officials at the NASA Manned Spacecraft Center said manufacturing operations were excellerated at North American to enable both spacecraft to be shipped at the same time.

NEWS RELEASE
NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
MANNED SPACECRAFT CENTER
NASA
Houston 1, Texas

HUnter 3-4231

MSC 64-140
August 20, 1964
For Release 1:00 p.m. MST

STL TO COMPUTE GEMINI APOLLO MISSIONS SIMULATIONS

HOUSTON, TEXAS -- The National Aeronautics and Space Administration's Manned Spacecraft Center has awarded a $4.6 million contract to Space Technology Laboratories, Redondo Beach, California, for mission analyses and trajectory simulation work in the Apollo and Gemini Programs.

The new contract is a continuation of a Gemini Spacecraft Analysis Project begun in September 1963, and an extension of similar activities in the Apollo Program.

Mission simulation in the two programs will cover a variety of phases, starting with booster launch and progressing to re-entry and recovery of the spacecraft and astronauts. STL will be responsible for developing computer programs which yield faithful representation of actual flights when a broad variety of descriptive data are placed in the computer.

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Typical of the information which would be included in the simulation are location of the launch pad and desired landing sites (on the moon and on earth for Apollo); characteristics of the launch vehicle and the spacecraft including weights, thrust, fuel utilization, and structural limits; atmospheric conditions including winds to be encountered in ascent and descent; the laws to be observed by the guidance system and limitations imposed for astronaut safety.

Data, together with the date of the expected launch, are then used to derive mission strategies, payload weight limitations, communication requirements and the many other features which must be explored before the first manned vehicle is launched.

Among the many aspects of the Gemini mission which must be analyzed are the maneuvers to be made by the Agena Target Vehicle and the Gemini Spacecraft during rendezvous experiments. From each analysis will be derived the actual mission strategy which can be further tested by the simulation of flight events.

The Apollo studies will cover preparation for the moon landing mission and also concentrate in detail on the manned

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exploratory missions, preparing computer programs to be used during the actual flights, and analyzing features of the mission. The options which will be available to the astronauts in case of abort anywhere during the flight will be investigated to determine the safest strategy.

In all, the simulation must consider all possibilities of success and failure and determine alternative actions to be taken. Further, some of these actions must be programmed for inclusion in the ground and spacecraft computers. Finally, the contract includes computer analysis of data collected during the test and manned flights.

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NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER — Houston 1, Texas

HUnter 3-4343 MSC-64-141

HOUSTON, TEXAS - Faith 7, Mercury spacecraft flown by Astronaut L. Gordon Cooper in his earth circling 22 orbit flight May 1963 will be on display September 10 through Sept. 13 in Concord, New Hampshire.

The four day stop in Concord is the forty third of 50 state capitol visits that the National Aeronautics and Space Admin stration has scheduled for Cooper's spacecraft. Close to 4,009,000 persons have already seen the spacecraft since it began its cross country tour in Cooper's home state of Oklahoma.

The NASA Manned Spacecraft Center at Houston, Texas, has set Faith 7 on a stand which permits easy viewing of the inside of the spacecraft. A section of the base of the heat shield and portions of the outer skin have been cut away permitting the first public look at the inner structure of a Mercury spacecraft.

The spacecraft - inside and out - is exactly as it was when it splashed down into the Pacific near Midway Island on May 16, 1963. Nothing has changed. The spacecraft shingles - its outer skin made of a new metal rene41 - shows the effects of the 1,000 degree heat which blanketed the spacecraft during re-entry into earth's atmosphere. The heat shield - a mixture of glass fibers and resin - at the base of the spacecraft withstood maximum temperatures of 3,000 degrees farenheit when Cooper directed Faith 7 on its return to the earth.

Also on display with the spacecraft are cameras Cooper carried and the astronaut Survival Kit which rode on Faith 7's 546,185 mile earth-circling flight. Samples of the food Cooper ate during his day and a half in space will also be on display.

The 13 month tour, ending ih the Nation's capitol on Nov. 1, 1964, will cover approximately 20,000 miles, a distance Faith 7 covered in space in approximately 80 minutes.

NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER — Houston 1, Texas

HUnter 3-4343 MSC-64-142

HOUSTON, TEXAS - Faith 7, Mercury spacecraft flown by Astronaut L. Gordon Cooper in his earth circling 22 orbit flight May 1963 will be on display September 1ϕ through Sept. 20 in Boston, Massachusetts.

The four day stop in Boston is the forty fourth of 50 state capitol visits that the National Aeronautics and Space Admin stration has scheduled for Cooper's spacecraft. Close to 4,000,000 persons have already seen the spacecraft since it began its cross country tour in Cooper's home state of Oklahoma.

The NASA Manned Spacecraft Center at Houston, Texas, has set Faith 7 on a stand which permits easy viewing of the inside of the spacecraft. A section of the base of the heat shield and portions of the outer skin have been cut away permitting the first public look at the inner structure of a Mercury spacecraft.

The spacecraft - inside and out - is exactly as it was when it splashed down into the Pacific near Midway Island on May 16, 1963. Nothing has changed. The spacecraft shingles - its outer skin made of a new metal rene41 - shows the effects of the 1,000 degree heat which blanketed the spacecraft during re-entry into earth's atmosphere. The heat shield - a mixture of glass fibers and resin - at the base of the spacecraft withstood maximum temperatures of 3,000 degrees farenheit when Cooper directed Faith 7 on its return to the earth.

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NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER — Houston 1, Texas

HUnter 3-4343 MSC-64-143

HOUSTON, TEXAS - Faith 7, Mercury spacecraft flown by Astronaut L. Gordon Cooper in his earth circling 22 orbit flight May 1963 will be on display September 24-27 through Sept. 27 in Providence, Rhode Island.

The four day stop in Providence is the forty fifth of 50 state capitol visits that the National Aeronautics and Space Admin stration has scheduled for Cooper's spacecraft. Close to 4,050,000 persons have already seen the spacecraft since it began its cross country tour in Cooper's home state of Oklahoma.

The NASA Manned Spacecraft Center at Houston, Texas, has set Faith 7 on a stand which permits easy viewing of the inside of the spacecraft. A section of the base of the heat shield and portions of the outer skin have been cut away permitting the first public look at the inner structure of a Mercury spacecraft.

The spacecraft - inside and out - is exactly as it was when it splashed down into the Pacific near Midway Island on May 16, 1963. Nothing has changed. The spacecraft shingles - its outer skin made of a new metal rene'41 - shows the effects of the 1,000 degree heat which blanketed the spacecraft during re-entry into earth's atmosphere. The heat shield - a mixture of glass fibers and resin - at the base of the spacecraft withstood maximum temperatures of 3,000 degrees farenheit when Cooper directed Faith 7 on its return to the earth.

Also on display with the spacecraft are cameras Cooper carried and the astronaut Survival Kit which rode on Faith 7's 546,185 mile earth-circling flight. Samples of the food Cooper ate during his day and a half in space will also be on display.

The 13 month tour, ending in the Nation's capitol on Nov. 1, 1964, will cover approximately 20,000 miles, a distance Faith 7 covered in space in approximately 80 minutes.

NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER — Houston 1, Texas

HUnter 3-4343 MSC-64-144

HOUSTON, TEXAS - Faith 7, Mercury spacecraft flown by Astronaut L. Gordon Cooper in his earth circling 22 orbit flight May 1963 will be on display October 1 through Oct. 4 in Hartford, Conn.

The four day stop in Hartford is the forty sixth of 50 state capitol visits that the National Aeronautics and Space Admin stration has scheduled for Cooper's spacecraft. Close to 4,050,000 persons have already seen the spacecraft since it began its cross country tour in Cooper's home state of Oklahoma.

The NASA Manned Spacecraft Center at Houston, Texas, has set Faith 7 on a stand which permits easy viewing of the inside of the spacecraft. A section of the base of the heat shield and portions of the outer skin have been cut away permitting the first public look at the inner structure of a Mercury spacecraft.

The spacecraft - inside and out - is exactly as it was when it splashed down into the Pacific near Midway Island on May 16, 1963. Nothing has changed. The spacecraft shingles - its outer skin made of a new metal rene'41 - shows the effects of the 1,000 degree heat which blanketed the spacecraft during re-entry into earth's atmosphere. The heat shield - a mixture of glass fibers and resin - at the base of the spacecraft withstood maximum temperatures of 3,000 degrees farenheit when Cooper directed Faith 7 on its return to the earth.

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The 13 month tour, ending in the Nation's capitol on Nov. 1, 1964, will cover approximately 20,000 miles, a distance Faith 7 covered in space in approximately 80 minutes.

NEWS RELEASE
NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
MANNED SPACECRAFT CENTER
NASA
Houston 1, Texas

MSC 64-145

NASA SPACEMOBILE TO BE SCHEDULED IN SOUTH DAKOTA

HOUSTON, TEXAS -- The Spacemobile, a travelling educational unit of the National Aeronautics and Space Administration, will again be scheduled in the school systems of South Dakota. Eugene E. Horton, Chief of Educational Programs for the Manned Spacecraft Center, announced the availability of the unit from September 14 to October 30.

The scheduling of the Spacemobile in South Dakota is accomplished through the State Department of Public Instruction. Mrs. Olive S. Berg, Supervisor of Elementary Education, has planned the itinerary for the past two years. During this time, 87,495 S.D. students in grades 4-12 have seen the space-science demonstration.

Mrs. Berg indicated that the demonstration unit will be utilized this fall in all of the Elementary Teacher Institutes to be held throughout the state. In addition to learning of the latest advances in space research, the teachers will also be made aware of the resource materials available from the NASA for use in the classroom.

She announced that appearances will also be scheduled at service clubs, parent-teacher groups, colleges, and schools that have not had the opportunity to view the educational program.

A Spacemobile is not used for exhibit purposes, but is presented as a lecture-demonstration. These demonstrations are given by experienced science educators who are authoritatively informed on the activities of the National Aeronautics and Space Administration.

The first Spacemobile began meeting commitments in the spring of 1961. Later, additional units were placed into operation to meet the ever-increasing demand. At the present time, the NASA operates over 20 Spacemobiles in the United States. On the average, the Spacemobile lecturers will talk to about 400,000 people per month. It has also been estimated that between 800,000 and 1,000,000 persons will view a Spacemobile lecturer each month on television both educational and commercial.

While the majority of Spacemobile appearances are in the elementary and secondary schools, they make frequent visits to the campuses of our colleges and universities. They participate in teacher education through symposia, institutes, and workshops which may be of one-day to three-weeks duration.

This past summer, the demonstration was scheduled at workshops conducted at the South Dakota State College, Brookings; Augustana College, Sioux Falls; Black Hills Teacher College, Spearfish; State University of South Dakota, Vermillion; and the Southern State Teachers College, Springfield.

-- NASA --

NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER

Houston 1, Texas

HUnter 3-4231

MSC 64-146
August 28, 1964

The National Aeronautics and Space Administration announced today that the first Apollo spacecraft preflight acceptance testing station has been declared operational by Manned Spacecraft Center engineers at the North American Aviation plant in Downey, California.

The station, called ACE-S/C, which stands for Acceptance Checkout Equipment for Spacecraft, will provide a high-speed, accurate and reliable system to test sophisticated space-flight vehicles such as the three-man Apollo spacecraft.

ACE-S/C interrogates the spacecraft systems and gathers, processes and displays large quantities of test data in real time for immediate evaluation and diagnosis. The data is also recorded and stored for future analysis.

The system allows a relatively small staff of engineers to monitor and control continually more than 25,600 samples per second of spacecraft test data containing approximately 1,500 separate spacecraft parameters. Coaxial cables connect the ACE-S/C station and the spacecraft being checked.

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Used for subsystem and integrated system testing of the Apollo spacecraft command and service modules, the first ACE-S/C station has been undergoing verification operations by engineers from NASA; General Electric Company, Apollo Support Department, Daytona Beach, Florida, the prime contractor; Control Data Corporation, Minneapolis, Minnesota, and Radiation Inc., Melbourne, Florida, associate contractors. The station is located in three rooms overlooking the high-bay spacecraft assembly and test area of North American Aviation's Space and Information Systems Division.

The ACE-S/C Control Room houses the station's primary controls and displays. Here, spacecraft test engineers remotely monitor and begin operation of each spacecraft system. Primary functional systems such as spacecraft communications, environmental control, and guidance and navigation are tested simultaneously. Test engineers maintain system status via updated data on television-like displays, including event lights, meters strip chart recorders, and other readout devices.

High-speed digital computers and decommutators are contained in the ACE-S/C Computer Room. This equipment unscrambles commands from the Control Room and sends them to appropriate locations in the spacecraft. These electronic brains also decode test results from the spacecraft and route them to the Control Room.

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Add 2
MSC 64-146

A third room, the ACE-S/C Terminal Facility Room, provides a flexible interface between the remote spacecraft test areas and the ACE-S/C station. Information is routed through the Terminal Facility Room to and from the spacecraft, the Control and Computer rooms.

ACE-S/C stations will also be installed at Grumman Aircraft Engineering Corp. at Bethpage, New York, for Apollo spacecraft Lunar Excursion Module testing and checkout; at the Manned Spacecraft Center in Houston, Texas, for testing spacecraft in simulated space and lunar environments; and at MSC-FO facilities on Merritt Island, Florida, to conduct a complete range of Apollo spacecraft subsystem, integrated system, and compatibility testing up to and including launch.

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NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER NASA Houston 1, Texas

HUnter 3-4231

MSC 64-147
August 27, 1964

HOUSTON, TEXAS -- Just as medieval craftsmen used a system of apprentice training to bring young men into a trade or profession, today's space technology has caused a similar need in the highly-specialized trades evolving in the nation's manned spaceflight program.

Twenty young apprentices begin a four-year work-and-learn training program September 1 at the National Aeronautics and Space Administration Manned Spacecraft Center. During the four years training toward journeyman rating, the apprentices will receive some 6800 hours of shop experience and 1100 hours of classroom instruction. The four trades in which the apprentices will train are Electronic Instrument Maker, Experimental Machinist, Modelmaker (wood and plastic) and Spacecraft Metalsmith.

Following a day-long briefing September 1 at the Center, the 20 apprentices will work in their chosen fields and attend related classes at the University of Houston and San Jacinto Junior College. Instruction courses vary with the trade and include courses in higher mathematics, chemistry, physics, electronic

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circuitry and civil engineering as well as in academic subjects such as English and report writing.

On-the-job practical training for Apprentice Electronic Instrument Makers include 6800 hours in such fields as layout and finishing instrument panels and cabinets, constructing, testing and calibrating of electronic test equipment, assisting in conducting tests and experiments, preparing circuit diagrams, making laboratory set-ups and servicing and repairing instruments.

Experimental Machinist apprentices will get some 6800 hours instruction in the operation of drill press, engine lathe, boring machine, milling machine, shaper, planer, grinders of various types as well as related instruction in maintenance of machinery and equipment.

The 6800 hours of shop training for apprentice modelmakers include general bench work, use of measuring tools and gauges, hand-cutting tools, template construction, and operation of wood and plastic working machines.

Spacecraft Metalsmith apprentices will receive their 6800 hours of shop training in various phases of forming, cutting and welding sheet metal. In addition, their training will cover die forming and jig and fixture work.

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Add 2
MSC 64-147

Selection of the 20 apprentices starting training in September was made through competitive examinations conducted by the U.S. Board of Civil Service Examiners. The Apprentice Training Program is under the direction of the Training Branch of the Manned Spacecraft Center. Robert Senter, former Industrial Arts teacher from Friendswood High School is supervising the Program.

Apprentice Electronic Instrument Makers starting their first year are Max Barnett, William H. Sigafoose and Donald M. Jordan of Houston, and Allan Manning, Hooks, Texas, and Marvin F. Williams, Jr., Freeport, Texas. Experimental Machinists apprentices are Fred T. Simon, Deerpark, Texas; Joseph M. Schmitt, Houston; Clarence J. Fisher, Jr., Round Lake, Illinois; Robert G. Lauhon, Friendswood, Texas, and Jerry D. Allen, Atmore, Alabama.

Spacecraft Metalsmith apprentices are Jesse T. Adkins, Jr., Missouri City, Texas; Melvin L. Patrick, Abilene, Texas; Charles A. Moore and Garlan B. Moreland, both of Houston.

Modelmaker apprentices are Craig Pemberton, Friendswood, Texas; Don Andrews, Seabrook, Texas; Campbell P. Canup, Tomball, Texas; Percy H. Alison, San Antonio, and James M. Peterson and Lawrence A. Hagman, both of Houston.

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NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER — Houston 1, Texas

HUnter 3-4231

MSC 64-148
August 17, 1964

The first NASA Organization to occupy facilities on Kennedy Space Center's new Merritt Island complex will be Manned Spacecraft Center-Florida Operations, as 1,100 NASA and contractual employees start moving from Cape Kennedy to the Industrial Area next month.

Although the majority of MSC-Florida Operations and contractor personnel will occupy facilities in the Operations and Checkout Building, eventually it is expected that some 3,000 personnel will occupy 18 Manned Spacecraft Facilities on Merritt Island.

The most impressive and the largest building in the Merritt Island Industrial Area is the Manned Spacecraft Operations and Checkout Building (O & C). This 575,000 square-foot building is a multi-storied, reinforced-concrete structure that stands 106-feet above the flat Florida countryside.

The O & C Building will include administrative and engineering areas; spacecraft assembly, test, and servicing areas; and laboratory and control areas. The laboratory area provides for manned spacecraft check-out and validation facilities as well as astronaut quarters and training equipment. The assembly and test area includes high and low bay areas for non-hazardoud acceptance testing of spacecraft modules.

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Add 1
MSC 64-148

A high-bay area provides for Apollo spacecraft integrated systems and altitude chamber tests. It is approximately 100-feet in height and provides two bridge cranes with a hook height of 85-feet. The low-bay area will provide a similar capability for Gemini spacecraft.

The first MSC-Florida Operations organizations to move will be the Mechanical and Propulsion Systems Division and the Electrical and Electronics Systems Division. In addition, McDonnell Aircraft Corporation and North American Aviation's Preliminary Activation Group will also move. There will be approximately 250 people in the first increment.

The new facilities being occupied on Merritt Island area for testing spacecraft cryogenic, hypergolic, and pyrotechnic units. The test operations will be sequenced to attain the spacecraft configurations that occur during various phases of a mission.

According to R. C. Johnson, Chief of Facilities Planning Branch and the MSC-Florida Operations MILA move coordinator, the move will take place at night and on weekends to facilitate an orderly flow of personnel and office equipment from existing facilities to the new buildings.

Johnson indicated that all furniture, desks, and other office equipment will be pre-positioned according to a master plan drawn in advance. "For all practical purposes," he said, "this means that personnel will leave their Cape offices at the close of the working day and

take up positions at Merritt Island the next morning with no work stoppage. The key to the move, according to Johnson is advance planning, thereby keeping inconvenience to a minimum.

The largest piece of equipment moved from Cape Kennedy to the new facilities is the altitude chamber used in the Mercury program. It is presently undergoing modification to enable the larger Gemini spacecraft to be inserted inside the chamber for environmental control tests.

The majority of MSC-Florida Operations personnel are expected to complete the move by the end of October.

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NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER NASA Houston 1, Texas

HU 3-4231

MSC 64-149
September 4, 1964

The National Aeronautics and Space Administration has signed a nine-month extension of its Project Apollo Spacecraft contract with North American Aviation's Space and Information Systems Division, Downey, California.

The $496-million extension calls for five additional Apollo command and service modules, one additional flight boilerplate spacecraft, and one more full scale mockup to be built at the Downey Plant. The extension also covers the building of nine adapters at NAA's Tulsa, Oklahoma Plant to house Apollo Lunar Excursion Modules aboard Saturn V launch vehicles.

The overall contract now extends through February 15, 1966. It will provide NASA's Manned Spacecraft Center, Houston, with 14 spacecraft, 16 boilerplate spacecraft, 10 full-scale mockups, five engineering simulators and evaluators and two mission simulators.

It also provides for test fixtures, test operations, monitoring and analyzing flight and test information and other engineering and management tasks necessary for manufacturing, testing and check-out operations at Downey, Tulsa, White Sands, N. M., and Cape Kennedy.

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Add 1
MSC 64-149

NAA was selected by NASA as the contractor for the Apollo Command and Service Modules in December 1961. Value of the contract with the extension is $1.436 billion.

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NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER NASA Houston 1, Texas

HU 3-4231

MSC 64-150
September 4, 1964

HOUSTON, TEXAS -- Three additional flight directors have been named by the National Aeronautics and Space Administration Manned Spacecraft Center to serve during Gemini and Apollo spaceflight missions. The new flight directors are John D. Hodge, Eugene F. Kranz and Glynn S. Lunney.

Assignment of the three men brings to four the number of flight directors with the task of managing flight control operations in the Manned Spaceflight Control Center, Houston, and throughout the world-wide Ground Operational Support System. Long-duration missions will require manning the Control Center in three shifts.

Kraft, Assistant Director for Flight Operations, was flight director for all missions of the now completed Project Mercury. Hodge shared flight director responsibilities with Kraft during the 22-orbit flight of Astronaut L. Gordon Cooper in May, 1963, a mission of 34-hour duration.

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Add 1
MSC 64-150

The three flight directors named are all managers in Kraft's organization. Hodge is chief of the Flight Control Division; Kranz is chief of the Flight Control Operations Branch, and Lunney is chief of the Flight Dynamics Branch.

During missions, flight directors are responsible not only for making operational decisions involving spacecraft performance, but also for seeing that flight plans are followed and that crew safety is assured.

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For release 4:00 CST, Sepp. 10, 1964

Launch of the 7th Saturn (SA-7) originally scheduled for no earlier than September 17 is now scheduled for no earlier than September 18. The change in schedule was made because of time lost in preparation and checkout of the rocket during the alert for Hurricane Dora.

Editors please note.that the SA-7 press kit now in the mail for Sunday, September 17 carries the earlier launch date.

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
MANNED SPACECRAFT CENTER
Houston 1, Texas

HU 3-4231

MSC 64-151
September 11, 1964

HOUSTON, TEXAS --- The NASA Manned Spacecraft Center has awarded Grumman Aircraft Engineering Corp., Bethpage, N. Y., a $4.2 million contract to cover the design and installation of data acquisition equipment at the Apollo Propulsion Systems Development Facility at White Sands, N. M.

Grumman is responsible for the design and installation of digital and analog recording equipment at three engine test stands at White Sands where ground tests will be conducted on the engines of the Lunar Excursion Module -- the spacecraft destined to land two American astronauts on the moon's surface and return them to their command module for the return trip to earth.

The recording equipment will provide engineering information from a sea level test stand to be used for testing both the ascent and descent engines of the LEM, and from two vacuum chamber test stands where the engines will be fired under simulated space conditions.

It is expected that the work will be completed by the end of this year.

The award is actually an amendment to Grumman's original contract calling for the manufacture and testing of Lunar Excursion Modules. Total value of the contract with this change is $394.4 million.

NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER

Houston 1, Texas

HUnter 3-4231

MSC 64-152
September 11, 1964

NOTE TO EDITORS:

CORRECTION ON RELEASE NO. 64-149
ISSUED FRIDAY, SEPTEMBER 4, 1964

HOUSTON, TEXAS -- The $496 million extension to the Apollo spacecraft contract between NASA's Manned Spacecraft Center and the Space and Information Systems Division of North American Aviation, Inc., Downey, Calif., announced September 4 will provide NASA with:

Five additional Apollo spacecraft modules; three more boilerplate spacecraft; and another full-scale mockup. Nine adapter sections, the part of the spacecraft which houses the Lunar Excursion Module aboard the Saturn launch vehicle, have also been acquired through this contract extension.

NASA Manned Spacecraft Center News Release No. 64-149 issued September 4 erred in total numbers of spacecraft, boilerplates and mockups.

Under the contract, now extended through February 15, 1966, NASA will get a total of 16 Apollo spacecraft, 18 boilerplate spacecraft, 11 full-scale mockups, two engineering simulators, three evaluators and two mission simulators, plus testing and ground support equipment.

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Add 1
MSC 64-152

The Apollo spacecraft contract with North American total $940 million before the contract was extended to 1966.

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NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
MANNED SPACECRAFT CENTER
Houston 1, Texas

HUnter 3-4231

MSC 64-153
September 15, 1964

HOUSTON, TEXAS -- Randolph Hester, a Temple, Texas native, and now an engineer with the NASA Manned Spacecraft Center in Houston, recently participated as a test subject in mobility studies in Bend, Oregon.

In the tests, Hester wore an early version of the Project Apollo space suit, the suit American astronauts will wear when they land on the moon.

The young engineer is a 1954 graduate of Temple High School and is the brother of Mrs. Illie Hilliard, 1705 South 41st Street in Temple.

He is married to the former Miss Betty Winkler of Temple, whose parents, Mr. and Mrs. Ben T. Winkler, reside at 1016 South 23rd Street.

During the Oregon tests, Hester donned a full pressure suit, portable life support system, and thermal over garment. Time and motion data were obtained while he traversed rugged basaltic, pumice and obsidian lava fields.

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The tests were aimed at providing information on the degree of mobility astronauts will have on the lunar surface and the time required to perform specific tasks. Hester traversed the rugged lava flows, climbed and descended slopes, and simulated instrument implacement and rock sampling techniques.

Two other test subjects, including Astronaut Walter Cunningham, participated in the mobility studies.

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FOR RELEASE 1:00 CST 9-17-64

NASA TO NEGOTIATE WITH BROWN & ROOT/NORTHROP FOR MSC SERVICES CONTRACT

The National Aeronautics and Space Administration today selected the joint venture of Brown and Root of Houston, Texas and Northrop Corp., headquartered in Beverly Hills, Calif., for negotiation of a contract for operational and support services of laboratories, test facilities and technical service shop at the Manned Spacecraft Center, Houston. The joint venture proposal was one of eleven received at the Manned Spacecraft Center.

A one-year cost-plus-award-fee contract will be negotiated. It is contemplated that options will be provided to extend the contract for two additional years. Costs for the first year period is approximately $2.5 million. Total costs for requirements for the three year period will be approximately $10 million.

The contractor will be responsible for furnishing necessary services, equipment and material to provide technical support to the space environment simulation laboratory, vibration and acoustic test facility, flight acceleration test facility, thermochemical test area and crew system laboratory at the Houston center. The complex instrumentation and equipment at these facilities are employed for checkout of Project Gemini and Apollo spacecraft and onboard spaceflight equipment, and for astronaut training.

Technical support services will include preparation of test setups, assisting test operations, preventive maintenance and emergency repair of electronic and mechanical equipment. Most of this work will be performed by engineers and skilled technicians.

FOR IMMEDIATE RELEASE September 17, 1964, 10:25 am CST

Astronaut Scott Carpenter will report to work Monday as executive assistant to Manned Spacecraft Center Director Robert R. Gilruth, a position he will hold for an indefinite time while convalescing from injuries suffered in a motor scooter accident.

The job Carpenter will fill temporarily is one being vacated by Raymond Zavasky who has accepted a new position in the Research Contracts and Information Office at NASA's Langely Research Center, Hampton, Virginia.

Carpenter is recovering from a compound fracture of the left forearm and a fracture and dislocation of the left great toe. The accident occurred July 16 near Hamilton, Bermuda where Carpenter was preparing to take part in the Navy SeaLab Project.

Carpenter's arm is now in the fourth cast and appears to be mending nicely. It may be some months however before he regains full use of the arm due to the seriousness of the break. While hospitalized this summer doctors broke and reset a bone in Carpenter's right foot which had mended improperly after an auto accident in his youth.

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FOR RELEASE 9-16-64 4:30 CST

ASTRONAUT Donn Eisele suffered a simple dislocation of the left shoulder during weightless flight training Tuesday afternoon (September 15, 1964) at Wright-Patterson AFB, ohio, the Manned Spacecraft Center announced today.

The injury was sustained as the KC-135 jet training plane pulled out of a controlled dive which creates weightless conditions within the airplane.

Eisele was taken to the Wright-Patterson AFB hoopital where the dislocation was reduced. He remained in the hosptial overnight, and flew back to Houston today, where he will be attended by flight surgeons attached to the MSC medical office.

The Center Medical Office said the dislocation did nct require a cast, and that astronaut Eisele will be on a limited udty status for approximately three weeks.

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FOR RELEASE 1:00 PM CST SEPTEMBER 17, 1964

Gemini Spacecraft No. 2, which will be launched on an unmanned suborbital flight later this year, is scheduled to be delivered to Cape Kennedy early next week, the NASA Manned Spacecraft Center announced today.

NASA accepted the spacecraft after a more than two-week review of manufcaturing, checkouts, testing and simulated flight data at the McDonnell Aircraft Corporation, St. Louis, Missouri, manufacturer of the spacecraft is now being prepared for shipment.

The spacecraft will be flown from St. Louis to Cape Kennedy no later than Tuesday. Charles W. Mathews, Gemini Program Manager, said it will undergo several more weeks of checkout and testing at the Cape before being mated to its launch vehicle, a modified Titan II rocket. The launch vehicle is erected on Pad 19 at Cape Kennedy, where equipment damaged by an electrical storm last month is being replaced.

The mission, designated GT-2, will pave the way for the nation's first two-man space flight, scheduled in the first quarter of 1965. GT-2 will flight qualify systems which will be aboard the manned spacecraft as well as provide the first operational test of Gemini reentry heat protection.

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NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER

NASA

Houston 1, Texas

HUnter 3-4231

MSC 64-153B
September 21, 1964

HOUSTON, TEXAS -- Astronaut William A. Anders has developed a common cold and has been grounded by MSC doctors. He will not be taking part in any field tests and will not be flying for a few days. Anders was scheduled to participate Wednesday and Thursday in a sea tending test off Galveston with Spacecraft Static Article 5, but has been dropped from the test roster. His place will be taken by a test engineer of the landing and recovery division, which is conducting the test. Astronauts James Lovell and Alan Bean are still scheduled to take part in the test.

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NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER

NASA

Houston 1, Texas

HUnter 3-4231

MSC 64-154
September 24, 1964

HOUSTON, TEXAS -- Sunday afternoon open house at the NASA Manned Spacecraft Center, a regular event since the first weekend open house last June 6, will be suspended for one Sunday afternoon only, September 27.

The Center's open house each Sunday from 1 p.m. to 5 p.m. will be resumed on Sunday, October 4, and continued indefinitely.

Work on the Center's electrical power system that can only be done on weekends when the Center is not in operation causes suspension of the September 27 open house. No electrical power will be available in the Auditorium building where space movies and static exhibits are shown to visitors.

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NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER

Houston 1, Texas

MSC-64-144X
MSC-64-155

HUnter 3-4343

HOUSTON, TEXAS - Faith 7, Mercury spacecraft flown by Lieutenant L. Gordon Cooper in his earth circling 22 orbit flight May 1963 will be on display October 6 through October 11 in Trenton, New Jersey.

The four day stop in Trenton is the 46th of 50 state capitol visits that the National Aeronautics and Space Administration has scheduled for Cooper's spacecraft. Close to 4,075,000 persons have already seen the spacecraft since it began its cross country tour in Cooper's home state of Oklahoma.

The NASA Manned Spacecraft Center at Houston, Texas, has set Faith 7 on a stand which permits easy viewing of the inside of the spacecraft. A section of the base of the heat shield and portions of the outer skin have been cut away permitting the first public look at the inner structure of a Mercury spacecraft.

The spacecraft - inside and out - is exactly as it was when it splashed down into the Pacific near Midway Island on May 16, 1963. Nothing has changed. The spacecraft shingles - its outer skin made of a new metal formula - shows the effects of the 1,000 degree heat which blanketed the spacecraft during re-entry into earth's atmosphere. The heat shield - a mixture of glass fibers and resin - at the base of the spacecraft withstood maximum temperatures of 3,000 degrees farenheit when Cooper directed Faith 7 on its return to the earth.

Also on display with the spacecraft are cameras Cooper carried and the astronaut Survival Kit which rode on Faith 7's 546,185 mile earth-circling flight. Samples of the food Cooper ate during his day and a half in space will also be on display.

The 13 month tour, ending in the Nation's capitol on Nov. 1, 1964, will cover approximately 50,000 miles, as directed Faith 7 covered in space in approximately 80 minutes.

NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER Houston 1, Texas

HUnter 3-4343 MSC-64-XXXX 156

HOUSTON, TEXAS - Faith 7, Mercury spacecraft flown by Astronaut L. Gordon Cooper in his earth circling 22 orbit flight May 1963 will be on display October 15 through October 18 in Dover, Delaware.

The four day stop in Dover is the 47th of 50 state capitol visits that the National Aeronautics and Space Administration has scheduled for Cooper's spacecraft. Close to [illegible] persons have already seen the spacecraft since it began its cross country tour in Cooper's home state of Oklahoma.

The NASA Manned Spacecraft Center at Houston, Texas, has set Faith 7 on a stand which permits easy viewing of the inside of the spacecraft. A section of the base of the heat shield and portions of the outer skin have been cut away permitting the first public look at the inner structure of a Mercury spacecraft.

The spacecraft - inside and out - is exactly as it was when it splashed down into the Pacific near Midway Island on May 16, 1963. Nothing has changed. The spacecraft shingles - its outer skin made of a new metal remetal - shows the effects of the 1,000 degree heat which blanketed the spacecraft during re-entry into earth's atmosphere. The heat shield - a mixture of glass fibers and resin - at the base of the spacecraft withstood maximum temperatures of 3,000 degrees farenheit when Cooper directed Faith 7 on its return to the earth.

Also on display with the spacecraft are cameras Cooper carried and the Astronaut Survival Kit which rode on Faith 7's 546,185 mile earth-circling flight. Samples of the food Cooper ate during his day and a half in space will also be on display.

The 13 month tour, ending in the Nation's capital on Nov. 1, 1964, will cover approximately 20,000 miles, a distance Faith 7 covered in space in approximately 80 minutes.

NEWS RELEASE

ATIONAL AERONAUTICS AND SPACE ADMINISTRATION

NED SPACECRAFT CENTER

Houston 1, Texas

HUnter 3-4343

MSC-64-144 XXX 157

HOUSTON, TEXAS - Faith 7, Mercury spacecraft flown by Astronaut L. Gordon Cooper in his earth circling 22 orbit flight May 1963 will be on display October 22 through October 25 in Annapolis, Maryland.

The four day stop in Annapolis is the 48th of 50 state capitol visits that the National Aeronautics and Space Admin stration has scheduled for Cooper's spacecraft. Close to [redacted] persons have already seen the spacecraft since it began its cross country tour in Cooper's home state of Oklahoma.

The NASA Manned Spacecraft Center at Houston, Texas, has set Faith 7 on a stand which permits easy viewing of the inside of the spacecraft. A section of the base of the heat shield and portions of the outer skin have been cut away permitting the first public look at the inner structure of a Mercury spacecraft.

The spacecraft - inside and out - is exactly as it was when it splashed down into the Pacific near Midway Island on May 16, 1963. Nothing has changed. The spacecraft shingles - its outer skin made of a new metal rene'41 - shows the effects of the 1,000 degree heat which blanketed the spacecraft during re-entry into earth's atmosphere. The heat shield - a mixture of glass fibers and resin - at the base of the spacecraft withstood maximum temperatures of 3,000 degrees farenheit when Cooper directed Faith 7 on its return to the earth.

Also on display with the spacecraft are cameras Cooper carried and the astronaut Survival Kit which rode on Faith 7's 546,185 mile earth-circling flight. Samples of the food Cooper ate during his day and a half in space will also be on display.

The 13 month tour, ending in the Nation's capitol on Nov. 1, 1964, will cover approximately 20,000 miles, a distance Faith 7 covered in space in approximately 80 minutes.

NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER

Houston 1, Texas

HU3-4231

MSC 64-159
September 25, 1964

HOUSTON, TEXAS -- The National Aeronautics and Space Administration has approved a contract with the Space and Information Systems Division of North American Aviation, Inc., Downey, Calif., for spare parts for spacecraft and ground support equipment in Project Apollo.

The $14,185,848 contract is aimed at having a variety of spare parts at Cape Kennedy and White Sands Missile Range to allow field repairs of Apollo Command and Service Modules.

Spares include such items as complete electronic packages, hydraulic and mechanical components, spare reaction control engines and the equipment necessary to permit field repairs. This allows rapid replacement of parts in the field and prevents costly delays at launch and test sites.

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MSC 64-160
September 28, 1964

GEMINI WATER SUITABILITY TEST

FACT SHEET

OBJECTIVES

1. To demonstrate suitability and stability of the spacecraft in long duration sea environment.

2. To verify qualification of spacecraft systems for post-landing water environment, which includes the possibility of a maximum recovery time of 36 hours in a remote landing area. Significant systems to be verified are electrical, communications, and environmental control. Seaworthiness of the spacecraft structure will be demonstrated, also.

3. To obtain information on human physiological reaction to a long duration sea environment.

TEST VEHICLE

The test vehicle is designated Gemini Static Article No. 5. It is a production spacecraft with the following operable systems:

a. Electrical

b. Communications

c. Environmental control system providing astronauts with suit ventilation and breathing air.

Static Article No. 5 is representative of Spacecraft No. 3, the first manned Gemini spacecraft in which Astronauts Virgil I. (Gus) Grissom and John W. Young will orbit the earth during the

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first quarter of 1965. It has the same center of gravity, weight, volume, and configuration.

TEST SUBJECTS

1. James A. Lovell - Astronaut
2. Alan L. Bean - Astronaut
3. Dr. John Billingham, M.D. - Crew Systems Division
4. Edward A. Armstrong - Engineer, Gemini Program Office
5. Gordon W. Harvey - Engineer, Flight Crew Support Division
6. Robert D. Mercer - Engineer, Flight Crew Support Division
8. J. B. Thomas - Engineer, Flight Crew Support Division

TEST LOCATION

The test will be conducted in the Gulf of Mexico, approximately 40 miles southwest of Galveston, Texas. The NASA motor vessel "Retriever" will tend the test vehicle.

GENERAL

The test vehicle will be tethered to the "Retriever" with a 400-foot line which will also support electrical cable. Doctors and technicians will monitor the performance of the spacecraft systems and test subjects through instrumentation aboard the "Retriever." Ground stations and aircraft will be utilized to monitor spacecraft communications equipment, also.

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NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER NASA Houston 1, Texas

HUnter 3-4231

MSC 64-161
October 1, 1964

HOUSTON, TEXAS -- Astronauts, engineers and officials of the NASA Manned Spacecraft Center today inspected a full-scale mock-up of the Apollo command and service modules, two-thirds of the vehicle destined to carry three Americans to the moon and back.

The third module, called LEM for Lunar Excursion Module, will be inspected next week at Bethpage, New York.

The Apollo spacecraft lunar configuration comprises three separable major parts called "modules" which are fastened together in tandem. The Apollo command and service modules are being produced by North American's Space and Information Systems Division, Downey, Calif., for NASA's Manned Spacecraft Center, Houston, Texas. Atop the spacecraft command module is the launch escape system, an emergency safety unit designed to whisk the command module and its occupants to safety in the event of a catastrophic booster failure before or during launch. The lunar excursion module, into which two of NASA's three astronauts will transfer to land on the moon, is being built by Grumman Aircraft Engineering Corp., Bethpage, N. Y.

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Add 1
MSC 64-161

The Command Module is the Apollo spacecraft's control center for the moon flight. It provides combination living, working and leisure time quarters for the three-man crew. The command module consists of two shells -- an inner crew compartment and an outer heat shield. Ablative materials are applied to the outer structure after it has been assembled and fit-checked to the crew compartment.

Shape	Conical
Height	12 feet
Diameter (at the base)	13 feet
Launch Weight	10,000 pounds (approx.)
Outer Structure	Stainless steel honeycomb bonded between aluminum alloy sheets
Inner Compartment	Primarily aluminum honeycomb bonded between aluminum alloy sheets
Insulation	A two-layer micro-quartz fiber insulation separates the walls of the inner and outer structures
Environment	Shirt-sleeve temperature of about 75 degrees, and 100 per cent oxygen
Couches	Aluminum and titanium padded with plastic encased nylon webbing

The Service Module houses the main propulsion motor, and its propellants for return from the moon and for midcourse corrections. It contains the electrical system, reaction control engines and part of the environmental control system. Propellants and various systems are housed in pie-shaped sections surrounding the main engine. Attached to the command module during the flight to the moon, the service module is jettisoned prior to earth re-entry.

Shape	Cylindrical
Height	22 feet (including engine)
Diameter	13 feet
Construction	Mostly aluminum alloy. The outside skin is honeycomb bonded between aluminum sheets.
Launch Weight	50,000 pounds (approx.)

The Launch Escape System is located atop the Apollo command module. Its purpose is safe recovery of the command module and its occupants in the event of a catastrophic booster failure before or during launch. In addition to the tower, the system has three primary components: The launch escape and pitch control motors (Lockheed Propulsion Co.) and the tower jettison motor (Thiokol Chemical Corp.).

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Shape	Torpedo atop 10-foot latticed tower
Length	33 feet
Diameter	2.2 feet
Total Weight	6,500 pounds (approx.)
Launch Escape Motor Thrust	155,000 pounds
Pitch Control Motor "	2,800 pounds
Tower Jettison Motor "	33,000 pounds

The following modifications have been made to the lunar mission version of the Apollo command and service modules to permit operations with the lunar excursion module:

The Apollo docking system allows the lunar excursion module to mate with the command module so that astronauts can transfer into the LEM for descent to the moon. The docking system also will be used to hook up the two modules when the LEM returns from the moon to rendezvous with the mother ship so that the astronauts may transfer back to the command module for return to earth.

The Apollo docking system consists of a probe mounted on top of the command module. The probe enters the funnel-shaped drogue mounted on the lunar excursion module when the modules are flown together and joined.

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The launch escape system is attached to a boost protective cover, which is a shell contoured to fit the sloping section of the command module. The boost protective cover protects the LEM docking mechanism from aerodynamic heating during first stage boost (while leaving the earth's atmosphere). It protects the command module's windows, keeping them free of soot and erosion brought on by launch escape motor exhaust. It also protects the command module's thermal control paint on the ablative material. The aft portion of the boost cover consists of seven separate panels which are fastened together by zippers. The panels are fastened to the forward cover with fasteners. The boost protective cover is jettisoned with the launch escape tower.

The launch escape system also will utilize canards -- a stabilizing set of "wings" located near the tower jettison motor. The canards deploy to turn the command module heat shield forward in the event of an emergency and abort. The wings act as a drag on the front part of the command module turning it around so that the blunt end travels forward. The canards will be flight tested late this year with the launch of Engineering Test Vehicle 23 atop a Little Joe II at White Sands, N. M.

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Add 5
MSC 64-161

The command module's forward (upper) heat shield has a flat-top. The forward hatch cover (viewed from inside) is dished. A flat-topped command module permits installation of an external docking system which is protected during boost by the protective cover. The docking system can be installed and removed during docking operations. It may be left behind with the lunar excursion module or jettisoned before entering the earth's atmosphere. The ablative material thickness will be changed throughout the command module.

Electronic gear is being consolidated and rearranged. The main instrument console will comprise three large subassemblies with instruments preassembled and prewired. The guidance and navigation system and the stabilization and control system are integrated into a single system. The caution-warning system display unit is being repackaged and the system's capacity increased.

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NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER

NASA

Houston 1, Texas

HUnter 3-4231

MSC 64-162
October 3, 1964

HOUSTON, TEXAS -- A retired Army colonel whose engineering and administrative background includes work with Project Mercury is the new manager of NASA Manned Spacecraft Center's White Sands Operations.

The appointment of Martin L. Raines to manage White Sands Operations activities supporting Apollo and Gemini Program testing in New Mexico was announced today in Houston by Dr. Robert R. Gilruth, director of the Manned Spacecraft Center.

Raines very recently retired from the Army in Washington and is expected to arrive for duty in Las Cruces on October 5. He replaces Wesley E. Messing, who transferred to MSC Florida Operations in July. Interim management of White Sands Operations has been conducted by Paul E. Purser, special assistant to Dr. Gilruth.

White Sands Operations includes the Apollo flight test launch complex at White Sands Missile Range and the Propulsion Systems Development Facility 20 miles northeast of Las Cruces.

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Add 1
MSC 64-162

Raines has been assigned since April to Project Cloud Gap as test director of Field Test CG-9. Project Cloud Gap is a joint project sponsored by the Arms Control and Disarmament Agency and the Department of Defense for the purpose of developing and field testing arms control concepts in support of national policy.

Raines is 47 years old and has completed 22 years of active duty in the Army.

His assignment to NASA's Project Mercury was from January 1959 until September 1960 as chief of the Army Ordnance Missile Command Office with the nation's first manned spaceflight program.

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NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER

Houston 1, Texas

HUnter 3-4231

MSC 64-163
October 5, 1964

HOUSTON, TEXAS -- A major test of the NASA Worldwide Tracking Network will begin October 9 in preparation for manned earth-orbital flights in the Gemini program.

Simulated flight missions will be carried out over a nine-day period involving Cape Kennedy, Goddard Space Flight Center and eight remote sites in the worldwide network to test tracking and communications equipment and flight control procedures and equipment.

The Worldwide Network for Gemini control and communications will be essentially the same as that used in the Mercury Earth orbital flights. The network, however, has been updated to meet the more complicated needs of the Gemini Program.

Manned Spacecraft Center will deploy approximately 50 flight controllers, medical monitors, astronauts and other ground support systems operators, astronauts and other ground support systems operators for the test. About half of this number will man positions in the Mission Control Center at Cape Kennedy.

The test will be carried out under the supervision of Christopher C. Kraft, Jr., Assistant Director for Flight Operations at MSC and Operations Director for the Office of Manned Space Flight, NASA Headquarters, for the upcoming GT-2 (Gemini-Titan 2) suborbital flight.

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Kraft also will serve as operations director for GT-3.

All four recently announced flight directors, Kraft and John Hodge, Gene Kranz and Glenn Lunney will handle flight director duties for the network simulations. L. Gordon Cooper, one of the original Mercury Program pilots, will serve as Capsule Communicator (Capcom) at Cape Kennedy. Astronauts Charles Conrad and Neil Armstrong will observe the simulations at remote sites, Conrad at Carnarvon, Australia, and Armstrong at the Kuai Station in Hawaii. Ted Freeman will serve as Booster Tank monitor at MCC.

Other remote sites involved in the simulations will be in the Canary Islands, Bermuda, Guaymas, Mexico, Corpus Christi, and on two ships, the Rose Knot Victor at San Juan, Puerto Rico and the Coastal Sentry Quebec enroute between Baltimore and San Juan.

Goddard Space Flight Center which is responsible for the design and implementation and maintenance and operation of the network will also provide computation of orbital tracks and voice and teletype communications in the worldwide net.

Schedule of simulations will be as follows:

Oct. 9 -- Mission Control Center countdown and individual site drills (equipment tests).

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Oct. 10 -- Network countdowns and MCC-remote site interface drills.

Oct. 11 -- Simulation preparations.

Oct. 12 -- Network simulation.

Oct. 13 -- Network simulation.

Oct. 14 -- Network simulation.

Oct. 15 -- Network simulation.

Oct. 16 -- Network simulation.

Oct. 17 -- MCC launch simulation.

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NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER

NASA

Houston 1, Texas

HUnter 3-4231

MSC 64-164
October 8, 1964

BETHPAGE, NEW YORK -- A full scale metal mock-up of the Lunar Excursion Module was reviewed here today by officials from the Manned Spacecraft Center, NASA, in order to achieve a design representative of the actual LEM flight model.

An Apollo Spacecraft Program management and engineering team, headed by Dr. Robert R. Gilruth, Director, Manned Spacecraft Center, Dr. Joseph Shea, Apollo Program Manager, O. E. Maynard, Chief, Systems Engineering, and William Rector, III, LEM Project Officer, capped a week-long analysis of the mock-up design with a critique aimed at definitizing the LEM design, which is representative of the configuration proposed by Grumman to satisfy the LEM mission, in order to continue development and qualification testing of the Lunar Excursion Module, and establish the design, as embodied by the mock-up, as a basis for tooling and fabrication of portions of LEM.

Center of attraction for the week-long meeting was the all metal mock-up, constructed mostly of aluminum, in which the various equipment

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and systems for the Lunar Excursion Module were expressed. In many cases, actual equipment was utilized in the interior of the mock-up. Designated M-5, the mock-up is also used to check the location of equipment and displays in the vehicle and the compatibility of these units with astronaut requirements.

NASA and Grumman representatives carefully analyzed and critiqued the LEM equipment and systems. Alterations of modifications that are required will be incorporated in subsequent LEM ground and flight test vehicles.

Eleven basic areas were critiqued:

Crew provisions

Controls, displays and lighting

Stabilization and control system, guidance and navigation and radars

Electrical power

Propulsion, ascent, descent and reaction control

Power generation

Environmental control

Communications and instrumentation

Structures and landing gear

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Scientific equipment

Reliability and quality

APOLLO MISSION

Grumman is developing the Lunar Excursion Module under contract with the National Aeronautics and Space Administration. The contract covers the design, fabrication and delivery of 9 LEM ground test vehicles and 11 LEM flight vehicles. Grumman will also support NASA during the operational phase of the program.

As prime contractor for LEM, Grumman with its subcontractors, is producing all major subsystems of the LEM except the primary navigation and guidance system, which is being developed by the Instrumentation Laboratory of the Massachusetts Institute of Technology.

The Lunar Excursion Module is the portion of the Apollo spacecraft which will separate from the Command Module in Lunar orbit, transporting two astronauts to the surface of the Moon. The LEM will serve as a "Moon Base" while the astronauts perform their exploratory duties and then will take off to join the orbiting Command Module.

When the LEM is detached from the Apollo Command and Service Modules in order to descent to the surface of the Moon, it will weigh less than 15 tons. The two-man cab is approximately ten feet in diameter.

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Mounted on four legs, LEM stands 20 feet tall. The legs and descent stage will serve as a launch platform and will remain on the lunar surface when the LEM ascent stage takes off to rejoin the mother spacecraft. LEM will weigh about 4 Earth tons when it leaves the Moon's surface.

Technical management of the Apollo Spacecraft Program is the responsibility of the Manned Spacecraft Center, National Aeronautics and Space Administration, Houston, Texas, under the over-all direction of the NASA Office of Manned Space Flight in Washington, D. C.

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NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER

Houston 1, Texas

HUnter 3-4231

MSC 64-165
October 8, 1964

HOUSTON, TEXAS -- Control and guidance for the Little Joe II booster which will launch next boilerplate Apollo spacecraft from White Sands is being checked out at the Manned Spacecraft Center this week.

Test engineers of General Dynamics/Convair and MSC have set up a Little Joe II booster fin in the laboratory in a closed loop checkout of the ability of the booster to put the Apollo spacecraft through a high altitude maximum dynamic pressure abort.

The trajectory to be flown has been programmed on an analog computer which drives a three axis flight table. The rate and attitude gyros react to the computer input and feed commands to the moveable surface of the fin.

Engineers will introduce wind turbulence, thrust misalignments and structural bending into the flight to determine the ability of the guidance system to correct for these factors.

The tests will investigate the compatibility of subsystem components and determine the effects of component degradation on booster performance.

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Two previous flights of Little Joe II at White Sands have not used the controllable fin. The Little Joe program is designed to qualify the Apollo Spacecraft launch escape system for astronaut safety.

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NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER

Houston 1, Texas

HUnter 3-4231

MSC 64-166
October 7, 1964

HOUSTON, TEXAS -- A complete systems test performed successfully yesterday on NASA's Gemini-Titan 2 Launch Vehicle was a significant step in preparation for the second unmanned Gemini flight. The flight scheduled during the fourth quarter of this year, will send the spacecraft on a ballistic trajectory down the AF Eastern Test Range where recovery is planned.

Under the direction of Lt. Col. John G. Albert, Chief of the Titan-Gemini Booster Division of the 6555th Aerospace Test Wing and Martin Co. Test Conductor James Kelly, the combined Air Force-Martin crew accomplished the systems check on the booster and Complex 19 at Cape Kennedy. The test simulated the last 30 minutes of the launch countdown, the launch, and the first six (6) minutes of flight.

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NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER NASA Houston 1, Texas

MSC - 64 - 167

"NASA SPACEMOBILE"

Itinerant educators are an interesting development of the Space Age.

Requests for speakers knowledgeable in all facets of the space program stream constantly into the offices of the National Aeronautics and Space Administration. The NASA Spacemobile Lecture-Demonstration has proved to be one of the most interesting and effective educational programs established to fill this need.

A NASA Spacemobile and lecturer will arrive in _____, _____ to present _____.

The public's desire to become better informed about space activities and achievements of the United States in space exploration soon became evident after the enactment of the Space Act of 1958. Seldom has the public shown such interest in a national program not directly related to defense.

The educational community, in particular, has shown great interest in keeping students and teachers informed of the latest developments in space research and exploration.

Spacemobiles carry cargos of scale models of rockets and satellites, mechanical and electrical equipment, and other space science exhibits which assist lecturers in conveying the vital importance of a broad-based national program of space exploration. Lecturers discuss in depth those areas of science and technology which are brought together in the development of this new national capability. They also acquaint audiences with the various types of rockets, satellites, fuels and new materials developed and used in the space program.

Scale models displayed and discussed by Spacemobile lecturers include Mercury, Gemini and Apollo manned spacecraft and unmanned weather, communications, and scientific satellites such as Tiros, Nimbus, Syncom, Alouette, Ranger, Surveyor, the OSO and OGO.

Lecturers traveling with the Spacemobiles are classroom-experienced science educators who speak to a wide variety of audiences, ranging from elementary and secondary school children to university students and teachers participating in symposia, institutes and workshops, usually from one day to three weeks in duration.

Spacemobile lecturers also appear before civic and service organizations and other interested groups, and are frequently guests on both educational and commercial television. Between 800,000 to 1,000,000 persons will view a Spacemobile lecturer each month on television.

NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER

NASA

Houston 1, Texas

MSC - 64 - 168

NATIONS'S SPACE EFFORT TO BE EXPLAINED AT DEMONSTRATION

Students and faculty of _____ will learn more about the Space Age in a demonstration presented by the National Aeronautics and Space Administration. The school will be visited by the Spacemobile on _____.

Accompanying the Spacemobile and presenting the demonstration will be _____ _____ and _____.

Traveling throughout the United States and in foreign countries, the demonstration units provide an introduction to space science and to our nation's space activities.

The demonstration is presented by professional science educators who are authoritatively informed on the space sciences and the programs of the National Aeronautics and Space Administration.

Models of launch vehicles and spacecraft, mechanical and electronic devices, and other audio-visual materials and experiments are a part of the Spacemobile demonstration equipment. These aids are used in demonstrating basic scientific principles and how these apply to the programs of NASA.

For instance, the lecturer traces the history of rocketry---from the early efforts of the Chinese in the 13th century, liquid fuel rocket research of America's Dr. Robert Goddard, and to the more recent success of the Germans and their V-2 missile.

The scientific principles of orbits and propulsion are discussed along with the men whose discoveries and vision paved the way to our present day exploration of outer space.

The students will learn about the various projects of the NASA as the lecturer explains them by utilizing authentic scale models of scientific payloads now exploring outer space.

They will explore together the benefits of communications and weather satellites, the scientific information derived from current scientific satellites, the hopes for those launched in the future, and the aims of international cooperation through space research.

The imagination of the students will respond to the lecturer's discussion of man's flight to the moon. He will explain not only the mechanics of the flights of Projects Gemini and Apollo but will provide an insight into the biological problems of man in a space environment.

-NASA-

MSC - 64 - 169

THE STUDENTS AND TEACHERS OF _____

WILL RECEIVE A CLOSER AND MORE PERSONAL LOOK INTO THE AGE OF SPACE ON _____

_____. THE OCCASION WILL BE THE ARRIVAL OF THE SPACEMOBILE---

AN EDUCATIONAL UNIT OF THE NATIONAL AERONAUTICS AND SPACE ADMINISTRATION. THIS TRAVELING UNIT IS OPERATED BY EXPERIENCED SCIENCE EDUCATORS WHO HAVE TRAVELED THROUGHOUT THE UNITED STATES SPEAKING TO SCHOOL AND GENERAL PUBLIC AUDIENCES. THE LECTURERS WILL DEMONSTRATE BASIC SCIENTIFIC PRINCIPLES BY USING VISUAL AIDS AND EXPERIMENTS. THEY WILL EXPLAIN THE SCIENTIFIC PROGRAMS, BOTH CURRENT AND FUTURE, OF THE N.A.S.A. BY USING AUTHENTIC SCALE MODELS OF ROCKETS AND SPACECRAFT. THE LECTURER WILL TRACE THE EARLY DEVELOPMENT OF ROCKETRY, AND BY UTILIZING ELECTRICAL AND MEHANICAL EQUIPMENT, HE WILL DISUCSS THE AREAS OF PROPULSION AND LAUNCH VEHICLES, ELECTRICAL REQUIREMENTS ON SPACECRAFT, AND MANY OF THE PROBLEMS ENCOUNTERED IN SPACE FLIGHT---BOTH MANNED AND UNMANNED. THIS INTERESTING AND TIMELY PROGRAM IS BEING PRESENTED AS AN EDUCATIONAL SERVICE OF THE NATIONAL AERONAUTICS AND SPACE ADMINISTRATION TO SCHOOLS THROUGHOUT THE UNITED STATES.

-NASA-

NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER

Houston 1, Texas

MSC - 64 - 169

A TRAVELING EDUCATIONAL UNIT OF THE NATIONAL AERONAUTICS AND SPACE ADMINISTRATION (NASA) WILL PRESENT TO THE STUDENTS AND TEACHERS OF _____ _____ A SPACE SCIENCE DEMONSTRATION. THIS UNIT---CALLED THE SPACEMOBILE---WILL VISIT THE SCHOOL ON _____ _____. THE SPACEMOBILE CONSISTS OF MECHANICAL AND ELECTRICAL EQUIPMENT AND AUTHENTIC SCALE MODELS OF ROCKETS AND SPACECRAFT. PRESENTING THE DEMONSTRATION WILL BE AN EXPERIENCED SCIENCE EDUCATOR WHO IS AUTHORITATIVELY INFORMED ON THE SPACE SCIENCES AND THE ACTIVITIES OF THE NATIONAL AERONAUTICS AND SPACE ADMINISTRATION. THE LECTURER WILL TRACE THE HISTORY OF ROCKETRY, DISCUSS PROPULSION AND LAUNCH VEHICLES, AND GIVE AN INSIGHT INTO THE "WHYS" AND "HOWS" OF AMERICA'S VENTURE INTO OUTER SPACE.

NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER

NASA

Houston 1, Texas

HUnter 3-4231

MSC 64-170
October 13, 1964

HOUSTON, TEXAS -- Developmental spacecraft landing rockets are scheduled this week for their first over-water test firing on Trinity Bay by Manned Spacecraft Center engineers.

The experimental program will begin with a drop of the boiler-plate Gemini spacecraft from a C-119 aircraft at 11,200 feet altitude. A parasail or controllable parachute will be used to lower the space-craft toward the water, steered by commands from an MSC engineer.

When the spacecraft is ten feet above the water, the two 12,000 lb thrust rockets will fire simultaneously when actuated by sensors suspended below the spacecraft. The landing speed of the spacecraft will be cut from 27 feet per second to nine or ten feet per second after the rockets fire. Burn time of the rockets is one and one-half seconds.

Each of the two landing rockets is 23 inches in length and five inches in diameter and is manufactured by the Thiokol Chemical Co., of Elkton, Maryland. The solid-propellant rockets use a rubber base propellant with an oxidizer of polybutadine acryllic acid.

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Add 1
MSC 64-170

The landing rockets are designed to give the flight crew member added cushion from impact shock. Although a boilerplate Gemini spacecraft is being used for this test, the landing rockets are not a definite part of the Gemini or Apollo program.

The NASA motor vessel Retriever will carry MSC engineers to Trinity Bay for ground control of the test and pick-up of the spacecraft.

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NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER NASA Houston 1, Texas

MSC - 64 - 171

NASA SPACEMOBILE TO BE SCHEDULED IN NORTH DAKOTA

HOUSTON, TEXAS - The Spacemobile, a traveling educational unit of the National Aeronautics and Space Administration, will again be scheduled in the school systems of North Dakota. Eugene E. Horton, Chief of Educational Programs for the Manned Spacecraft Center, announced the availability of the unit from January 11 through February 26.

The scheduling of the Spacemobile in North Dakota is accomplished through the State Department of Public Instruction. Mr. K. L. Dooley, Director of State Federal Relations, is now in the process of planning the itinerary. Last year, approximately 14,000 students and teachers attended the space-science demonstration in North Dakota.

Mr. Dooley has requested that all administrators or teachers interested in scheduling the Spacemobile in their schools this year contact him at his office in Bismarck.

A Spacemobile is not used for exhibit purposes, but is presented as a lecture-demonstration. These demonstrations are given by experienced science educators who are authoritatively informed on the activities of the National Aeronautics and Space Administration.

The first Spacemobile began meeting commitments in the Spring of 1961. Later, additional units were placed into operation to meet the ever-increasing

demand. At the present time, the NASA operates over 20 Spacemobiles in the United States.

On the average, the Spacemobile lecturers will talk to about 400,000 people per month. It has also been estimated that between 800,000 and 1,000,000 persons will view a Spacemobile lecturer each month on television both educational and commercial.

While the majority of Spacemobile appearances are in the elementary and secondary schools, they make frequent visits to the campuses of our colleges and universities. They participate in teacher education through symposia, insititutes, and workshops which may be of one-day to three-weeks duration.

NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER

Houston 1, Texas

October 19, 1964
Released 8:45 am CST

WASHINGTON, D. C. -- NASA will recruit 10 to 20 scientist-astronauts for the Nations future manned spaceflight missions.

The recruiting process will begin at once, with a December 31 application deadline. Selection of this first group of scientist-astronauts is to be completed by next spring.

A vast scientific frontier is being opened to direct scientific exploration by man. Observation made by scientist-astronauts will provide new information on the solar system and on man's ability to perform effectively in prolonged spaceflight.

The office of Space Science and Application and the National Academy of Sciences have cooperated in developing the scientific criteria of the selection process and the Academy will conduct the screening for scientific qualifications of the applicants. The Office of Manned Space Flight and the Manned Spacecraft Center, Houston, Texas, will be responsible for all other aspects of selection criteria and screening.

On April 16, 1964, the National Academy of Sciences was requested to participate in establishing scientific criteria for scientist-astronauts by Dr. Homer E. Newell, Associate Administrator for Space Sciences and Applications, in a letter to Dr. Harry H. Hess, Chairman of the Academy Research Council Space Science Board.

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Add 1

Scientific criteria were developed by the Space Science Board Adhoc Committee on Scientific Qualifications of Scientist-Astronauts which began a series of meetings in May.

The scientist-astronaut program is opened to scientists in scientific, medical or engineering specialty or any combination of those specialties. To be eligible for the scientist-astronaut program, an applicant must:

1. Have been born on or after August 1, 1930; be a citizen of the United States; and be no taller than six feet.

2. Have (a) a bachelor's degree (b) a doctorate in the natural sciences, medicine or engineering of the equivalent in experience.

3. Have transcripts of academic records sent directly to Scientist-Astronaut, P. O. Box 2201 Houston, Texas 77058, from all institutions of higher education which he has attended.

4. Have scores in the graduate record examination sent by Educational Texting Service, Princeton, N. J., directly to Scientist-Astronaut at the Houston address above. NOTE: (Examinations will be given January 16, 1965). Completed applications and examination fee must reach Educational Testing Service by December 31, 1964. In the event that an applicant has not taken graduate record examinations and plans to take the January 16 examination will be forwarded to Scientist-Astronaut, Houston, by the Education Testing Service.

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5. Submit a Standard Form 57, Federal Employment Applicant Form, available at any U.S. Post Office.

6. Submit a Standard Form 89, Report of Medical History, obtainable at U.S. Post Office. Forms should be signed by both the applicant and his physician.

7. Submit Standard Form 78, Certificate of Medical Examination, Part A to be completed by applicant and Part B, questions 1 through 21, to be completed by his physician. This form is also available at local post offices or offices of the Civil Service Commission.

All applicants should address their application postmarked no later than midnight December 31, 1964 to Scientist-Astronaut, P. O. Box 2201, Houston, Texas 77058.

After preliminary screening, certain applicants will be asked to submit additional material including published or unpublished scientific and engineering reports; essays on field experience, research activities, or hobbies related to space mission; and individual thoughts on scientific objectives of manned space missions.

Before final selection of astronauts, applicants will receive a thorough physical examination and will be required to take part in a limited space simulation program. The simulation program will serve to familiarize them with the space environment and determine to a degree their ability to withstand the stresses of launch, spaceflight and reentry.

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Selected applicants who are not already qualified pilots will be given individual flight raining necessary to qualify them as pilots of high-performance aircraft and helicopter.

For further information, prespective applicants should write Scientist-Astronauts, P. O. Box 2201, Houston, Texas 77058.

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NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER

Houston 1, Texas

HUnter 3-4231

MSC 64-172
October 21, 1964

HOUSTON, TEXAS -- A description of proposed lunar-base locations and functions, together with complete status reports on the Gemini and Apollo programs, will highlight the Third Manned Space Flight Meeting, November 4-6, at the Rice Hotel, Houston, Texas.

The meeting, co-sponsored by the American Institute of Aeronautics and Astronautics and NASA, will review in depth progress thus far and future plans for all manned spaceflight projects including lunar bases, space stations, and lunar surface vehicles. The program has been planned to provide systems-oriented sessions on Gemini, Apollo, man-rated launch vehicles, guidance and control, biotechnology, spacecraft design, and simulation and training. The final day of the meeting will cover advanced manned missions and future challenges.

The advanced manned missions session will contain papers on planning and development of lunar bases together with factors influencing the type of base required and possible locations; a survey of problems associated with the design of a 2-man lunar surface vehicle with a 175-mile range; and cost analyses of advanced rocket and airbreathing launch systems for space station support that show savings of 80% to 90% over current launch systems.

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Add 1
MSC 64-172

A briefing and tour of the NASA Manned Spacecraft Center has been scheduled for three times during the meeting.

The banquet speaker will be Edward C. Welsh, acting Chairman and Executive Secretary, National Aeronautics and Space Council During the banquet four AIAA awards will be presented. They are the Astronautics Award for outstanding contribution to the advancement of spaceflight, the Octave Chanute Award for notable contribution made by a pilot to the aerospace sciences, the John Jeffries Award for outstanding contribution to the advancement of astronautics through medical research, and the Robert M. Losey Award recognizing an outstanding contribution to the science of meteorology as applied to aerospace. Award winners have not been announced.

Luncheon speakers are Dr. George Mueller, Associate Administrator for Manned Space Flight, NASA; Maj. Gen. Marvin C. Demler, Director, Research and Technology Division, AFSC; and Harrison Storms, President, Space and Information Systems Division, NAA.

The program has been organized by General Chairman Paul E. Purser, Special Assistant to the Director, NASA MSC; and Scott Royce, co-chairman, of Northrop Corp., in cooperation with AIAA technical committees. The Houston Section of AIAA will be host. Charles B. Appleman, of General Electric Co., is chairman of the Houston Section and Arrangements Chairman for the meeting.

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Add 2
MSC 64-172

NOTE TO EDITORS:

TENTATIVE SCHEDULE OF PRESS CONFERENCES

WEDNESDAY

George E. Mueller, Associate Administrator for Manned Space Flight, NASA, Luncheon Speaker.

Joseph F. Shea, Manager, Apollo Spacecraft Office, NASA MSC, Apollo Program Status.

Charles W. Mathews, Manager, Gemini Program Office, NASA MSC, The Gemini Program--Progress and Plans.

THURSDAY

Maj. Gen. Marvin C. Demler, Director, Research & Technology Div. Air Force Systems Command, Luncheon Speaker.

George R. Arthur, ITT Federal Laboratories, Spacecraft Design.

Donald K. Slayton, NASA MSC, Simulation and Training.

R. R. Hessberg, NASA MSC, Bio-Technologies.

Capt. Robert F. Freitag, Office of Manned Space Flight, NASA, Launch Vehicles.

Edward C. Welsh, Executive Secretary, National Aeronautics and Space Council, Banquet Speaker.

FRIDAY

Harrison A. Storms, Jr., President, Space & Information Systems Div. North American Aviation, Inc., Luncheon Speaker.

E. Z. Gray, NASA Headquarters, Advanced Manned Missions.

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NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER

NASA

Houston 1, Texas

HUnter 3-4231

MSC 64-173
October 27, 1964

HOUSTON, TEXAS -- Apollo astronauts will begin training next summer on the world's largest manned centrifuge, now nearing completion at the NASA Manned Spacecraft Center.

The one million-pound device, capable of imposing a load equal to 30 times the force of gravity (30g), will help prepare moon-bound space pilots for the rigors of launch acceleration and earth re-entry.

At 42 revolutions per minute, the 50-foot arm of the centrifuge exerts a 30g load while swinging around its hub at 150 miles an hour. The arm can be lengthened to 60 feet, allowing high g loads at fewer rpm.

Until completion of this facility NASA astronauts will continue training at the Navy's Aviation Medical Acceleration Laboratory at Johnsville, Pa.

A three-man gondola at the tip of the 50-foot arm will represent the interior of an actual Apollo spacecraft, complete with controls, dials, switches and an environmental control system to

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simulate actual space conditions. A vacuum equal to altitudes up to 125,000 feet can be produced by environmental equipment inside the 12-foot gondola.

Computers will gimbal the gondola spacecraft in pitch and roll, adding two axis to the forward motion of the device. A third movement, yaw, could be added if necessary, but simulations on the centrifuge are already programmed to be somewhat more demanding than any anticipated space flight. The astronauts will be able to control their motions through the computers.

The most acceleration American astronauts experienced during Project Mercury was slightly above 11g during the suborbital flights of Astronauts Alan Shepard and Virgil Grissom. Re-entry from orbital flight produces lower g levels.

Re-entry from an Apollo lunar return flight is expected to impose fewer than 10g normally, or as many as 15g under emergency conditions.

The centrifuge can produce 30g for three minutes or 20g for half an hour, far beyond that predicted for space flight or training. But the device will also be used to test equipment and to conduct physiological stress studies.

Astronaut Walter M. Schirra has experienced 18g on a centrifuge, more than any other astronaut. Test subjects have endured up to 25g for peak period of five seconds. Astronauts are trained to perform under loads up to 15g.

The effects of positive gravity forces are cumulative, varying with time, position of the body and rate of acceleration. Tolerances vary also with arbitrary limits, such as ability to perform effectively, remain conscious or simply survive.

Designed primarily for Apollo training, the facility will have medical laboratories for pre-flight and post flight simulations. During centrifuge runs more than 400 measurements can be obtained, including biomedical information similar to that monitored during actual space flight.

The 6,700 horsepower Westinghouse electric motor which drives the MSC centrifuge is the largest vertical electric motor in the free world. Its rotor alone weighs 197,000 pounds.

The Rucker Company of Oakland, Calif., is building the centrifuge and controls. W. S. Bellows Construction Corporation of Houston, and Peter Kiewit Sons Company of Omaha, Neb., are the construction contractors.

The Flight Acceleration Facility will be operational next June at a total cost of about $10.5 million.

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FACT SHEET

FLIGHT ACCELERATION FACILITY

Bldg. 29, NASA Manned Spacecraft Center

ARM LENGTHS

1. Basically 50 feet
2. 40 feet with removal of 10-foot section
3. 60 feet with additional 10-foot section (Future)

PAYLOAD

1. 3,000 pounds, including crew

RADIAL ACCELERATION

1. 30 G's for 3 minutes
2. 20 G's Sustained for 30 minutes

RATE

1. 5.1 G per second acceleration rate from 2 G base at 60 percent overload with 50-foot arm

POWER

1. 6,700 horsepower DC main motor drive (nominal)

GONDOLA SIZE

1. 12-foot diameter spherical gondola

GIMBAL SYSTEM

1. FIRST AXIS (Gimbal Ring)

   2 RAD per second^2 angular acceleration
   30 RPM angular velocity
   Continuous rotation in either direction

2. SECOND AXIS (Gondola)

   10 RAD per sec^2 angular acceleration
   30 RPM angular velocity
   Continuous rotation in either direction

ENVIRONMENTAL

1. Altitude: Sea Level to 125,000 feet (3mm Hg)
2. Temperature: 10°C to 90°C (Atmospheric Pressure Only)
3. Humidity: 40 to 60 percent (Atmospheric Pressure Only)

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CONTROLS	1. Complete man-machine closed loop control
DATA	1. 300 plus slip rings for data collection, plus pulse code modulation
CONTRACTORS	1. Rucker Co., Oakland, Calif., Centrifuge, instrumentation, controls
	2. Westinghouse Corp., Pittsburgh, Pa., electric motor
	3. W. S. Bellows Construction Corp., Houston, Tex.; Peter Kiewit Sons Co., Omaha, Neb., construction

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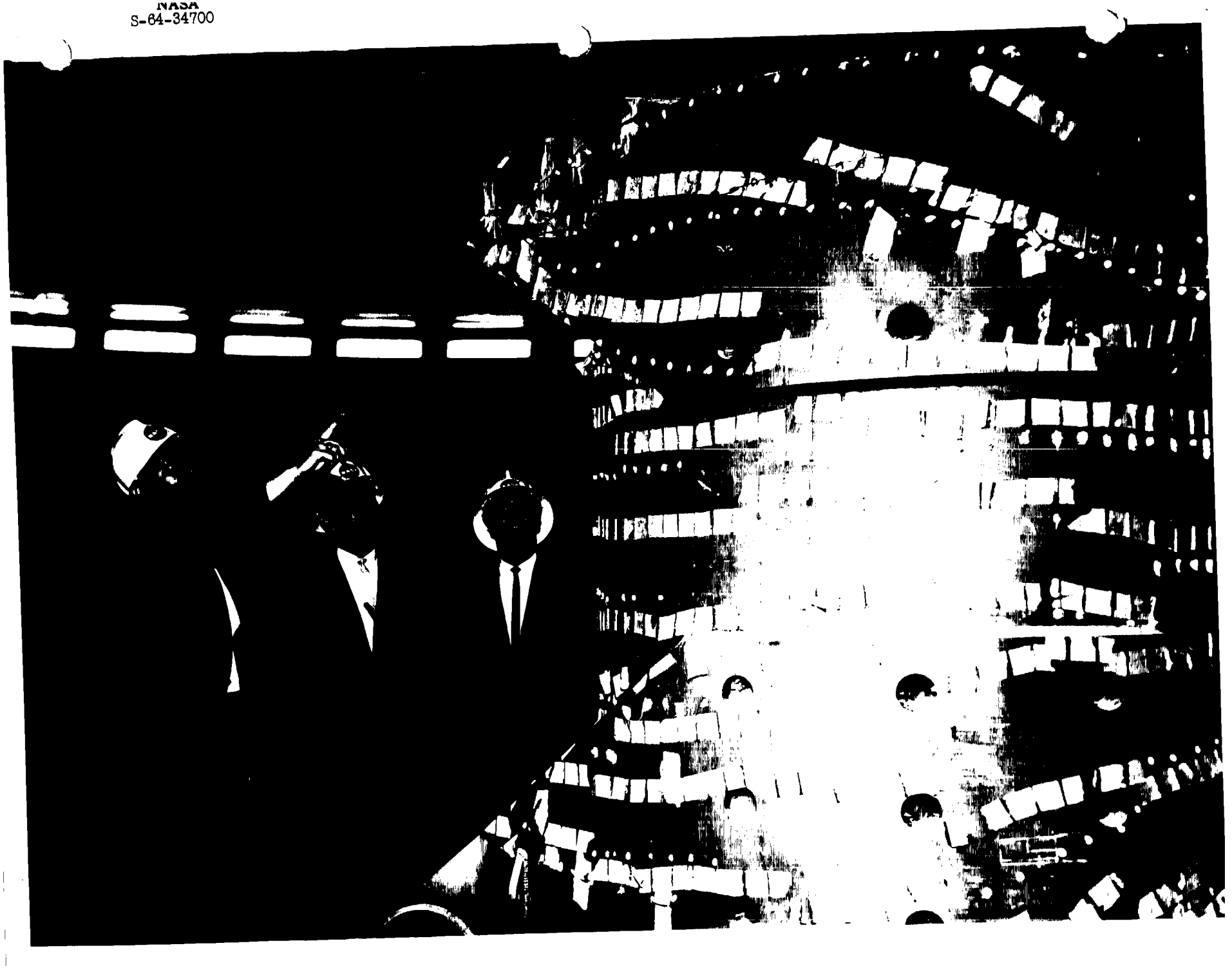
NASA
S-64-34700



NEWS RELEASE
NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
MANNED SPACECRAFT CENTER
Houston 1, Texas

MSC-64-174
October 25, 1964

HOUSTON, TEXAS -- Astronaut Russell L. Schweickart abandoned his Gemini spacecraft 100 miles above the Pacific Ocean today to celebrate his 29th birthday.

He was operating the Gemini Mission Simulator at the NASA Manned Spacecraft Center here, part of a week-long test of the biomedical equipment to be worn during manned Gemini missions beginning in 1965.

Schweickart has worn this equipment, including body sensors attached to his skin, amplifiers and wiring inside his Gemini space suit, and the suit itself, since last Monday. He will not remove them until tomorrow night after the final test series in a centrifuge at the Ames Research Center near San Francisco, California.

Except for not being able to bathe and shave, Schweickart says the test is "going along nicely" and he is perfectly comfortable and able to perform his tasks without difficulty.

So far he has flown six missions in an F-104 jet trainer, has flown three days of simulated Gemini missions and has performed a series of tasks in a Gemini Procedures Trainer.

His wife, the former Clare Grantham Whitfield of Atlanta, Georgia, brought him a cake last night and two gifts: a child's toy electric

- more -

razor that "sounds like dad's" but doesn't shave, and a bar of deodorant soap.

Astronaut Schweickart, however, did not eat any cake today. It was his day to test freeze dehydrated space foods, so he watched as members of the test team devoured his cake.

He ate tiny squares labeled "Chicken Sandwiches" and "Pound Cake," and drank dehydrated pea soup, grape juice and fruit cocktail after reconstituting it with a spacecraft device resembling a water pistol.

The space food test was not originally scheduled, but Schweickart volunteered to eat the space diet mainly to determine the degree of difficulty involved in reconstituting it while wearing a space suit and gloves.

Except for a tiny trace of grape juice on his white space suit, the test was successful.

Schweickart is a civilian from Seagirt, N.J., where his parents, Mr. and Mrs. George L. Schweickart still reside. Prior to his selection as an astronaut, he was a research scientist at the Experimental Astronomy Laboratory of the Massachusetts Institute of Technology. He is a former Air Force pilot and is still a captain in the Air National Guard. He has about 1,500 hours in aircraft, mostly jets.

He, his wife and their five children live in Seabrook, Texas.

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FOR RELEASE: October 31, 1964

Astronaut Theodore (Ted) C. Freeman, age 31, was killed today in a crash approximately two miles west of Ellington Air Force Base near Houston. He was approaching the field for a landing at the time of the crash -- 10:50 a.m., CST. He was flying a T-38 jet aircraft.

According to witnesses, he was approximately 300 to 500 feet high when the canopy apparently left the aircraft. It was not clear whether Freeman had ejected or been thrown from the aircraft on impact. The body was found some 100 yards from the aircraft. The plane did not catch fire.

Captain Freeman was pronounced dead at the scene by Dr. Samuel C. Puma of NASA-MSC Medical Operations.

MSC Assistant Director for Flight Crew Operations, Donald K. Slayton, said an accident investigation board had been set up to investigate the crash. The board will be supported in the investigation by personnel of the Ellington Air Force Base.

Freeman had been in the air approximately one hour on the first of two routine proficiency flights he had planned today. He took off from Ellington at 9:55 a.m., CST.

The T-38 is one of 15 jet aircraft NASA astronauts use to maintain their jet proficiency. They include 5 T-38's and 10 T-33's.

Donald Slayton and Dr. Charles A. Berry, MSC Medical Officer, broke the news of the tragedy to Mrs. Freeman at her home near the Manned Spacecraft Center.

Astronaut Freeman followed the development of launch vehicles used in the manned space flight program as his astronaut working specialty. He had been assigned as booster monitor in the Mission Control Center on the forthcoming Gemini 2 and 3 flights.

NEWS RELEASE
NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
MANNED SPACECRAFT CENTER
Houston 1, Texas
HUnter 3-4231
MSC 64-175
11-4-64

GEMINI SPACE SUIT QUALIFICATION PROGRAM
FOR FIRST MANNED FLIGHTS

HOUSTON, TEXAS -- There are 17 Gemini suits currently being tested in various parts of the United States and at Manned Spacecraft Center, Houston, to qualify the suit for operation under any possible environmental or flight condition to be encountered in the first manned flights.

Four suits are being tested at the U.S. Army Testing Laboratory, Natick, Massachusetts, for life cycling and reliability tests on the suit and individual components. Two suits are being used at the Manned Spacecraft Center for testing of physical parameters. Five suits will be used for parachute jump tests at El Centro, California. Four suits will undergo sled ejection tests at China Lake and two suits will be used in F-106 seat ejection tests using the Gemini seat at El Centro, California.

Following the philosophy of component testing, no suit will go through the complete testing cycle, but each suit will be used in part of the qualification program.

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There are more than 47 individual tests performed to qualify the suit for the first and second manned orbital flights in Gemini spacecraft. The testing is done at three levels; on the complete suit assembly, on the particular systems, and on the components of the assembly.

SUIT ASSEMBLY TEST

In life cycling, various parts of the suit assembly, such as the neck and wrist disconnects and bearings, the entrance closure, and the helmet drinking port are subjected to repeated tests on their operation. The tests determine whether the material will last or the mechanisms will function after repeated use.

A series of environmental tests are also conducted. The suit is tested under temperature ranges from a plus 250 degrees Fahrenheit to zero. It is tested under vacuum at simulated orbital altitudes and at cabin pressure, and under re-entry and abort conditions.

There are many other environmental tests which include vacuum, rapid decompression, toxicology, acceleration, vibration, shock, and noise. Frequently, the environmental tests are conducted in conjunction with systems or component tests.

In demonstration tests, the suit is checked out for mobility. The astronauts must be able to reach controls and equipment in

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either a pressurized or unpressurized suit. The flight crew must also be able to use the drinking port while the suit is pressurized.

The four day comfort test is conducted in an altitude chamber pressurized at a simulated spacecraft environment of 5.5 psia. The subject remains in the suit for a period of four days, using the environmental control system, the waste management system, and the bio-instrumentation.

SUIT SYSTEMS TESTS

In suit systems tests, the suit will be tested for pressure drop in the spacecraft environment. Such systems as the helmet carbon dioxide removal and the visor defogging system, the communication system, and the glove fingertip lights will be fully qualified.

Component testing will be performed on the suit pressure indicator, the suit pressure relief valves, the blood pressure cuff assembly, and the glove fingertip lighting system. Environmental qualification as well as leakage, cycling, and performance tests will be conducted on components.

Gemini suit qualification is a program which will insure that the suit provides protection for the spacecraft crew from the environments to be encountered during Gemini manned space flights with the maximum probability for mission success.

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NASA
S-64-18036

NEWS FLASH
NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
MANNED SPACECRAFT CENTER
Houston 1, Texas
HUnter 3-4231
MSC 64-175 A
November 2, 1964

HOUSTON, TEXAS -- The Westinghouse Electric Corporation, Aerospace Division, Baltimore, Md., has been awarded a $2.29 million contract for the development of a lunar TV camera.

This camera will utilize a recently developed secondary electron emission conductivity (SEC) vidicon tube. It is considered to be the ideal image sensor for fulfilling the TV requirements during the trans-lunar, lunar stay, and trans-earth phases of the Apollo mission. It is planned that these pictures would be made available to commercial television for nation-wide broadcast during the lunar mission, as well as provide scientific information.

Westinghouse was chosen as the sole source contractor after an intensive four-month review by a four-man committee from the Manned Spacecraft Center and the Lunar Excursion Module prime contractor, Grumman. All Government agencies and industrial firms who were known to be working in the area were contacted or their work was reviewed.

The results of the committee study recommended Westinghouse because they are the inventor and developer and only manufacturer of a special image sensor which is the only sensor that can meet all the

--more--

requirements of the lunar television camera specifications. These specifications include requirements in power, weight, and performance in the lunar environment.

For purposes of lunar operation, the camera must be designed to withstand temperature ranges from minus 300 to plus 250 degrees Fahrenheit. It must operate in high vacuum, and televise pictures in the glare of lunar day and the earthshine conditions of lunar night.

The Westhinghouse camera will be used in all Apollo flights in which the Lunar Excursion Module will be included in the spacecraft. In Apollo Earth-orbital flights preceding those including the LEM, a camera provided by Radio Corporation of America under subcontract to North American Aviation, builders of the Command and Service Modules, will be utilized.

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NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER

Houston 1, Texas

HUnter 3-4231

MSC 64-176

November 3, 1964

GEMINI MISSION SIMULATOR
NOW OPERATIONAL AT CAPE KENNEDY

HOUSTON, TEXAS -- The National Aeronautics and Space Administration's Manned Spacecraft Center announced today that the Gemini mission prelaunch preparations, is now operational.

The prime and back-up astronauts selected for the upcoming Gemini-Titan GT-3 mission will train in this simulator for their planned three-orbital flight scheduled for the first quarter of 1965.

The simulator is capable of simulating all aspects of a Gemini mission with exception of lift-off and re-entry forces and weightlessness in space. With a capability of 600 discrete malfunctions and the flexibility of computer programming, there are few emergencies beyond the capabilities of the simulator.

Gemini mission simulation furnishes trajectory and telemetry data by means of computer programming to the Mission Control Center Operations Room and world-wide tracking stations for training personnel of the flight control team.

The Gemini simulator crew station is identical to the cabin section of the Gemini spacecraft. Three closed-circuit TV cameras are provided in the crew station to monitor instrument panels and record astronaut's physiological responses.

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Add 1

Plans call for installation of a celestial display depicting stars, sun, and Earth movement outside the simulated spacecraft's windows to provide realism during the simulated mission.

The Gemini mission simulation room, an addition to the Mission Control Center (MCC), measures 55 by 85 feet. It consists of a Gemini crew station to monitor instrument panels and record astronaut's physiological responses.

Plans call for installation of a celestial display depicting stars, sun, and Earth movement outisde the simulated spacecraft's windows to provide realism during the simulated mission.

The Gemini mission simulation room, an addition to the Mission Control Center (MCC), measures 55 by 85 feet. It consists of a Gemini crew station, and instructor console, a telemetry console, three computers, and support equipment. One million feet of wiring is concealed beneath the floor of the room.

The entire trainer complex is controlled from a three-man instructor console and a two-man telemetry monitor console.

The Cape Kennedy Simulator is one of two Gemini mission simulators manufactured by the McDonnell Aircraft Company at St. Louis. The other simulated spacecraft is located at Manned Spacecraft Center, Houston, Texas.

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NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER — NASA — Houston 1, Texas

HUnter 3-4231

MSC 64-177
November 16, 1964

HOUSTON, TEXAS -- An instrument which can analyze rock samples smaller than a grain of sand begins operation at the Manned Spacecraft Center this week.

The electron microprobe analyzer can produce a television picture of thin samples of rock one micron or a millionth of a millimeter on a side. At the same time, it can make a complete chemical analysis of the rock without dissolving or destroying it.

The probe, and all other equipment of the MSC geological laboratory will be on display at an Open House, November 23 in Bldg. #357 at Ellington AFB. Local geologists have been invited to attend the Open House and see a demonstration of the microprobe.

Meteorites, tektites, and other rocks which may be similar to those found on the surface of the moon, will be analyzed by the microprobe. Using the probe, MSC geologists and astronauts will be able to determine the chemical composition, origin, and history of a rock. It will also be used to study the possible contamination of lunar rock by the exhaust of the descent engine of the Lunar Excursion Module which will carry two astronauts to a first landing on the lunar surface.

A combination of electron microscope and X-ray spectrograph, the probe has a magnification of 2400 X. It supplies an image of the rock sample to two TV tubes. Geologist can examine the sample and photograph it with an attached Polaroid camera.

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Add 1
MSC 64-177

One of the primary uses of geology laboratory equipment is in training astronauts. Many of the instruments in the laboratory have been proposed as scientific equipment which astronauts would carry in more compact versions to the surface of the moon.

Other major pieces of equipment on display in MSC's geology workshop include:

The X-ray spectrograph, which analyzes larger rock samples than the electron microprobe by X-ray emissions.

The Hencke generator and tube which analyzes lighter elements such as boron, lithium, etc. Used in conjunction with the X-ray spectrograph.

The atomic absorption spectrophotometer performs chemical analysis of solutions, gas, or other volatile items from volcanic activity.

The gas chromatograph which chemically analyzes organic gases and atmospheres. This instrument might be used to detect any traces of atmosphere on the lunar surface.

The differential thermal analyzer heats rocks as high as 1000 degrees Fahrenheit and measures weight and chemical changes. Might be used to detect water in compound in lunar rocks.

The X-ray defractometer studies the crystal structure and the arrangement of atoms in minerals.

The standard spectrophotometer which uses visible or ultraviolet light to analyze rocks in solution or by vaporization.

The infrared spectrophotometer measures transmission of light in the infrared range of rock material in solution. It can also be used for detection of the water content of rock.

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NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER

Houston 1, Texas

HUnter 3-4231

MSC 64-178
November 16, 1964

REPORT ON INVESTIGATION OF FREEMAN CRASH

HOUSTON, TEXAS -- A snow goose - weighing about eight pounds with a wingspan of more than 24 inches -- caused the fatal crash of Astronaut Theodore C. Freeman on October 31, 1964.

Despite loss of power of both engines in his T-38 aircraft, Freeman, an Air Force Captain, attempted to land his damaged aircraft at Ellington Air Force Base. In the last few seconds, he headed for an open field, probably to avoid Ellington buildings, and ejected. There was not time for his parachute to deploy fully.

These were the principal findings of a team investigating the crash which reported to NASA Manned Spacecraft Center Director Robert R. Gilruth on November 14, 1964. Dr. Gilruth accepted the report, commended the team of investigators headed by MSC Assistant Director Donald K. Slayton on its thoroughness and instructed the group to transmit the report to the Air Force Operational elements, other NASA Centers and aviation agencies.

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The clinching piece of evidence establishing the line of flight and the point of bird impact fell into place November 12 when investigators found pieces of the forward canopy glass and the bird's wings about three miles southeast of Ellington. That was about four miles from the point the plane crashed, one mile south of Ellington.

Experts at the Smithsonian Institute in Washington, D.C., identified bird remains as that of a snow goose. The Federal Bureau of Investigation assisted in identifying bird blood inside the cockpit wreckage. The Northrop Corporation, maker of the aircraft, and General Electric Company, which manufactures the T-38's engines, assisted in the investigation.

Freeman, pronounced dead at the scene, died of massive internal injuries and a skull fracture.

Investigators pieced together the following history of the flight:

Freeman took off at 10:01 a.m. on the first of two training flights he planned that day. The weather was scattered clouds at 2,000 feet, seven miles visibility and hazy. At 10:38, he radioed the tower requesting landing instructions. On receiving instructions, he executed a "touch and go" landing. During this maneuver, the tower advised him to break out of the traffic pattern in order to permit other planes to take off.

At 10:46, Freeman reported he was five miles from the field, approaching from the southwest. Since he didn't receive landing instructions, he reported routinely to the tower 30 seconds later that he was "breaking out" or making a right turn to the east. The tower confirmed this transmission and told him to make another approach. "Roger, be about two minutes," Freeman advised the tower at 10:47. That was his last transmission.

Within seconds the bird struck the left side of his canopy. The impact caused both engines to flame-out. Air ducts are located just below and aft of the cockpit.

But, Captain Freeman still had control of the aircraft and attempted to make a landing at Ellington. He flew a looping pattern over the Gulf Freeway and lowered his landing gear as he approached the field. When he apparently realized that a landing was not possible, he veered to the left into an open field, probably to avoid buildings at Ellington. Seconds later, at slightly under 100 feet altitude, he ejected, too late for his parachute to deploy fully.

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MSC 64-179

NASA - MSC

FOR RELEASE NOVEMBER 17, 1964

Feature Story

SPACE AGENCY MEETS EDUCATIONAL CHALLENGE

Are secondary school teachers interested in going to the moon to escape the frustrations of dealing with teenagers? A person merely dropping by the two-day conference (November 16-17) just concluding at the NASA Manned Spacecraft Center and observing over 300 local area teachers deeply engrossed in space science exhibits and presentations on manned space exploration might get this idea.

But a look at the printed program of the conference would reveal that it is a career and guidance clinic. If science educators and counselors are frustrated, they are seeking a more constructive solution to their problem than that of escape. The national space agency's Manned Spacecraft Center located at Houston, Texas, decided to hold the clinic in response to the many requests it receives to provide up-to-date information on the manned space effort and to help educators in formulating a space science program of study that will equip students to live and work more effectively in the Space Age.

The National Aeronautics and Space Administration has a two-fold interest in education. The law by which Congress created the space agency in mid-1958 placed upon it the obligation to "provide for the widest practicable and appropriate dissemination of information." It also obligated the agency to carry out a program of space exploration that requires the best efforts of thousands of well-educated persons, many of whom are highly trained in scientific and engineering disciplines. To see that there is a continuing supply of such trained professional workers thus became a high-priority goal of the agency.

Educators, on the other hand, were presented with a staggering challenge to keep informed on research and development activities and achievements in the field of space, to keep study curricula in the space sciences updated to include

the latest information, and to offer meaningful and effective guidance or counseling to students seeking to choose life careers.

The clinic is just one attempt of the space center to meet the interrelated needs of the space agency and the educators.

Before we look at some of the other educational programs and services of the Manned Spacecraft Center, let us take a quick look at the overall educational effort conducted by the National Aeronautics and Space Administration. There is an educational programs and services office in the national headquarters in Washington, D.C., which gives supervision, guidance, and support to the educational officers of nine space centers located throughout the United States.

In their role of providing guidance and help to education the NASA Headquarters and Center educational offices conduct many educational activities, among which are the following:

The furnishing of informative publications to requestors;

A motion picture depository and distribution program which embraces space exploration films of general interest, technical films, and a space biology series;

A spacemobile program which consists of 25 spacemobiles carrying cargos of rocket and satellite models, mechanical and electrical equipment, and other space science exhibits which assist the lecturers accompanying the unit in conveying to the public the vital importance of a broad-based national program of space exploration;

A large inventory of educational space exhibits on display throughout the United States;

Educational television shows;

The maintenance of speakers bureaus to meet the requests of thousands of civic, technical, and educational groups for speakers knowledgeable concerning the space program.

The awarding of grants and contracts to universities is certainly a vital part of NASA's educational program. However, it will be considered separately inasmuch as it is administered by another headquarters office set up for that specific purpose only.

(MORE)

The above listing of NASA's educational activities is not intended to be all-inclusive, but it is a good indication of the serious attention given to education by the national space agency. Following is a summary of some of the educational activities of the public affairs office at the Houston center.

The number of information requests processed and filled at MSC during the first 10 months of 1964 averaged 840 per month.

MSC speakers supplied each month to requesting groups averaged 48 in number.

Four spacemobiles gave several presentations daily throughout the 8-state area serviced by MSC, reaching an average personal audience of 80,000 monthly, with approximately an additional 100,000 viewing the spacemobile presentations on television.

A cooperative program with the Houston Independent School District made possible the development of teaching materials for the use of schools.

Manned spacecraft and exploration exhibits were set up and manned for special events throughout the United States.

An average of over 500 requests for films were received and filled each month.

Many conferences and tours of the center were conducted for various groups.

As mentioned earlier, the national headquarters office of the space agency awarded grants and contracts to universities for research projects, for the building of facilities to accommodate research, and for financing technical students in pre-doctoral training programs. Fifty one universities are currently participating in the NASA research program; and in the current fiscal year, 1,250 pre-doctoral training grants have been given to students seeking advanced degrees in 140 colleges and universities throughout the U.S.

Among the grants made to local area universities are those made to the University of Texas, Texas A. & M. College, Rice University, and the University of Houston. Let's take a look at these specific grants:

The University of Texas has been awarded contracts totaling $789,000 for scientific studies in the fields of atomic systems, plasma, solar radiation, effects of zero gravity on human cells, guidance theory, and for the construction of a parabolic antenna. In addition, it received two pre-doctoral training grants totaling $290,000.

At Texas A. & M. College, grants totaling $587,000 have been awarded for research on interdisciplinary space studies and neutron activation techniques. An additional grant of one million dollars was awarded recently for the building of an activation analysis research laboratory, and A. & M. received three pre-doctoral training grants totaling $642,000.

Rice University has been awarded a facilities grant of 1.6 million dollars for the building of a new space science and technology building. Rice has been the recipient of a grant for research on the physics of solid materials and the annual average value of this contract is approximately $300,000. Scientists at Rice are conducting a study of the aurora and airglow under a $260,000 NASA contract, and Rice University has three pre-doctoral training grants totaling $672,000.

The University of Houston has two research contracts from NASA totaling $156,000 and two pre-doctoral training grants totaling $354,000.

In addition to the program of university grants and contracts administered by the national headquarters, MSC has several center programs aimed at attracting scientific and engineering talent upon graduation.

The Management Intern at MSC is a graduate student with his master's degree or equivalent training in business administration, management, or other related field. He spends his first year working in different offices at the Center to familiarize himself with the overall Center operation, then is assigned to a permanent position.

(MORE)

There are 210 students from 31 colleges in the co-operative student program at MSC. Starting in the second year of college, students are eligible to participate in the cooperative program. They spend a semester working at the Center as engineering aides, receiving on-the-job training. Then they return to their college for six months of formal academic training. This continues until they graduate. While they are working at MSC, they are paid a salary which they can use to defray the cost of their education.

The Summer Interns are engaged in another MSC educational program. During the summer of 1964 MSC employed 41 interns comprising 31 top engineering and science students and 10 administrative students in their junior or senior year or in graduate study. They attended seminar programs and worked at the Center during their summer vacation period, returning to the campus for a full school term in the fall.

At present the MSC has an apprentice program for ten young men being trained for technical areas.

The Center employee is not neglected in this educational emphasis. There are 346 MSC enrollees in graduate study programs at the University of Houston and Rice University this semester. During fiscal year 1964 over 2,500 employees of the space center participated in some kind of educational program, two-thirds of it in-house.

MSC recognized the importance of skills other than technical. During the past year over 200 supervisors were trained in some phase of management.

Participants in the Career and Guidance Clinic heard an address on "The Impact of Space Research on Science Education" by Dr. Frank E. Sorenson of the University of Nebraska. MSC speakers discussed scientific programs being carried on at MSC, educational programs of NASA, and the career possibilities of the Space Age. A highlight of the clinic program was an address on "The Management of a Complex Technical Program" by Dr. Joseph F. Shea, Manager of the Apollo Spacecraft Program Office.

(MORE)

Dr. Albert Piltz, Specialist for Science of the U.S. Office of Education delivered an after dinner address on "Scientific Literacy - What We Can't Live Without." He emphasized the importance of a liberal, well rounded education both in the humanities and sciences, and noted that science today is taught in the public schools to prepare two overlapping groups - the science consumers and the science producers. He stated, "The very nature of science in modern life necessitates the development of scientific literacy for everybody, but for those who seek careers in science we have the additional requirement of specialized scientific training and basic research and development." It was suggested by him that the development of literate citizenry in science can be achieved with carefully planned kindergarten through Grade 12 programs in the Nation's Schools.

Paul E. Purser, special assistant to the Director of the Manned Spacecraft Center, summed up the purpose of the clinic by stating, "It is our hope that through this discussion of the challenges in education which confront and affect both educators and representatives of government we will develop more effective ways to train and utilize the human resources of our country."

NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER

NASA

Houston 1, Texas

HUnter 3-4231

MSC 64-180
November 18, 1964

HOUSTON, TEXAS -- When American astronauts step out onto the surface of the moon toward the end of this decade, Baltimore native Henry E. "Pete" Clements will have played a significant part in getting them there. As chief of the Flight Support Division at the National Aeronautics and Space Administration Manned Spacecraft Center in Houston, Texas he is responsible for supervising for NASA the installation and operation of flight control equipment in the Manned Spaceflight Control Center.

Clements is the son of Mr. and Mrs. John B. Clements, 6505 Old Harford Road, Baltimore.

Managing the development of the Control Center, scheduled to become operational in mid-1965, involves working with industrial contractors who are supplying and installing the complex flight control equipment in the three-story Control Center. It is from this Center that all United States manned space flights will be controlled, including most of the two-man Gemini earth orbital missions and all of the three-man Apollo earth orbital and lunar landing missions.

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Clements is an Air Force major on assignment to NASA. Prior to his NASA assignment, Clements served as range communications officer with the Atlantic Missile Range from July 1958 to February 1960. From then until August 1962, while working with the Department of Defense representative for the one-man earth-orbital Project Mercury, he served with NASA as a Network Status Monitor for all Mercury flights through that of Astronaut M. Scott Carpenter.

In August 1962 he was assigned to NASA as head of the Engineering Section of the Operations Facilities Branch. He became technical assistant for Gemini to the chief of the Flight Operations Division in December 1962, and in March of this year he became manager of the Integrated Mission Control Center Program Office, a job he held until August when the Flight Support Division was formed and he was named chief.

Clements attended Blatimore Polytechnic Institute and served in the U.S. Marine Corps from 1942 to 1946. In 1949 he entered West Point and was graduated in 1953 with a BS degree and entered the Air Force. He received a masters degree in aeronautics from the Massachusetts Institute of Technology in 1958.

He is married to the former Vivian Reckenberger of Baltimore. They have two daughters, Daryl 10, and Jill 4, and a son, Jay 8. The Clements live in Houston.

--more--

Add 2
MSC 64-180

Golf and pro-football are Clement's main interest after his family and job. He is an avid fan of the Baltimore Colts. "In fact," he chuckled, "I was ready to name my last youngster 'Johnny Unitas Clements', but it turned out to be a girl."

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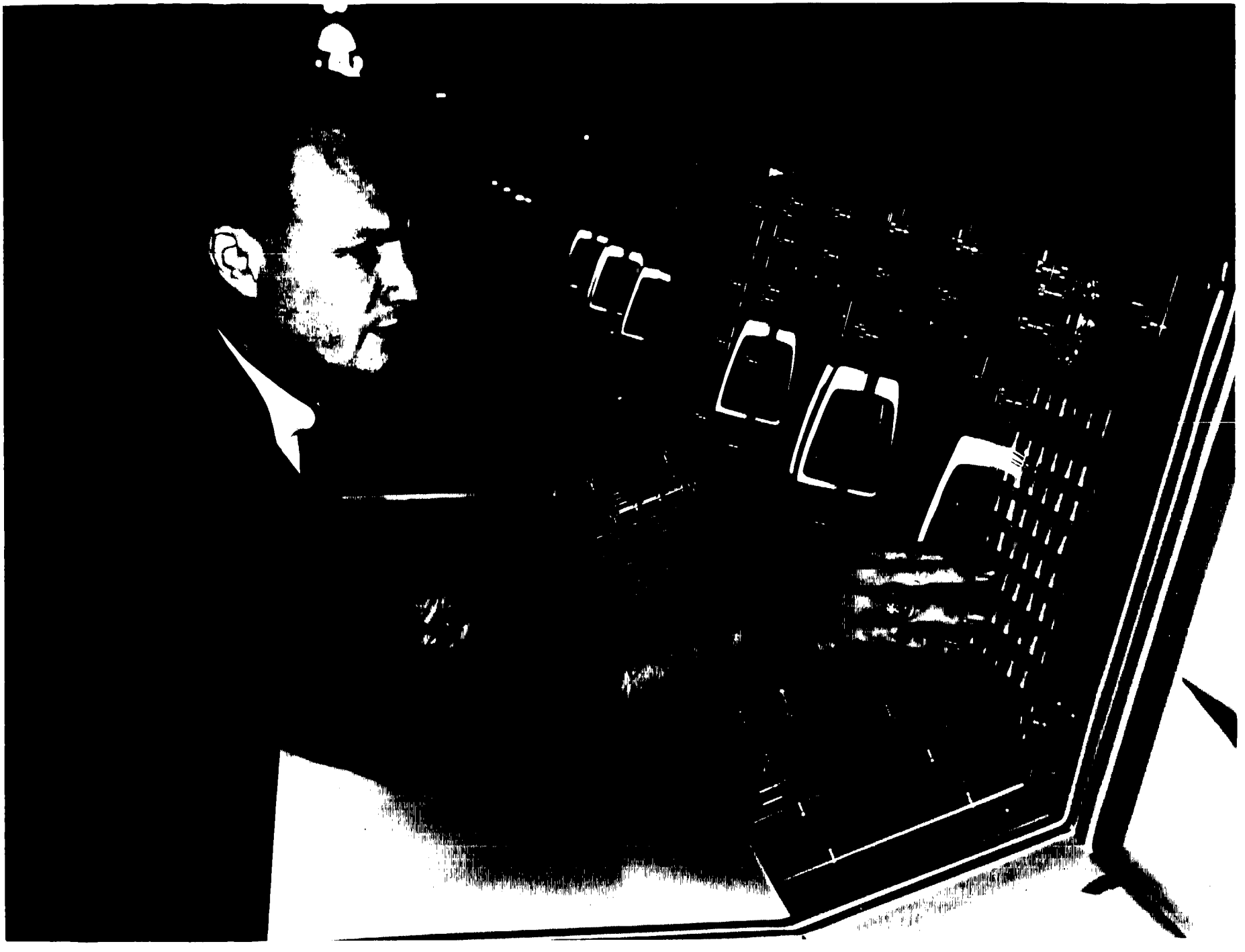
NASA
S-64-37381



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S-64-37385

NASA
S-64-37382

NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER

Houston 1, Texas

MSC - 64 - 181

NASA SPACEMOBILE TO BE SCHEDULED IN KANSAS

HOUSTON, TEXAS--- The Spacemobile, a traveling educational unit of the National Aeronautics and Space Administration, will again be scheduled in the school systems of Kansas. Eugene E. Horton, Chief of Educational Programs for the Manned Spacecraft Center, announced the availability of the unit from March 1 through May 28, 1965.

The scheduling of the Spacemobile in Kansas is accomplished through the State Department of Education. Mr. Warren Bell, Consultant of Science and Mathematics, is now in the process of planning the itinerary. Last year, approximately 40,000 students and teachers attended the space-science demonstration in Kansas.

Mr. Bell has requested that all administrators or teachers interested in scheduling the Spacemobile in their schools this year contact him at his office in Topeka.

A Spacemobile is not used for exhibit purposes, but is presented as a lecture-demonstration. These demonstrations are given by experienced science educators who are authoritatively informed on the activities of the National Aeronautics and Space Administration.

The first Spacemobile began meeting commitments in the Spring of 1961. Later, additional units were placed into operation to meet the ever-increasing demand. At the present time, the NASA operates over 20 Spacemobiles in the United States.

On the average, the Spacemobile lecturers will talk to about 400,000 people per month. It has also been estimated that between 800,000 and 1,000,000 persons will view a Spacemobile lecturer each month on television both educational and commercial.

While the majority of Spacemobile appearances are in the elementary and secondary schools, they make frequent visits to the campuses of our colleges and universities. They participate in teacher education through symposia, institutes, and workshops which may be of one-day to three-weeks duration.

This past summer, the Spacemobile resource personnel were scheduled at workshops conducted at the Fort Hays Kansas State College, Hays; Friends University, Wichita; Kansas State College of Pittsburg, Pittsburg; Kansas State Teachers College, Emporia; and the Southwestern College, Winfield.

-NASA-

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER

Houston 1, Texas

HUnter 3-4231

MSC 64-182
November 20, 1964

HOUSTON, TEXAS -- Texas Governor John Connally will visit MSC Monday, November 23, to address an MSC-sponsored educational conference.

The following information is provided for your convenience.

Because of the Governor's visit schedule, the regular Monday morning briefing has been rescheduled for 3:00 p.m. Monday.

The Governor is expected to arrive at Ellington AFB at 10:30 a.m. MSC will provide transportation for news media representatives to and from EAFB for their convenience. Those desiring to avail themselves of this service should be at MSC, Bldg. 1 no later than 10:00 a.m.

The Governor will be met upon arrival by Dr. Gilruth, MSC Director.

The motorcade from EAFB is expected to arrive back at MSC about 10:45 a.m.

Following his arrival at MSC, the Governor will visit the Gemini Procedures Trainer in Building 4, and then visit the large space environment chamber.

He will then return to the Auditorium and address the assembled educators at 11:45 a.m.

Following his address, he will have lunch with the MSC senior staff in the Cafeteria.

NOTE: We can accommodate about 12 newsmen in MSC-provided transportation.

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NATIONAL AERONAUTICS AND SPACE ADMINISTRAT
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1, Tex
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MSC 64-183
November 30, 1964

HOUSTON, TEXAS -- A U.S. Army helicopter began tests today in Tulsa, Oklahoma, to determine how best to handle an outsize space-age cargo of more than two tons.

The cargo is a mock-up of the adapter section -- or casing -- which will house the Lunar Excursion Module (LEM) aboard NASA's giant Saturn V launch vehicle during the first phase of America's manned flights to the moon. It is manufactured by North American Aviation, Inc., in Tulsa, for the National Aeronautics and Space Administration.

Part of the Apollo spacecraft, the metal adapter section is 28 feet long, with a diameter of 13 feet at one end, and nearly 22 feet at the other. With its helicopter transportation gear, it weighs abou 4,700 pounds.

The load will be lifted by an Army CH-47A (Chinook) helicopter using a 25-foot cable. Because the adapter section is cone-shaped like an airfoil, it will trail below and behind the rotorcraft, narrow end forward, providing its own lift.

Two helicopter crews, provided by the Army's Transportation Corp and a ground crew from North American, will train for two days at Tul

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[illegible] national [illegible] between 1,000 and 2,00[illegible] feet at speeds between 30 [illegible] miles an hour.

If first-phase testing is successful, the Chinook will tow the LEM adapter mock-up to Cape Kennedy, Florida.

The Army, in support of NASA's Manned Spacecraft Center, Houston, Texas, coordinated its testing with the Office of the Chief of Transportation, Department of the Army. Aircraft and crews are supplied by the Continental Army Command, Fort Monroe, Virginia, and pre-flight testing operations were conducted by the Army Materiel Command.

The first production model LEM adapter section is scheduled to be transported by the Army from Tulsa to NASA's Marshall Space Flight Center, Huntsville, Alabama, for ground testing in early 1965.

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Educational News from the

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS 77058

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64-185
November 24, 1964
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HUnter 3-4431
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64-2

HOUSTON, TEXAS -- More than 100 noted university educators met at the Manned Spacecraft Center November 22-24 to attend a Conference for Summer Session Administrators. The Conference was sponsored jointly by the National Aeronautics and Space Administration in cooperation with the University of Colorado, to provide an opportunity for the educators to learn more about the Nation's space program and confer together about ways to incorporate new space science developments and knowledge into the curricula of university study courses.

At the Sunday afternoon opening session, conference participants were welcomed by Paul Haney, MSC Public Affairs Officer, and James V. Bernardo, Director of the NASA Headquarters Educational Programs and Services Office. Paul E. Purser, Special Assistant to the Director of MSC, extended greetings to the group at the Sunday dinner session and introduced Breene M. Kerr,

(MORE)

Deputy Assistant Administrator of the Office of Technology Utilization at the NASA Headquarters, who gave the keynote address on "Maximizing the Nation's Return on Research and Development."

In his address to the educators, Kerr told how NASA, through its Technology Utilization Program, is making an intensive effort to identify new products, new processes, and useful innovations as they appear in space research centers and make them generally known and available for use throughout the industrial community. He stressed the role which university "information centers" can play in the useful transfer of space technology to the civilian economy. One means of accomplishing this, according to him, is by comparing profiles of industrial or consumer needs against reports of newly-developed technology and making knowledge of applicable technology available where it can be utilized.

Mr. Kerr is a son of the late Senator Robert S. Kerr, who served as Chairman of the U.S. Senate Committee on Aeronautical and Space Sciences until his death in January, 1963.

Highlight of the Monday session was an address by Governor John B. Connally, who welcomed out-of-state conferees to Texas and commended the educational leaders and NASA officials for their foresight and initiative in seeking ways to improve education in scientific and engineering fields. He stated, "We should all recognize that this Nation cannot be first in the leadership of the world and second in the exploration of space ... In this age, it is not the might of weapons which will decide the course of civilization, it is the might of the mind ... Education has a strong and responsible role in assuring the conquest of new space frontiers."

The Monday evening dinner speech was by Astronaut Edwin E. Aldrin with Dr. William A. Owens, Director of Summer Sessions at Columbia University and President of the Association of University Summer Sessions, presiding.

(MORE)

Throughout Monday morning the conference participants had heard a discussion of the Manned Spacecraft Center's programs by Paul E. Purser, and had listened to speeches by Robert O. Piland, Deputy Manager of the Apollo Spacecraft Program Office; Wesley L. Hjornevik, Assistant Director for Administration, who discussed the relationship of MSC to colleges and universities; Dr. A. D. Catterson, Assistant to Chief of Center Medical Programs; and John A. O'Keefe, Goddard Space Flight Center, who spoke on "What We Know About the Surface of the Moon." The visiting educators toured MSC facilities Monday afternoon.

Work sessions filled most of the final day of the conference. NASA Headquarters personnel discussed the mission of the Educational Programs and Services Office, giving specific attention to university summer programs sponsored by that office and to the service role played by both Headquarters and Space Center educational offices as well as by outside news media. Among the renowned speakers heard during the final session were Dr. Arnold L. King, Vice President of The University of North Carolina; Dr. John R. Little, Dean of Summer Sessions at the University of Colorado, who acted as a co-host of the conference.

Dr. Lee A. DuBridge, President of The California Institute of Technology, concluded the conference with an address on "Space and the Future." He stressed the importance of moon exploration and stated that spacecraft which orbit either around Venus or Mars could add greatly to our knowledge of these planets and answer many questions being asked by geologists, geophysicists, physicists, chemists, and astronomers.

Dr. DuBridge emphasized that solar observations will occupy an important place in future research programs. He stated, "The sun is the source of all life in our solar system and it is the only one of the untold billions of stars

in the universe with which we can come in moderately close contact. It is, therefore, of extraordinarily great interest." He concluded by saying, "The science of astronomy will take on new life when telescopes can be put on space vehicles to make observations high above our earth's atmosphere ... And other instrumentation, including instruments for measuring X-rays, radio waves, and other radiations that do not penetrate our atmosphere, could add much to our present knowledge... The possibility of sending instruments into space has opened up a whole new era of scientific research and this should be uppermost in our minds as we plan present and future space exploration programs."

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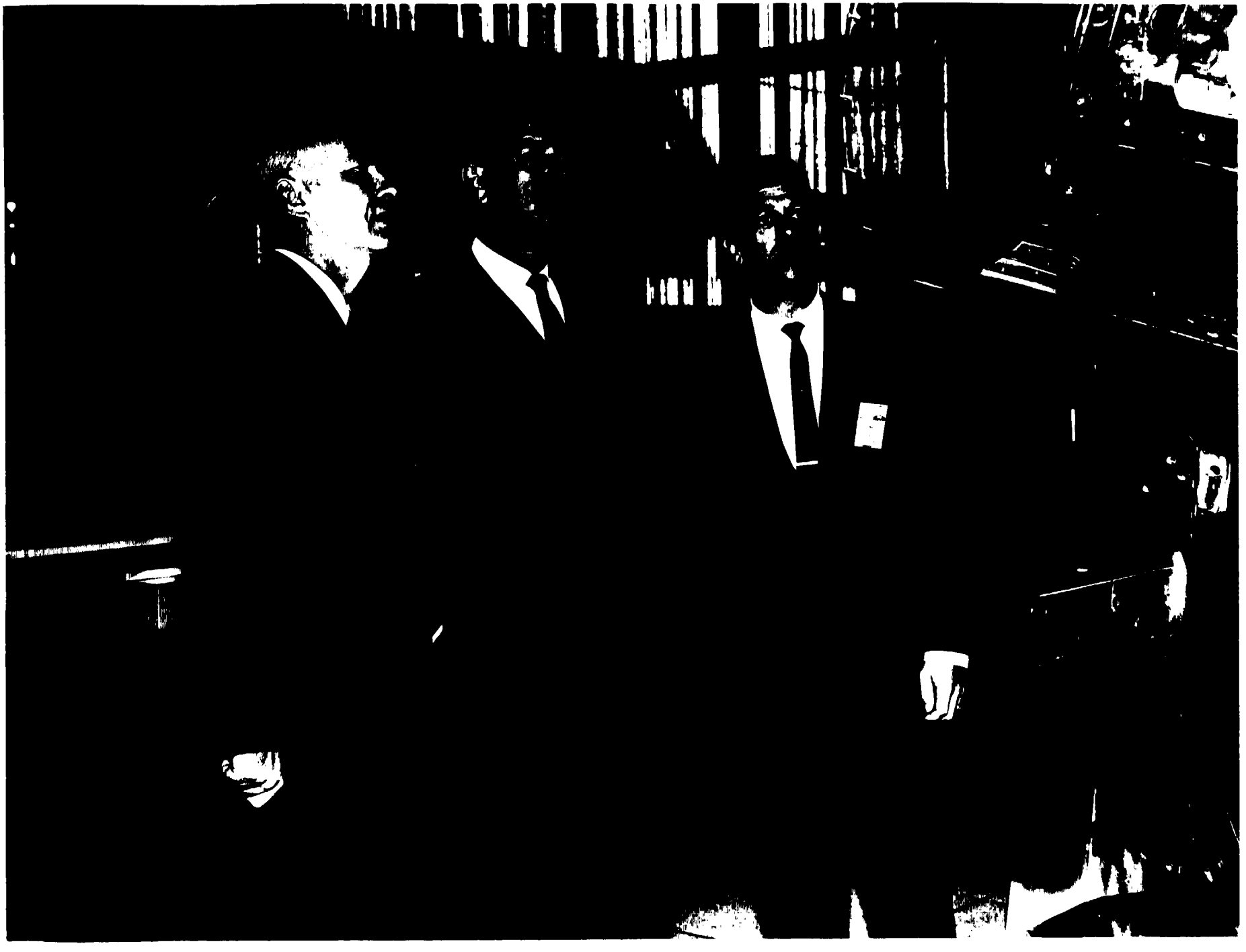

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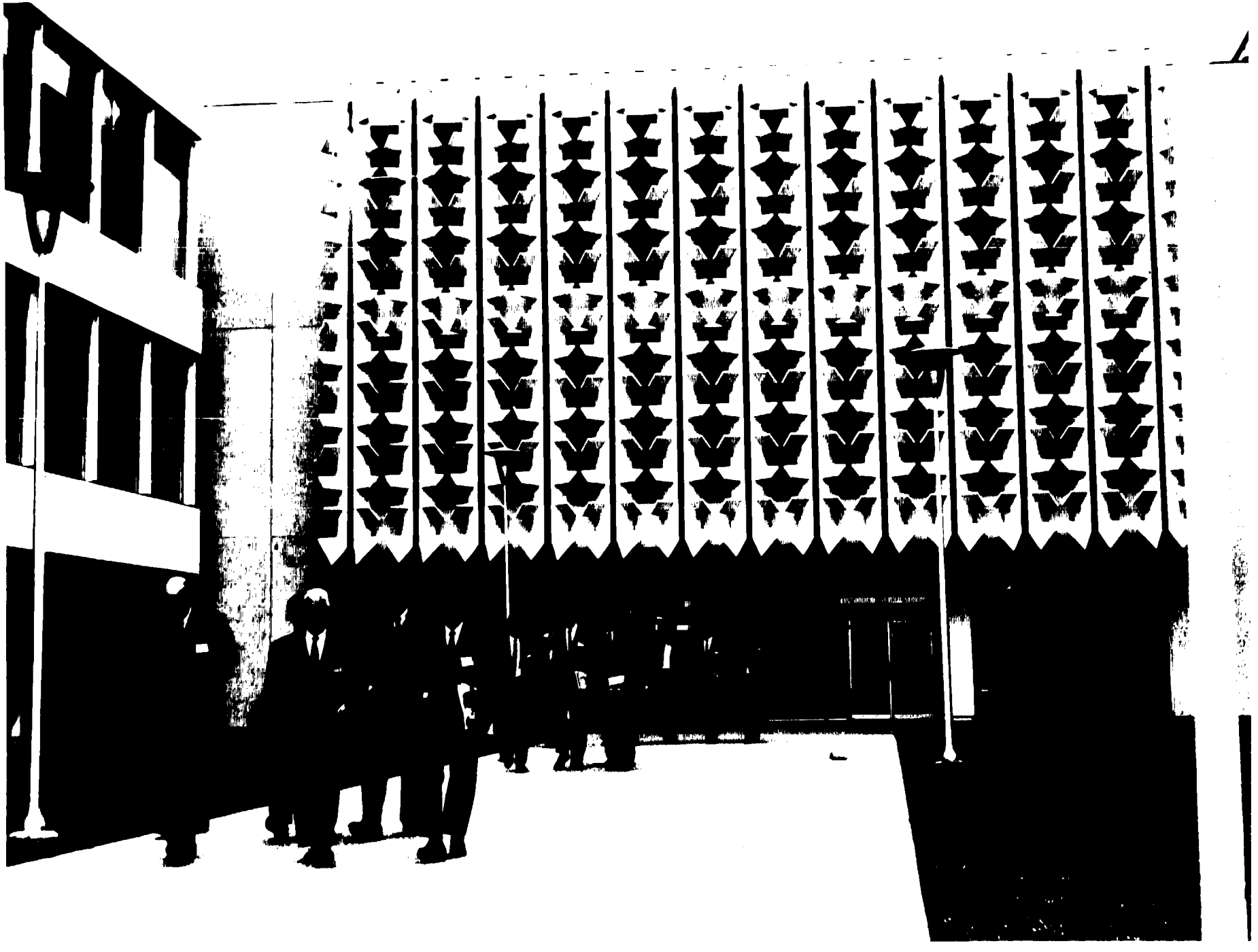

NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER

Houston 1, Texas

HUnter 3-4231

MSC 64-186
December 3, 1964

HOUSTON, TEXAS -- A 25-foot high community Christmas tree will contrast against the space-age buildings of the NASA Manned Spacecraft Center Sunday during a tree lighting ceremony at the Center. The ceremony will be at 6 p.m., and the Sunday afternoon open house, normally from 1 to 5 p.m. Sundays, will be from 3 to 8 p.m. this Sunday only.

Christmas music during the lighting ceremony will be provided by the Clear Creek High School a capella choir. In case of rain, the choir and other participants in the lighting ceremony will move into the Center's auditorium.

The Center's main gate will be open from 6 to 8 p.m. each day through Thursday, December 24 for public viewing of the community tree which is provided by the Clear Lake Junior Chamber of Commerce.

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NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER

Houston 1, Texas

HUnter 3-4231

MSC 64-187
December 4, 1964

CAPE KENNEDY, FLORIDA -- The National Aeronautics and Space Administration will rerun tonight a simulated flight of the upcoming Gemini mission due to discrepancies turned up in ground support equipment in yesterday's simulated run.

Gemini Operations Director Christopher C. Kraft ordered a repeat of the test after an all morning meeting of launch vehicle and spacecraft representatives to evaluate yesterday's test.

Specifically in question was the operation of new equipment sending commands from the Mission Control Center to the spacecraft. Engineers also discovered a small piece of a plastic seal missing in the primary oxidizer lines leading to the booster's first stage. Technicians will check the booster's oxidizer tanks today to make sure the missing piece is not in the launch vehicle. Neither of the items directly involve onboard flight systems.

In general, Kraft said he was satisified with prelaunch operations to date. "With so much new equipment involved in Gemini, you have to expect to find some 'bugs.' We're finding surprisingly few but that's precisely why we go through extensive prelaunch test runs," Kraft said.

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Add 2
MSC 64-187

Evaluations of the rerun of the simulated flight tonight involving all elements of the Gemini team will be a major factor in determining the precise launch day of the mission scheduled sometime next week.

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NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER

Houston 1, Texas

HUnter 3-4231

MSC 64-188
December 7, 1964

HOUSTON, TEXAS -- At 1:00 pm today Gemini Operations Director Christopher Kraft will conduct a mission review of the second Gemini flight scheduled for 9:00 am Wednesday. The review is the major pre-launch activity plan today.

A mission rule review was held at the Mission Control Center late Sunday followed by 3½ hours of prelaunch countdown which was completed early Monday.

Favorable weather conditions are predicted for the GT-2 flight. Fair but cool weather is expected over Florida with winds at less than 10 miles per hour. In the downrange recovery area scattered clouds and moderate winds and seas are predicted. The spacecraft will over-fly two areas of disturbed showery weather on its 2,150 mile flight, including one about 200 miles west of the planned landing area.

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NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER

Houston 1, Texas

HUnter 3-4231

Cape Kennedy, Fla. --- Weather conditions for the GT-2 flight planned for 9:00 am EST Wednesday, December 9, are predicted to be most favorable. Cool and fair weather is expected to continue over Florida with winds of under 10 miles per hour.

In the planned landing area 2,150 statute miles down the eastern test range from the launch site, scattered clouds and moderate seas and winds are expected.

The spacecraft will overfly several disturbed areas, one North East of Cuba and the other several hundred miles North West of the planned impact point.

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NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER

Houston 1, Texas

HUnter 3-4231

MSC 64-189
December 7, 1964

HOUSTON, TEXAS -- The four day Gemini suit comfort test began at 1 p.m. today when test subject Hoyt Maples entered the eight foot pressure chamber at the NASA Manned Spacecraft Center.

Maples is scheduled to stay in the Gemini suit for 96 hours to test its wearibility for longer duration missions. He will emerge from the chamber on Friday afternoon, and be debriefed by medical and engineering personnel from the Crew Systems Division, who are conducting the test.

During the test, Maples will maintain a work-rest cycle of four hours of work, followed by two hours of rest. He will use a task board as a gauge of his mental alertness during the test.

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NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER

Houston 1, Texas

HUnter 3-4231

MSC 64-190
December 7, 1964

HOUSTON, TEXAS -- Gemini 2 Mission Operations Director Christopher C. Kraft, Jr., today pronounced the suborbital test scheduled Wednesday morning as "go" after a detailed 90 minute review of activities.

Kraft got encouraging status reports from seven major elements of the flight test which is to send an unmanned Gemini spacecraft on a 20 minute ride some 2,150 miles east of Cape Kennedy. Reports covered the Mission Control Center, spacecraft, launch vehicle and guidance, launch vehicle and spacecraft interface, range, weather and recovery forces.

Approximately 200 persons attended the session held in the new Operations and Checkout Building on Merritt Island. Among them was Walter C. Williams, Jr., former Mercury Operations Director for NASA and now a Vice President of Aerospace Corp.

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NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER

Houston 1, Texas

HUnter 3-4231

MSC 64-191
December 8, 1964

HOUSTON, TEXAS -- A series of trainers for teaching the nation's astronauts the intricacies of the Apollo lunar mission spacecraft was delivered to the NASA Manned Spacecraft Center here today. Called "Apollo Systems Trainers," the devices were designed and built by the Los Angeles Division of North American Aviation at a cost of $953,024 under terms of the basic Apollo spacecraft contract.

Three of five sections of the trainers were delivered in the first group and the remaining two sections will be delivered after Christmas. The three delivered sections are for the Electrical Power, Stabilization Control and Environmental Control Systems. Still to be delivered are the Propulsion and Sequential systems units.

Each section consists of two or more animated lighted-line schematic display panels which illustrate the circuitry in each system for normal operation and how malfunctions can be bypassed through redundant circuits. Not only will Apollo flight crews receive training on the Systems Trainers, but technicians and maintenance personnel will also be trained for actual spacecraft hardware operation and check-out. Moreover, the trainers will provide information on all

--more--

spacecraft systems changes and how they affect operation, maintenance and check-out by project support groups.

North American Aviation is building the command and service modules of the Apollo spacecraft for NASA, and Grumman Aircraft Engineering Company of Bethpage, N. Y., is building the Lunar Excursion Module -- the portion of the spacecraft designed for the actual manned landing on the moon's surface.

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NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER

Houston 1, Texas

HUnter 3-4231

MSC 64-192
December 8, 1964

HOUSTON, TEXAS -- Hoyt Maples, test subject for the Gemini suit comfort test at the Manned Spacecraft Center, began his second day in the 8 foot pressure chamber here at 1:00 pm today.

Maples is scheduled for a four-day, 96 hour stay in the Gemini suit. He has been eating meals of freeze-dried, dehydrated, and bite sized food in a menu which varies from beef pot roast to a cheese sandwich.

Medical monitors for the test reported that Maples is in excellent condition with no problems either with his suit or his physical condition. During the night, Maples was able to take a six-hour sleep period instead of the scheduled four hours. He was reported back on a four hours of work, and a minimum of four hours of rest schedule this morning.

Maples uses a task board which tests his mental alertness by a series and combination of lights, and switches. He is scheduled to leave the chamber Friday.

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NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER

Houston 1, Texas

HUnter 3-4231

MSC 64-193
December 10, 1964

HOUSTON, TEXAS -- The NASA Manned Spacecraft Center has awarded a $1,900 contract to the Baartol Company, Inc., of Kenton, Ohio, for an 80-foot flagpole. Baartol was low bidder among five firms who submitted bids.

Tentatively planned for installation in the mall area directly in front of the Center's Project Management Building, the flagpole is of two-piece cone-tapered seamless aluminum construction and is stressed for withstanding hurricane-velocity winds of 100 miles per hour.

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NEWS RELEASE
NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
MANNED SPACECRAFT CENTER
Houston 1, Texas

HUnter 3-4231

MSC 64-194
December 21, 1964

HOUSTON, TEXAS -- A down-to-earth piece of lunar landscape is ready for exploration by astronauts and engineers at the Manned Spacecraft Center.

The "moonplot" is a circular area 328 feet in diameter located on the western side of the Center grounds next to the Humble Oil Company's drilling lease.

The simulated moonscape will be used by astronauts for geology training and for determining surface mobility and landing capability on the lunar surface. Engineers can make time and motion studies and evaluate requirements for conducting the lunar surface phase of the Apollo mission.

The area, slightly larger than a football field, is built mainly from blast furnace slag. It is considered an accurate reproduction of how a chunk of lunar terrain of the same area would look. Although the landscape does not represent any particular area on the moon, it does contain lunar features such as craters, ridges, and ejecta material

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The major ridge in the area is 336 feet long and 12 feet high. The largest crater is 64 feet across and 16 feet deep. The smaller crater is 40 feet in diameter and ten feet deep. In addition to the two major craters on the moonplot, there are approximately 75 smaller pits which range from four feet in diameter down to a few inches. Approximately 2,500 tons of slag was used in building the lunar surface.

A mock-up of the Lunar Excursion Module, the section of the Apollo spacecraft which will descend to the lunar surface, will be placed on MSC's lunarscape to provide a test vehicle for the engineering studies.

After landscaping, crater walls for the lunar scene were built from chicken wire and covered with Gunnite, a cementing material. Then the blocks of slag were cemented in place on the walls of the crater.

Dr. Ted H. Foss, acting head of the geology and geochemistry section, drew up the plans for MSC's lunar landscape. According to Foss, the area was designed to present a history of geological events, which could take place on the surface of the moon.

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NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER

Houston 1, Texas

HUnter 3-4231

MSC 64-195

December 16, 1964

HOUSTON, TEXAS -- More than 900 persons have applied or indicated interest in the scientist-astronaut program for future National Aeronautics and Space Administration manned space flights.

The recruiting program, which started in mid-October, closes December 31. So far, the NASA Manned Spacecraft Center has been receiving applications at a rate of approximately 20 per day.

Applications received by NASA ranged through every discipline in the fields of natural science, medicine, and engineering. NASA will select 10 to 20 scientist-astronauts from these applications to begin training in 1965.

Although applications are encouraged from all fields, MSC officials have expressed a particular interest in receiving additional inquiries from the geological sciences.

About 200 of the 900 persons who applied or indicated interest have been termed ineligible. Most of the ineligibles were ruled out for not meeting physical requirements of eyesight, age and height, or not meeting citizenship requirements.

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Visual requirements called for 20/20 uncorrected vision in both eyes. Each applicant is required to pass a Class I military flight status physical that prohibits the wearing of glasses.

Pressure suit helmets worn in space flight cannot accommodate glasses and the wearing of contact lenses is impractical in space flight.

The National Academy of Sciences will review all applications by early spring 1965, and make its recommendations to NASA.

After the final selection of the scientist-astronauts, those who are not already qualified pilots will be given flight training in high performance jet aircraft and helicopters. At the end of flight training, there will be a refresher period in the research and academic fields of each selectee.

The requirements for the scientist-astronaut candidate program, which were announced in October, are as follows:

1. Have been born on or after August 1, 1930; be a citizen of the United States; and be no taller than 6 feet.

2. Have (a) a bachelor's degree, (b) a doctorate in the natural sciences, medicine, or engineering, or the equivalent in experience.

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3. Send transcripts of academic records to Scientist-Astronaut, P. O. Box 2201, Houston, Texas, 77058, from all institutions of higher education which he has attended.

4. Send scores of the aptitude and advanced tests of the graduate record examination by Educational Testing Service, Princeton, New Jersey, to Scientist-Astronaut at the Houston address above. NOTE: Examinations will be given January 16, 1965. Completed applications and examination fee must reach Educational Testing Service by December 31, 1964. In the event that an applicant has not taken graduate record examinations and plans to take the January 16 examination (he should note on his application) scores from that examination will be forwarded to Scientist-Astronaut, Houston, by the Educational Testing Service.

5. Submit a Standard Form 57, Federal Employment Application Form, available at any U.S. Post Office.

6. Submit Standard Form 78, Certification of Medical Examination, and a Standard Form 89, Report of Medical History. These forms are available from the below-listed address.

All applicants should address their applications, postmarked no later than midnight, December 31, 1964, to Scientist-Astronaut, P. O. Box 2201, Houston, Texas 77058. Military applicants should apply in accordance with instructions of their respective services.

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NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER

Houston 1, Texas

HUnter 3-4231

MSC 64-196
December 16, 1964

HOUSTON, TEXAS -- The NASA Manned Spacecraft Center is asking for competitive bids for two separate electronics service and technical support contracts for work to be done at several of the Center's shops and laboratories. Preposal conferences for prospective bidders are being held in the Center auditorium at 9 a.m. on two successive days, today and Thursday, December 16-17.

One contract will cover technical support for the following laboratories of the Instrumentation and Electronic Systems Division: antenna range, anechoic chamber and optical communication range, standards and calibration laboratory and the instrumentation, communications and power distribution laboratory. Laboratories within the Information Systems Division which will come under the contract are: electronic systems compatibility laboratory and data systems development laboratory. Areas within the Guidance and Control Division are: simulation laboratory, optical-inertial laboratory, systems dynamics laboratory, and guidance and control electronics laboratory.

Add 1
MSC 64-196

Laboratories of the Advanced Spacecraft Technology Division are the radiation and fields laboratory, geochemical laboratory, and the light-gas-gun laboratory.

The contractor for this contract will furnish personnel, equipment, material and facilities necessary for supporting the work done in the laboratories listed above. Initial period of the contract will be one year, with four possible yearly renewals for a total of five years. The type of fee arrangement for the contract will be determined in negotiations.

The second contract will cover the overhaul, repair and fabrication of electronic equipment and devices in the Technical Services Division central electronic shop. Competition for this contract is limited to small business firms. Typical equipment for overhaul and repair includes oscilloscopes, analyzers, transmitters and receivers, radar, telemetry packages, accelerometers, amplifiers, recorders and various types of electro-mechanical devices.

Fabrication work by the successful bidder would include building devices such as events totalizers, strain gauges, semiconductor

devices, optical devices such as masers and lasers, and general cable harnesses fabricated to NASA specifications.

The initial cost-plus-fixed fee contract will be for the period of February 1, 1965 through June 30, 1965, with a renewal option for one year.

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NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER

Houston 1, Texas

HUnter 3-4231

MSC 64-197

Released 12-18-64

TULSA, OKLAHOMA -- A powerful Army helicopter departed for Cape Kennedy, Florida, today with a 4,700-pound dummy interstage section of the huge Saturn V/Apollo space vehicle -- destined to place American astronauts on the moon by 1970. The mock-up section, a 28-foot adapter casing to house the Apollo lunar excursion module (LEM), had been towed in tests in the Tulsa area by the Army's CH-47A (Chinook) helicopter.

The flight to Cape Kennedy will include overnight stops at Columbus AFB, Mississippi, and the Naval Air Station at Jacksonville, Florida, and intermediate landings at Little Rock AFB, Arkansas, and Lawson Army Air Field, Fort Benning, Georgia.

The adapter section, manufactured for the National Aeronautics and Space Administration by North American Aviation, Inc., at Tulsa, is to house the LEM in an interstage atop the giant Saturn V launch vehicle. The LEM is designed to land two astronauts on the moon and return them to their Apollo command module which will orbit the moon during their stay on the lunar surface.

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Add 1
MSC 64-197

The first production version of the adapter will be transported from Tulsa to NASA's Marshall Space Flight Center, Huntsville, Alabama, early in 1965.

The Army is transporting the outsize adapters for NASA's Manned Spacecraft Center at Houston, Texas, by arrangement with the Office of the Chief of Transportation, Department of the Army.

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NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER

Houston 1, Texas

HUnter 3-4231

MSC 64-198

Dec. 29, 1964

MERRITT ISLAND, FLORIDA -- A team of helicopters today delivered the first dummy Apollo spacecraft adapter to Manned Spacecraft Center-Florida Operations at Merritt Island.

The conical-shaped unit structurally simulates the adapter section that will house the Apollo lunar excursion module (LEM) on its trip to the moon. Upon arrival, it was transferred by crane to a special flatbed trailer and moved to the Pyrotechnic Installation facility in the Merritt Island industrial area.

The 4,700 pound, 28-foot tall unit made the cross-country trip from Tulsa, Oklahoma to Merritt Island in just over 36 hours, slung under an Army CH47A helicopter. A second helicopter provided inflight visual checks, served as a backup carrier, and supplied landing directions for the primary carrier. Three refueling stops were scheduled enroute.

Because of the size of the adapter unit -- 22 feet in diameter at the base -- transportation by road, water, rail or even the modified "pregnant guppy" airplane used to deliver spacecraft modules to the Cape, proved impractical. NASA studies showed the helicopter method to be more practical and more economical.

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Add 1
MSC 64-198

This adapter mock-up will not go on a lunar mission, but will go to the launch pad frequently as part of prelaunch checks. Using this model of actual flight-ready adapters, Manned Spacecraft Center-Florida Operations will conduct tests to determine whether the mechanical fit is adequate, if sufficient access is provided to perform service and checkout of the LEM, and to determine its compatibility with test facilities and ground handling equipment.

The adapter simulator will be tested first for weight distribution and center of gravity. It will later be brought to the Manned Spacecraft Operations building where it will be placed in the integrated systems test stand for fit checks.

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NEWS RELEASE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

MANNED SPACECRAFT CENTER

Houston 1, Texas

HUnter 3-4231

MSC 64-199
December 18, 1964

MERRITT ISLAND, FLORIDA -- An old Texas oil hand might have executed a fast double-take if he had seen the high wire activities going on at Cape Kennedy's Gemini Launch Complex 19 last week.

Borrowing from an emergency "slide wire" rescue technique long used in oil fields to bring roughnecks down out of high rigs in case of fire, personnel from MSC-Florida Operations and McDonnell Aircraft Corporation began a series of tests and training exercises for emergency evacuation of astronauts and launch site personnel from the 100-foot high service structure "white room" at Complex 19.

The slide system uses a galvanized steel cable 5/8 inch in diameter which extends downward at an angle from the 118-foot level of the pad's service structure. The cable, which will support 23,000 pounds, is secured at ground level by two 8-foot anchors imbedded in 30 inches of concrete.

On the tower, the cable is supported by an anchor consisting of a 5/8-inch steel plate welded on a 6-inch tubular steel member. In case of breakage at the two anchor points, a redundant or back-up cable at the end points has been provided at both ends.

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Here's how it works: the individual steps into and adjusts the harness, and grasping the hand brake which provides control of downward speed, starts his fast descent to the ground. As he approaches the ground, the brake is applied and the subject steps out of the harness.

The results of the slide tests revealed that one person could reach ground level 500 feet away in 18 seconds. The wire can accommodate a maximum of three people at one time. The test also determined that 20 people could be evacuated in 5 minutes.

The Gemini team at Complex 19 hopes that they will never have to use the egress system, but, in keeping with the basic philosophy of this nation's space program, they realize that safety of the individual is paramount and every precaution must be taken.

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NASA Headquarters Release [illegible]
Dec. 4, 1964

Elements of the National Aeronautics and Space Administration's manned space flight organization will be realigned to meet the requirements imposed by concurrent Gemini and Apollo launch schedules, the agency announced today.

Dr. George E. Mueller, Associate Administrator for Manned Space Flight, said the key organizational changes effective January 1, 1965, are:

1. Creation of a new position, Mission Operations Director, Office of Manned Space Flight (NASA Headquarters, Washington), to which E. E. Christensen has been appointed. This position replaces the position of Deputy Associate Administrator for Manned Space Flight Operations, which has been vacant since Dr. Walter C. Williams resigned April 24, 1964, to join the Aerospace Corporation.

2. Creation of two Mission Director positions. The Mission Directors, reporting to the Mission Operations Director, will work from Washington, and will have overall responsibility for the mission to which they are assigned.

3. Creation of an Operations Support Requirements Office (OSRO) in the Office of Mission Operations. Program requirements for support of manned space flight operations will be reviewed, coordinated, and transmitted through this office to other NASA offices and centers, and to the Department of Defense and other government agencies. Porter Brown, now head of the Manned Spacecraft Center's Operations Support, Plans and Programs Office at the Kennedy Space Center, will become director of OSRO. The Operations Support Requirements Office will provide a single channel and point of contact for support requirements submissions; however, the details which must be worked out within the agency and the Department of Defense on a day-to-day basis during implementation of support of manned launches will continue to be handled at the operating levels.

4. Transfer of the Manned Spacecraft Center's Florida Operations to the Kennedy Space Center and establishment of the position of Director Launch Operations. The transfer of the MSC group will place the responsibility for assembly, checkout, and launch of the total Apollo space vehicle with a single organization. Dr. Kurt H. Debus is the director of NASA's Kennedy Space Center and Albert F. Siepert is the Center Deputy Director. Under the revised organization, Dr. Debus will also act as the director, launch operations, and G. Merritt Preston, who has supervised the MSC Florida Operations, will become the Deputy Director, Launch Operations. Within the launch operations area, three operating elements will be headed by assistant center directors: Launch Vehicle Operations by Dr. Hans F. Gruene; Spacecraft Operations by John J. Williams and Information Systems by Karl Sendler.

In addition, the new positions of Director, Plans, Programs and Resources and Assistant Director for Support Operations filled by Lt. Col. Rocco A. Petrone and Lt. Col. Raymond L. Clark, respectively, relate to the former positions of Assistant Director for Program Management and Assistant Director for Technical Support Operations. The post of Assistant Director for Administration will be filled by George E. Van Staden, effective January 4, 1965. As a final realignment the Launch Support Equipment Engineering Division and the Facilities Engineering and Construction Division will report to the new position of Assistant Director for Engineering and Development. Col. Aldo H. Bagnulo will act in this position, in addition to his heading the Facilities Engineering and Construction Division.

"The realignment provides for the efficient carrying out of launches in the upcoming manned space flight missions," Dr. Mueller said "Organizational responsibilities and relationships between the NASA Centers and Offices directing, managing, and supporting the manned flight effort are simplified and strengthened."