

## LM Fittings Beefed up Against Stress Corrosion

About 30 small aluminum brackets and fittings are being replaced or reinforced in the Apollo Lunar Module in a concerted campaign to rule out the possibility of cracking due to stress corrosion.

The changes are not expected to affect flight schedules.

The fittings which are being changed include gaseous oxygen tank supports in the ascent stage, propellant line supports in the descent stage, ascent stage heat-protective mountings and connecting fittings. Most of the pieces would fit in the palm of one's hand.

The changes were approved January 29 by NASA in an

Apollo Spacecraft Configuration Control Board Meeting at Grumman Aircraft Engineering Corp., prime contractor for the production of the lunar module. NASA approved the action after hearing presentations by both NASA agency and Grumman engineers who have been conducting an investigation into the stress corrosion problem.

Engineers emphasized there have been no failures in any of the structural testing programs attributable to stress corrosion cracking. The change action stems from a continuing monitoring of structural parts susceptible to stress corrosion. The first stress corrosion monitoring began in December 1967 when some small cracks were discovered in LM landing gear struts.

Nine fittings have been replaced or reinforced in LM-3, which will fly in the Apollo IX mission and six fittings were fixed in LM-4 which is destined for Apollo X. Both these vehicles have been pronounced ready for flight and no further structural changes are foreseen.

On LM-5 and subsequent vehicles, 33 fittings common to each vehicle have been identified which, if cracked by stress corrosion, would degrade structural integrity.

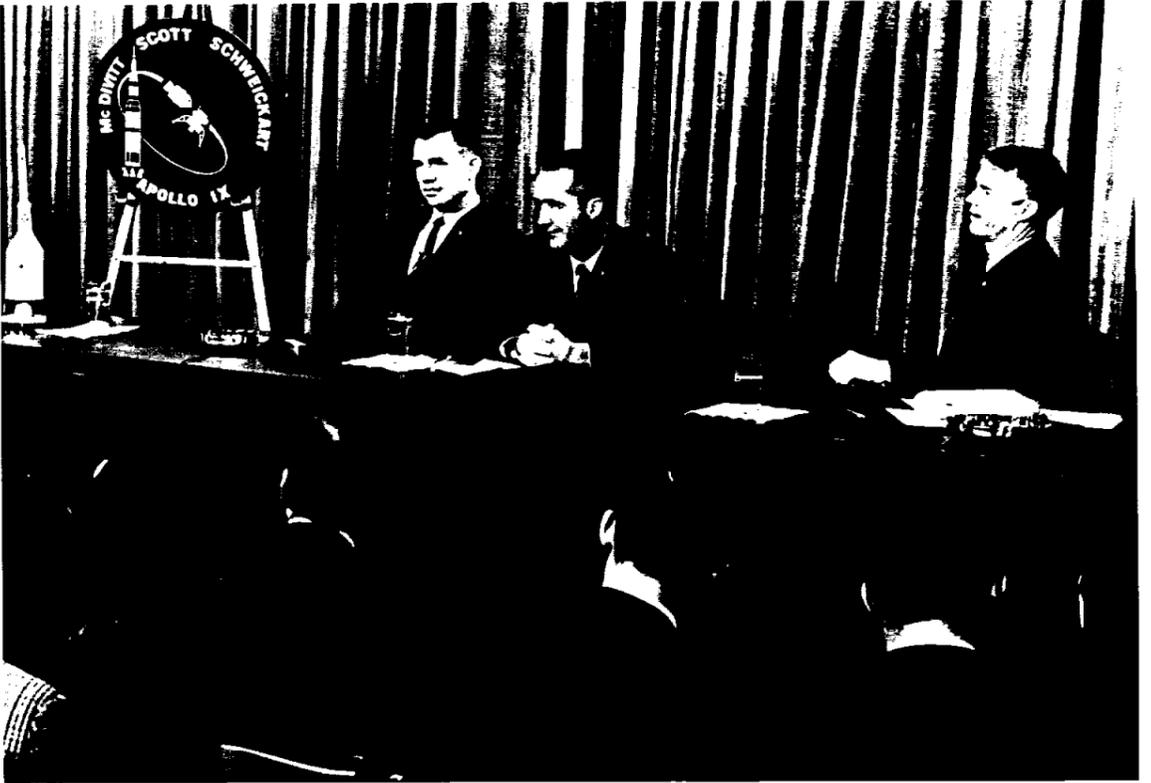
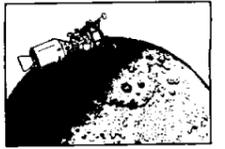
# ROUNDUP

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**CREW WITH WORK CUT OUT FOR THEM**—Apollo IX crewmen David Scott, James McDivitt and Russell Schweickart describe for newsmen the busy mission timeline for their flight now scheduled for launch February 28. Centering around the first manned operations with the lunar module, the mission is the most ambitious and complicated so far. Schweickart will spend some two hours in EVA, and McDivitt and Schweickart will fly the LM out some 95 nautical miles away from the command module in a rendezvous sequence paralleling that of a lunar orbit rendezvous after a lunar landing. The January 25 press conference was held at Grumman Aircraft Engineering Corporation's Bethpage, N.Y. plant where the lunar module is built.

**BUSY LAUNCH AREA—**

## Bed-Rest Study Begun for MSC

A one-year study of the effects of exercise in offsetting metabolic side-effects of bed rest was begun last month by the US Public Health Service Hospital in San Francisco.

Conducted by the Service for the MSC Medical Research and Operations Directorate, the study will use six volunteers who will spend nine months in bed in an investigation of possible lessening of bone mineral loss through use of exercise devices.

## RB-57 Canberra Joins Earth Resources Fleet

MSC, in cooperation with the US Air Force, will add a high-altitude four-engine jet, to its Earth Resources Aircraft Program by mid-1969.

An Air Force RB-57F, a modified RB-57 'Canberra' will serve as a test vehicle for the development of instruments and techniques for earth resources investigations from aircraft. The RB-57 is currently scheduled to join, by early summer, other aircraft in the NASA program which is being conducted by the Earth Resource's Division of MSC's Science and Applications Directorate.

Under the terms of the Air Force-NASA agreement, the Air Force will furnish and operate the aircraft and provide flight and ground crews.

The 9th Weather Reconnaissance Wing, McClellan AFB, Sacramento, California, has furnished the plane and the 58th Weather Reconnaissance Squadron at Kirtland AFB, Albuquerque, New Mexico is providing the flight and ground crews and to operate the aircraft for NASA out of Kirtland AFB.

Special metric and multispectral cameras and infrared instruments will be mounted in a removable pallet on the aircraft. The RB-57, which has a wing span of 122 feet and can achieve altitudes in excess of 60,000 feet, will be piloted by an Air Force officer and an MSC engineer will serve as instrument operator. The two-man crew will wear pressure suits during the mis-

sions which are scheduled to be flown in excess of 50,000 feet.

MSC is currently carrying out numerous aircraft missions throughout the country, toward the development of instruments and techniques for use in the earth resources program. The RB-57 will be added to other MSC aircraft — the Lockheed P3-A and a Lockheed C-130A — to implement this program.

The new aircraft is currently undergoing modifications at the General Dynamics plant at Ft. Worth, Texas and is scheduled for flight status sometime after June.



**NEW WORKHORSE**—A Martin RB-57F, similar to the one above, will join MSC's Earth Resources aircraft fleet in June. Although obsolescent as a medium bomber, the RB-57 is an extremely stable camera and instrument platform capable of extended missions at altitudes above 60,000 feet.

## Apollo IX Countdown Test Scheduled for Next Week

Hypergolic propellants Monday were loaded aboard the Apollo IX space vehicle at NASA Kennedy Space Center Launch Complex 39A in preparation for next week's countdown demonstration tests.

The vehicle is on schedule for the February 28 planned launch date.

Apollo IX crewmen James McDivitt, David Scott and Russell Schweickart, using command module and lunar module simulators at KSC, and Mission Control Center flight controllers have been taking part in mission simulations. Phases

practiced in the simulations include launch, transposition and docking, docked SPS and LM descent engine burns, rendezvous and entry.

The Apollo IX crew for the first three days of the mission will have meals that come closer to home cooking than the usual space fare. Each man will have meat-and-potatoes entrees in addition to the regular rehydratable and bite size food items.

The extra food items, which can be eaten with a spoon, are five-ounce servings of beef and potatoes, ham and potatoes and turkey and potatoes—much the same as the Christmas day meals carried aboard Apollo VIII.

The Apollo X launch vehicle malfunction overall test was completed early this week. Mobile launcher swing arms for access to spacecraft and launch vehicle stages also were function tested.

The Apollo X spacecraft was scheduled to be moved yesterday from the KSC Manned Spacecraft Operations Building to the Vehicle Assembly Building for mating with Saturn V launch vehicle 505.

The Apollo XI command and service modules this week underwent a cabin leak check and umbilical buildup in the Manned Spacecraft Operations Building. Lunar module 5, also in the MSOB, underwent modifications and replacement of possible stress-corrosion affected

fittings. (See story on page 4 this issue.) Both LM-5 stages are expected to be moved to the altitude chamber by early next week.

## AIAA To Hold Flight Test Meet Here in March

The American Institute of Aeronautics and Astronautics March 10-12 will hold the Third Flight Test Simulation and Support Conference at the Houston Marriott Motor Hotel.

Three members of MSC management will take part in the three-day program. Flight Crew Operations Director Donald K. Slayton will speak on "Apollo Progress Report" at a March 11 session of flight test co-chaired by Slayton's deputy and Apollo VIII commander Frank Borman. Slayton will be a panelist on "The Ground Test/Flight Test Interface" the following day moderated by MSC Director of Engineering and Development Maxime Faget.

There will be no advance registration for the technical sessions, and fees must be paid at the registration desk. Fees are \$15 for AIAA members, \$5 for Houston section members, and \$30 for non-AIAA members.

James C. McLane, Jr. of MSC Structures and Mechanics Division is general chairman of the Conference information committee.

**GET HOOKED**  
**ON COST REDUCTION**  
 AWARDS & COST REDUCTION PROGRAM

## Aurora Probe Called Success

Preliminary data analysis of the January 26 Wallops Island electron accelerator experiment was successful. The rocket probe carrying an MSC payload produced an artificial aurora 175 miles above the Virginia coastline.

An Aerobee 350 boosted the accelerator experiment package from the NASA Wallops Station facility at 4:45 am. The experiment's output of electron beams interacted with the atmosphere and produced excited atoms and light in a duplication of natural aurora.

Designed by MSC Director of Science and Applications Dr. Wilmot N. Hess, the project is aimed toward helping scientists learn more about the aurora. It was the first test of a more ambitious experiment utilizing a similar electron accelerator aboard an orbiting spacecraft.

Observations of the artificial aurora were visually seen by scientists on the ground and a series of pulses were recorded on film by a sensitive television camera. Prof. Neil Davis, University of Alaska was project manager for ground observation and data collection.

When the experiment package reached approximately 60 miles altitude an 85-foot diameter aluminum mular foil was deployed. The foil acted as a current collector for ionosphere electrons and electrically neutralized the experiment.

The accelerator then put out a series of 100 beam pulses which were aimed downward at the Wallops Island ground station. Although the auroral spots were of relatively low intensity, more than 30 scientists witnessed and recorded the event. The scientists from the NASA, the University of Alaska, Stanford Research Institute, the University of Minnesota, Stanford University, John Hopkins University, the Naval Research Laboratory, Lockheed Palo Alto Research Laboratory, Smithsonian Astrophysical Observatory and the ESSA were located within 100 miles of the NASA launch facility.

Detailed analysis is underway to determine if the auroral intensity, location and shapes were as predicted.

## Dispensary Has Hong Kong Shots

Hong Kong influenza immunizations on a first come-first served basis are available to MSC and contractor employees at the MSC Dispensary and at EAFB Bldg 339 from 8 am to 4:30 pm Monday through Friday.

Persons allergic to eggs, chickens or chicken feathers or who have acute infections with fever should not take the shots until after they have recovered.

An initial batch of 1000 units of vaccine was on hand with additional supplies expected.

## Earns Excellence Ribbon



**TOP IN CATEGORY**—MSC illustrator Boyd E. Mounce of Reproduction Services Branch January 18 won the Society of Technical Writers and Publishers award of excellence in the promotional category for his design of this visitor information jacket. The STWP competition was held during a one-day seminar on technical illustration at Rice University Fondren Library.

The *Roundup* is an official publication of the National Aeronautics and Space Administration Manned Spacecraft Center, Houston, Texas, and is published every other Friday by the Public Affairs Office for MSC employees.

Director . . . . . Dr. Robert R. Gilruth  
 Public Affairs Officer . . . . . Paul Haney  
 Editor . . . . . Terry White  
 Staff Photographer . . . . . A. "Pat" Patnesky

## Your Job in Focus

### Changes in personnel data

It is important that official personnel records be correctly maintained at all times. Therefore, if employees acquire on their own, additional training, education, or experience, or assume offices or memberships in professional organizations, the information should be forwarded to BP8 for inclusion in the personnel folder. Such information should be submitted on SF-172, "Supplemental Experience and Qualifications Statement," (previously SF-58).

### Personnel policies

There are several personnel directives which govern personnel policies, actions, and procedures at MSC. They include the Federal Personnel Manual which provides personnel policies, the Civil Service Handbook X-118 which establishes qualification standards, and the Civil Service Classification Standards, followed when classifying positions and determining proper grades.

### Volleyballers Meet

Managers of all EAA volleyball teams will meet Tuesday at 5:15 pm in Room 171 Bldg 4.

Distribution of these manuals to the Center is limited, but they are available in the Personnel Office, and employees and supervisors are encouraged to refer to them when the need arises.

### Indebtedness

Each employee of MSC is expected to pay his debts and maintain a good credit standing in the community. Because Federal employees' salaries are exempt from garnishment (except for Federal Income Tax), it is particularly important that our employees meet their obligations. Failure to honor valid debts or to make and adhere to satisfactory arrangements for settlement of financial obligations is cause for disciplinary action.

In determining the action to take in an indebtedness case, consideration is given to the seriousness of the complaint, the employee's show of good faith or lack of good faith, and any unusual circumstances involved. However, all employees should understand that when they ignore or are careless about meeting valid financial obligations, they do so at the risk of jeopardizing their employment or record at the Center.

## Credit Union Straight Talk

This is the last in a series of cost comparisons showing how much may be charged under the Consumer Credit Code and what the credit union charges.

Retail charge agreements, sometimes called revolving accounts, are probably the most common type time payment plan. The code permits a "time price differential" of 15c per \$10 per month on an unpaid balance not over \$500; and 10c per month on that portion over \$500. If one had purchased an item and charged \$1200 for 12 months with repayment terms of \$100 per month plus charges, he would have paid \$103 in monthly charges. At the credit union he would have been charged \$78 interest at 1% per month on the unpaid balance—a net savings of \$25.

It is in the small loans from

\$30 to \$100 that cost saving is most dramatic. The code permits charges of 1/10 of the amount advanced plus handling charges per month of \$3 on loans from \$30 to \$35; \$3.50 a month on loans from \$35 to \$70; and \$4 per month from \$70 to \$100. Here's how it looks for a \$100 loan:

No. Months	Allowable Charge	Credit Union Costs	Saving
1	\$14	\$1.00	\$13.00
2	18	1.50	16.50
3	22	2.01	19.99
4	26	2.50	23.50
5	30	3.00	27.00
6	34	3.53	30.47

There should be no doubt in anyone's mind that one can help himself most by trading with the credit union. Ownership is the major ingredient which makes the credit union so effective. Members individually and collectively own it, help determine policies, and reap the benefits.

## Lunar Sample Area On Operational Status

The Sample Operations Area of the Lunar Receiving Laboratory this week was placed on operational status much like it will be during an Apollo lunar landing mission.

Doors of the Sample Operations Area (SOA) were closed to everyone except those assigned to duty in the area. Controlled access will continue through the lunar landing missions and the end of the 30-day quarantine period for lunar sample and flight crew analysis.

MSC and contractor employees assigned to the SOA now work under quarantine conditions which require changing from street clothes into hospital-type clothing and entering the lab through ultraviolet locks.

The procedure is reversed at the end of the work day and employees shower before donning street clothes and leaving the lab.

The Sample Operations Area includes the vacuum chamber lab, gas analysis lab, low radiation counting lab, physical chemistry lab and biological labs.

The Mobile Quarantine Facility for crew transfer from the recovery area to the Lunar Receiving Laboratory after lunar landings yesterday underwent a manned test in the Space Environment Simulation Laboratory Chamber A. The MQF emergency breathing oxygen system was testing in a simulated loss of aircraft pressurization at 35,000 feet.

### Kudos for Program



**TAKES HONORS**—Joseph D. Atkinson, Jr. of the MSC Awards and Cost Reduction Office accepts the National Association of Suggestion Systems first place award in Class B, complete suggestion and cost reduction promotional program. Atkinson's office developed the "Do it Yourself Pay Raise Kit" as a Center-wide promotion after it was suggested by Robert A. Dittman of the Medical Research and Operations Directorate office.

### Flyers Launch Ground School

The Aero Club Thursday will start a private pilot ground school using the Sanderson audio-visual course. The first class will meet at 5:15 pm in Room 517 Bldg 2.

Partly subsidized by the MSC Employee Activities Association, the ground school tuition is \$20. To register, attend the first class or call Charles Krpec at 645-6089.

### Tech Writers Meet

The Houston Chapter of the Society of Technical Writers and Publishers Tuesday will hear STWP first vice president Gunther Marx speak on "Maturity in Technical Communications."

The dinner meeting at the Ramada Inn on NASA Road 1 begins at 6:30 pm. Reservations can be made with Eston Meade at 6333.

### Spanish Club Starts Classes

Beginning and intermediate conversational Spanish classes start next week and will run through the end of May.

The beginners classes are held each Tuesday and the intermediate classes on Thursday — both in Room 108 Bldg 13

from 5:15 to 7:15 pm. The classes are offered by the MSC Spanish Club.

Although advance class registration ended yesterday, late registrations will be accepted through next week. Class fee, not including textbooks, is \$16. Refunds to dropouts will not be made after February 21.

Instructor for the classes is Mrs. Roger Tully.

Additional class information may be got from any of the following Spanish Club members: Norman Chaffee 4776, Richard Echelcamp 5885, Joe Pirtle 2441, Harry Kline 4564 and Estella Gillette 3193.

### Golfers Tee Up For '69 Season

The MSC Golf Association will open its 1969 tournament schedule at the Houston Executive Club March 15. Current planning calls for the group to play 12 tournaments this year at different Houston area courses.

Plans for the year's activities have been mailed to members of the Golf Association. Golfers who were not members in 1968 and are interested in participating this year can contact membership chairman Ivan Ertel at 7571.



## Roundup Swap-Shop

(Deadline for Swap-Shop classified ads is the Friday preceding Roundup publication date. Ads received after the deadline will be run in the next following issue. Ads are limited to MSC civil service employees and assigned military personnel. Maximum length is 20 words, including name, office code and home telephone number. Send ads in writing to Roundup Editor, AP3. Ads will not be repeated unless requested.)

#### FOR SALE/RENT—REAL ESTATE

Heavily-wooded lot, 90x200 in beautifully developed community of Oak Hollow, Dickinson, \$5000. Jezewski, 649-2162.

Sagemont, 3-2-2, built-ins, carpets, drapes, fenced, 1800 feet, large den. Equity, \$140/month, 6 3/4. School, shopping center. Oscar Bernard, 487-3697.

3-2-2 brick in Fairmont Park, fence, electric-kitchen, central A/H. For lease, \$190/ma. with option-to-buy. Owen, 877-1710, Kemah.

Seabrook, equity \$4500, \$183/month includes tax and insurance. 1 1/2 story 4-2-2 with 1950 sq. ft. R. Bossen, 474-3430.

Want to rent a garage in Pasadena area near Strawberry and Spencer Hwy. Phyllis Morton, 946-4752.

3-bedroom house, fireplace; efficiency or servants quarters, 1/2 acre in piney woods. Evadale (Beaumont), near Neches River. Kennedy, 944-9023.

Sell or lease 3-bdr 1-story Queens Court townhouse in Nassau Bay. Hughes, 591-2287.

#### FOR SALE/AUTOS

68 Buick Riviera, silver, air, AM/FM, GS suspension, chrome steel wheels, exclnt mechanically, Tom McPherson, 877-1630 after 5.

64 4-dr. Buick Special, factory air, P/S auto, new muffler, shocks, brakes, good rubber, 55,000 mi., \$1000, E. Simon, 488-4043.

64 4-dr. Olds F-85, factory air 3-spd, new muffler, shocks, brakes, good rubber, 38,000 mi., runs perfect, \$900, E. Simon, 488-4043.

68 Ford Torino GT, 390 4-V, fully equipped. Wells, 944-9504 after 5.

68 Corvette coupe, fully equipped. Jim Ellis, 864-4830.

67 Corvette fastback, maroon, 427, air, 4-speed, positraction, AM/FM. Harold Nitschke, 649-2954.

66 LeMans hardtop Spring, 4 BBL OHC engine, 4-speed, wide ovals, radio, air, buckets. W. D. Sherborne, GR1-4825.

62 Ford pickup, engine, brakes, clutch, completely overhauled, body good cond., new 6-ply tires, \$695. Briggs, 946-5849 after 5.

64 Pontiac Catalina, 2 dr. HT fully-loaded. Excellent condition. Jerry Franklin, 932-6057.

66 Ford Fairlane 500 station wagon. Factory A/C, V-8, synchromesh, power steering, roof rack, below book at \$1450. Will finance. Jerry Hammack, 877-1657.

65 Chevrolet station wagon; A/C; P/S; clean, excellent condition, average retail \$985; make offer. Frank Wittler, Dickinson 534-3916.

55 Chevy, 1/2-ton truck, \$300, G. Idector, 534-3352 Dickinson.

66 Olds Delta 88, 4-dr hardtop, fully

equipped, new tires, excellent condition, one owner, \$1800. C. C. Kraft, HU2-7357.

66 Dodge Dart, 4-door sedan, factory air, radio, 35,000 miles, excellent condition, \$1,000. Earl Rubenstein, 877-3288.

65 VW, white, air, good condition. Darlene Butler, 492-7567, after 5.

67 Mustang, air, automatic, radio, excellent condition. Donna Phillips, 946-6920 after 6.

62 Galaxie 500. 4-door/air/full power, \$450. Karla Garnuch, GR2-2791.

63 VW, blue, sunroof, good condition, \$650. M. Cohn, HU8-4144.

65 Rambler American stationwagon. 6 cyl., radio, heater, auto., air, motor mechanically sound, 40,000 miles. \$695. Kennedy, 944-9023.

64 VW; blue, sunroof; 33,000 miles; good condition; \$700. Vance Brand, 591-2592.

67 Pontiac Firebird, V-8, auto-trans, radio, air, power steering, 25,000 miles, \$2095. B. Oczkowski, WA6-8994.

Mustang: golden-bronze, born 1965. Good condition. 289 V-8, standard shift, air condition, rally pack. Days call HU8-4266; nights, HU8-3423.

1965 Buick Electra 225 4 door Hardtop. 29,000 one-owner miles. Prime condition. \$1595. Peevey Phillips Station, 3514 Hillcroft.

#### FOR SALE/MISCELLANEOUS

23 ft. Chris Craft Cabin Cruiser, toilet, 2 bunks, glass bottom, trailer and flying bridge, exclnt cond, \$1500. Ken Thoma, GR1-2967.

Lone Star 16 sailboat, 3 1/2-hp motor, trailer, many extras, all in excellent condition. E. Simon, 488-4043.

Astra Model 600 9MM Luger automatic with holster and extra clip. Excellent condition, \$50. Gene Nitsch, 944-5628.

HO trains—R.T.R. sets, engines, cars. Mile Bledsøe, 422-2505.

Dinette set, Spanish wrought iron, excellent condition, round thermal-resistant black marble-effect top, washable Spanish

green upholstery, \$100. G. J. Sales, 877-2755.

19" BW Silvertone portable TV. Good condition, \$40. W. S. Presley, 591-3635.

Will fly persons anywhere they want, on weekends, for cost. Blankenship, 944-0750, after 5.

Old 5-hp outboard motor w/short shaft. \$25. W. S. Presley, 591-3635.

Rug, 12x15, Armstrong 100% nylon, Sahara gold, like new, best offer. Laughery, 932-4730.

Playpen, \$10; bouncer-walker, \$3; car-seat, \$5; all are foldable and in good condition. Laughery, 932-4730.

Hand-crafted Early American chest, measures 32 wide, 16 1/2 deep, 29 tall. Hand-rubbed antique pine finish. Paul Strutevant, 591-3905, after 5.

White sewing machine with cabinet, attachments include buttonholder, \$30. Schwinn boy's bicycle, green, originally \$75, sell \$25. R. B. Erb, 877-1097.

J. B. Lansing crossover networks Model N2400, perfect, \$15 ea. David Hogg, 946-7995 after 5.

AM BC Tuner—Heathkit Model BC-1A, walnut veneer cabinet, \$20, RF generator—EICO Model 320, \$15. David Hogg, 946-7995 after 5.

Small clock radio, walnut case, needs work, \$7. 21" TV set, working condition, \$15. David Hogg, 946-7995 after 5.

Sine and square-wave generator Lafayette Model TE-22, \$30. Electronic Switch, Heathkit, S-3 \$20. David Hogg, 946-7995 after 5.

Antique bedroom suite, \$110; large antique marble top table, \$60; antique civil war rocket, \$60; antique desk chair, \$20. M19-2569.

Double bed with mattress and box springs, \$35. 7x35 binoculars, \$20. M19-2569.

Thomas Palace organ, 3 manuals (61 note), auto presets, band box. Walnut, 18 months old, under warranty, sacrifice \$3,800. D Rafuse, 932-2468 evenings.

Calendar watch, day, date, month, moon phase all work, \$20. 23" Admiral table model TV, \$25. Bob Lindemuth, HU2-1086.

GE B&W TV, 15" with UHF, \$52.50. G. Corley, 944-0854.

Individual sculpture items, pastel drawings, acrylic and oil paintings, \$50 and up per article. Metcalf, 946-4860 after 4.

Reddish-blond wig, hand-tied, trade for brown or black wig or fall, or sell for best offer. Leota White, 643-3141 evenings.

Save \$50, Clear Lake Country Club Membership, \$400. Sam Palazzola, 488-0125. TV-23" RCA B/W beautiful console, 3 zola, 488-0125.

Recently upholstered, good as new, brown sofa, orange chair living room set, \$150. Sam Palazzola, 488-0125.

11.5 cu-ft. Frigidiare refrigerator, \$50. Merrell, 932-3046.

Baby crib w/mattress, \$25. 8-inch bench saw, stand, dado head, sanding disc, extension, \$25. Gas stove, \$20. Hicks, M14-2913 after 6.

Bed frame, headboard, \$12.50; Cosco highchair, \$6; Bathinet, \$5; stroller, \$4; walker, \$1.50; 15 cu-ft. chest deepfreeze, \$60. Howard, 482-7082.

Technical movie club membership, equipment: Super-8 camera, projector, lights, screen, splicer, film processing. Cost \$525, sell \$500. Robert C. White, 482-7529.

Poodle puppies, small miniature males, black or mostly black, very lovable, 9 weeks old, reasonable. J. Raymer, 471-4094.

Blonde human hair fall and wiglet, both for \$20. William Hindsey, 591-3917.

Experienced tutor in Latin and English. Lottinville, HU8-3128.

Dining room light fixture, Spanish style, \$8. Collector's items records (1913-1930) perfect and RCA labels, make offer, Bob Law, 944-7596.

At stud, AKC prize-winning tri-color Bas-set Hound. Bob Law, 944-7596.

New taper attachment for 12" Atlas Lathe, \$40. A. S. Giralda, WA1-722.

Fender vibrochamp guitar amplifier, bass, treble, vibrato, 8-inch speaker, 2 jacks. \$100 value, asking \$45. W. Hull, 877-1324.

King-size headboard (French Provincial) \$75; king-size metal frame, (converts twin beds) \$17.50; Tappan range, 40" electric, \$85. Kennedy, 944-9023.

2—6.50x16 mudgrip tires, complete w/ tubes, wheels, like new. All for \$50. Kennedy, 944-9023.

#### WANTED

Carpool 7:30—4:00 shift. From LaPorte. Ben Locher, GR1-4387.

Used Fender Stringmaster three-neck steel guitar. Used De-Armond violin pickup. Jim Bates, 944-4687.

Wood router and accessories. Brenton, 946-3508.

Good home with fenced yard for female AKC-registered Beagle, 1 1/2 years, excellent with children. Can't hunt. Kloves, 471-0928.

Want to start a carpool from the NASA area to U of H night school on Tuesday—Thursday. Kent Mize, 483-5171.

Ping-Pong table and net; 15-30 gal. aquarium and accessories; tent, sleep 4; slide projector; all good condition. Lindemuth, HU2-1086.

Ride from League City, 7:30—4. Gatha Archer, 932-2246.

#### LOST/FOUND

Lost—one silver drop earring. Phyllis Morton, 946-4752.

Found—in El Lago, man's bifocal glasses. R. B. Erb, 877-1097.

## Crippled Kids Summer Camp Opens June 1

Applications for the summer Texas Lions Camp for Crippled Children are being accepted by the Bay Area Evening Lions Club. The Camp at Kerrville, Texas will open the first of five two-week sessions June 1.

The camp is free to eligible blind, deaf, mute or crippled children ages 7-16.

## Masons Occupy Local Lodge

Clear Lake Lodge No. 1417 AF&AM Tuesday will open its new lodge facilities at 3007 Lake Oak Drive in El Lago Estates with a beef, smoked turkey and venison dinner at 6:30 pm.

Lodge Master Tom B. Crawford will open the first meeting in the new lodge building at 7:30. MSC-area Masons and their wives are invited to attend.

## Bay Area Y Aims to Double Membership

The Bay Area YMCA ends a membership drive February 17 in which the goal is a doubling of membership. Reduced membership rates are in effect during the drive.

From inception a year ago, the Bay Area YMCA has grown from nine Indian Guide Tribes to 25 tribes ranging from Dickinson to Friendswood to Seabrook. Gra-Y groups have grown from four to six, and Hi-Y and Tri-Y groups have been added at Clear Creek high school. During the same period, the board of managers has grown from six to 16 members.

Expansion plans call for building a small facility on the permanent YMCA site within a year. initial development of permanent buildings and facilities in three years, and the complete YMCA facilities in five years.

Apollo VII lunar module pilot Walter Cunningham is honorary YMCA membership campaign chairman. Co-chairmen are Ben Gillespie of TRW Systems Group and Phil Arbuckle of Arbuckle Insurance Company.

The YMCA office number is HU8-4010.

## A Whale of a Ballplayer



**SHOW-OFF**—Galveston Sea-Arama's 1100-pound whale Nemo leaps for a suspended basketball as part of his act in the Sea-Arama Marine-world show. The MSC Employee Activities Association has arranged with Sea-Arama for group prices on tickets from February 10 through March 28. Adult tickets are marked down \$1 to \$1.75 and children's tickets down 50 cents to \$.75. Tads under five get in free. Sea-Arama tickets will be available from EAA representatives and from a Sea-Arama agent who will be in the Bldg 3 cafeteria during lunch periods. Sea-Arama hours are from 10 am to 5:30 pm.

## NASA Phases Out XB-70 Test Program

NASA last month announced termination of the joint NASA-DOD XB-70 flight research program.

Because of its large size and supersonic speed capability, the XB-70 has been a productive flight research vehicle for studying sonic boom, flight dynamics and handling problems associated with the development of advanced supersonic aircraft.

## MQF Receives Sea Shakedown

The Mobile Quarantine Facility in which crewmen returned from lunar landing flights will be transferred from the recovery area to MSC last month underwent manned sea and air transport trials at Norfolk, Va.

The 35-foot van was flown to Norfolk for placement aboard two different recovery vessels of the Manned Spacecraft Recovery Force-Atlantic. Six MSC recovery specialists spent 10 days in the MQF after it had first been loaded aboard the landing platform-helicopter USS *Guadalcanal* and then transferred aboard the destroyer USS *Fox*.

The exercise was a dry-run of all MQF systems aboard ships and aircraft and during transit from the recovery area to MSC.

The XB-70 was built by North American Rockwell Corp., for the US Air Force as a high-speed bomber prototype. Only two aircraft were constructed when it was decided to use them for research. The number two aircraft was destroyed June 8, 1966 in a mid-air collision.

NASA assumed management responsibility for the joint flight research program in March 1967.

The first XB-70 flight was made Sept. 21, 1964. A top speed of three times the speed of sound (about 2,000 miles-per-hour), and a peak altitude of 74,000 feet have been attained during the four-year flight program.

The aircraft Tuesday was flown from NASA's Flight Research Center, Edwards, Calif., to Wright Patterson Air Force Base, Ohio, where it was turned over to the USAF Museum. The aircraft flew at subsonic speed to permit a chase plane to accompany the bigger aircraft.

On the 2,000-mile flight, NASA gathered research data on handling qualities of the airplane and its structural response to air turbulence.

## Philco MCC Pact Renewed

MSC recently awarded a one-year contract to Philco-Ford Corporation, Western Development Laboratory, Palo Alto, California, for mission preparation and operation, engineering, and operational support of the Mission Control Center.

The MSC provides centralized control of NASA manned space flight missions. It exercises full mission control from launch to recovery, and technical management in the area of the vehicle systems, flight dynamics, life systems, flight crew activities, recovery support, and ground operations systems.

Philco-Ford's responsibilities under the contract involve systems analysis to assure capabilities of flight systems design with mission objectives, the reconfiguration of the control center on a mission by mission basis, display and command systems, and the performance of preventive maintenance on the equipment.

The contract modification covers the 12-month period ending June 30, 1969. The total amount of the cost-plus-incentive award fee modification is \$22,576,000. The contract contains optional provisions for two additional one-year periods. The contract value, including this modification is \$152,803,000.

## Paine Directs Restudy of LLTV Crashes

A review board has been asked to restudy its findings in the crash at MSC in December of a Lunar Landing Training Vehicle. The action was taken by Dr. T. O. Paine, Acting Administrator, because of a second crash of the free-flying trainer.

Paine requested the review by the board which was created last May 18, following the first accident. "In view of the recent crash," Dr. Paine said, "you are requested to review your findings and report to me in a timely way."

The second crash, last December 8, involved a Lunar Landing Training Vehicle (LLTV), an advanced version of the simulator designed to familiarize astronauts with landing operations in the Moon's reduced gravity. Although both craft were destroyed in the accidents at Ellington AFB, the pilots escaped without injury. An accident board at MSC is investigating the latest mishap.

Another member, Donald R. Bellman, was added to the review board by Dr. Paine. Bellman is from the research Division of NASA's Flight Research Center, Edwards, Calif., where the simulator was flown in development.

## M-2 Research Craft Getting Modifications

The M-2 lifting body will be repaired, modified, and returned to service as the M2-F3.

It then will rejoin the HL-10 and X-24 in a joint Air Force-NASA flight research program to explore the use of wingless vehicles for manned horizontal landings at air fields after return from space.

## MSC Extends ZIA Company WSTF Contract

MSC has announced a one-year extension of its contract with the ZIA Company of Las Cruces, New Mexico, for maintenance and operations support to NASA's White Sands Test Facility, Las Cruces.

The estimated value of the one year extension is \$3,608,000 and brings the total value of the contract since November, 1966 to about \$14.6 million.

Under terms of the cost-plus-award-fee contract, the ZIA Company is responsible for maintenance, repair and operation of buildings, equipment, and systems; emergency fire protection; medical services for employees; electrical and mechanical engineering support; altitude simulation system support; administrative support of supply, warehousing, transportation and heavy equipment operation; and nor construction and alteration of facilities.

The contract extension is the second of two one-year renewal options provided for in the original one-year contract. It extends the ZIA Company's period of performance through January, 1970.

The M2-F2, as initially designated, was damaged in a wheels-up landing accident in May 1967.

As modified, the M2-F3 will be fitted with a center stabilizing fin and will be equipped for special use as a test bed for research on lateral control systems.

Among the special provisions will be a jet reaction roll control system which may, in future applications, simplify the control designer's problem by using a common system that works all the way from orbit to landing. Other provisions are for improved and versatile internal components designed to aid the pilot in precise maneuvering.

The several test control systems and techniques have been checked out by wind tunnel research and simulator studies at NASA's Flight Research Center, Edwards Air Force Base, Calif., and Ames Research Center, Mountain View, Calif.

Meanwhile, the HL-10 is continuing its series of rocket-powered flights with progressive exploration of vehicle behavior and control at transonic and supersonic speeds. Following these tests, the HL-10 will be modified for powered landings.

The X-24 will begin a series of transonic and supersonic speed flights within a month, and during the next year an extensively automated afterbody control system will be investigated.

Thus, the three vehicles will soon be compiling the long lead time research which can be used as a basis for design of future manned space logistics systems.

## Curtain Up Tonight



**DISTRACTED**—Captain Fisby (Charles Bailey) tries to remain coherent in a phone conversation with his CO as the geisha Lotus Blossom (Yoko McGee) attends his wants in the Clear Creek Country Theatre production of "Teahouse of the August Moon." Tonight's opening performance is the first of eight stagings over the next three weekends. Curtain time is 8:15. BR-N's Morgan Redmond directs the production, and Yoko McGee is the wife of TRW's Charles McGee. Others in the cast include Otto Kuhlman, Dr. Roy Joyner, Dave McCormick and Lise Hart, daughter of PAO Broadcasting Services Office chief Bob Hart. Tickets for all performances are available from the Theater box office at 932-3714.

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