

MSC Seeks Proposals On 1-Man Lunar Flyer

MSC has invited 23 aerospace firms to submit proposals for a study of a one-man lunar flying vehicle.

In requesting the proposals, MSC noted that a total overview of the lunar program, including study of payloads and capabilities required on various missions, indicates a potential need for a lunar flying vehicle on early lunar landings.

The lunar flying vehicle would significantly increase man's capability to investigate a number of scientifically interesting sites on the moon and would provide a rescue vehicle for cer-

tain failure conditions. It would allow astronauts to reach otherwise inaccessible sites such as the walls of a crater or the top of a central crater peak. And it could be used for reconnaissance, exploration and traverses over rough terrain in a minimum of time.

Preliminary studies by NASA indicate that the lunar flying vehicle should have an approximate dry weight of 180 earth pounds, which could be delivered to the lunar surface on single or dual launch missions, and a propellant weight of approximately 300 pounds. The vehicle would have a range of up to 10 miles, with a maximum payload, for shorter ranges, of 370 pounds, which could be scientific instruments, additional propellant supply, or an inactive suited astronaut.

The vehicle is to be capable of operation for several weeks including at least 30 sorties. It is to utilize Lunar Module descent stage propellants, must withstand at least three months dormant storage on the lunar surface, and should, wherever possible, use parts qualified from other vehicles such as LM tanks for propellants.

Industry proposals are to be received at MSC by August 30, 1968.

It is anticipated a six-month, fixed-price research and devel-



It Takes Three to Tango

HELPING HANDS — Apollo 7 lunar module pilot Walter Cunningham is helped through the spacecraft hatch for one of several late-July manned altitude runs in the Kennedy Space Center altitude chamber. The spacecraft has since been mechanically mated to the Saturn IB launch vehicle on Launch Complex 34. With Cunningham on the Apollo 7 mission will be commander Walter M. Schirra, Jr. and command module pilot Donn F. Eisele. The mission is scheduled for a fourth-quarter launch.

PLSS Contract Mods Awarded

Hamilton Standard Division, United Aircraft Corporation, of Windsor Locks, Connecticut has been awarded a \$10,651,200 contract modification by MSC.

The cost-plus-incentive-fee contract is for development, qualification, and flight phases of the Apollo Portable Life Support System and Oxygen Purge System. The Apollo Portable Life Support System will be used during earth orbital Apollo flights and ultimately on the moon to sustain crew life while outside the spacecraft.

(Continued on page 4)

Lovell Replaces Collins On Third Apollo Crew

James A. Lovell, Jr. last week was named to replace Michael Collins as prime command module pilot for the third manned Apollo mission. Collins is recuperating from the July 23 successful spinal surgery. Lovell was command module pilot on the mission's backup crew.

In other Apollo crew assignments, Edwin E. Aldrin Jr. has been moved from backup lunar module pilot to backup command module pilot on the third mission. Lovell and Aldrin were crewmen on the Gemini XII mission. Fred W. Haise, Jr. is now lunar module pilot on the backup crew.

Borman and lunar module pilot William A. Anders. The mission is scheduled for the first quarter of 1969.

NASA Tightens Fiscal Belt To Live Within '69 Means

NASA last week announced a fiscal year 1969 interim operating plan under which the agency will operate pending completion of congressional action on FY 1969 appropriations and apportionment of FY 1969 funds by the Bureau of the Budget.

Congressional cutback of \$362 million in NASA's FY 1969 appropriation request and the possibility of further reductions under the Revenue and Expenditure Control Act of 1968 are reflected in the interim plan. If maintained throughout the year, about \$3.85 billion of new obligational authority would be spent under the plan.

While work on the Apollo program, aeronautics and space applications will proceed at levels authorized by Congress, the interim plan calls for cutbacks in job spaces, the Apollo Applications Program, Saturn V launch vehicle production, the Mars 1973 mission and nuclear propulsion development.

NASA civil service strength will be reduced by 1600 persons

ROUNDUP

NASA MANNED SPACECRAFT CENTER

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Apollo 7 Hauled to Pad 34 For Mating With Saturn IB

Apollo spacecraft 101 and its launch escape tower last week were mechanically mated with the Saturn IB launch vehicle at Kennedy Space Center Launch Complex 34. The spacecraft was mated with the lunar module adapter the previous week after completing manned and unmanned runs in the KSC altitude chamber.

Apollo 7 flight controllers this week conducted network and launch simulations in the Mission Control Center with prime and backup crews tied into the simulations from the KSC command module simulator.

The command and service modules for the second manned Apollo mission arrived at KSC Monday and were delivered to

the Manned Spacecraft Operations Building where lunar module 3 ascent and descent stages are in the polarity fixture for combined systems test.

The Saturn V launch vehicle first and second stages for the second manned mission are mated in the Vehicle Assembly Building high bay while the third stage is in a low-bay work cell. Third stage for the third manned mission is also in a VAB work cell for modifications.

At MSC, a docked modal vibration test of command module 105, service module 102 and lunar module test article 3 was underway in the Spacecraft Vibration Laboratory. The modules were stacked in the translunar docked configuration for the tests in support of the second manned mission.

The first and second manned Apollo missions are scheduled in the last quarter of 1968.

2TV-1 Readied For 2nd Apollo Manned Runs

Spacecraft 2TV-1 command and service modules August 9-10 underwent two days of manned checkout in preparation for a five-day manned thermal-vacuum test at MSC in September.

Three crewmen from MSC's Flight Crew Support Division, Air Force Majors Turnage R. Lindsey, Lloyd Reeder and Alfred H. Davidson, manned the vehicle during the series of tests in chamber A of the Space Environment Simulation Laboratory.

(Continued on page 4)



Backup commander is Neil Armstrong.

Haise is the first member of the astronaut group selected in April 1966 to be named to a flight crew. He had been a member of the second manned Apollo astronaut support team specializing in the lunar module.

With Lovell on the prime crew for the third manned Apollo mission are commander Frank

and support contractor strength will be cut by more than 2000 at NASA installations. The plan provides safeguards against work force cutbacks which would jeopardize the Apollo program.

The Apollo Applications Program will be funded at about \$140 million — a reduction of about \$300 million from the 1969 budget request. NASA earlier had announced termination of Saturn IB launch vehicle production after vehicle No. 214.

Apollo Applications flights will be slipped until 1971 and will require five Saturn IB launch vehicles for the three missions: one to orbit S-IVB workshop, one to launch crew, one to launch revisit of second crew, one to launch Apollo Telescope Mount (ATM) crew and one to launch the ATM.

Work toward post-Apollo lunar exploration and earth-orbiting Saturn V workshop missions will be limited to studies to be conducted by support contractors. Saturn V launch vehicle

production will halt with the fifteenth vehicle.

Mars 1973 mission plans are being adjusted to the sharply-reduced funding. Instrumentation to be landed on Mars and the scientific return will be substantially less than in the program presented in the FY 1969 budget request.

Development of a flight-weight NERVA nuclear propulsion engine will not begin in FY 1969 but a cadre of design and development people will be retained to preserve an option for flight-weight engine development in FY 1970. Meanwhile, back in Jackass Flats, Nev., advanced technology work will continue and testing of one experimental engine will be completed.

NASA management has emphasized that the interim operating plan "is being established to permit the agency to go forward with its program until such time as decisions on a final plan are possible." NASA will present its final plans to the appropriate congressional committee before they go into effect.

A GOOD RETURN...



COST-CUTTING KICKOFF—An employee suggestion on ways to save money has been adopted by the MSC Cost Reduction Program. The plan will encourage each employee to save in government costs the amount of the July pay raise while fostering the image of the federal employee as a prudent user of public funds. It is hoped that the MSC program will snowball into other government agencies. Awards and Cost Reduction coordinators in each area have details of the plan or information may be got from the A&CR office at 7283.

Drivers Who Take a Break Usually Get There Intact

Now that several holidays have been shifted to Mondays, there likely will be an increase in the traffic death rate as more families overextend themselves to make longer trips. All too often, three-day weekend trips evolve into a driving marathon—one day's driving there, one day there, and one day driving home—in which the driver becomes glassy-eyed from highway fatigue.

A momentary doze of 30 seconds while traveling at 60 miles an hour places the car a half mile farther down the road when the driver's eyes snap open again. A driver who allows himself to become fatigued to the point of drowsiness is a prime candidate for a serious traffic accident in which not only he faces injury or death, but members of his family and people in other cars are likewise endangered.

Fatigue symptoms include the lack of precise speed control and tunnel vision which prevents the driver from seeing objects to his right or left.

Research has shown that a pause or break in driving, even 10 minutes to stretch the legs, improves driving performance as

much as a 20 or 30-minute break. Pep pills may fend off sleep temporarily, but side effects are more hazardous than the reason for taking a pep pill, for when the effect of a pep pill reaches its limit, the taker collapses.

Taking a stretch break every hour may make the difference between getting there a few minutes late and getting there at all.

Seven Take Part In Rice Seminar On Communications

ASPO data manager Herb Tash and Technical Library Services head Retha A. Shirkey recently conducted lectures and workshops at a week-long technical communications seminar at Rice University. They were among nine seminar guest instructors.

MSC employees attending the seminar were Charles F. Allyn of Apollo Applications Program Office, Rex B. Cline of Management Services Division, Steve Derry of Instrumentation and Electronic Systems Division, Clayton Forbes of Management Services Division and Tommy W. Holloway of Flight Crew Support Division.

Cosponsored by the university and the Houston Chapter of the Society of Technical Writers and Publishers, the course supplemented the writing and editing training of people with technical backgrounds.

The seminar brought together more than a dozen scientists, engineers, writers and editors for lectures and workshops on problems ranging from information retrieval, graphics, technical illustration and reproduction processes.

Dr. Joe A. Rice of the University of Houston directed the seminar and principal instructors were freelance journalist and U of H journalism instructor Louis Alexander and Esso Production Research Co. supervising editor of technical reports John B. Colby.

CU Takes T-Bird Bids

Sealed bids for a repossessed 1965 Thunderbird Landau will be accepted at the Credit Union in Bldg 11 through August 30. Bids lower than the \$1770 wholesale value will be accepted.

THE ASTRONUTS

(filched from TRW Systems Group)



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Your Job in Focus

Political activity

There are certain restrictions imposed by the Hatch Act on partisan political activities. In general, these restrictions prohibit an employee from being a candidate for office in a partisan election or taking an active part in partisan political management or campaigns.

Federal employees have the right to vote and express their political opinions. It is emphasized, therefore, that the restrictions on political activity do not relieve employees of their obligations as citizens to inform themselves of the issues and to register and vote.

Health insurance reps visit

Representatives of the Blue Cross Company and the Aetna Life Insurance Company will visit the Center next month to assist any employee who has a claim or benefit question concerning their health benefits plan.

The Aetna representative will be available on Tuesday, September 10, and the Blue Cross representative on Wednesday, September 11 at the following locations and times:

Bldg 331—EAFB—9 am to 11 am.

Bldg 2, Rm 138—12 noon to 3 pm.

Riot Act for federal employees

Public Law 90-351 concerning disqualification for employment for engaging in riots and civil disorder, was enacted June 19, 1968. The significant requirements of the statute are:

An individual convicted by any federal, state, or local court of competent jurisdiction of inciting a riot or civil disorder; organizing, promoting, encourag-

ing, or participating in a riot or civil disorder; aiding or abetting any person in committing any offense specified in the above, or any offense determined by the head of the employing agency to have been committed in furtherance of, or while participating in, a riot or civil disorder; shall, if the offense for which he is convicted is a felony, be ineligible to accept or hold any position in the Government of the United States or in the government of the District of Columbia for the 5 years immediately following the date upon which his conviction becomes final.

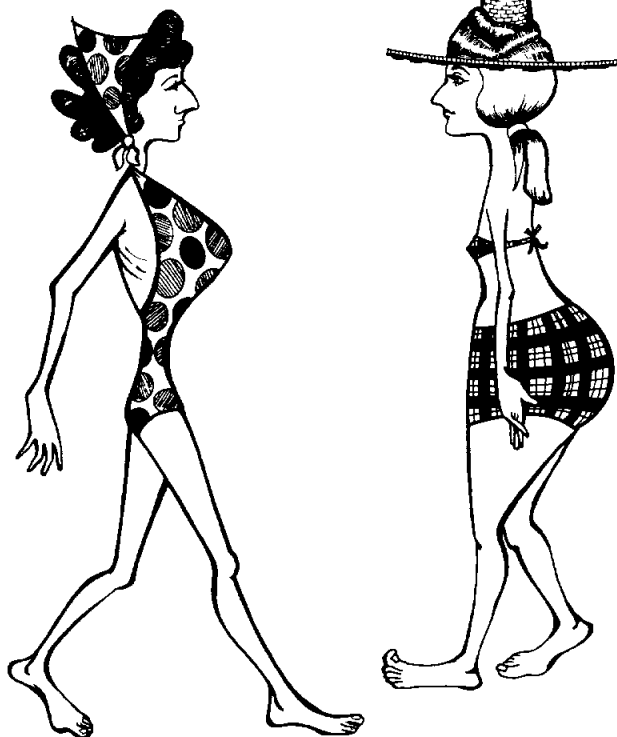
Any such individual holding a position in the Government of the United States or in the government of the District of Columbia on the date his conviction becomes final shall be removed from his position. For purposes of this law, "felony" means any offense for which imprisonment is authorized for a term exceeding 1 year.

Earns QSI



Bobby J. Wood
MSC White Sands

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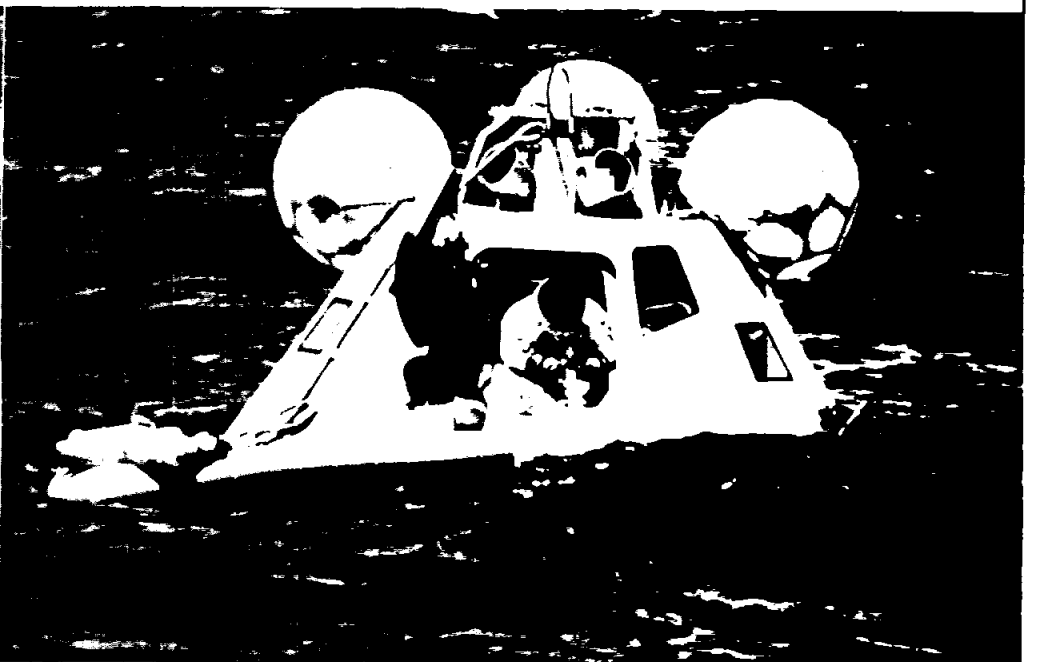
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Apollo VII Crew Draws a Half Day of Sea Duty



RUB-A-DUB, DUB—Three men in a spacecraft went to sea August 5 as the Apollo VII prime crew trained for water egress in the Gulf of Mexico south of Galveston. In left photo, Apollo crewmen Walter Cunningham, Walter M. Schirra, Jr. and Don F. Eisele are briefed on the afterdeck of the MV *Retriever* by Larry Bell of Landing and Recovery Division before entering the spacecraft. Behind Schirra are Flight Crew Support Division training coordinator Tex Ward and observer astronaut Ron Evans. In the tradition of the sea, Schirra was the last

to leave the ship (right photo) as the crew climbed into the liferaft to await Coast Guard helicopter pickup. The spacecraft was first placed in the water apex down, or in the Stable II position. Uprighting bags flipped the spacecraft to Stable I before the hatch was opened for crew egress and pickup. The backup Apollo VII crew repeated the exercise the following day.

20-Year Men



Lawrence D. Hemmert

MSC White Sands Test Facility

Raymond F. Hale

Country Theater Stages 'Rainbow'

The Clear Creek Country Theater of League City August 22 will open an eight-performance run of the musical comedy "Finian's Rainbow."

"Rainbow's" plot centers around a pot of stolen gold Finian attempts to make grow by planting it near Fort Knox. His efforts are foiled by the leprechaun Og.

The role of Finian is played by Clear Creek High School principal Art Goforth, and his daughter Sharon by Carolyn Detmore of Flight Support Division. Other MSCers in the cast are Morgan Redmond of B&R-N and Don Wiseman of AV Corp.

Reservations for the production can be made at 932-3714.

Lunar Flyer

(Continued from page 1)

opment study contract will be awarded for analysis, cost study and preliminary design of a lunar flying vehicle—one of several possible lunar mobility approaches being considered by NASA. However, a follow-on hardware development project will not begin until specific post-Apollo lunar surface missions and mission support systems have been approved.

2TV-1 Tests

(Continued from page 1)

The manned checkout was aimed at verifying test procedures and spacecraft systems prior to manned thermal-vacuum testing.

The crew boarded the spacecraft inside the 120 foot high, 65 foot diameter chamber A at 1 p.m. They wore the latest model Apollo pressure suits and remained in the vehicle for a total 16 hours in two runs.

The 2TV-1 test vehicle has undergone modifications to the forward and side hatches and the forward heat shield and has been equipped with a docking probe since completing CSM 101 support testing at MSC in June.

PLSS Modifications

(Continued from page 1)

The modification definitizes contract changes incorporating the use of non-flammable materials based upon Apollo flammability test results, component replacement, redesign, and quali-

fication testing, and the configuration changes necessary for integrating these modifications. The modification also includes development and qualification of the Oxygen Purge System.

UofH Course Sign-Up Set for September 6

The University of Houston has announced a list of twenty proposed courses to be offered at the Clear Lake Graduate Center during the 1968 fall semester. The list includes ten courses in the College of Engineering, nine courses in the College of Arts and Sciences, and one course in the College of Business Administration.

Approximately 1000 MSC employees, who are on the current mailing list to receive information concerning the graduate program, will be sent a schedule and description of the courses to be offered at Clear Lake. Other MSC employees who desire information regarding these courses should notify the Em-

ployee Development Branch at Extension 7311.

Registration for the courses to be offered at Clear Lake is scheduled for September 6 from 9 to 11:30 am and to 3:30 pm in Building 30, Room 1025. Late registration is scheduled for September 13 from 9 to 11:30 am at the same location. MSC employees who plan to enroll for any University of Houston courses, either at Clear Lake or at the main campus, are being asked to submit MSC Form 75, Application for Training, to the Employee Development Branch, BP3, by August 26.

The list of proposed courses to be offered at Clear Lake includes the following:

College of Arts and Sciences			
Department of Mathematics (MTH)			
MTH 439	Selected Topics in Mathematics (Suitable for Engineering Students)	3-4:30 pm	M-W
MTH 477	Advanced Linear Algebra	3-4:30 pm	T-Th.
MTH 633	Theory of Functions of a Real Variable	4:30-6 pm	M-W
MTH 683	Selected Topics in Analysis	4:30-6 pm	T-Th.
MTH 685	Selected Topics in Applied Mathematics	Arrange	Time
Department of Physics (PHY)			
PHY 390	General Astronomy	3:30-5 pm	M-W
PHY 661	Methods of Mathematical Physics	7:30-9 am	T-Th.
PHY 667	Quantum Mechanics	3:30-5 pm	T-Th.
Department of Political Science (POL)			
POL 389	Topics in Public Administration	4-5:30 pm	M-W
College of Business Administration			
Department of Management (MGT)			
MGT 672	General Management Theory	3-6 pm	Thu.
College of Engineering			
Department of Electrical Engineering (E E)			
E E 575	Control Engineering	4-5:30 pm	T-Th.
E E 632A	Statistical Communication Theory	4-5:30 pm	M-W
E E 735	Communications and Radar Systems	4-5:30 pm	T-Th.
Department of Industrial Engineering (I E)			
I E 363	Engineering Statistics I	7-8:30 am	T-Th.
Department of Mechanical Engineering (M E)			
M E 571	Vibration Analysis	7:30-9 am	T-Th.
M E 630	Radiant Heat Transmission	4-5:30 pm	T-Th.
M E 690	Engineering Analysis I	7:30-9 am	T-Th.
M E 730	Selected Topics—Spacecraft Temperature Control Systems	7:30-9 am	T-Th.
M E 730	Selected Topics—Astrodynamics I	7:30-9 am	M-W
M E 730	Selected Topics—Optimization Theory	4-5:30 pm	M-W

Spanish Club Seeks More Members

The MSC Spanish Club plans beginning and intermediate classes in conversational Spanish to begin in the fall. Also planned are programs of films, speakers and social events. The Club hopes to recruit additional members. Call Estella Jackson at 3193 for details.

Feathered Outpatient



SQUARE NEEDLE—A small-scale drive to stamp out botulism is underway at MSC after an unknown source of the disease killed several members of the duck colony. Dr. Malcolm C. Smith of the Biomedical Research Office is shown injecting vaccine into a somewhat apprehensive duck held in a hammerlock by Lawrence Clement of LTV Aerospace Corporation. An embargo on employees' feeding the ducks has been called until the source of the botulism has been found. Botulism is not directly contagious to humans but can be got by eating an improperly-cooked diseased duck. Nighttime ducknappers, beware!