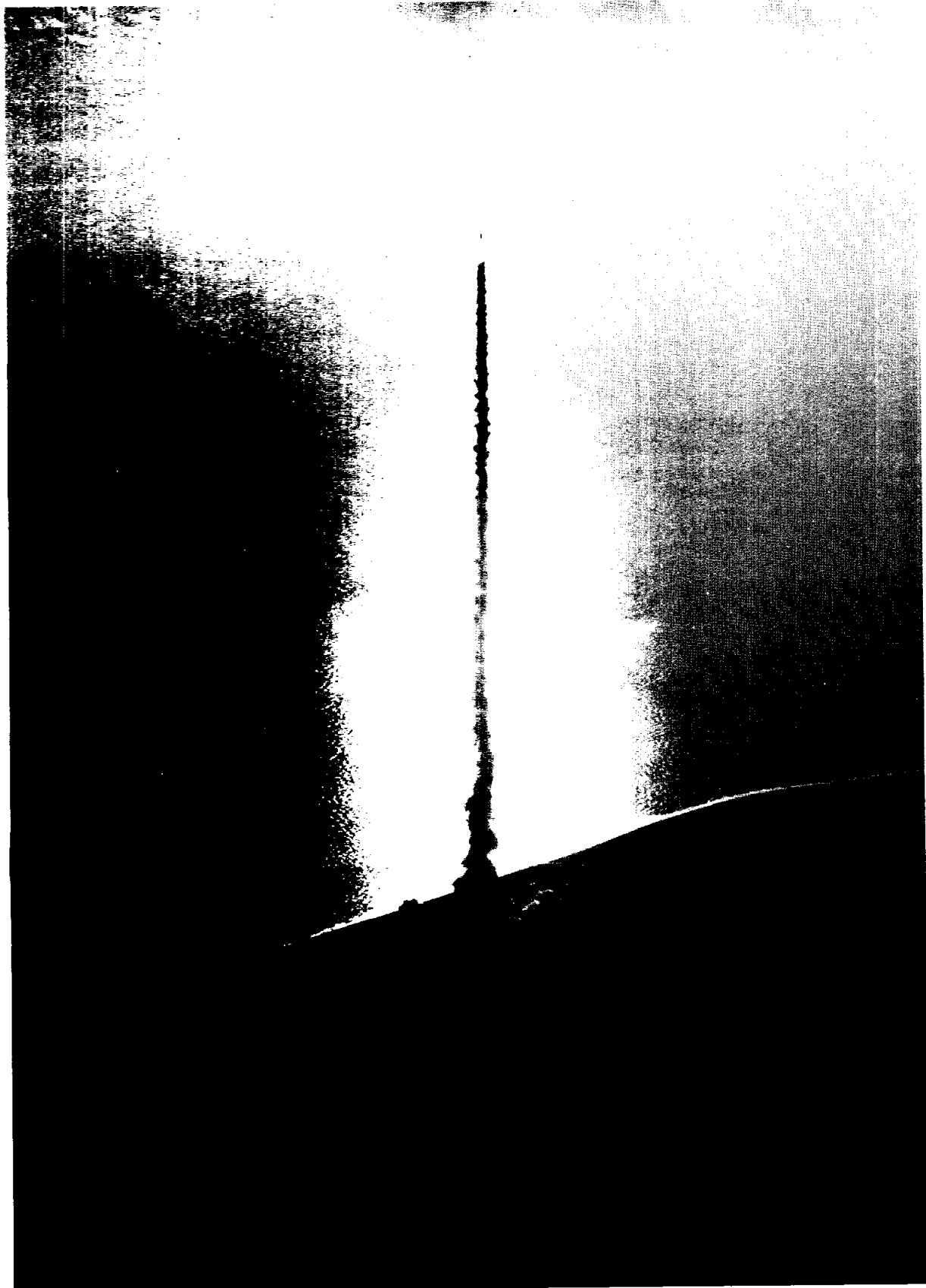


Space News Roundup

Vol. 23 No. 17

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National Aeronautics and Space Administration



Upward bound

The Orbiter *Discovery* makes her maiden launch into space in this photo taken by Astronaut Office Chief John W. Young from a Shuttle Training Aircraft. More photos from the 41-D mission can be found on page 3.

Space Station RFP released

NASA last week issued a Request for Proposal (RFP) to U.S. industry for definition and preliminary design of a permanently manned Space Station to be operational in low earth orbit early in the 1990s. Proposals are due by November 15. The Space Station will support scientific and commercial endeavors in space, stimulate new technologies, enhance space-based operational capabilities and maintain the United States' leadership in space. Because it will be a multipurpose facility serving many users, NASA's objective is that the Space Station be "customer friendly" and be dedicated to fulfilling customer requirements in its design and operation.

The Request for Proposal contains four "work packages" covering definition and preliminary design (Phase B) of Space Station elements. NASA plans to let competing contracts for each of the work packages and has scheduled April 1, 1985, as the effective date of the contracts.

In addition to the study of the permanently manned system, the Request for Proposal also requires contractors to study how those elements of the Space Station would change were the station initially man-tended rather than permanently manned. Contractors also will be expected to pay particular attention to recommendations of the NASA Advanced Technology Advisory Committee, which is identifying automation and robotic technologies which could be used in the Space Station.

Following completion of the 18-month definition and preliminary design contracts, NASA intends to move, in 1987, into final design and development of the Space Station. Proposers for the definition and preliminary design phase must have the capability to perform and manage the design, development and test phase (Phase C/D) of their appropriate work packages.

Because of the long lifetime of the Space Station and requirements for evolutionary growth and

international participation, there will be no single prime contractor for the program. The overall system engineering and integration activities will be performed by JSC.

The work packages and the NASA centers responsible are:

Work Package One: Marshall Space Flight Center, Huntsville, Ala. — definition and preliminary design of pressurized "common" modules with appropriate systems for use as laboratories, living areas and logistic transport; environmental control and propulsive systems; plan for equipping a module as a laboratory and additional ones as logistics modules; and plan accommodations for orbital maneuvering and orbital transfer vehicles.

Work Package Two: Johnson Space Center, Houston — definition and preliminary design of the structural framework to which the various elements of the Space Station will be attached; interface between the Space Station and the Space Shuttle; mechanisms such as the Remote Manipulator Systems; attitude control, thermal control, communications and data management systems; plan for equipping a module with sleeping quarters, wardroom and galley; and plan for extravehicular activity (EVA).

Work Package Three: Goddard Space Flight Center, Greenbelt, Md. — definition and preliminary design of the automated free-flying platforms and of provisions to service, maintain and repair the platforms and other free-flying spacecraft; provisions for instruments and payloads to be attached externally to the Space Station; and plan for equipping a module as a laboratory.

Work Package Four: Lewis Research Center, Cleveland — definition and preliminary design of the electrical power generation, conditioning and storage systems.

Other NASA centers will support the definition and preliminary design activities.

The Kennedy Space Center, Fla.
(Continued on page 2)

A return to the Moon

Planners looking beyond low Earth orbit

They point to the inevitability of future space exploration, to the tools at hand and under development, to the scientific advances possible, and they come away with the conclusion that the U.S. will return to the Moon and should begin preparing for it now.

Since April, scientists and engineers, taking advantage of a natural rhythm of events and planning cycles now that the Space Station Program is underway, have identified several areas where low-level research and technology programs are necessary. In a workshop held at Los Alamos in April and a summer study held at La Jolla for ten-weeks, they have also begun to define the scenerios by which the U.S. might go back to the Moon, explore Mars, or journey to the asteroid belt.

The latest manifestation of this planning effort will take place next

month in Washington, D.C., as about 100 scientists meet for a symposium called "Lunar Bases and Space Activities of the 21st Century." The symposium, sponsored by NASA, will include Administrator James M. Beggs, Presidential Science Advisor George Keyworth and former U.S. Senator Harrison H. Schmitt as the speakers during the opening session Oct. 29.

JSC's Solar System Exploration Division, represented by Division Chief Dr. Michael Duke and Drs. Wendell Mendell and David McKay, has been heavily involved in the three sessions held this year. In addition, Barney Roberts of the Systems Engineering Division attended the Los Alamos workshop.

As a result of the operational Space Shuttle system and the commitment to build a permanent Space Station in the 1990's, much

of the enabling technology for a manned lunar base will exist by the end of this century. Planners are trying to identify possible scenerios for going back to the Moon, as well as the technological capabilities and Space Station design considerations, if any, which will be needed to mount such an effort.

During the April Lunar Base Working Group meeting at Los Alamos, about 40 experts, representing diverse interests in the space program, concluded that any lunar base program would be evolutionary and pass through several stages. A preliminary exploration of the Moon would be conducted — probably by an unmanned polar orbiter — for mapping, surface exploration and site selection. The second step would probably be the establishment of a scientific outpost which would have the capability to conduct pilot

programs for industrial efforts. A base with a permanent manned presence and additional pilot plants would then be built, followed by a fully operational base that would move toward self-sufficiency and independence from the Earth.

During the 10-week summer study in La Jolla, these ideas were further refined, and participants sought to identify relatively inexpensive research programs which could begin now. They asked themselves, for example, how large a device would be necessary for extracting oxygen from lunar rocks. Would its size and weight be prohibitive for transport to the Moon on the class of orbital transfer vehicles now being considered? Would it be complex to operate, requiring frequent repairs? Probably not, the participants concluded. Such a device, with some relatively modest technology development, would probably be

about the size of a standard office desk, and its weight would not be prohibitive. But component reliability and possible repair procedures in the dusty one sixth gravity of the lunar surface would have to be taken into account during design of the device.

Throughout this process, participants have pointed to three factors which give impetus to the "Return to the Moon" scenerios first presented at JSC during the 14th Lunar and Planetary Science Conference in March 1983. Those factors are the advent of the Space Station, the predicted capability for near self-sufficiency, and the scientific advantages.

The first factor, the Space Station, has become a formal national goal since that 1983 conference. Part of the space infrastructure now being planned includes orbital transfer

(Continued on page 2)

Space News Briefs

41-D was 100th manned launch

The flight of STS 41-D, historic for many reasons, also was the 100th manned launch in the history of space flight, according to Jim Oberg of McDonnell Douglas, who took the time to compile some rather interesting statistics. That launch record includes the two sub-orbital flights of MA-3 and MA-4 in the U.S. Mercury program, as well as the abort of Soyuz T-10 last year. Although Soyuz T-10 did not make it to orbit, escape rockets carried the crew capsule aloft and it technically qualifies as a manned launch. The 100th manned orbital flight is thus three missions away. The 41-D mission brought to 79 the number of astronauts flown aboard 43 U.S. missions. To date, the Soviet Union has flown 69 astronauts on 57 space missions. The U.S. has flown more individuals in the Space Shuttle program than in the first ten years of manned spaceflight. Six people flew in Mercury, thirteen in Gemini, fifteen in Apollo, seven in Skylab and two in the Apollo-Soyuz Test Project, compared with 36 thus far in the Shuttle Program.

Bulletin Board

Cohen to address AIAA

JSC Director of Research and Engineering Dr. Aaron Cohen will discuss "The Progress of Manned Space Flight from Apollo to Space Shuttle" at the next luncheon meeting of the Houston Chapter of the American Institute of Aeronautics and Astronautics. The luncheon meeting begins with a social hour at 11:30 a.m. Sept. 27, followed by lunch at 11:45 a.m. and the program at 12:30 p.m. The reservation deadline is noon on Sept. 24. For more information, call Pat at 333-4150 or Joanne at 333-0596.

New Guinea eclipse trip planned

The JSC Astronomical Society is planning an expedition to view the Nov. 22, 1984 total eclipse of the Sun from Papua, New Guinea. Only one opening remains on the tour, which starts Nov. 9 and returns Nov. 25. The trip also includes stops in Tahiti, Australia and New Zealand. Paul Maley, DH6, is the group organizer and will coordinate the recording of the elusive Bailey's Beads phenomenon from one of two sites near the edge of the eclipse path. A third station will be situated near the center of totality where for 50 seconds the Sun will be completely hidden by the Moon. For more information, call Maley at x5378.

Space Camp plans adult course

The Alabama Space and Rocket Center will conduct a pilot adult version of its popular U.S. Space Camp Oct. 19 to 21, open to men and women with a special interest in aerospace fields. The three-day program will be limited to 40 adults who will train in various capacities for a simulated Space Shuttle mission. The longer space camp for youngsters has so far attracted some 4,000 participants over the last three years. Those interested in attending should contact the Space Camp by writing to Adult Camp Applications, The Space and Rocket Center, Tranquility Base, Huntsville, Alabama 35807 or call (205) 837-3400.

Brown Bag Seminars planned

JSC Astronomy Brown Bag Seminars scheduled between now and the end of October include sessions on exploration of Mars, nuclear winter and neutrino tomography of the Earth. On Sept. 26, Dr. Tom Wilson will present "Neutrino Tomography: Seeing Into the Inside of the Earth." On Oct. 3, a videotape featuring Dr. T.P. Ackerman of NASA Ames will examine "Nuclear Winter: Global Consequences of Multiple Nuclear Explosions." On Oct. 10, James Oberg of McDonnell Douglas will report on the Case For Mars II conference, held in Boulder, CO in July. On Oct. 17, Al Kelley of JSC will present a demonstration of astronomical images on videotape. Oct. 24 is an open meeting, and the Oct. 31 session will feature a videotape with Dr. Tamara Ledley of Rice University, discussing "Climate Changes on Ice Age Time Scales." The seminars meet every Wednesday from noon to 1 p.m. in Bldg. 31, Conference Room 193. For more information, call Al Jackson at CSC, 486-8153, x467.

EAA plans Festival trip

The JSC Employees Activities Association is sponsoring bus trips to the 10th Annual Texas Renaissance Festival on two successive Saturdays next month, Oct. 20 and Oct. 27. The price of \$14 for adults and \$10 for children includes admission to the Festival. Buses depart NASA at 7:30 a.m. and return at 5:30 p.m. Tickets are now on sale at the Bldg. 11 Exchange Store. Tickets for the Festival, without bus transportation, are also available for \$8 for adults and \$4 for children. For more information, call x4814.

Alley Preferred Passes available

The Alley Theatre Preferred Pass is again being offered for the 1984-85 season to NASA employees and contractors. Each preferred pass consists of six coupons which may be redeemed for the best available seats for any Alley production on either stage. The program is designed for maximum flexibility and convenience. The price is \$49. Brochure forms which explain the program are available at the Bldg. 11 Exchange Store or from your EAA representative. For more information, call Doris Wood at x6545.

Shepard to address NMA

Former Astronaut Alan Shepard will be the guest speaker for the next meeting of the JSC Chapter of the National Management Association Sept. 26. The dinner meeting, to be held at the Gilruth Recreation Center, will begin with a social hour at 5 p.m. and dinner at 6 p.m. Price of the dinner is covered in the NMA dues.



Members of the STS Mission Management Team confer during 41-D when concern mounted over the ice crystal which formed at two water dump nozzles on the port side of *Discovery*. During this meeting, a decision was made not to perform a contingency EVA, but to try and dislodge it using the robot arm. The procedure was successful, and the ice crystal (inset) was photographed from the flight deck as it floated away.

Space Station RFP

(Continued from page 1)

will be responsible for preflight and launch operations and will be involved in logistics support activities.

Launch of the Space Station elements and subsequent transportation between the station and earth will be provided by the Space Shuttle.

A major objective of the Space Station program is to bring about participation of international partners as builders and users as well as to assist in Space Station operations. Funding for such international participation will be provided by other governments who will let their own definition and preliminary design contracts in phase with the NASA activity.

As part of the overall program,

two or more unmanned free-flying platforms will be developed for use with the Space Station. A maximum of common subsystems such as power, thermal, docking, data, etc., will be used on both the Space Station and the platforms. The platforms will be tended and serviced by the Space Station in orbit. The platforms also will have the capability of being launched and serviced by the Space Shuttle in high inclination or polar orbits.

NASA's plans call for an initial Space Station to be operational in the early 1990s. It will be capable of growth both in size and capability and is intended to operate for several decades, well into the 21st century. It is planned to be placed in a low earth orbit about 300 miles high and at an inclination

to the equator of 28.5 degrees. It will include a number of pressurized modules and a power supply of 75 kilowatts, support a crew of six to eight people and have two or more free-flying unmanned platforms.

For the purposes of the Request for Proposal, NASA has selected a Space Station reference configuration called the "power tower." The power tower is one of a family of configurations that uses similar elements or components. The power tower family is considered a starting point for definition studies but is expected to undergo significant modifications as studies progress. Contractors may offer modifications within the reference concept family or other preliminary designs.

Lunar base studies

(Continued from page 1)

vehicles to ferry payloads to and from high Earth orbits. Those same OTVs could be converted for trans-lunar voyages. In addition, the ability to produce liquid oxygen in quantity on the Moon could lead to a kind of trade route between low Earth orbit and lunar orbit where the primary fuels needed in space become readily available and give the lunar base an economic reason for being.

The second factor, near self-sufficiency, will require the most research and long lead time development, the summer study participants concluded. Eventually, however, it might be possible to build structures out of concrete formed from lunar soil, to manufacture oxygen from such materials as ilmenite, and possibly to mine water from the lunar poles. Planners believe these developments are possible and could greatly reduce the long-term cost of maintaining such an outpost.

The third factor, scientific value, has long been ascribed to a lunar base, and possible astronomical observatories there indicate the rich potential. An optical telescope on the far side, with a 25-meter aperture and an ultraviolet resolution of about 1 milliarcsecond, would have a collecting area 100 times that of the Hubble Space Telescope, and a sensitivity 104 times that of the Space Telescope, according to the Los Alamos report.

A helium-cooled infrared/submillimeter telescope with a 25-meter aperture and a 0.1-arcsecond resolution at 10 microns would have a collecting area 2,500 times that of the highly successful Infrared Astronomical Satellite which last year revolutionized our understanding of the universe. Similar advantages could be expected in other fields, such as understanding the geology of the Moon and planets, and in using the high vacuum, low magnetic fields, reduced gravity, low neutrino background and direct access to space

for fundamental investigations in various disciplines.

"...it is inevitable that human habitation will eventually extend beyond the confines of the Earth in many ways and on a scale far larger than is currently envisioned," the NASA Advisory Council concluded in a 1983 study. In 1984, scientists from around the country have been attempting the envision, on a large scale, that kind of inevitability, and the results from these three major gatherings could set the agenda for several crucial years to come.

NASA, CNES sign pact

NASA and the French space agency have agreed on procedures to provide an emergency recovery facility for the Space Shuttle in the South Pacific.

NASA Administrator James M. Beggs and the Director-General of the French Centre National D'Etudes Spatiales (CNES), M. Frederic D'Allest, have signed an interagency arrangement relating to emergency support for the Space Shuttle. The arrangement, which was signed in Washington, implements an intergovernmental agreement signed in Paris Sept. 6.

Under the NASA-CNES arrangement, which lasts for a period of 10 years, France has agreed to assist NASA in the event of a serious launch-phase anomaly

during launches from the Western Space and Missile Center (which are scheduled to begin in October 1985). About two to three launches are expected per year from WSMC, once the facility is fully operational. The possibility of an emergency which would necessitate use of the French facility is extremely remote; nonetheless, prudent operational planning requires that such contingencies be accounted for. Such assistance would include permission for emergency landing of the Shuttle in French Polynesia, as well as steps necessary for recovery and return of the vehicle to the United States.

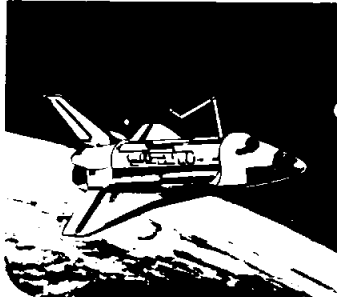
The arrangement has been under discussion between the two agencies for several months.

NASA
Lyndon B. Johnson Space Center

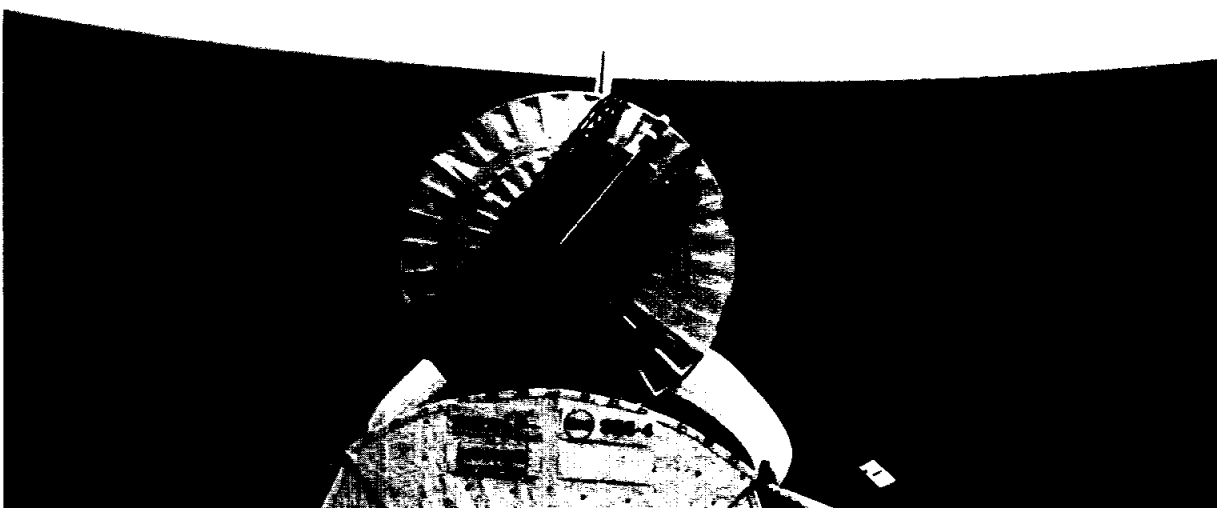
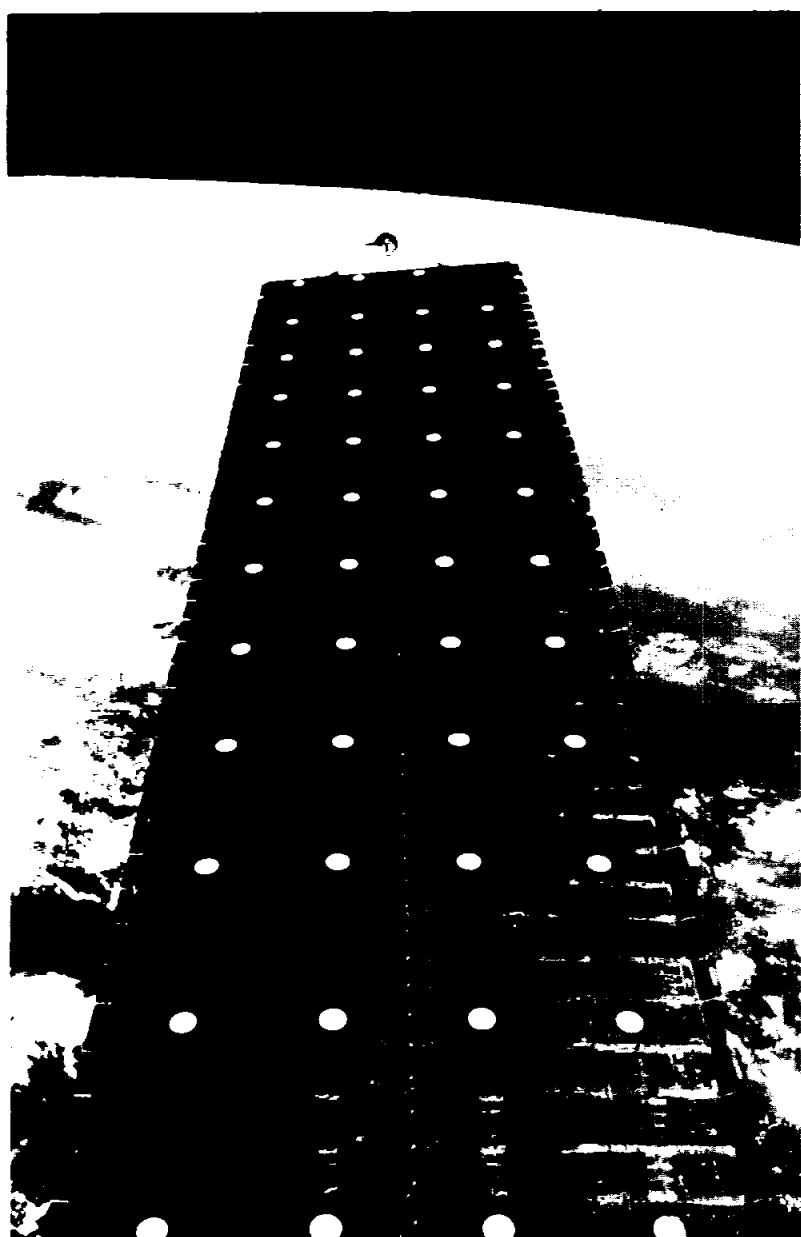
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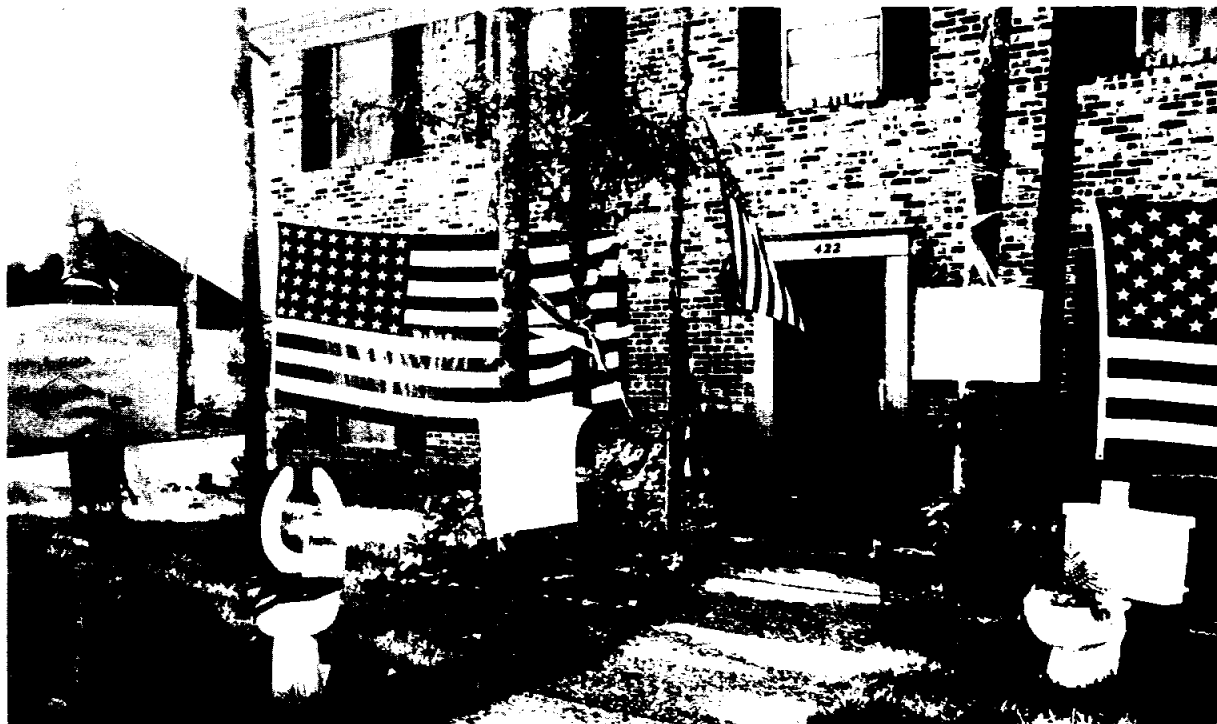
Editor Brian Welch



41-D: Three deploys and a little icebusting



It was the 100th manned launch and the 12th Shuttle mission, but Flight 41-D will probably be known as the mission which, after deploying three satellites in three days, put the program back on track and led to Shuttle flights about every 30 days. Discovery's maiden flight also saw the successful tests of the OAST-1 solar array (left), as well as some in-flight maintenance by the remote manipulator system when an ice crystal formed on two water dump nozzles. That successful procedure prompted the RMS "Icebusters" logo and the scatological decorations to Mission Commander Hank Hartsfield's home (below). The mission also saw the first "frisbee" type deployment of a Hughes Syncom satellite (above). During the flight, crew members Judy Resnik, Charlie Walker, Steve Hawley, Mike Mullane, Hartsfield and Mike Coats posed for a portrait (right), while the rising Moon at the Earth's limb (above) gave Mullane a chance to take one of the most spectacular photographs of its kind.



Roundup Swap Shop

Ads must be under 20 words total per person, double spaced, and typed or printed. Deadline for submitting or cancelling ads is 5 p.m. the first Wednesday after publication. Send ads to AP 3 Roundup, or deliver them to the Newsroom, Building 2 annex. No phone-in ads will be taken. Swap Shop is open to JSC federal and on-site contractor employees for non-commercial personal ads.

Property & Rentals

For lease/purchase: Pebblebrook condo, 1 BR, FPL, W/D, 670 sq. ft., like new, \$325/mo. or \$34,000. Call 480-3613 evenings/weekends.

For sale: Egret Bay condo, 2-2-2, W/D, microwave, FPL, fans, pool, boat-ramp, outside storage, 2 miles from NASA, \$52,000. Call 333-9447 after 4:30 p.m.

For lease: Mobile home 14'x70', 3-2, Call 332-9202

For lease: Eldorado Way condo, 1 BR, W/D, FPL, no pets \$325/mo. plus deposit. Call 486-1906 evenings.

For lease: Heritage Park house, 3-2-2, ceiling fan, stove, refrigerator (W/D available), fenced, near elementary, \$550/mo. plus deposit. Call Magin, x6267 or 996-9867

For sale: Duplex, excellent Clear Lake location, 2 miles from JSC, \$145,000. Call 333-2636 after 5 p.m.

For lease: Galveston Bay waterfront home, 2-1-1, central A/H, FPL, fans, adults only, \$340/mo. plus \$100 deposit. Call Steve, 331-6259 after 6 p.m.

For lease: Egret Bay condo, 2-2, all appliances incl. W/D, security, covered parking, near NASA, \$450/mo. plus deposit. Call 333-1918 after 5:30 p.m.

For lease: Heritage Park, 4 BR, fenced, refrigerator, \$550/mo. deposit neg. Call 474-4947.

For lease: Mobile home space, 4421 4th St., Bacliff, \$100/mo. Call 488-1758

For lease/purchase: Dickinson townhome, 2-1 1/2-2 cp, secluded end unit in woods, never flooded, W/D connections, patio, \$450/mo. Call Corcoran, x4039 or 554-7160.

For lease: Condo, Galveston Gulf front, completely furnished, low fall rates for 2-day to 1-month vacation. Call Nussman, 488-7762

For lease: Pebblebrook condo, 1 BR, W/D, ceiling fan, tennis, nice, \$350/mo. plus deposit. Call Aggie, x5911 or 538-1227.

For sale: Patio home, 4-2-2, workbench, new dishwasher, 2 ceiling fans, convenient location, 8.125% assumable loan, \$90's. Call der Bing, x3734, x4744 or 481-2336 after 5 p.m.

For sale: 2 lots Tres Palacios Oak, 50'x100', near Bay City, must sell, make offer. Call 481-6338.

For lease: Wood Meadow, 3-2-2, FPL, drapes, refrigerator, like new, near Ellington, \$510/mo. Call 480-6325 after 5 p.m.

For lease/purchase: Condo, Fairmont Pkwy at Burke, no down payment. Call Debbie, 552-6056 days.

For lease: Heritage Park, 3-2-2, \$490/mo. Call 333-3527.

For lease/purchase: Very private 2-2-3 on 4.28 heavily wooded acres in Liberty Co., below market financing. Call 944-5624.

For lease/purchase: Bayview/Kemah, 3-2-2, brick, new carpet, Clear Creek schools, apply all rent to purchase. Call 486-0462 after 6 p.m.

For lease: Room in quiet residential house near League City, M/F, non-smoker preferred, \$210/mo. plus 1/3 utilities. Call 554-7706.

For sale: Lot, 1.8 acres, Friendswood, all utilities, \$29,500. Call Janice, x5867 or 482-6888.

For sale: Land, 2, 5, & 10 acre tracts, League City, near 646 & 1266, \$8,000/acre, terms available. Call Rosenbaum, 474-4386.

For sale: 100 acre ranch; house, farm equipment; nut, fruit, oak trees; bass; utilities; 1/2 minerals; 20% down, owner finance, \$850/acre. Call 488-8105.

For sale: Clear Lake Shores, unfinished house, new roof completed, new wiring, 100'x100' lot, VA assumption of \$382/mo. Call 480-7200 after 4:30 p.m.

For lease: Condo, 2-2, W/D, FPL, porch, lawn view, hot tub, pool, \$450/mo. Call 486-8153, x452, or 486-6653 after 5 p.m.

For lease: Sterling Knoll, 3-2 1/2, den, formal, FPL, wet bar, \$650/mo. Call 480-9596 evenings.

For lease: Wood Meadow, 3-2-2, refrigerator, drapes, FPL, near Ellington, \$510/mo. Call 480-6325 after 5 p.m.

For lease: Ski Beaver Creek (Vail) New Year's, 1 BR furnished condo, sleeps 6, 5 min. from slopes, Dec. 29-Jan. 5, \$1,000. Call Maley, x5378.

Cars & Trucks

1982 Camaro, 2.8L V-6, auto w/OD, AC, good condition, clean, 42K miles, \$7,250. Call Dick, x5193 or 334-2695.

Restorable dune buggy, engine runs, needs some light mechanical work. \$400. Call Pat Loftus, 482-5432.

1984 Camaro, sport coupe, T-top, fully loaded, \$10,500. Call Lauritzen, x3863 or 944-3615 after 5 p.m.

Rent a mini motor home, self-contained including onboard power plant,

roof air, the comforts of home on wheels. Daily or weekly rates. Call Dave, x5111 or 480-0202 after 5 p.m.

1974 Chev Vega, one owner, runs good, some rust, new battery, good tires, \$400. Call 538-2059.

1977 Chev Impala, new paint, brakes & AC repairs, 89K miles, good condition, \$1,750. Call 334-3227

1973 Datsun pick up, new shocks, brakes, battery, runs good, needs paint, \$800. Call 488-3611 after 6 p.m.

1979 Mustang, auto, AC, PB, PS, great condition, \$2,700. Call Williams, 488-0416.

1976 Ford LTD, good condition, 31K miles on new motor, \$1,100/OBO. Call Donzelle, 488-1621 before 4 p.m.

1978 Ford customized interior for van, complete, \$450. Wheels also available. Call Zack, x6247 or 925-3945.

1967 Olds F85, 250-6, standard, runs, needs work, \$100. Call Doug, x2653 or 334-2179.

1980 Trans Am, turbo charged V-8, 30K miles, fully loaded, T-top, power locks, windows, \$6,500. Call 334-2621 after 6 p.m.

1978 Trans Am, 400 cu. in., PS, PB, PW, AT, AC, stereo, 60K miles, metallic blue, runs/looks great, \$3,800. Call Jim, 280-3674, or Becky, 280-3534.

1977 Dodge Surveyor Maxivan, self-contained mini motor home, sleeps 4, excellent condition, many extras, \$7,475. Call Kaltenbach, x6451 or 331-5751.

1970 VW Bug, needs some repairs. Call 488-2615.

1981 Pontiac T1000, auto, 35K miles, excellent condition, 50,000 transfer warranty, \$3,050. Call 488-4453.

1983.5 Nissan STD pick up, light blue, 5-speed, AC, AM/FM/Cassette, 10K miles, \$5,998. Call 996-0289 after 5 p.m.

1979 Mercury Capri Hatchback, auto, AC, AM/FM, console, all gauges, new red metallic paint (by dealership), new tires, mint interior, \$3,250. Call Richard, x2495 or 474-9334.

1978 Caprice station wagon, AC, PS, PB, 9 passenger, 75K miles. Call 488-1728.

1980 Toyota Tercel, one owner, clean 33,000 miles, auto, AC, stereo radio, carpeted \$4,500. Call 488-5564.

1976 Chev Impala, 89K miles, PS, PB, AC, auto, AM/FM/Cassette, runs well, burns no oil, \$1,675/OBO. Call Jeff, x2651 or 280-0426 after 5 p.m.

1977 Jeep Cherokee 4WD, 4 dr., 6 cyl., AC, cruise, runs well, clean, \$2,545. Call Clete, x2191 or 489-8375 evenings.

1976 Bonneville, black, AC, auto, cruise, power windows/seats, tilt, PS, PB, good condition, some minor rust, \$950. Call Tim, 472-0626 after 5 p.m.

1967 Pontiac Executive, good for parts, Call Sam, x2691.

1967 Dodge Dart, 4 dr., auto, 6 cyl., runs fine, new paint/upholstery/tires, \$1,000. Call Duke, 482-0702 after 7 p.m.

1982 Camaro Berlinetta, loaded, 16K miles, excellent condition, \$8,200. Call Janice, x5867 or 482-6888.

1982 Continental Town car, 4 dr., AM/FM/Cassette, AC, excellent condition, \$15,000. Call Duchane, 734-6917 after 5 p.m.

1978 Dodge Aspen, 4 dr., AC, PS, PB, 6 cyl., 41K miles, new tires, very reliable/economical, \$2,500. Call Bob, x4724.

Boats & Planes

Boat, 18', deep V Mercury engine, 150hp, galv. trailer, all \$3,500. Call Joan, x3057 or 486-1058 after 5 p.m.

Sunfish sailboat, excellent with colorful sail, \$800. Call Corcoran, x4039.

Welcraft V20, 165hp 1/0, \$4,500 or trade for smaller boat or luxury car. Call Booth, x5231 or 538-4260.

Sea King, fiberglass, 15', 45hp, small wheel trailer, excellent condition, \$750. Call Tom, x6247 or 482-2527.

Cape Dory Sailboat, \$500; trailer, \$200. Call 488-4383 after 5 p.m.

1980 Sportscraft Fisherman, 23', 200hp Mercury engine, McCrane trailer, excellent condition, \$11,000. Call Phillip 328-1201 evenings.

Cycles

BMX Mongoose dirt bike, red & silver, like new, normally \$200, now \$150. Call 488-3611.

1978 Suzuki, 425cc, excellent condition, runs great. Call 996-1855 after noon.

Boys 20" Dirt King bicycle, hardly been used, \$35. Call Judy, x3005.

Raleigh boys 24" 10-speed bicycle, excellent condition, \$70/OBO. Call Foster, x4193 or 482-2425 after 5:30 p.m.

Girl's single-speed 20" bike, blue, \$17.50. Call Don, x4606 or 488-8105 after 5 p.m.

1983 Honda V65 Magna, 8K miles, EC, make offer or trade for pick up/car. Call 480-8800.

1978 Honda CX500, 13K miles, full fairing, trunk, \$800. Call Mark, x2391 or 487-4249.

Audiovisual & Computers

Regency ACT-T16K 16-channel programmable scanner, Ch. 1 priority, Ch. 16 weather alert, search capability, covers 30-50, 146-174, 440-512 mhz., 110V or 12V power, \$200. Call 334-1775 after 7 p.m.

Regency Digital Air Scan 16-channel programmable scanner, ACT-T-720A, 2 channel priority, search capability, covers 108-136 mhz., 110V or 12V power, \$200. Call 334-1775 after 7 p.m.

Panasonic stereo, full sized, excellent condition, \$125/OBO. Call 480-4063.

Stereo, Lafayette Amp, Garrard turntable w/new Shure cartridge, 2 Criterion speakers, \$50. Call 538-2082.

Sankyo STD 2000 stereo cassette deck, \$175. Call Rao, x6337.

40-channel CB & antenna, never used. Call Joan, x3057 or 486-1058 after 6 p.m.

Realistic solid state AM/FM stereo receiver w/turntable, good condition, \$50 each. Call 482-3318.

Zenith 25" color TV (not a tube type), \$100. Call Don, x4606 or 488-8105 after 5 p.m.

Minolta XG-7 35mm camera, body only, excellent condition, just cleaned, \$85/OBO. Call Young, x2386 or 488-2446.

Health H-8 computer boards, parallel board, \$75; Serial I/O, \$35; acoustic modem, \$70; basic programming course, \$25; assembly language programming course, \$30. Call Bates, x4614 or 944-4687.

Printer, Anadex DP8000, parallel interface, 84 lines/min., with manual, \$175. Call Vordenbaum, x5203 or 488-2886 after 5 p.m.

Commodore 64, color monitor, 1541 disk drive and software, \$650. Call Bob, x5991 or 482-3824 after 5 p.m.

TRS-80 Model III, 48K memory, 1 disk drive, RS-232 port, printer, DOS, and assembler/editor, \$1,200/OBO. Call Lee, x3431.

Complete VIC-20 computer system: Extra 8K memory, tape recorder, blank tapes, joystick, Forth machine language monitor, 5 games, programmer's manual and 4 extra books, \$250. Call Steve, x4395 or 334-6746.

Household

Refrigerator/freezer, 18 cu. ft. frost-free Coldspot, auto ice maker, works good, \$85. Call McQuary, x3501.

Kenmore electric washer & dryer, 1 yr. old, \$450. Call 480-2760 after 5 p.m.

Glass-top table, 2 chairs, ice cream parlor style, \$75. Call Nussman, 488-7762.

Gas dryer, \$80 or trade for electric dryer. Call Marie, x3905 or 338-2336.

Two black African scorpions, \$10/ea.; set of 2 champagne velvet sofas, \$200; green chair, \$15; octagon coffee table, \$40. Call Beverly, x4950 or (409) 935-9185.

Freezer, 19 cu. ft. frost-free Coldspot, upright, white, like new \$200. Call Bob, x4323 or 482-5984 after 5:30 p.m.

Hardwood desk; antique Queen Anne-style dresser w/mirror, candle holders, jewelry drawers; moving, make offer. Call 480-6744 after 5 p.m.

Living room furniture from Thailand, beautiful 8-piece, elephant design, hand-carved teak wood, \$2,700. Call Suchart, x3551 or 436-1071.

Couch, Early American, green Naugahyde, excellent condition, \$65; chest of drawers, \$25. Call 280-9870.

Electric dryer, 15-year old Kenmore, timer doesn't work, shuts off after awhile, \$50. Call Don, x5495 or 480-1650.

French coffee table, \$35; pair 3-drawer lamp tables, \$300/pr.; 3'x5' gold-leafed decorator coffee table, cost \$1,250, sell, \$350; old key-wound pocket watch, runs, \$100. Call 488-5564.

Round table, 60", and 4 chairs w/arms for office or home, \$130. Call Sashi, x3929 or 482-9476.

Double bed, head/foot/side boards, mattress and box spring, very good condition, \$300. Call 488-6521.

Gas range, 30" Kenmore, dual continuous cleaning ovens, electronic ignition, new/never used, slight shipping damage, retails for \$950, sell for \$500. Call Lattier, x5561.

Ward's washer & dryer, good condition, service contract included, \$300/pr. Call Fischell, x4386 or 480-1182 after 5 p.m.

Freezer, 9 cu. ft., chest type, \$150. Call Bates, x4614 or 944-4687.

Ratan (pecan color) headboard, frame, box springs & mattress, queen

size bed, very good condition, \$400/all or sell separate. Call Hunter, x2101 or 474-3000 after 5 p.m.

Chest of drawers, \$40; night stand, lamps, decorative trunk, electric grill. Call Sashi, x3929.

Pool table, 7 ft. slate bed, excellent condition, \$375. Call Mark, x2391 or 487-4249.

Four-piece sectional sofa, corner unit covers 7'x9 1/2', like new, \$350/OBO. Call (409) 744-5196.

Large capacity Kenmore washer & dryer w/wrinkle guard, '79 model, harvest gold, \$300/pr. Call Kennedy, x7491 or 484-5279 after 6 p.m.

Bar pool table, 3/4" slate, w/set of new balls, \$500. Call 481-6338.

Musical Instruments

Wanted: Playable guitar, cheap. Call Hoffman, x2411 or 538-1043.

Yamaha trombone, tenor, very good condition, perfect for beginner. Call 944-5624.

Drum set, 9 piece, 1/2 TAMA, 1/2 Slingerland, 3 Zildjian, 1 Paiste & all access, sacrifice \$1,000. Call Mary, x2876 or 488-2271.

Cornet, \$200; viola, \$125. Call 488-4383 after 5 p.m.

Pets

Arabian filly "Aziza bintPharaoh," Limazerg granddaughter, chestnut, AHR-registered, Call Kathleen White, 332-5177.

Six precious puppies available for adoption Oct. 2, mixed breed, 3 males-3 females, priced at cost of shots only. Call Hoover, 334-2392 after 2 p.m.

AKC registered, gray/black male Cairn terrier, shots current, \$150/neg. Call 554-6974 after 5:30 p.m.

AKC Cocker puppies, buff color, 9 weeks old, \$50/ea. Call 484-8481.

Wanted: Stud service for exceptional purebred Great Dane, fawn-colored, but with no papers, prefer use of her own familiar fenced back yard. Call Randy, 480-5194 evenings, or Brian, x5111 days.

Wanted

Musicians for Contraband, Saxophone & Piano, needed for local 18-piece stage band. Call Bob, x5871 or 486-7687, or Milt, x4372 or 488-5903.

Used double bed mattress or mattress & box spring, under \$100. Call Brian, x5111 or 480-5194.

Housemate to share large house in Manvel/Pearland area. Must love dogs. Non-smoker preferred. Call Sharon, x4941 or 489-1701 after 6 p.m.

Want to babysit for one child, 8-11 months old (same age as my baby), Christian home, Camino South. Call 486-5094.

Two junked-out "10-speed" bike frames, must have English-type bottom bracket, cheap! Call Samouche, x4727.

Female to rent room in townhouse, furnished, kitchen privileges, W/D, large pool and yard, \$200. Call 487-3458.

Carpool from Garden Villas/Glenbrook Valley/Hobby Airport area, 7:30/8:00 a.m. to 4:30 p.m., non-smokers only. Call Bill, x5156.

Responsible roommate to share 3 BR house in Friendswood, pool, spa, \$242/mo. plus 1/3 utilities. Call Richard, 482-1680.

Electric trains. Call Don, x2449.

Cookin' in the Cafeteria

Week of October 1-5, 1984

Monday: French Onion Soup; BBQ Sliced Beef, Parmesan Steak, Spare Rib w/Kraut, Chili & Macaroni (Special); Ranch Style Beans, English Peas, Mustard Greens, Standard Daily Items: Roast Beef, Baked Ham, Fried Chicken, Fried Fish, Chopped Sirloin, Selection of Salads, Sandwiches and Pies.

Tuesday: Split Pea Soup, Meatballs & Spaghetti, Liver & Onions, Baked Ham w/Sauce, Corned Beef Hash (Special); Buttered Cabbage, Cream Style Corn, Whipped Potatoes.

Wednesday: Seafood Gumbo; Cheese Enchiladas, Roast Pork w/Dressing, BBQ Link (Special); Pinto Beans, Spanish Rice, Turnip Greens.

Thursday: Beef & Barley Soup; Roast Beef w/Dressing, Fried Perch, Lasagne w/Meat, Chopped Sirloin, Chicken Fried Steak (Special); Whipped Potatoes, Peas & Carrots, Buttered Squash.

Friday: Seafood Gumbo; Fried Shrimp, Baked Fish, Beef Stroganoff, Fried Chicken (Special); Okra & Tomatoes, Buttered Broccoli, Carrots in Cream Sauce.

Record collections and books over 750 45's/50's/60's country and western, must buy total collection, make offer. Call 481-6338.

Female roommate, condominium, University Trace (NASA back gate), \$250/mo. all utilities paid. Call x4910.

Share 1/2 of 50-ft. covered boat stall w/concrete floor on 2351 near Friendswood, \$35/mo. Call 482-3600.

Four-place IFR plane to replace a G.A. Tiger, excellent tax advantage for a current owner. Call Mark, x4436 or 554-2538 after 5 p.m.

Other LSU families to share rides to and from Baton Rouge. Call Schultz, x3541 or 538-2082.

Car or van pool from SW Houston-Missouri City area. Call Gail Alexander, x5231 or 498-8900 after 6 p.m.

Miscellaneous

Sewing machine, solid wood cabinet, looks/sews excellent, \$125 cash. Call 488-6433.

Ping-pong table with net/paddles/balls, kind of rough, \$20. Call 538-2082.

Aluminum screen door and frame, never used, \$35, swimming pool cleaner, Arneson Pool Sweep, used, best offer. Call Hoffman, x2411 or 538-1643.

Refunder's Swap Trade coupons, forms, qualifiers, Sat., Oct. 13, 9 a.m.-3 p.m., Holiday Inn NASA, \$15 fee includes meal. For more info, call Lachney, x5121 or 482-2977.

R.C. model plane completely built, never flown, Cessna 150 w/4-channel Futaba system and .20 engine, \$275. Call 474-3507.