Lunar Receiving Lab Construction Negotiated

Warrior Constructors, Inc. of Houston was selected by NASA for final negotiations of a contract to complete construction and equip a Lunar Receiving Laboratory at MSC.

The cost-plus-incentive award fee contract is estimated to be approximately $3.5 million. The contract will be executed when funds are made available to the Center.

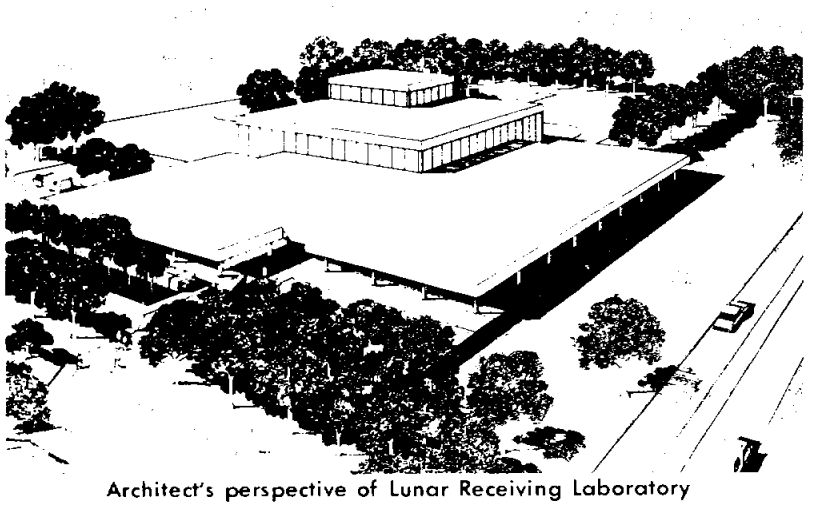
The work, to be completed by the end of 1967, will include pouring floors; installation of interior partitioning, utilities, electrical systems, heating and air conditioning systems; installation and checkout of laboratory equipment consisting of vacuum systems, cabinets for scientific equipment to conduct physical, chemical and biological examination of materials from the lunar surface and low-level radiation counting equipment.

A separate fixed-price contract will be let soon for the foundation, basic utilities, structural steel and exterior structural shell of the building.

The Lunar Receiving Laboratory will provide a central complex where samples of lunar surface material collected by Apollo crews will be received, quarantined, examined and later processed for distribution to the scientific community for thorough study and analysis. It also will be equipped to quarantine the spacecraft and crew after the flight to the moon. The structure will have 84,000 square feet of floor space.

The construction contract does not include specialized scientific instrumentation and equipment which will be purchased separately. Total cost of the laboratory is estimated at $8 million.

CHALKTALK—Gemini X pilot Michael Collins resorts to chalk and blackboard to illustrate his extravehicular adventures. Collins and Gemini X command pilot John Young described the flight to newsmen at a press conference August 1. NASA Deputy Administrator Dr. Robert C. Seamans a few minutes earlier presented NASA Exceptional Service Medals to the crew.



Architect's perspective of Lunar Receiving Laboratory

Space News ROUNDUP!

VOL. 5, NO. 21 MANNED SPACECRAFT CENTER, HOUSTON, TEXAS AUGUST 5, 1966

Gemini X Flawlessly Makes Deepest Venture Into Space

Gemini X's "way-out" crew John Young and Michael Collins Monday received the NASA Exceptional Service Medal at a combined awards ceremony and press conference in the MSC Auditorium. In presenting the medals, NASA Deputy Administrator Dr. Robert C. Seamans cited Young and Collins for using the Gemini X Agena's propulsion to "venture farther into space than any men have to date."

"We've done a great deal more with Gemini than we originally intended," said Seamans. "Gemini has done more to open the way to the moon than we could have hoped for five years ago . . . With Gemini we've developed our ability to maneuver in space, to rendezvous and dock, and to use the power of an orbiting rocket as a switch engine in space . . . Gemini has enabled crewmen to demonstrate their ability to function effectively in and out of their spacecraft."

MSC Director Dr. Robert Gilruth added his praise to the organizations responsible for the success of Gemini X. "The Gemini X flight was by far the most complex mission to date in the Gemini series," said Gilruth. "Integration of the ground, space equipment, men and programs were pushed to a new level in this operation. In the Gemini X flight all worked virtually without a flaw. I'm proud of the entire government-industry team. Proud of the equipment, the launch vehicle, the spacecraft, the Atlas, the Agena, the EVA equipment, the ground net, and the whole effort."

Gemini X command pilot John Young said of the mission: "It was an ambitious flight plan and we knew that, too. I've always

(Continued on page 2)

Gemini XI, Apollo 202 Cape Tests Underway

Pre-launch preparations this week at Kennedy Space Center for the Gemini XI and Apollo/Saturn 202 missions were hewing close to schedule, and flight controllers began flight simulations for the A/S 202 in the second floor control room of Mission Control Center-Houston.

Gemini spacecraft XI and the launch vehicle underwent premate verification tests in preparation for mating operations at KSC Launch Complex 19. The Atlas Standard Launch Vehicle for launching the Agena rendezvous vehicle was erected on Launch Complex 14 on July 28 and went into subsystems tests as a prelude to combined interface tests with the Agena. Testing, at *Roundup* press time, was proceding smoothly.

A three-day countdown demonstration of A/S 202 began early this week and the mission flight readiness review is scheduled for next week.

Apollo Spacecraft 012 this week underwent the final phases of an environmental control system checkout, and shipment of the 012 Service Module to Kennedy Space Center is expected in the immediate future.

A/S 202 flight simulations scheduled this week in Mission Control Center included launch and network simulations, and support of the three-day countdown at KSC.

AUGUST 20 LAUNCH—

Apollo 202 Tests Ablative Shield In High-Heat Reentry Condition

The third unmanned Apollo/uprated Saturn I mission (AS 202) will be launched no earlier than August 20.

The Apollo spacecraft and uprated Saturn I vehicle will undergo additional tests during an 18,000 statute mile suborbital flight to verify the systems for manned earth orbital missions. Duration of the mission will be about 94 minutes.

The space vehicle will be launched from Launch Complex 34 at Cape Kennedy, Florida. After the spacecraft and Saturn vehicle separate, the service propulsion system will boost the spacecraft to a peak altitude of about 750 statute miles over South Africa. A long duration reentry over the Pacific Ocean is planned to test the ablative heat shield under high heat loads of approximately 20,000 BTU/square foot. The spacecraft will be recovered about 300 miles southeast of Wake Island.

The second successful unmanned Apollo/uprated Saturn I mission (AS 203) on July 5 verifies the design and operation of the hydrogen fueled SIVB Saturn stage for its role as the third stage of Saturn V, the launch vehicle for Apollo manned lunar landing missions. All mission objectives were achieved.

Engineering tests, which included real time observations of the fuel, proved that liquid hydrogen can be properly managed to restart the 200,000 pound thrust J2 engine during earth orbital flight.

The breakup of the stage in orbit after completion of all tests had no effect on the mission. This resulted from a planned structural test of the common bulkhead between the liquid hydrogen and liquid oxygen propellant tanks. Pressure readings proved that the structure would withstand pressure differentials more than three times greater than normal operating conditions which further verified the stage design. A similar bulkhead pressure test is planned during the next Apollo/Saturn mission after the second stage and spacecraft are separated.

The Saturn I Program has a record of 100 percent successful flight missions, ten in the basic Saturn I Program and the two uprated Saturn I missions this year (February 26 and July 5).

Three Federal Salary/Benefit Bills Reflected in Today's Pay Checks

Three major bills affecting federal employees have recently been enacted. The Federal Salary and Fringe Benefits Act of 1966, signed July 18th; Public Law 89-519, providing for increased moving allowances, signed July 21st; and, Public Law 89-448, improving benefits for employees (and their dependents) who suffer job-connected illness or injuries, signed July 4th.

Principal features of these bills are as follows:

FEDERAL SALARY AND FRINGE BENEFITS ACT

1. A salary increase of 2.9% for Class Act employees in grades GS 1-15 and an average increase of 1.5% for GS-16's and above. The Civil Service Commission also increased special salary rates for scientists and engineers, grades GS-5 through GS-11, medical officers, grades GS-11 through GS-15, and accountants, GS-5 through GS-9, in line with the general increase. Both increases were effective July 3 for MSC employees. The increased salary rate (plus retroactive pay for the pay period ending July 16) will be reflected in the pay checks issued today.

2. Overtime pay for classified employees (except employees engaged in professional or technical engineering or scientific activities, and other employees whose basic compensation exceeds the minimum rate of GS-10, who are assigned to "first forty" hour tours of duty) required to work in excess of the regular 8 hour day. This provision became effective July 31.

3. Maximum overtime rate raised to the minimum rate of the GS-10. (Overtime rate $6.08 per hour.) This provision became effective July 31.

4. Increased government contributions to Federal Health Benefits Program: For single employees from $1.30 to $1.68 biweekly, and for family coverage, $3.12 to $4.10 biweekly. The maximum age limit for coverage of a dependent child was changed from 20 to 21. This provision became effective July 31.

5. A 25% Sunday differential. This applies only to regularly scheduled Sunday work which is not overtime. This provision became effective on July 31.

6. Retirement on full annuity at age 55 after 30 years service, and at age 60 after 20 years.

7. Higher allowances for employees required to wear uniforms on the job. (For MSC employees, allowance will increase from $100 to $125 per year.)

PUBLIC LAW 89-519

Public Law 89-519 provides for increased moving allowances for employees transferring within, or to other Federal agencies. Basic provisions are:

1. Increases maximum allowance for movement of household goods from 7,000 to 11,000 pounds for employees with immediate family. No change for employees without immediate family.

2. Per diem allowance for members of immediate family while enroute between stations.

3. Per diem and transportation for employee and spouse to make one round trip to seek permanent quarters at new residence. Time allowable not to exceed six days including travel.

4. Subsistence expenses while occupying temporary quarters not to exceed 30 days.

5. Reimbursement of expense of sale of residence (or the settlement of unexpired lease) and purchase of new residence.

6. Nontemporary storage of household goods if duty station at isolated location in continental United States, excluding Alaska.

7. Persons separated by reason of reduction in force or transfer of function and reemployed by a nontemporary appointment at different geographical location within one year from date of separation may receive benefits of items one through six above.

8. Payment of a cash allowance to cover miscellaneous expenses in an amount not to exceed two weeks' basic compensation if he has an immediate family; or, if he does not have an immediate family, an amount not to exceed one week's basic compensation. Such amounts will not exceed amounts determined from the maximum rate of grade GS-13.

9. Reimbursement of above provisions subject to employee signing agreement to remain in Government service for one year following transfer. Section has provisions for full recovery if agreement violated.

Details of provisions and restrictions on per diem rates will be issued by the Bureau of Budget within 60 days to be retroactive to July 21, 1966. Further details will be published as they become available.

PUBLIC LAW 89-488

Public Law 89-488 amends the Federal Employees Compensation Act providing for improved benefits for employees (and their dependents) who suffer personal injuries in the performance of official duty. Principal changes are:

1. The maximum monthly compensation allowance has been raised from $525 a month to 75% of the top step of grade GS-15 ($1438).

2. The amount payable to attendants for persons requiring the full-time services of such persons has been increased from $125 to $300 a month.

3. Compensation received by a dependent child will be continued beyond the former cutoff age of 18, as long as the child is a full-time student, up to the age of 23.

M$C Days Net Valuable Haul

Wasteniks around the MSC campus were ferreted out during the recently-completed M$C Days when $20,000 worth of furniture and office equipment was turned in and 300 boxes of miscellaneous supplies and equipment were returned to stock.

MSC management extends its appreciation for the support given by employees to this campaign to round up the taxpayer's idle supplies and put them to work.

ANNUAL SALARY RATES BY GRADES AND STEPS
FEDERAL SALARY AND FRINGE BENEFITS ACT OF 1966

GRADE	1	2	3	4	5	6	7	8	9	10
GS-1	$ 3,609	$ 3,731	$ 3,853	$ 3,975	$ 4,097	$ 4,219	$ 4,341	$ 4,463	$ 4,585	$ 4,707
GS-2	3,925	4,058	4,191	4,324	4,457	4,590	4,723	4,856	4,989	5,122
GS-3	4,269	4,413	4,557	4,701	4,845	4,989	5,133	5,277	5,421	5,565
GS-4	4,776	4,936	5,096	5,256	5,416	5,576	5,736	5,896	6,056	6,216
GS-5	5,331	5,507	5,683	5,859	6,035	6,211	6,387	6,563	6,739	6,915
GS-6	5,867	6,065	6,263	6,461	6,659	6,857	7,055	7,253	7,451	7,649
GS-7	6,451	6,664	6,877	7,090	7,303	7,516	7,729	7,942	8,155	8,368
GS-8	7,068	7,303	7,538	7,773	8,008	8,243	8,478	8,713	8,948	9,183
GS-9	7,696	7,957	8,218	8,479	8,740	9,001	9,262	9,523	9,784	10,045
GS-10	8,421	8,709	8,997	9,285	9,573	9,861	10,149	10,437	10,725	11,013
GS-11	9,221	9,536	9,851	10,166	10,481	10,796	11,111	11,426	11,741	12,056
GS-12	10,927	11,306	11,685	12,064	12,443	12,822	13,201	13,580	13,959	14,338
GS-13	12,873	13,321	13,769	14,217	14,665	15,113	15,561	16,009	16,457	16,905
GS-14	15,106	15,629	16,152	16,675	17,198	17,721	18,244	18,767	19,290	19,813
GS-15	17,550	18,157	18,764	19,371	19,978	20,585	21,192	21,799	22,406	23,013
GS-16	20,075	20,745	21,415	22,085	22,755	23,425	24,095	24,765	25,435	—
GS-17	22,760	23,520	24,280	25,040	25,800	—				
GS-18	25,890									

Per annum rates—Scientific and Engineering

GRADE	1	2	3	4	5	6	7	8	9	10
GS-5	$6,387	$6,563	$ 6,739	$ 6,915	$ 7,091	$ 7,267	$ 7,443	$ 7,619	$ 7,795	$ 7,971
GS-6	7,055	7,253	7,451	7,649	7,847	8,045	8,243	8,441	8,639	8,837
GS-7	7,729	7,942	8,155	8,368	8,581	8,794	9,007	9,220	9,433	9,646
GS-8	8,008	8,243	8,478	8,713	8,948	9,183	9,418	9,653	9,888	10,123
GS-9	8,479	8,740	9,001	9,262	9,523	9,784	10,045	10,306	10,567	10,828
GS-10	8,709	8,997	9,285	9,573	9,861	10,149	10,437	10,725	11,013	11,301
GS-11	9,536	9,851	10,166	10,481	10,796	11,111	11,426	11,741	12,056	12,371

Able Apprentice

OUTSTANDING—Robert G. Lauhon, apprentice in the Technical Services Division Machine and Assembly Branch, left, recently received the Southern States Apprenticeship Conference Patterson Award for being the outstanding experimental machinist in Houston. Joseph P. Siegfried, Instrument Machine Section, checks Lauhon's work.

Gemini X's Deepest Venture

(Continued from page 1)

thought that the probability, statistically speaking, of doing everything that we had in the mission was very low . . . But on the eighteenth of July, the boosters, the Agena, the Gemini, the launch crews, the flight operations people, and even the one thing we couldn't do anything about—the weather—was on our side."

Collins and Young narrated films and slides from the mission before the press conference was opened to questions and answers.

Graduate Center Offers 17 MSC Fall Courses

The University of Houston plans to offer the following courses at MSC fall semester 1966, through the University of Houston-MSC Graduate Center. These courses will carry appropriate resident graduate or undergraduate credit.

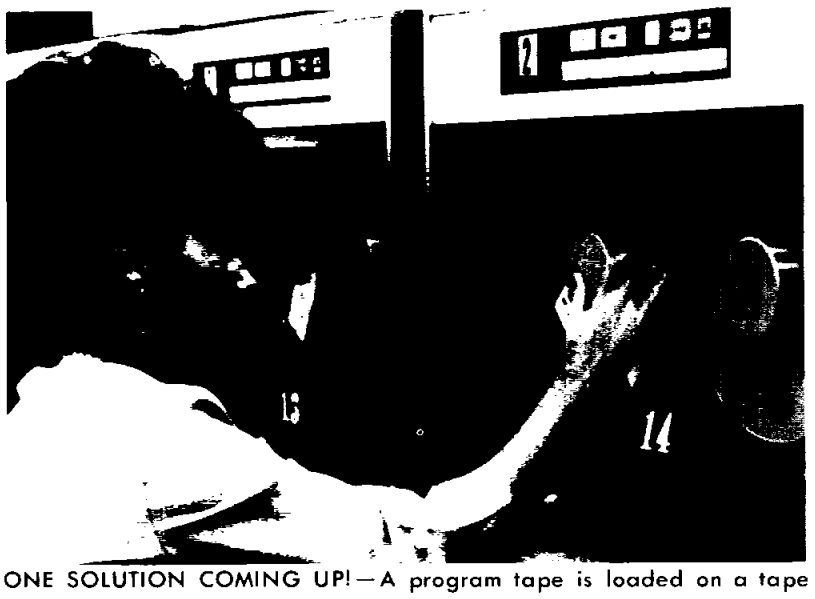
Registration will be September 16, from 9-11 am and 1-3:30 pm in Bldg. 15, Room 102. All employees who plan to attend the University for the first time this fall should apply for admission prior to August 1.

Nominations for all University courses should be made on MSC Form 75 (Application for Training). This form, with supervisory and division office signatures, should be forwarded to the Employee Development Section by September 2. For further information call Ext. 7311.

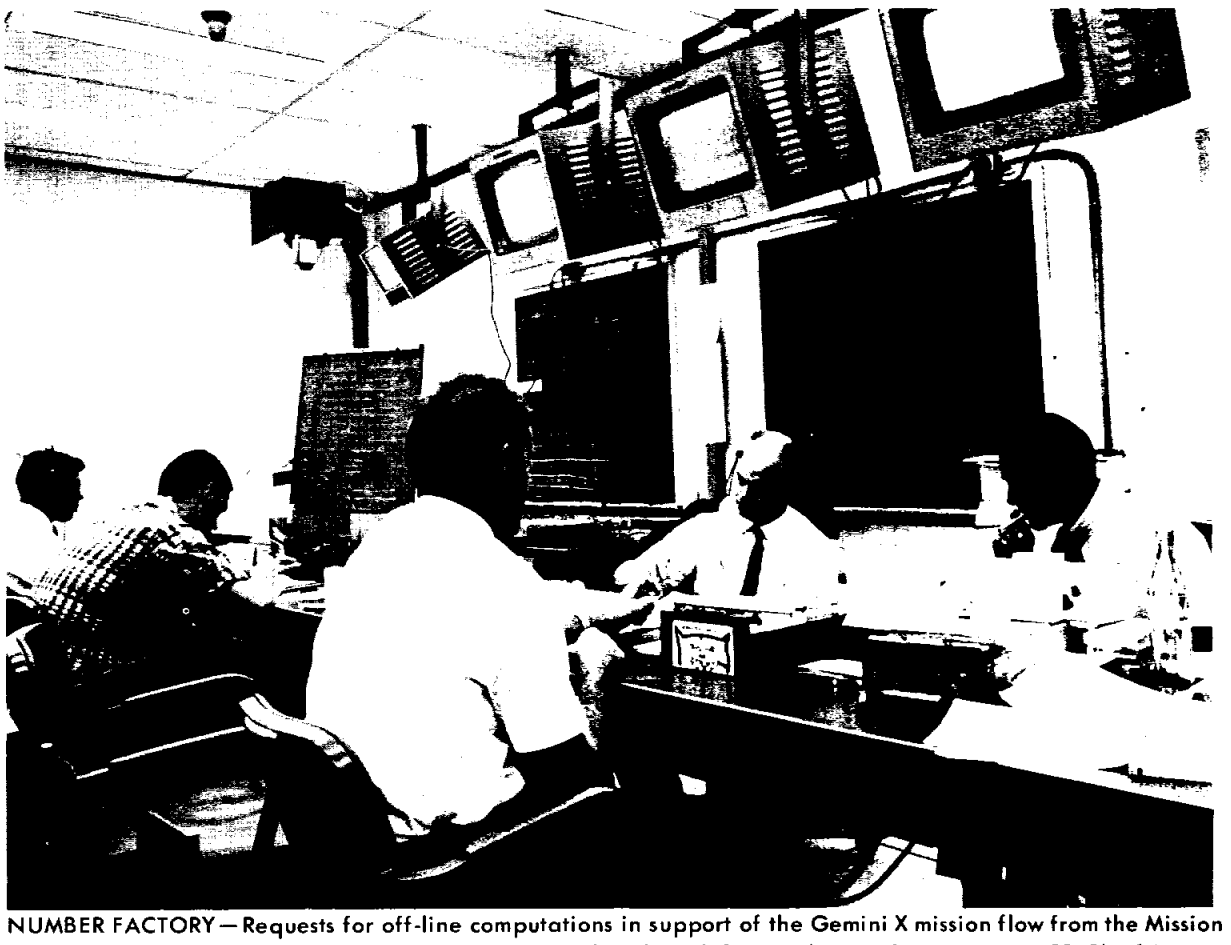
	Course Number	Course Title	Tentative Course Schedule
Engineering	ME 630	Radiant Heat Transfer	7:30-9:00 am M-W
	ME 690	Analytical and Numerical Solutions I	7:30-9:00 am T-Th.
	ME 730G	Orbital Mechanics	7:30-9:00 am M-W
	ME 730G	Foundations of Astrodynamics	4:00-5:30 pm T-Th.
	EE 572	Pulse and Digital Circuits	4:00-5:30 pm M-W
	EE 575	Control Engineering	7:30-9:00 am T-Th.
	EE 738	Antenna Theory	4:00-5:30 pm T-Th.
	IE 463	Engineering Statistics I	7:30-9:00 am M-W
Math & Physics	Math 363	Higher Math for Science and Engineering	3:00-4:30 pm T-Th.
	Math 633	Theory of Functions of a Real Variable I	7:00-8:30 am M-W
	Math 667	Point Set Topology	4:30-6:00 pm T-Th.
	Phy 390	General Astronomy	7:30-9:00 am M-W
	Phy 697	Electrodynamics (formerly Phy 633)	7:00-8:30 am T-Th.
Geology	Geo 299	Fundamentals of Earth Science	4:30-6:00 pm M-W
Pub. Admin.	Pol 387	Accountability in Public Administration	4:00-5:30 pm T-Th.
	Pol 660	The Study of Public Administration (Not open to students who took Pol 431 fall 1965)	4:00-5:30 pm M-W
Management	MGT 632	Human Behavior in Organization	4:00-5:30 pm M-W

OUT OF LIMELIGHT—

Off-Line Computer Aids Mission Operations



ONE SOLUTION COMING UP!—A program tape is loaded on a tape drive core machine by Lockheed employee Barbara Oxsheer in the ACR computer room.



NUMBER FACTORY—Requests for off-line computations in support of the Gemini X mission flow from the Mission Control Center to the Auxiliary Computer Room. In the photo left to right are Green Team ACR Chief Hector Garcia, trajectory analyst and co-op employee Ted Turner, and rendezvous specialists J. W. Kahanek, W. A. Reini and Bob Regelbrugge.

A hundred and fifty yards away from the flight director's console in Mission Control Center-Houston a little-known group of people do a vital job in supporting spaceflight missions. The group works in an area called the Auxiliary Computing Room (ACR) on the third floor office wing of Mission Control Center.

The ACR is an off-line computing facility that comes up with answers to queries ranging from "How many seconds after liftoff with a 20-knot southeast wind will the spacecraft cross the beach" ("feet wet") to "When and where can the spacecraft be seen passing over Houston?"

Since programming for the Real-Time Computer Complex (RTCC) is frozen several months prior to a mission, the ACR takes up the slack by developing independent programs for last-minute requirements for responding to almost any kind of computation request. Many of these programs are later incorporated into RTCC programs for subsequent missions if operational needs warrant. And while the RTCC may be programmed to handle a certain computation, the ACR is frequently called upon to relieve the RTCC for other work.

Flexibility is the ACR's watchword, for computations in support of flight experiments and spacecraft systems engineers and other unanticipated one-time events can be handled rapidly. For example, the ACR computed the amount of OAMS propellant remaining on Gemini III and IV based upon telemetry data on propellant temperatures and pressures. Pre-retro OAMS burns were then calculated for bringing the spacecraft into a low-perigee reentry orbit.

Requests for computations by the ACR from Mission Control are funneled through the Trajectory Support Chief in the Flight Dynamics staff support room adjacent to the main control room, who in turn relays the requests to the ACR Chief. The ACR staff monitors operations communications loops in addition to being tied into talk/listen loops with the Flight Dynamics Staff Support Room. In addition, many of the Mission Control Center's computer-driven television displays are also available on monitors in the ACR. Data printouts from the ACR's IBM 7094 computer can be relayed to Mission Control via an opaque televisor or hand-carried by runners to the Control Center.

An average of 40 to 45 people staff the ACR and its computer equipment during a mission on the same shift basis as being followed by flight controllers in Mission Control for that particular mission.

Between missions, the ACR is kept busy supporting flight control simulations for upcoming missions or in trajectory analyses for planning advanced missions.

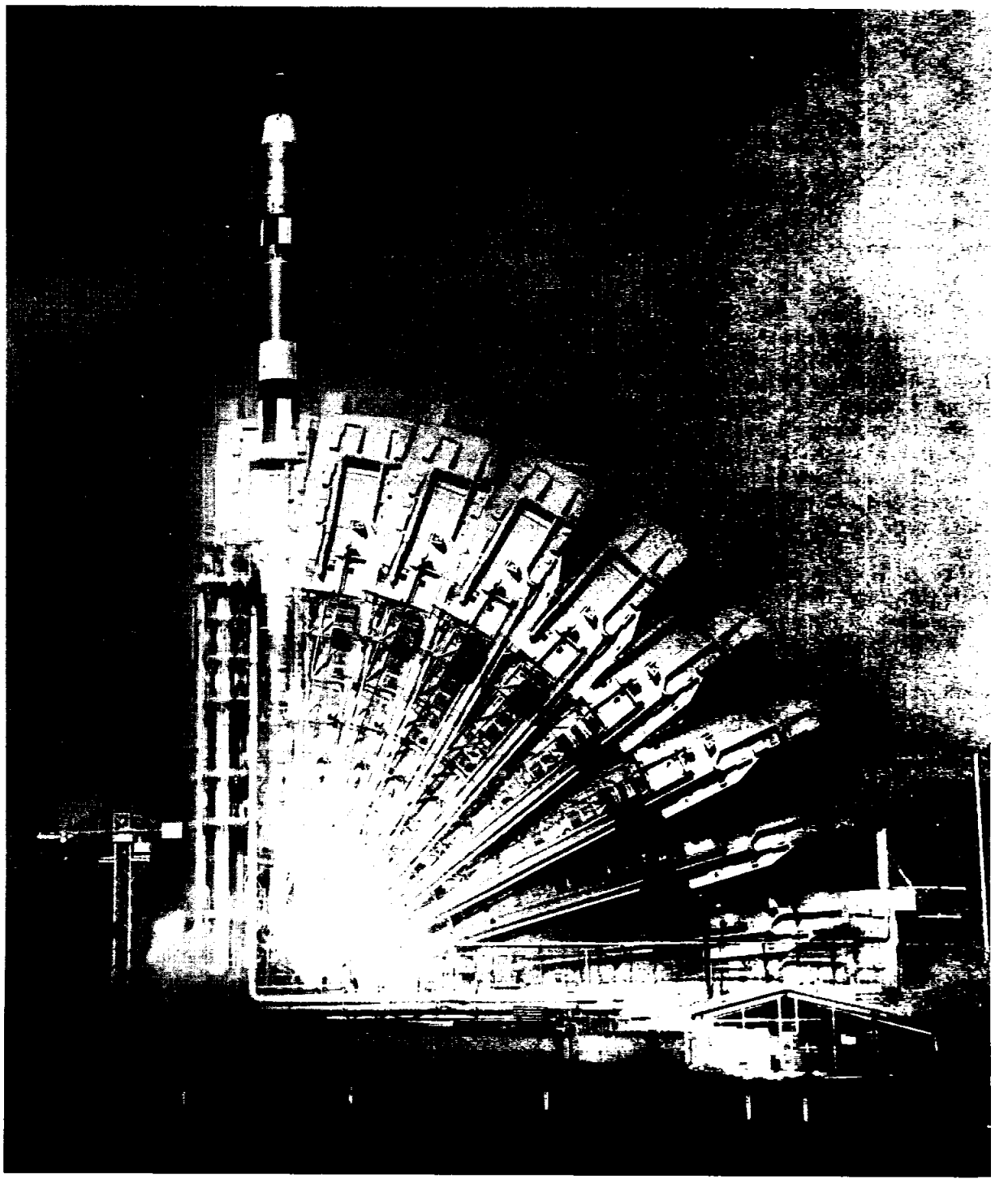
While the ACR may be a little out of the Mission Control limelight, and is an unsung facility as far as the public goes, no one among the flight controller teams hesitates to praise the support given by the ACR.

MATHEMATICAL MASSAGE—The ACR IBM 7094 computer processes flight control requests for solutions ranging from planned landing area updates to look-angles and times for visual spotting of spacecraft from backyards along the southern edge of the United States.

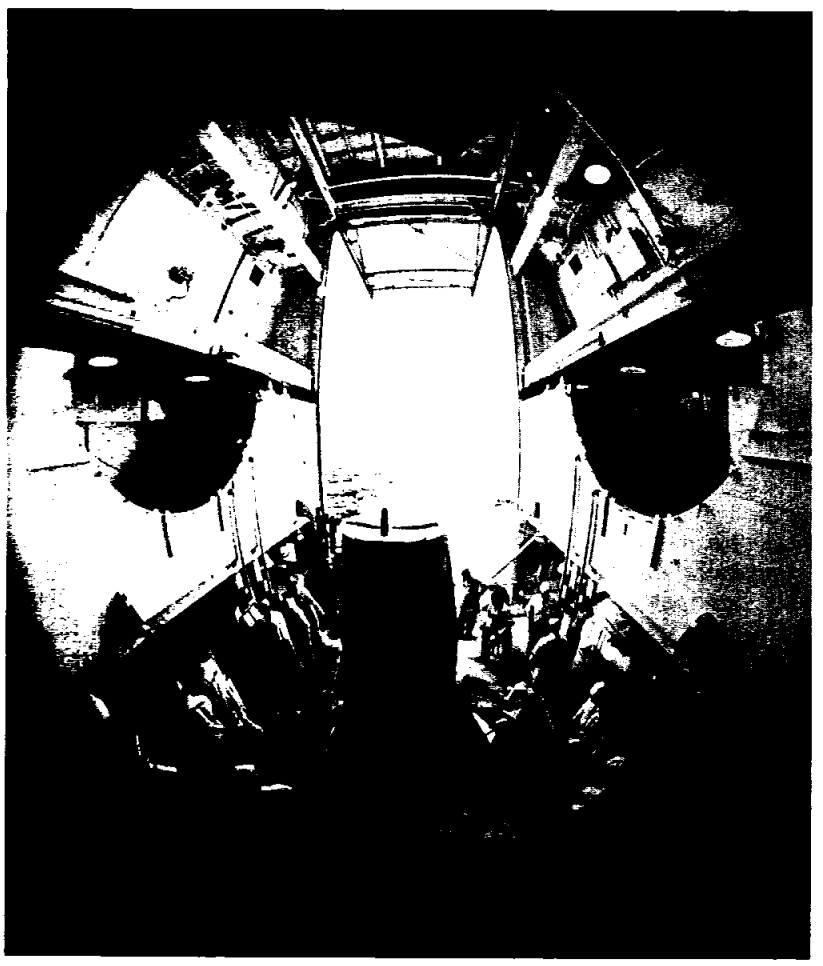
AND IT COMES OUT HERE—Tabulations spewed from an on-line printer in the ACR are checked by rendezvous specialist W. A. Sullivan left, and Lockheed machine operator-controller Sam Massaro.

FOR EMERGENCIES—The crew of Pad 19 present to Gemini X command pilot John Young a king-size pair of pliers for in-flight first-echelon maintenance of a spacecraft utility power cord Young earlier had difficulty in connecting. Pad Leader Gunther Wendt, left, joshes Young about the "tool."

Gemini X—t Mission Yet

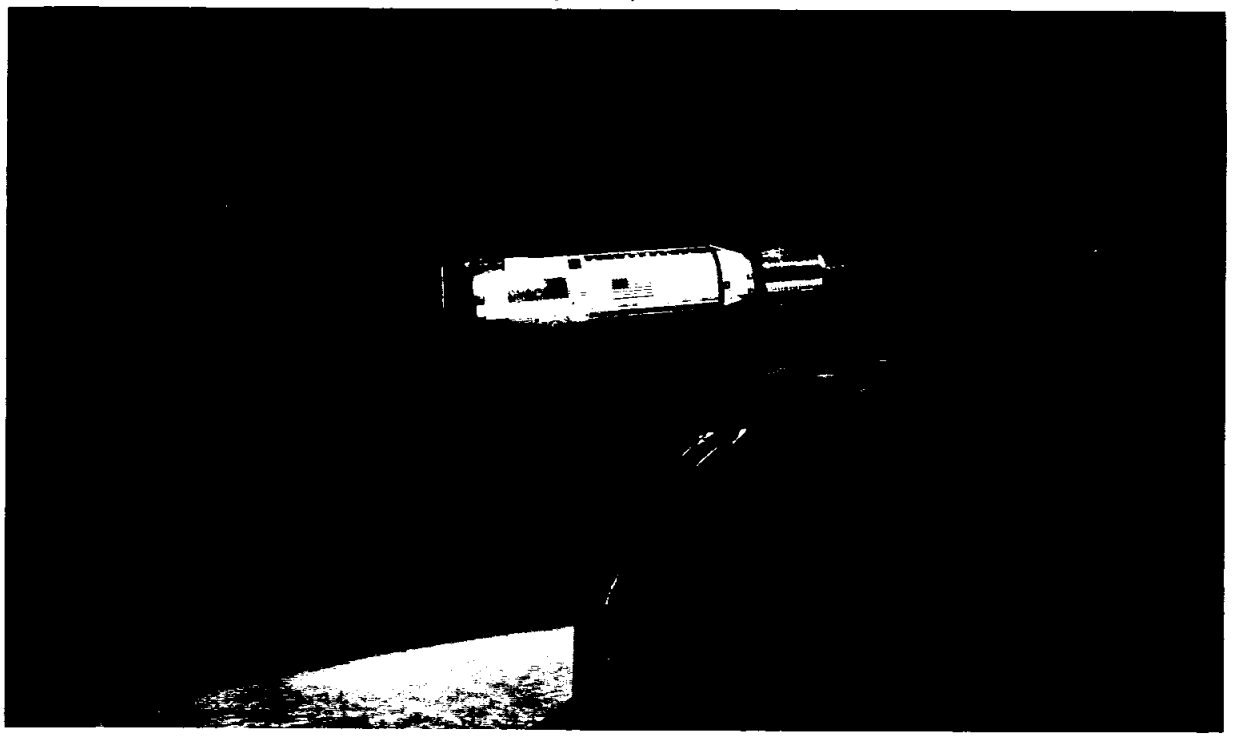


LAUNCH KALEIDOSCOPE—Eleven separate exposures on one sheet of film and tricky masking captured this sequence of erector lowering and Gemini X launch.



WHITE ROOM TEARDOWN—Like a seal poking its nose through a hole in the ice, Gemini X and its crew wait for T-O as white room technicians secure equipment in preparation for erector lowering.

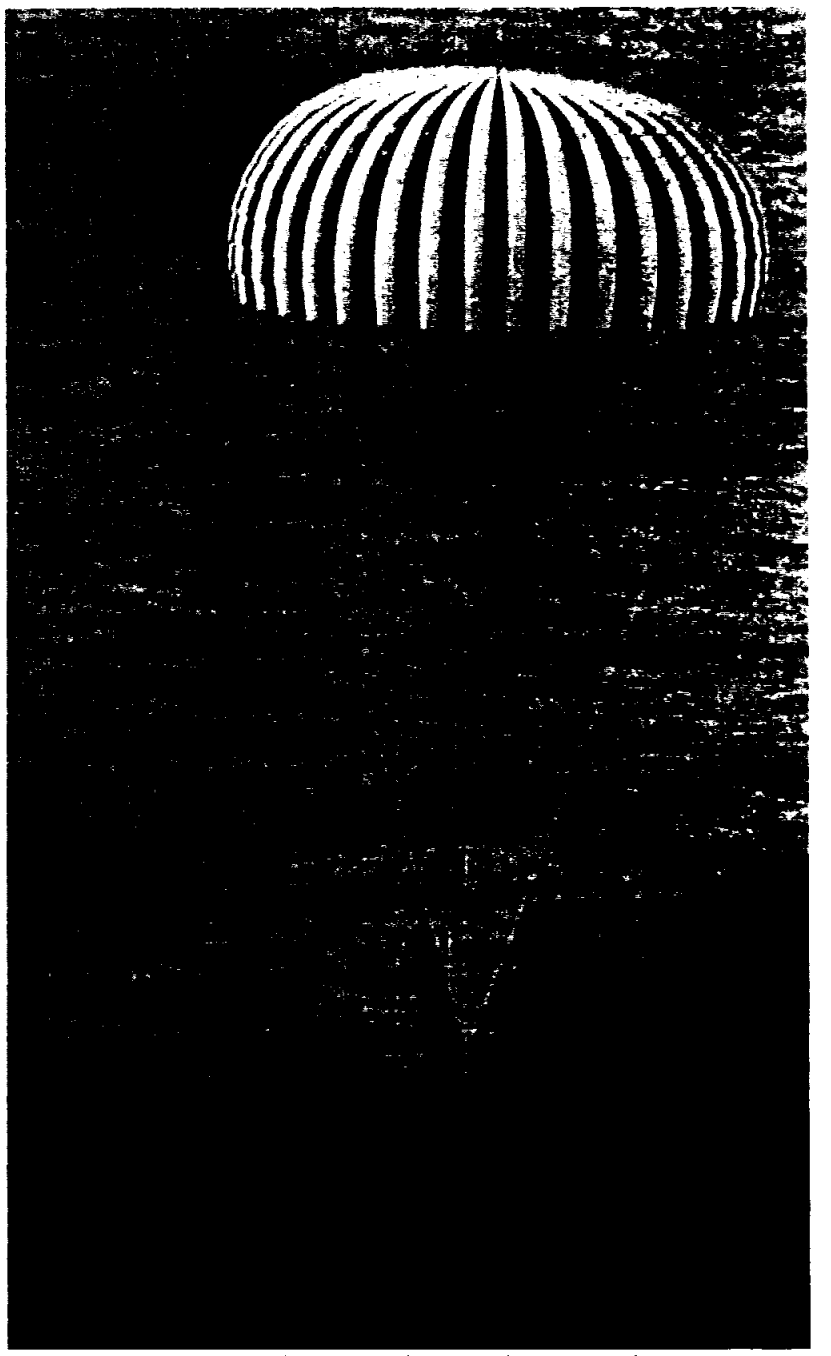
HOWDY—Gemini X overtakes and translates around the Agena rendezvous vehicle over the South Atlantic some five hours after Gemini liftoff. First docking took place some 50 minutes later over the Western Pacific.



'GONE—THANK GOD'—Collins' EVA umbilical line, stowed in its bag, drifts away from Gemini X after the cabin was depressurized for a third time and equipment no longer needed was jettisoned.

GEOGRAPHY LESSON—A cyclonic formation swirls offshore of the Pillars of Hercules as the crew of Gemini X aim their camera toward the coasts of the Iberian Peninsula and Northwest Africa. Locations of cities are: A-Lisbon, Portugal; B-Seville, Spain; C-Gibraltar; D-Tangier, Morocco, and E-Casablanca, Morocco.

EYES FRONT—A Gemini X flight display in Mission Control Center-Houston holds the attention of four individuals standing at the flight director's console. Left to right, they are Mission Director William C. Schneider, prime flight director Glynn Lunney, MSC Director of Flight Operations Christopher C. Kraft, Jr. and Gemini Program Office Manager Charles W. Mathews.



MILLPOND LANDING—The West Atlantic 460 nm east of Cape Kennedy was calm as a swimming pool for Gemini X's landing 7.5 miles from the USS *Guadalcanal*. Gemini X was the second mission in a row to land within eye and camera range of the prime recovery vessel.

DOWNUNDER—A Navy swimmer from the USS *Guadalcanal* affixes the floatation collar around the Gemini X spacecraft within minutes after splashdown. Navy recovery teams compete among themselves for the fastest time of attaching Gemini collars.

DECKA FIRMA—John Stonesifer of MSC's Landing and Recovery Division greets Gemini X crewmen John Young and Michael Collins as they step out of the helicopter onto the deck of the prime recovery vessel USS *Guadalcanal*, right.

AFTERMATH—Gemini X crewmen Young and Collins face the nation with press conference microphones and NASA Exceptional Service Medals affixed to their lapels in the one-g environment of the MSC Auditorium.

OUT OF TEXAS' PAST—

Indian Girl's Spirit Still Makes Medicine at April Fool Point

April Fool Point, looking like an oversized map of Cape Cod reversed, aims its broken hook a little west of south into shimmering Dickinson Bay. The southeast wind runs her hot, salty fingers through the scalplock of your flight-crew haircut and whispers seductive syllables with her lips against your peeling ears.

The baylet ripples like a tank of liquid hydrogen at insertion. Swells break into rice-lager foam down on the long, hooked cape, and the golden sand is speckled with driftwood, beach-fleas and fiddler crabs. On the bluff above the Point the uncut prairie hay ripples in the limpid sunshine. From the blinding, robin's-egg-blue sky a flight of gulls whistles hungrily at the deep-running mullet below.

By the old maps, April Fool Point was in the old Eadwin League. The brothers Eadwin were slavers. They would sail to Africa with a shipload of whisky, sell three-fourths of it to the traders, get a whole village drunk with the rest, then shanghai a whole shipload of happy natives.

One day at a hotel in Galvez Town, one of the Eadwin brothers tried a similar trick on the other. Got the other one drunk and out. Then had an accomplice dressed in his brother's clothes transfer title to the whole league to him.

The wicked brother might have got away with this scurvy trick but for the testimony of an African porter at the hotel, who exposed the fraud.

While title to the Eadwin League was in dispute, Galvez Bay folks said it wouldn't make any difference on April Fool Point how the affair turned out. Because, they said, the Point still belonged to the Indians, anyway.

The Injuns are long gone from our bayshores, but centuries ago —according to legend—three beautiful Tejas maidens were out in a canoe, paddling around in Dickinson Bay. They were laughing and carrying on, as young girls do, when, just as they rounded the Point, one of the three, named Abril, disappeared.

Abril just vanished. Into thin air. The other two girls could see clean to the bottom of the bay, which was quite still and clear that day, but there was no sign of their little chum.

It looked like the end of Abril.

But when they paddled ashore at the Point, there was Abril, sitting on her pinto pony, laughing at them. "April fool!" exclaimed Abrilita.

Then she explained that it was all the result of some kind of foolish medicine worked by a mischievous spirit that lived in the bay just off the Point.

Lee Horton, who used to run a fishing camp on April Fool Point, once said the mischief-loving Indian spirit is still making medicine there.

A decade ago Lee had a three-room house for himself, several furnished cabins for fishermen, a garage and a lot of skiffs. One March 31 there was a storm alert. Lee pulled all of his boats onto high land, boarded everything up and lit a shuck for Heavenly Houston.

When he went back to the Point after the storm, there wasn't a stick left from any of the cabins, his boats or the garage. But his three-room house, which had stood 115 feet from high water, had been picked up off its foundation by the storm and set down smack on the beach.

Lee unlocked the door, opened it with some difficulty and went in. The house and everything in it was as neat and orderly as though it had just been cleaned and tidied.

Two kerosene lamps still stood upright on two tables. In the china cabinet everything was in place and unbroken. The cups still hung from their hooks. Not a pinch of salt was spilled in the kitchen.

But one curious thing had happened. The *March 31* leaf from the daily wall calendar in the kitchen had been torn off and lay face down on the floor. And imprinted quite clearly in wet yellow sand on the white paper was the outline of a moccasin sole, size 5.

"That's the Gospel truth, and I'll swear it on a stack of Bibles as high as the moon," Lee declared—back in the days when the moon was inaccessible.

—Sigman Byrd

AFGE Meets Monday

The American Federation of Government Employees will hold their August meeting at the Webster State Bank at 5 pm Monday, August 8.

Members are urged to call Secretary Alma Hurlbert at 3210 if your address or phone number has changed. Anyone desiring information about Local 2284 may call President Jim O'Neill at 2261, or the secretary.

THE SEARCH FOR FACTS—

What really happened was . . .

Every time a new history or biography hits the bookshelves there are quite a few people whose first reaction is, "Now it didn't really happen that way. What really happened was . . ." These same reactions usually manifest themselves when NASA historians research and publish a chronology or historical opus on some aspect of the US space program.

Monday-morning quarterback-editors seems to come out of the woodwork with all sorts of comments on how this or that significant event was omitted, or not fully covered in the book.

Now that *This New Ocean: A History of Project Mercury* is in the design and printing stage at NASA Headquarters, and the Government Printing Office anticipates publication early this fall, the Historical Office of the MSC Public Affairs Office has shifted its research effort toward histories of Projects Gemini and Apollo. And while collection of Gemini and Apollo documentation has been under way for several years, only a small percentage of that required for thorough historical study has been collected. Here is where the help of key organizations involved in these programs is vital to thoroughness and accuracy of historical research.

At the annual meeting of the NASA Historical Advisory Committee in Washington last May, NASA Administrator James E. Webb pointed out to attending NASA historians that "you gentlemen will have to get behind the documentation and interview the people that have been a part of making the program decisions and who were responsible for designing, developing and operating the hardware."

Webb's statement was forcefully driven home to the authors of Project Mercury history with the issuance in July, 1965 of the comment draft of *This New Ocean*. More than 100 people provided oral and documentary history to improve by an estimated factor of 75 percent the value of the manuscript. Webb, the late Dr. Hugh Dryden and NASA Deputy Administrator Dr. Robert C. Seamans, Jr. were among those providing significant comments.

Shortly after the final draft of *This New Ocean* was carried to Headquarters in late January, MSC historians began oral interviews for the histories of Projects Gemini and Apollo. To date, some 66 interviews have been taped for the chronology and history of Project Gemini. These interviews include key people at 16 Gemini contractor facilities, and interviews with Dr. Seamans and with James A. Chamberlin of the MSC Engineering and Development Directorate staff office. Chamberlain has further agreed to be a technical reader as the manuscripts are being drafted.

The theory behind the heavy emphasis on Gemini contractor interviews at this stage is based upon the imminent breakup of Gemini industry teams—a situation already in progress. Taped interviews with key MSC people involved in all aspects of the Gemini program is the next step toward rounding out the study. Webb has told the NASA Historian that he wishes to be interviewed prior to the manuscript stage, and Dr. Seamans has said that there are several aspects of the program upon which he wishes to be interviewed.

Following a similar research procedure for Project Apollo, 49 interviews have been taped to date.

The ultimate objectives of the MSC Public Affairs Historical Office is to research and produce *A Chronology of Project Gemini* (1200 chronology cards are already on file) similar to but better than *Project Mercury: A Chronology*, to be ready for publication by April, 1967; and *A Program History of Project Gemini* similar to *This New Ocean: A History of Project Mercury*.

Plans for Project Apollo history envision a four-volume chronology titled as follows: *A Chronology of Concept and Design* (to December 1963); *A Chronology of Development and Tests* (through Little Joe II); *A Chronology of Pre-Lunar Landing Operations* (starting with A/S 201); and *A Chronology of Lunar Landing Operations*.

The NASA Headquarters Historical Office and the Office of Manned Space Flight are compiling the Apollo program history and have tentatively outlined a seven-volume series—three of which will be assigned to MSC.

Such an ambitious historical undertaking is only as good as the cooperation given it by information sources. Don't be one of those Johnnys-come-lately who read the finished volumes and say, "Now it didn't really happen that way. What really happened was . . ."

As these volumes are in work, provide copies of the key documention and be available for oral interviews when requested —or, better still, ask to be interviewed so you can tell "what really happened."

In either instance, call or send materials to James M. Grimwood/AP6, Historical Office, MSC Public Affairs Office, Ext. 4331.

The SPACE NEWS ROUNDUP, an official publication of the Manned Spacecraft Center, National Aeronautics and Space Administration, Houston, Texas, is published for MSC personnel by the Public Affairs Office.

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Space News Of Five Years Ago

August 6, 1961 — USSR launched *Vostok II* into orbit carrying Maj. Gherman S. Titov. Spacecraft weighed 13 pounds more than *Vostok I* (April 12) and progress of Cosmonaut Titov's flight was reported continuously on Radio Moscow.

In press conference at Hyannis Port, Mass., US Ambassador to the UN Adlai Stevenson, said: "Russia's scientific contribution to the conquest of outer space commands our admiration. Orbiting a new astronaut for a longer period of time is another step forward . . . this event *(Vostok II)* sharpens the need for some international action to regulate the use of outer space for peaceful purposes, and to keep the arms race from spreading to that field. The President has recently announced his proposal for cooperative sharing of communications and weather satellites. We hope the Russians won't delay longer in joining us in cooperation."

August 7, 1961—Reported from Moscow that Major Titov has successfully landed in *Vostok II* after 17 orbits and 25 hours 18 minutes, the first test of man's reaction to prolonged weightlessness. This was the second manned orbital flight, the first manned flight of more than one orbit.

August 9, 1961 — NASA selected MIT's Instrumentation Laboratory to develop the guidance-navigation system for Project Apollo spacecraft. This first major Apollo contract was required since guidance-navigation system is basic to overall Apollo mission. The Instrumentation Laboratory of MIT, a nonprofit organization headed by C. Stark Draper, has been involved in variety of guidance and navigation systems developments for 20 years.

Key personnel operational assignments for the Mercury-Atlas 4 unmanned orbital mission were made by the Space Task Group.

August 10, 1961—In regular press conference, President Kennedy stated that "we are spending as much money and devoting as large a percentage of scientific personnel, engineering, and all the rest, as we possibly can to the space program. We are constantly concerned with speeding it up. We are making what I consider to be a maximum effort."

August 13, 1961—Spacecraft 15 was delivered to Cape Canaveral, but was returned to McDonnell to be reconfigured to the orbital-manned 1-day mission and tentatively assigned for Mercury-Atlas 10. Redesign was completed, then designated 15A (later redesignated 15B), was delivered to Cape Canaveral on November 16, 1962.

August 14, 1961 — Navy Barge *Compromise*, carrying first Saturn booster, stuck in the mud in the Indian River just south of Cape Canaveral. Released several hours later, the Saturn was delayed only 24 hours in its 2200-mile journey from Huntsville.

August 17, 1961—President Kennedy signed into law the bill providing NASA appropriations for fiscal year 1962 of $1,671,750,000.

August 18, 1961—NASA announced that analysis of Project Mercury suborbital data indicated that all objectives of that phase of the program had been achieved, and that no further Mercury-Redstone flights were planned.

Space News ROUNDUP!

MANNED SPACECRAFT CENTER, HOUSTON, TEXAS

EMPLOYEE NEWS

Goddard Essay Contest Nov. 1 Deadline Nears

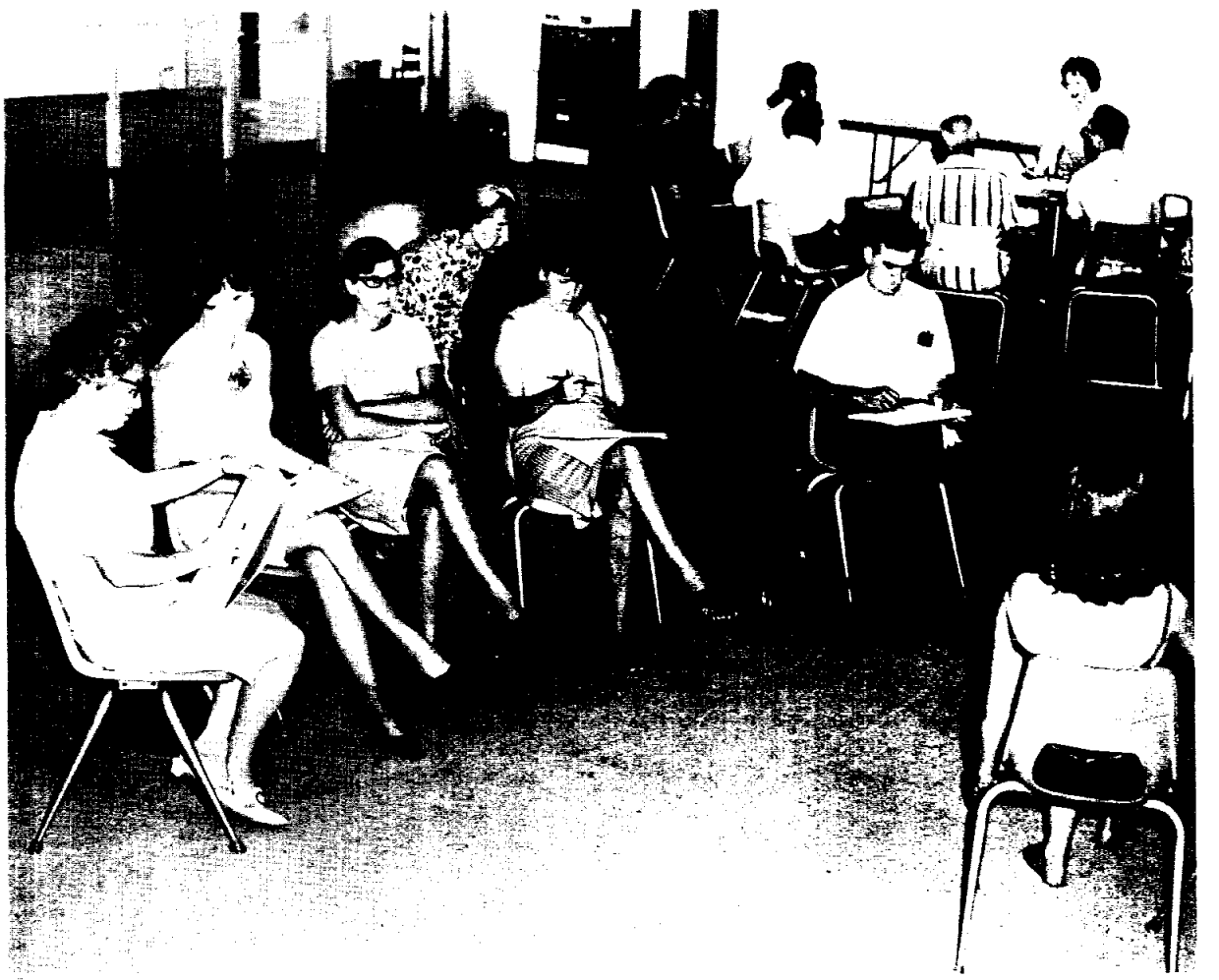
Less than three months remain before the deadline for submitting essays in the National Space Club's 1966 Robert H. Goddard Historical Essay Award Competition. The winner will be announced at the Dr. Robert H. Goddard Memorial Dinner in March 1967 and will receive the Goddard Historical Essay Trophy Certificate and a $200 prize.

Deadline for the competition is November 1, and essays are to be submitted to the Goddard Historical Essay Contest, c/o National Space Club, 1629 K Street NW, Washington D.C., 20006.

CONTEST RULES

- Essays should not exceed 5,000 words and should be fully documented.
- Essays will be judged on originality and scholarship by the Committee for the History of Rocketry and Astronautics of the National Space Club, and their decision will be final.
- Essays should be received by the Chairman, Committee for the History of Rocketry and Astronautics, by November 1, 1966; the winner, if one is selected, will be announced at the Dr. Robert H. Goddard Memorial Dinner in March 1967.
- Entries may be submitted by any U.S. citizen, and evidence of citizenship should be included with essays submitted.
- The name of the competitor shall not appear on the essay, and each essay must have a motto selected by the author in addition to the title. Thismotto shall appear in three places: 1) on the title of the essay, b) on the outside of a sealed envelope containing identification of the author, and c) above the name and address of the competitor inside the envelope containing this identification. The envelope identifying author will not be opened until the Committee has made the winning selection.
- Essays and identifying envelopes must be postmarked before November 1, 1966 and mailed in a large sealed envelope marked "Goddard Historical Essay Contest."
- Essays must be typewritten, legible, double-spaced, on paper approximately 8½ by 11, and must be submitted in duplicate, each copy complete in itself.
- Essays remain the property of the authors, although the National Space Club retains the right to publish and distribute winning essays.

Prize: Trophy of the Dr. Robert H. Goddard Historical Essay Award, a $200 Honorarium, and National Space Club Certificate.



SKETCHERS' CIRCLE — Nancy Shea, daughter of Apollo Spacecraft Program Office Manager Dr. Joseph F. Shea, models for members of an advanced art class sponsored by the Houston Contemporary Arts Museum at the Webster Community Center. Left to right are Virginia DeFoy of MSC Photographic Technology Laboratory, Donna Garrison of Lockheed, unidentified, Instructor Mrs. William A. Lee (standing), Sherry Carl and Dan Regan of Instrumentation and Electronics Systems Division.

Aero Club Gets New Constitution

MSC Aero Club unanimously ratified the Club's proposed constitution at the last meeting, and the board of directors has begun incorporation procedures under the name of "The Aero Club."

A finance committee was formed to evolve an aircraft purchase plan. The plan and choice of aircraft will be voted upon by Aero Club members at the August meeting next Tuesday in the News Center Auditorium. Guest speaker at the meeting will be a representative of the Houston office of the Federal Aviation Agency.

Second Session Art Course Begins Sept. 6 at Webster

The second six-weeks art course sponsored by the Houston Contemporary Arts Museum and open to all MSC employees and families will begin on September 6 following a well-attended first course.

Advanced and intermediate classes are held each Monday evening, and beginner classes on Tuesday evening at the Webster Civic Center from 6 to 8 pm. The Webster Civic Center is at 300 Pennsylvania, Webster. Tuition for the courses is $15.

Mediums taught in the advanced/intermediate class will include oils, charcoals, pastels and drawing from live models. The beginner Tuesday night class is an introduction to drawing and oils. A course in water colors will be offered in the Fall if there is enough interest—a minimum of 10 enrolled.

For registering in the next session or for additional information, call Mrs. Harry F. Walbreecher at 877-1051.

Sea Scout Ship Seeks Crewmen

A Sea Scout Ship with a hull number of 915 has been launched by the Boy Scouts of America to serve the Clear Lake-MSC area. The new Ship is sponsored by the BPOE Elks Lodge No. 2223, and all boys between the ages of 14 and 18 may sign on.

The new Ship's program is designed to log many leadership-building and adventurous events into the lives of the lads who sign on. Ship 915 has already had two voyages — one to a swimming party at the Ellington AFB officers' club and another to an overnight campout to Galveston's West Beach where the Sea Scouts swam, surfed and caught a great many fish with a 100-foot seine.

Ship 915 docks each Tuesday at 7:30 pm in the Nassau Bay National Bank. The crew will elect officers at next Tuesday's muster, and all sea-going MSC offspring are urged to sign on in time to take part in the officer election.

Adult leaders are needed on the Ship's Committee to serve as assistant skipper, instructors in sailing, powerboat handling, navigation, water safety, and as merit badge counselors.

To help keep this new Ship out of shoal waters, call one of the following: Skipper Dale Hannaford at 3622 or 932-2631; Committee Chairman Raymond Loomis at HU 8-1576 or 591-3568; Institutional Representative Kevin McCabe at 3549 or HU 2-7657; and Elk Youth Activities Chairman Hubert Douglas at HU 8-0080 or 877-2473.

Lunarfins Offer Weekend Trip Diving Equipment

Oceanography motion pictures shown by Chuck Eldred and films of sharks filmed from an underwater sharkproof cage were viewed by 55 members and guests at the July 20 meeting of the MSC Lunarfins Skin and Scuba Diving Club.

Lunarfins has a compressor, tanks and other pieces of equipment which may be checked out by members on Friday for weekend diving expeditions and returned the following Monday. Tanks can be refilled on Wednesday evenings. To reserve equipment for weekend trips, members should contact one of the following by Thursday prior to the trip: Chet McCullough 4546, Fred Toole 4436, Jim Peacock 4655 or Bill Lofland 4916.

Bill Moran is in charge of planning a Lunarfins beach party this month. A new Scuba class is also being planned to start this month, and persons interested in enrolling should contact Wally Graves at 2263.

Roundup Swap-Shop

(Deadline for classified ads is the Friday preceding *Roundup* publication date. Ads received after the deadline will be run in the next following issue. Send ads in writing to *Roundup* Editor, AP3. Ads will not be repeated unless requested. Use name and home telephone number.)

FOR SALE

1965 MGB, radio, wire wheels, xclnt condition. $1800. Ron Hayes, HU 7-0290.

1965 Super Porpoise sailboat complete with trailer, $475. Maj. Victor L. Ettredge, 591-2110.

1964 18-ft fiberglass cabin cruiser, sleeps 2, head, tilt trailer, 60-hp Johnson, elec starter, 16 hours running time, many xtras, perfect condition. Original price: $3750; asking $2500. Jack Small, 591-2315.

AKC Beagle pups, shots, shots and wormed. Best field champ bloodline. $25 each. Ted Cone, GR 3-8835.

1964 Dodge Dart Model 270, white 2-door, V-8 stick, clean, low mileage, $1250. 1959 Sprite (Bug-Eye), dark blue, recently overhauled, good condition, $625. R. B. Hill, 877-2665.

White 1963 Impala 4-door sedan, radio and heater, pwr steering, air, other xtras; xclnt condition, one owner. $1395. Will arrange for finance with low payments. W. Graves, HU 5-2933 after 6 pm.

1958 Chevrolet ½-ton pickup, 6-cyl, clean, economical, reliable. $295 cash or owner will finance. W. Graves, HU 5-2933 after 6 pm.

5-bdr 3-bath Early-American house in Nassau Bay, living room, dining room, den, study, breakfast room-kitchen, ½ bath downstairs, large fireplace, custom hi-fi cabinets, intercom, 2 separate air conditioning systems, trees, lake view. Large equity purchase required to assume 5½% 30-yr loan. 18702 Point Lookout Drive. Martha Holloway, 591-2226.

3-bdr 2-bath Cape Cod brick at 1860 Dolphin Drive, Mirimar/Seabrook. 2-car garage, fenced, private patio. Assume conventional loan or FHA refinance. G. Hagey, GR 4-2143.

Sectional sofa, beige, makes queen-size when placed side by side. $25. Robert Bond, 591-2487.

Full-size Kenmore range, grill dividing top burners, oven and broiler below, small elec broiler on left side uses house current. $65. Robert Bond, 591-1487.

RIDER POOLS

Want in car pool or will pay, beginning Sept. 6 from 2607 Cedar Drive, La Marque to Bldg. 419, 7:30 to 4 shift. Evelyn Villenueve, WE 5-2878.

Swap rides from Freeway Manor or Sun Valley to Bldg. 2, 8:30-5 shift. Bill Hill, HU 4-5611.

Ride wanted from Pasadena to Bldg. 16A, 8-4:30 shift daily. Jacque Sanderson, GR 2-5169 after 5 pm.

'My Little Bit Won't be Missed' —Or Will It?

A celebration was planned in a remote little Spanish village, and to insure adequate refreshments, a great cask was constructed into which each citizen agreed to pour one bottle of his best wine.

"If I fill my bottle with water," reasoned one, "the dilution will be so slight no one will notice." But when the celebration began, and the cask was tapped, the contents proved to be nothing but water. Everyone in the town had figured it out the same way — "My little bit won't be missed."

Like the contents of the wine cask, many improvements at MSC depend entirely on individual contributions. Make sure your contribution isn't missed—fill out Form 624 and send it to the MSC Awards Office, code BP22.

First Call for Dinner

FREE CHOW—The name of William A. Lokken, Experiments Program Office, was the one drawn in the first MSC Credit Union drawing July 29 for dinner-for-two. Seeing to it that the drawing was done according to Hoyle are, left to right, John R. Jones, Security, Tommy Perkins, CU cashier, Peggy Ray, CU manager and Clyde Waters, CU assistant treasurer. The dinner-for-two drawing is held each month from Credit Union Members' names.

MSC Picnic October 1 Has Old-West Flavor

Levis, boots and 2.6-liter hats will be the uniform of the day at the annual MSC Picnic October 1 at Galveston County Park in League City. The moss-hung creek-bank atmosphere of the Park will be transformed to that of Dodge City's main street by the Picnic Committee with an old-West saloon, Boot Hill, jail, telegraph office, general store and other such movie-set trappings. EAA member clubs are designing and building the storefronts.

Employees may ride their own horses to the picnic and tie them up to hitching posts provided. One may, of course, come by auto.

The picnic starts at 11 am and runs to 6 pm. Grub (barbecue) will be served from 12 until 3, and the beer spigots will be turned off at 6 pm.

A band will provide home music and there's even some talk of having Indian tribal dances and quick-draw demonstrations. Games for children and adults with prizes for winners were being planned.

As picnic plans become firm, the *Roundup* will carry details.

Singletons Plan August Socials

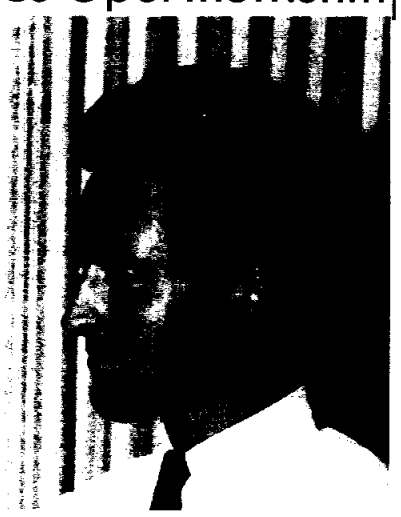
The Space Center Singleton Club has scheduled two social events during August to which all single-type MSC and contractor employees are invited.

The first blast is a TGIF Party at the Hofbraugarten in Dickinson on Friday, August 12 at 6:30 pm. Singletons will rendezvous in the *Bierstube* in the rear where name tags will be issued. No reservations or tickets are necessary, but each person pays for his dinner. The band starts playing at 8 pm for dancing.

On Wednesday, August 24 it's beer again—this time at the Hamms Brewery Hospitality Room, 5303 Polk in Houston from 7 to 10:30 pm. Admittance and beer will be free and jukebox music and refreshments other than beer will come out of the Club treasury. For more details call Gloria Haywood at 5240.

Current Space Center Singleton Club officers are Jim Dunlap, president; Arminta Yanez, vice-president; Phil Stallings, treasurer; Suzanne Thoben, social chairman; Betty Midgett, secretary; Gloria Haywood, publicity chairman, and Doris Jernigan, membership chairman.

Co-Op of the Month



SUPERIOR AGGIE—Sidney Novosad, Texas A&M University electrical engineering major and co-op employee assigned to the Systems Analysis Branch of the Information Systems Division, recently received a Sustained Superior Performance Award.

MSC Exchange Seeks Part-Time Sales Assistant

The MSC Exchange Council has announced an opening for a part-time general assistant to the Exchange Supervisor. This position will not be subject to Civil Service regulations.

The initial duties of the general assistant will be to support the Exchange Council Supervisor by typing of correspondence and financial reports, bookkeeping and buying items for resale in a store. Upon establishment of the Exchange store operation in the MSC Cafeteria, the general assistant will also handle sales in the store. Applicants for this position must have experience in typing and single entry bookkeeping and should preferably have some background in buying and sales.

It is anticipated that the initial duty hours for the general assistant may be from 8:30 a.m. until 11:30 a.m., Monday through Friday. Upon commencement of the store operation in September or October, the anticipated duty hours will be from 10:00 a.m. until 2:00 p.m., Monday through Friday and 1:00 p.m. to 5:00 p.m. on Sunday.

The Exchange Council has requested that anyone interested in the job submit a resume of their experience which qualifies them for the duties, the starting salary desired, and the hours their services are available. All qualified applicants will be considered, including members of families of MSC employees. The NASA Exchange-MSC is an equal opportunity employer. Applications should be submitted in writing to Supervisor, NASA Exchange - MSC, Manned Spacecraft Center, Houston, Texas 77058.

Space News ROUNDUP!

SECOND FRONT PAGE

Apollo 008 Undergoes Manned Chamber Test

The first major test of a manned Apollo spacecraft at MSC began last weekend with S/C 008 in the vacuum environment of Chamber A in the Space Environmental Simulation Laboratory.

A combined unmanned and manned test of S/C 008 Command and Service Module (CSM) in a thermo-vacuum environment is to simulate as closely as possible the environment, spacecraft, and procedures that will be used in the first Apollo manned earth orbital flight.

The unmanned portion of the test was begun late July 26 and was completed July 29. The manned portion of the test began Monday night.

The manned portion of the test is scheduled to last 192 hours, or eight days. Prime and backup crews to man the command module were selected from engineers assigned to the Flight Crew Support Division.

Prime crew members for the test are Donald R. Garrett, Neil R. Anderson, and Joel M. Rosenweig. Backup crew members are Joseph A. Gagliano, William M. Anderson and Michael K. Lake.

Since the tests will be supporting the first Apollo manned orbital mission, the spacecraft systems configuration was established as close as possible to that of the actual flight spacecraft. However, S/C 008 will be used for ground testing only and is not slated for flight.

Unmanned phases of the test consisted basically of a cold soak and a command module depressurization and repressurization in a vacuum environment. During these tests, measurements were taken for temperature stresses, gap and alignment of the heat shield.

All S/C systems operated and a remote control capability was built into S/C 008 to allow desired subsystem operating mode changes during the unmanned portion of the test.

Following the unmanned testing, the crew of three engineers entered the Apollo S/C 008 command module for the manned test. The manned portion of the test consists of a cold-soak, including evaluation of the environmental control and electrical power subsystems' radiators, and a series of phases for determining thermal response of the bays of the service module with the major components such as the fuel tanks, fuel cells, and the reaction control system. Test phases such as cabin depressurization and fuel cell loss tests were also planned to evaluate the specific conditions.

Chamber A is the larger of two chambers in the Space Environmental Simulation Laboratory. Chamber A is a 65-foot diameter, stainless steel vessel having an overall height of 120-feet. It is the largest man-rated vacuum chamber in existence in the free world and is capable of achieving a vacuum equivalent to that at 87 miles above the surface of the earth.

Solar simulators in the chamber irradiate the test vehicle from the top and side with the same intensity of the sun in space, and the chamber walls are completely lined with liquid nitrogen cold shrouds to simulate space absorbtion of thermal energy radiated from the spacecraft.

The chamber is equipped with a rotating platform allowing plus or minus 180 degrees of orientation of the CSM with respect to the side solar simulators.

Engineers in the control room are in continuous contact with the crew via hardline communications and maintain constant visual contact with the crew and spacecraft through the use of TV cameras at various locations in the chamber and spacecraft.

Bio-medical parameters of the crew, while the spacecraft is in the simulated space environment, are continuously monitored by medical personnel throughout the test. In an emergency, the medical officer can initiate the emergency repressurization of the chamber to bring the test crewmen to earth conditions.

The emergency repressurization system utilizes stored dry gas (70% nitrogen and 30% oxygen) and is capable of repressurizing the chamber within 30 seconds to an atmosphere in which a man can survive, and bring the chamber to sea level condition within 90 seconds after start of emergency repressurization.

The data provided by the CSM thermo-vacuum test in the Space Environment Simulation Laboratory are of prime importance to the Apollo program and are expected to contribute significantly to the verification of the spacecraft thermal models and further verify the structural adequacy and performance of spacecraft systems for many important phases of the Apollo missions.

Spacecraft performance during manned testing with operational subsystems in a simulated space environment is expected to provide a higher degree of confidence for manned mission operations.