

Space News Roundup

Vol. 23 No. 1

January 13, 1984

National Aeronautics and Space Administration

First steps taken to fly citizens

NASA has filed with the Federal Register in late December a proposed rule setting in motion the mechanisms to fly the first civilian passenger on the Space Shuttle, perhaps as early as 1985.

The proposed rule is the first step toward establishing policy and tentative selection procedures to carry a new class of space traveler into orbit: Citizen Observers/Participants. It would establish procedures and guidelines for the eventual acceptance of applications from individuals meeting certain criteria, although those criteria are still under review.

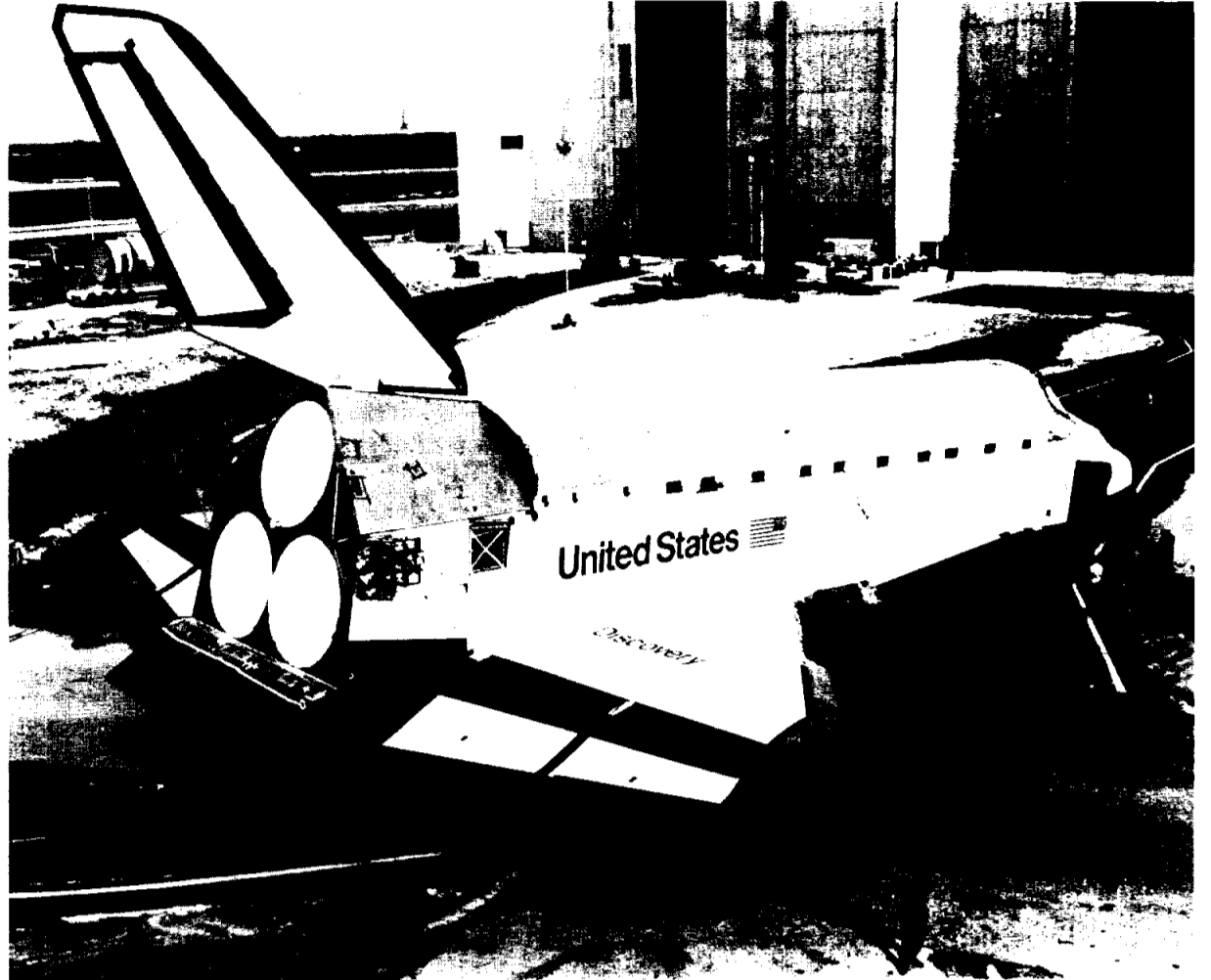
At an impromptu question and answer session following a Washington Press Club luncheon Dec. 15, NASA Administrator James M. Beggs said the agency expects to fly as many as two or three passengers a year beginning as early as 1985. NASA would propose to pay the passengers while they were in training for spaceflight, so as not to exclude all but the affluent from eligibility. It is likely, Beggs said, that the initial passengers would be professional communicators, and that these people would

be given jobs to do during the spaceflight.

The regulation filed with the Federal Register will be followed by a 60-day comment period. NASA will then have another 60 days to incorporate possible changes or additions to the rule.

A Citizen Observer/Participant Evaluation Committee will be established at NASA Headquarters to manage the selection process. The regulation will set up basic guidelines for applicants, such as health, training and space adaptability. Applicants will be evaluated by a NASA-designated outside review panel, with the agency retaining final selection authority.

Flight opportunities will be announced by NASA through the Federal Register and through the news media. No applications will be received at this time, but comments about the rule should be addressed to: Associate Administrator for External Relations, Code L, NASA Headquarters, Washington, DC, 20546. Comments received about the regulation will be available for public inspection in Room 125, FOB 10-B, at 600 Independence Ave. SW in Washington.



Looking a bit frazzled but nearing flight readiness is the new Orbiter *Discovery*, which was moved from the Orbiter Processing Facility to the Vehicle Assembly Bldg. in December to make room for *Columbia* following the STS-9 mission. *Discovery's* first flight is this summer.

41-B at a glance

Launch:	7 a.m. CST Feb. 3 (10 min. window)	Duration:	Approx. 191 hrs. or 8 days
Vehicle:	<i>Challenger</i>	Landing Sites:	KSC - Prime EDW - Weather alt. TAL - DKR AOA-EDW
Altitude:	165 n.m.		
Inclination:	28.45°		

Crew

Vance Brand, CDR
Robert Gibson, PLT
Ron McNair, MS-1
Bob Stewart, MS-2 (EV-2)
Bruce McCandless, MS-3 (EV-1)

Flight Directors

Harold Draughon, Lead/Orbit 2
Gary Coen, Ascent/Entry
John Cox, EVA
Randy Stone, Orbit 1
Larry Bourgeois, Planning

Payloads

Palapa B-2/PAM-D
Westar/PAM-D
SPAS-01A
SSIP
GAS
Cinema 360
MLR

Highlights

Two EVA's
Westar deploy on Day 1
Palapa deploy on Day 2
First MMU flight
First KSC landing



The year in review

1983 saw profound developments

From manned spaceflight to space science, from aeronautics to wind tunnels, and from Venus to Vega and beyond, 1983 was a year filled with profound developments.

NASA marked its 25th anniversary in 1983 with 19 successful launches, the seventh perfect launch record in its history, but that was just one element of a very busy year.

In manned spaceflight, four Shuttle missions were flown and NASA began fleet operations with its Orbiters. *Challenger* made her maiden flight on STS-6 in April, while *Discovery* was delivered in September. Twenty people—19 NASA astronauts and one payload specialist—flew for the U.S. in 1983, including the first American woman, Dr. Sally Ride, the first American Black, Guy Bluford, and at age 54, America's oldest space traveler to date, Dr. William Thornton. That list also included the first Shuttle astronaut to be "recycled," Robert Crippen.

Four satellites were launched from the Shuttle, while 11 expendable rockets were launched from the ground. The first spacewalk in nine years was performed on STS-6, and NASA began using the first of its Tracking and Data Relay satellites.

In space science, it was a year crowded with profound achievements. IRAS, the Infrared Astronomical Satellite, in 10 short months discovered five comets, two possible new solar systems, a possible tenth planet in our solar system, rings around our solar system and two regions where stars are being born in our galaxy.

Pioneer 10 became the first man-made object to leave the solar system, and Viking Lander 1 on the

surface of Mars surrendered to the elements and died quietly in 1983.

Saturn was discovered to have awesome thunderstorms 40,000 miles across and Venus was thought to harbor volcanic activity. The Solar System Exploration Committee recommended low cost planetary space missions throughout the remainder of this century, and JSC suggested a first step be a lunar geoscience orbiter in preparation for a possible return to the Moon.

Scientists here also studied nine meteorites thought to have come from Mars, making them just about the rarest rocks on Earth if that is true.

The International Sun-Earth Explorer began a series of maneuvers in 1983 which will take it out on a voyage to meet up with the comet Giacobini-Zinner in September 1985, the first such rendezvous with a comet.

In the realm of gizmos, gadgets and technology research, progress was made in cancer treatment, communications technology and computation, among others. An international team of chemists worked with London doctors to treat an often fatal cancer called neuroblastoma using a chemotherapy technique combined with a procedure which physically separates healthy cells from cancerous ones. Doubling communications satellite capacity by using a new amplifying technique is under study at the Lewis Research Center, and a Request for Proposals went out on the Advanced Communications Technology Satellite, which is scheduled for launch from the Shuttle in 1988.

In the world of computers, JSC became a test site for the new

Department of Defense computer language, Ada. The NASA High Speed Data Management and Archival System was also tested in 1983, at a rate of 50 million pieces of information per second. NASA also began weather and climate modeling and image analysis research with a device called the Massively Parallel Processor—a multi-billion operations-per-second computer which consists of 16,384 processors. Researchers also worked in 1983 with a computer program employing artificial intelligence techniques, methods which are being programmed into Voyager for its 1986 encounter with Uranus.

Other technology advances included new photovoltaic concepts which offer potential order of magnitude cost reduction from present day systems and the development of a highly improved manufacturing process for silicon carbide semiconductors.

In aeronautics, NASA dedicated a new wind tunnel and began developing a new simulation capability, and the two efforts will give the U.S. the world's two premier aeronautical research and development facilities. The National Transonic Facility wind tunnel at the Langley Research Center is the most important wind tunnel built in 40 years, and will allow for research not possible in any other facility on Earth. Likewise, the Numerical Aerodynamic Simulator, a large super computer-based computational system, will have a major impact on aircraft design methods, making it possible to perform most of the calculations required in designing new aircraft with greater efficiency and accuracy.

(Continued on page 2)

Space News Briefs

Planets forming at Fomalhaut?

Recently analyzed data from the now inactive Infrared Astronomical Satellite has led to the discovery of a second star orbited by a band of solid material. Fomalhaut, or Alpha PsA, some 22 light years from Earth, joins Vega as the second star to provide any evidence of planetary formation outside our own solar system. In both the Fomalhaut and Vega sightings, astronomers detected unusually bright infrared returns far from the stars, indicating heat sources in bands orbiting the two suns. Dr. Fred Gillett of the Kitt Peak National Observatory in Arizona made the discovery.

Venus Radar Mapper contracts awarded

NASA and the Jet Propulsion Laboratory have awarded two contracts—to Martin Marietta and Hughes—for the Venus Radar Mapper spacecraft and its primary science instrument. Martin Marietta Aerospace of Denver received a contract for \$120 million to design and build the spacecraft. Hughes Space and Communications of El Segundo, Calif., received a \$49 million contract to design and build a synthetic aperture radar, which would map 90% of the surface of Venus beginning in July 1988. The VRM is scheduled for a Space Shuttle launch in April of that year, with its primary science mission to last until April 1989. The spacecraft would circle Venus once every 3.1 hours in an elliptical orbit, returning radar images, altitude profiles and gravity-field measurements. The science return is expected to reveal information on Venusian surface geology, including wind and water erosion, volcanism, tectonics and surface faulting. The synthetic aperture radar aboard VRM is similar to the radar which flew aboard NASA's Seasat satellite and mapped large sections of the Earth's oceans in 1978.

Enterprise to be at Louisiana Expo

The Orbiter *Enterprise* will be on display at the Louisiana World Exposition in New Orleans from May 12 to Nov. 11. The Louisiana 1984 World Exposition, Inc. has agreed to pay for all costs associated with transport and display of the Orbiter, which is just back from a tour of Europe, Canada and several U.S. cities. Preliminary planning calls for transport atop NASA 905, the Shuttle Carrier Aircraft, to the Marshall Space Flight Center and then barge transport to the fair site on the east bank of the Mississippi River in New Orleans.

IAU names for satellites detailed

During the two Voyager encounters with both Jupiter and Saturn, 11 new worlds were discovered. Three of them, the two F-Ring shepherd satellites and the companion to Dione (Dione B) at Saturn, have not been named yet. The rest, however, have been given the following names by the International Astronomical Union: 1979J1—Adrastea; 1979J2—Thebe; 1979J3—Metis; 1980S28—Atlas; 1980S1—Janus; 1980S3—Epimetheus; 1980S13—Telesto; and 1980S25—Calypso.

National Transonic Facility dedicated

Vice President George Bush was the principal speaker at a ceremony dedicating the National Transonic Facility (NTF) Dec. 6 at the Langley Research Center. The NTF, arguably the most important wind tunnel built in the U.S. since the 1940s, is a new kind of facility that uses cryogenic nitrogen gas, rather than high-pressure air, to test models of advanced aircraft and spacecraft. The cryogenic test medium allows researchers to obtain much more accurate design information for aircraft that must fly in or through the transonic flight range. Full-up operation of the new tunnel is to begin in 1984.

Bulletin Board

Blood drives scheduled for 1984

The 1984 JSC Blood Drive will begin with two in January and include 17 opportunities at two different locations for JSC and contractor employees to donate blood. To schedule an appointment at the Gilruth Recreation Center, Rm. B207, for April 5, Aug. 2 or Dec. 6, call JSC employees Helon Crawford, x5238; Bob Jones, x6251; Jim McBride, x6226; or Les Wynn, x3918. To schedule an appointment at the Rec Center for March 1, June 14, Sept. 16, or Dec. 13, call Janelle Bennett or Bob Bose at Lockheed, 333-5411. For appointments on Jan. 19, April 17, July 24 or Nov. 13, contact Lee Dorr at Rockwell, 333-2030, x124. Appointments for Jan. 24, April 24 or Aug. 23 can be scheduled through J. E. Vondette or Jeannie McQuillion at McDonnell Douglas, 488-5660, x212. To schedule an appointment at the Ford Aerospace Operations Main Building Auditorium, Feb. 2, May 10 or Aug. 16, call Karen Rummel at 280-6201.

Chappell to discuss Spacelab-1

Dr. C. Richard Chappell, Mission Scientist for Spacelab-1, will be the speaker for a meeting of the Houston Section of the AIAA, Jan. 26. Dr. Chappell, Chief of the Solar-Terrestrial Physics Division at the Marshall Space Flight Center, will review the initial ten-day flight of the European-built Spacelab. The meeting will begin with a social hour at 6 p.m., followed by dinner at 7 p.m. and the program at 8 p.m. in the Gilruth Recreation Center. For reservations contact Annita at x3995, Pat at 333-4150 or Joanne at 333-2030, x242.

Lisenbee, Grosshauser receive Outstanding Secretary award

Outstanding Secretaries for October and November 1983 were named recently. Each received \$500 and was presented with a desk plaque by JSC Director Gerald Griffin in an awards ceremony.

Carolyn Lisenbee, October's Outstanding Secretary, is secretary to Donald Gerke, Missions Office Manager in the Space Station Project Office, providing her supervisor and the office staff with secretarial, clerical and administrative support. She came to work at JSC in 1973 and was secretary to the Deputy Director of the Engineering and Development Directorate for three years prior to assuming her present duties in Aug. 1982.

Because her supervisor is also co-chairman of the Headquarters Mission Requirements Working Group, an important part of Lisenbee's responsibilities is setting up meetings and coordinating the agendas for the MRWG, which includes members from Headquarters, JSC and five other centers. Gerke also pointed out Lisenbee's "exceptional initiative and resourcefulness" in establishing standards and procedures for the administrative functions of the entire office. "She has researched the capabilities of the IBM Display-writer and Telemail systems to establish a very effective system for tracking action items among the members of the MRWG." The systems she has established are used regularly to interface with and coordinate the activities of each member of the working group. Gerke added, "In addition to her outstanding professional competence, Ms. Lisenbee's exceptionally good attitude, her friendly personality, and the fact that she is a genuinely nice person makes her even more effective in her job. She sets a true standard of excellence for her peers."

Doris C. Grosshauser, Outstanding Secretary for November, was Management Services Division Secretary in the Center Operations Directorate where she assisted the Division Chief and staff with secretarial and administrative support from Jan. 1982 until Nov. 1983. Grosshauser came to JSC in Aug. 1979 and was Branch Secretary in the Awards Office for two and one-half years before assuming divi-



Carolyn Lisenbee, October's Outstanding Secretary, poses at the award presentation with her supervisor, Donald Gerke, and Center Director Gerald D. Griffin.



November Outstanding Secretary Doris C. Grosshauser poses with, from left to right, William Stransky, William Larsen and Center Director Gerald D. Griffin.

sion secretary duties.

William Larsen, Management Services Division Chief, said Grosshauser "represents the most positive qualities expected from a division office secretary." Aside from directing the logistics of information flow within the office, Larsen said, Grosshauser achieved timely and effective communications with division units located in other buildings and with contractor organizations in numerous onsite and offsite facilities, a task made even more complex by the variety of functions and the need for unique technical information.

Faced with the challenge of numerous personnel changes with-

in the division, Grosshauser provided much of the orientation, training and assistance to new personnel and assured their full integration into the work force, while providing interim branch clerical support. She also initiated the administrative use of a word processor within the division. Through her individual persistence, she acquired the necessary understanding and skills to support division office requirements, even though the documentation workload increased by over 100 percent.

Grosshauser has recently been assigned to work on a special project for the Center Operations Directorate.

1983 developments

(Continued from page 1)

Aeronautical research also continued in basic areas such as aircraft icing, wind shear, the characterization of lightning strikes on airplanes and laminar flow during high speed flight.

NASA also worked in 1983 with many countries around the globe on cooperative programs of one kind or another. The most tangible evidence of this was the flight of

Spacelab-1, with 11 European nations, Canada and Japan participating, but the international cooperation extended well beyond that. Canada selected six payload specialist trainees in December 1983, with at least two scheduled to fly aboard the Shuttle in 1985 and 1986. Brazil, Australia, Italy and France are also studying the possibility of flying payload specialists.

Another possibility being studied in Europe, Canada and Japan is cooperation with the U.S. in the placement of a permanent space station in low Earth orbit. All told, NASA had cooperative programs in 1983 with Australia, Austria, Belgium, Brazil, Canada, China, Denmark, France, Germany, Italy, Japan, Mexico, the Netherlands, Spain, Switzerland and the United Kingdom.



The SPAS-01A Shuttle Pallet Satellite is shown here being readied in December for its second trip into space during Flight 41-B. The West German payload will be lifted out of the payload bay by the Shuttle's robot arm and used for a practice simulation of the retrieval and repair of the disabled Solar Maximum Mission satellite.

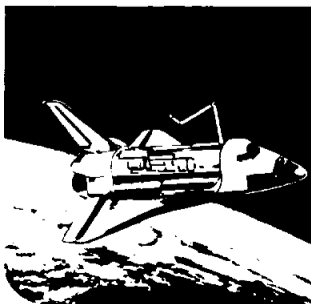
NASA
Lyndon B. Johnson Space Center

Space News Roundup

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Editor

Brian Welch



'84 schedule is busiest in 18 years

Not since the Gemini days has NASA even approached the manned flight rate planned for 1984, and with an additional 12 unmanned flights and 10 satellite deploys from the Shuttle scheduled, the launch manifest for the coming year is the Agency's busiest since 1966. The ten planned Shuttle

missions will double the number of manned flights in any year of the Agency's history. During the Gemini program, five manned missions were flown in both 1965 and 1966, with a total of 31 NASA launches—two unsuccessful—in 1966. Here's a breakdown of the 1984 schedule:

Date	Mission	Launch Vehicle	Launch From	Remarks
Feb. 3	41-B	OV-099, <i>Challenger</i>	KSC	Payloads: SPAS-01A, Palapa B-2, Westar-VI
Feb. 3	Westar-VI	PAM-D	OV-099	Western Union communications
Feb. 4	Palapa B-2	PAM-D	OV-099	Indonesian communications
March	Landsat D1	Delta	WSMC	NOAA Earth observations; replaces Landsat 4; reimbursable
1st Qtr.	Navy-21	Scout	WSMC	Navy reimbursable
April 4	41-C	OV-099, <i>Challenger</i>	KSC	Payload: LDEF; Solar Max Repair Mission
May	Intelsat VA-A	Atlas Centaur	ESMC	COMSAT international communications; reimbursable
May	NATO-IIID	Delta	ESMC	North Atlantic Treaty Organization communications; reimbursable
June	Galaxy-C	Delta	ESMC	Hughes commercial communications; reimbursable
June 4	41-D	OV-103, <i>Discovery</i>	KSC	First <i>Discovery</i> flight; Payloads: Telesat-I, Syncom IV-1, Large Format Camera, OAST-1
June 4	Telesat-I	PAM-D	OV-103	Canadian communications
June 5	Syncom IV-1	PAM-D	OV-103	Hughes communications
July 14	41-E	OV-099, <i>Challenger</i>	KSC	DOD mission
August	NOAA-F	Atlas-F	WSMC	NOAA weather satellite; reimbursable
August	Intelsat VA-B	Atlas Centaur	ESMC	COMSAT international communications; reimbursable
Aug. 9	AMPTE	Delta	ESMC	Active Magnetospheric Particle Tracer Explorer; space physics cooperative with West Germany
Aug. 9	41-F	OV-103, <i>Discovery</i>	KSC	Payloads: Telstar 3-C, SBS-D, Syncom IV-2, SPARTAN-1
Aug. 9	SBS-D	PAM-D	OV-103	Satellite Business Systems commercial communications
Aug. 10	Syncom IV-2	PAM-D	OV-103	Hughes communications
Aug. 11	Telstar 3-C	PAM-D	OV-103	AT&T communications
Aug. 30	41-G	OV-102, <i>Columbia</i>	KSC	Payloads: OSTA-3, ERBS, SPARX-1
3rd Qtr.	NAVY-22	Scout	WSMC	Navy reimbursable
Sept. 28	41-H	OV-099, <i>Challenger</i>	KSC	Payload: DOD mission or TDRS-B
Sept. 28	TDRS-B(?)	IUS	OV-099	NASA communications
Oct. 24	51-A	OV-103, <i>Discovery</i>	KSC	Payloads: MLS-1, Telesat-H, GAS Bridge
Oct. 24	Telesat-H	PAM-D	OV-103	Canadian communications
November	Intelsat VA-C	Atlas Centaur	ESMC	COMSAT international communications; reimbursable
Nov. 21	51-B	OV-099, <i>Challenger</i>	KSC	Payload: Spacelab 3
December	San Marco D/L	Scout	SMR	International cooperative with Italy
Dec. 17	51-C	OV-103, <i>Discovery</i>	KSC	Payloads: TDRS-B or TDRS-C, MSL-2
Dec. 17	TDRS B or C	IUS	OV-103	NASA communications
4th Qtr.	AF-16 (ITV-1)	Scout	WFF	Air Force reimbursable

Launch Sites

ESMC — Eastern Space and Missile Center, FL
 KSC — Kennedy Space Center, FL
 SMR — San Marco Range, Indian Ocean (platform)
 WFF — Wallops Flight Facility, Wallops Island, VA
 WSMC — Western Space and Missile Center, Vandenberg Air Force Base, CA

Summary of NASA successful launches, 1959-1983

1959 - 8	1964 - 27	1969 - 20	1974 - 15	1979 - 9
1960 - 10	1965 - 26	1970 - 13	1975 - 19	1980 - 6
1961 - 16	1966 - 34	1971 - 16	1976 - 16	1981 - 13
1962 - 23	1967 - 26	1972 - 18	1977 - 13	1982 - 14
1963 - 14	1968 - 19	1973 - 13	1978 - 20	1983 - 19

1982-84 launches include Shuttle satellite deploys with booster firings
 Total successful launches, 1959-83: 427, total unsuccessful launches: 59
 Figures represent only NASA managed launches.

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 and Rentals

For rent: Sterling Knoll 3-2-2, no lease, no pets, \$500 mo. plus 1-mo. deposit. Call 480-6516 or 488-0500 after 5:00 or weekends.

For rent: Sterling Knoll area duplex, 2 BR, W/D hookup, fireplace, \$200 deposit, \$345/mo. Call Shelly, 480-6742 after 5:00.

For rent: Galveston-by-the-Sea condo, 2 BR, furnished, for rent by day (2 minimum), week or month. Call Clements, 474-2622.

For lease: Wedgewood Village 3-2-2, fenced, trees, new paint, low utilities, \$500/mo. Call T. Brown, x3201.

For lease: El Dorado Trace condo 2-1, all appliances, security system, covered parking, pool, club house, \$455/mo. + deposit. Call 937-7606 after 6:00 p.m.

For lease: University Trace, 1 BR, 1 1/2 bath, fireplace, W/D, covered parking, clubhouse, across from adult pool. Call Joe, x3606 or 486-7581 after 5:00.

For lease: CLC/University Green, 3-2-2 + den, 1-story townhome, microwave, fireplace, deck. Call Ben, x3486 or 488-3486 evenings.

For rent: League City, 3-2-2, formal dining, carpet, fenced, near pool, central A/H, Clear Creek schools, clean, quiet neighborhood, \$525/mo. + deposit. Call Ethel, x3325.

For lease: Sycamore Valley/EAFB, 3-2-2, formal dining, fence, fireplace, inside utility, high ceiling, \$595/mo. Call 482-6609.

For lease: Ocean front condo, furnished, 2 BR, 2 bath, closest condo to the cape. Call 1-292-5142 after 5 p.m.

For lease: CLC, Baywind II, 1-BR condo, F/P, microwave, W/D connections, tennis, exercise/party rooms. Call Briley, x2831, or 488-7901 after 5 p.m.

For lease: 10 acres, Alvin area, fenced, on paved road—horses, cattle. Call Damewood 482-5572.

For lease/sale: Baywind II townhouse 1-1-1, W/D conn., pool, tennis, exercise & gameroom. Call Elaine x3803 or 334-2402.

For sale: Gulfgate area 3-1-2, large fenced lot w/trees, brick exterior, hardwood floors, 9.5% assumable, \$445/mo., \$50s. Call Debi, x4696 or 645-1265.

For sale: League City, 68' x 170' lot, all utilities, near high school, \$8,500, terms. Call 1-585-8162.

For sale: NASA Rd. 1, 2 BR, 1 1/2 bath, security, nearly 1000 sq. ft., a lot of closets, cable TV, swimming pool, boat slip, low interest rate, \$41,000. Call Alan x2449 or evenings 486-5689.

For sale: By owner, 8-unit apts., Alameda Mall area, \$157,000, \$15,000 down, 11 1/2%, 100% occupancy. Call 339-1951.

For sale: Pearland, Parkview, Wescon, 3-2-2 ranch, 1800 sq. ft., country kitchen, formal dining, WBFP, covered deck, by owner. Call 997-1276.

For sale: Condo timeshare, one week, worldwide exchange privileges, \$7,995 /offer, assume \$94/mo. or trade for equity. Call 554-2506

Cars & Trucks

1978 Honda Accord LX, 3-door hatchback, AM/FM, stereo, automatic, A/C, good tires, excellent condition, 48K miles, \$3,300. Call Connie Brathwaite x3662 or 649-1765 after 5 p.m.

1981 Olds Diesel Cutlass, 45K miles, V8 cruise power, window locks, \$6,500. Call Rick x5341 or 480-8223.

1982 Monte Carlo, T-Top, V-8, loaded, 17K miles, blue/blue. Call Julie x3792 or 482-1230 after 6:00.

1978 Subaru Brat Pickup, 4-wheel drive, \$1,800; 1981 Suzuki 650 drive shaft, \$1,400 or best offer. Call Wright x2211 or 471-5964.

1977 Pontiac Firebird, new tires & brakes, 2-tone blue, velour interior, V-8, air, PS/PB, excellent condition, \$3,300. Call 482-7546.

1978 AMC Concord, power, cruise, A/C, velour, layback seats, new tires. Call 334-5441 after 4 p.m.

1976 Ford Granada, 2-door, A/C, PS/PB, 73,500 mi., clean, good tires, runs good, \$1,600. Call 334-3370

1971 Toyota Corolla, 2-door, 1200cc engine, runs good, needs minor body work, \$400. Call 334-4395 after 5 p.m.

1977 Ford Maverick, 6 cyl., new engine, PS/PB, A/C, excellent condition, \$3,000 or best offer. Call Horst x3161 or 480-5338 eves.

1975 Dodge Van Sportsman Royal V8, customized, PS/PB, A/C, new tires, very good condition & some camping items, \$2,900 or best offer. Call Horst x3161 or 480-5338 eves.

1979 Ford Fiesta, 60K mi., A/C, 4-speed, new tires, excellent condition, \$2,500 or best offer. Call Ebi x5121 or 333-4116 evenings.

1980 Olds Omega, new auto trans, sunroof, vinyl top, A/C, PS/PB, AM/FM/tape, cruise, 40K mi., \$3,500. Call Norris x6171, 488-2276.

1977 Camaro, 6 cyl., black/red int., good gas mileage, PS/PB, AM/FM/8-track, new battery, tires. Call 538-1452 after 5 p.m.

1972 Ford pickup, rebuilt V8 and auto trans, fiberglass camper shell, radio, mags, new A/C, battery, brakes, \$1,700. Call Lonnie, 334-2305.

1978 Porsche 924, automatic, sun roof, 27K mi., Blaupunkt, great condition, \$9,500. Call 482-7643.

1975 Buick LeSabre Classic convertible, new top, paint, brakes, \$2,500. Call 488-5564.

1983 Buick Regal, auto, V6, A/C, PS/PB, PW, AM/FM, cruise, 24mo/23K warranty, \$8,795. Call Ken x2676/488-2915.

1973 Chevy V8 Pickup w/camper, auto, PS/PB, AM/FM/8-track, good condition, \$2,000. Call Theresa, 280-8015 after 4:00.

1974 Chevy Caprice station wagon, high mileage, runs, needs work, \$400. Call 474-3424 after 5 p.m.

1981 Corvette, auto, charcoal exterior/silver int., alum. wheels w/new Eagle radials, loaded, only 14.6K mi., like new, asking \$14,500. Call 554-2243 eves.

1976 Toronado Brougham, 2 dr., all electric, loaded, low mileage, excellent condition, asking \$1,900. Call 554-2243 eves.

1979 Ford Pinto, 2 dr. sedan, A/C, PS/PB, rear window defogger, 28K mi., excellent condition. Call 488-1550 9a-10p.

1971 Volvo 144 model, 4 cyl., std. trans, good tires, good condition but may need carb work, must sell, \$600 or best offer. Call 480-5246.

1975 Toyota Celica, 5-spd., air, AM/FM/cassette, rough body but runs excellent, reliable work car, best offer. Call Thompson 332-2229 or x4121.

1982 Jeep Scrambler, sports pkg., low mileage, A/C, \$7,500 or best offer. Call x2241 or 409-849-1998.

1982 Ford Custom Van, fully loaded, sink/stove/frig, low mileage, \$15,000 or best offer. Call x2241 or 409-849-1998.

1972 Granville 4-dr., excellent cond., 1-owner, \$900. Call Elaine x3803 or 334-2402.

1980 Celica GT, 4 cyl., 5-spd, A/C, AM/FM/cassette, tilt, new tires, \$5,000. Call Tanya x7236 or 434-8741 after 6.

1982 Honda Accord, air, cruise, stereo, 5-spd, like new, silver, \$6,995. Call Dan Mangieri 488-5471.

Boats & Planes

For rent: Piper Lance, 6-place, 160 knots, full IFR, club seating, \$85/hr. wet. Call L. Damewood or H&R Aviation, 471-1675.

Cycles

1981 Kawasaki KZ440, excellent condition, 2900 mi., \$1,100. Call 333-6206 or after 5 p.m. 334-6113.

1982 Honda XL500R, 2400 mi., excellent condition, \$1,500/offer. Call 554-2506.

1981 Suzuki GS1100, 8500 mi., excellent cond., cruise control, windjammer fairing, \$2,300. Call Bill Phinney x3816, or 333-2924.

1980 Yamaha YZ100 dirt bike, mint cond., \$450. Call 474-3507.

Audiovisual & Computers

Atari game w/4 cartridges, like new. Call Bill Gatlin x3571.

1 TANDON TM100-2 DSDD 5 1/4 in., floppy drive & power supply. Brand new in original shipping container, \$279.95. Call Tom Harmon x3511 or 480-6075 after 5 p.m.

SS-50 system, 58K, 2 MHZ, calendar clock, serial interface, parallel interface, Gimix G-28 disk controller (DSDD), gold connectors, new Tandon DSDD 5 1/4" floppy, Pertec 35 track 5 1/4" floppy, Heath H19 CRT (green phosphor), SWTPC prom burner, 6809 processor board, extra Z80 CPU board w/software, switchable between FLEX/OS9, lots of software with original manuals, \$1,295 or best offer. Call Tom Harmon x3511.

Notice: JSC 99/4 Users Group invites new JSC members. Monthly meeting at GRC at 7:30 p.m. on third Monday. Members have free access to over 180 99/4 programs.

Odyssey-2 video game, brand new, with computer keyboard, 3 game cartridges. Call 334-4395 after 5 p.m.

Byte magazine, almost all 1977-80 issues plus a few 1976 issues, \$20. Call 482-8729.

Photography

Olympus OM-2 black body with 50mm F1-8 lens, T-20 flash with extender, strap and leather case, excellent condition, \$240. Call Jay Trimble 480-0186 or x3695.

35mm Camera, Nikon EM, body only, \$75; with 80-200 zoom \$175. Call Ted Boyes x6254 or 488-0426.

Slide Projector, Leitz Pradolux RT 300 (AV), auto, remote & manual focus, self timer, connection for dissolve control, carousel type. Call David Cree x6411 or 481-1158 after 5 p.m.

Pets

Puppy, very cute, small black male, free. Call Joan, x3057 or 486-1058 after 5 p.m.

Need good home for 4 beautiful, extremely good natured puppies, 9 weeks old, 1 male, 3 females, Call 474-2797 after 4:30 p.m.

Dutch rabbits, 3, black & white, pedigree, all for \$25. Call Bob, x6196 or 482-7041.

AKC Miniature Schnauzers, 2 males, 7 weeks old, \$175. Call 538-4289 after 6 p.m. or weekends.

Lhasa Apso puppies, champion sired, AKC registerable, 9 weeks old. Call 280-6957 or 482-0509.

Birds, 2 finches, 2 parakeets, 1 cockatiel; 2 cages, accessories. Call Norris, 488-2276 or x6171.

Wanted

Responsible person to share 4 BR house in League City, \$175/mo. plus 1/3 utilities. Call Ron Dickey, 332-6003 or x5077.

Female roommate to share 3 BR house, Fairmont Park, non-smoker, \$200/mo. plus 1/3 of utilities. Call Teresa, x4231.

Roommate to share large house near NASA, non-smoker please, \$300/mo. includes all utilities. Call 474-7246 or 486-2172.

Car in good condition, for student, \$2,000 range. Call Arthur, 474-3507.

Late model Heath Kit 25" color TV without cabinet. Call Stan Rasmussen, x5140 or 485-2462 after 5 p.m.

Carpools

Would like to form or join carpool from Fondren Southwest (Fondren and West Airport) area, 7:30-4:00. Call Jim, x3286 or 726-0653.

Want to form carpool from Bissonett & Boone Rd. to Bldg. 30, work hours 7 a.m. to 3:30 p.m. M-F. Call Ray Byrd, x6447 or 498-1224.

Household

Amana Radarange, weak magnetron but operates, minute and second timer. Call Metcalf, x5893.

Complete apt. of furniture, small appliances, color TV, linens, pots & pans, etc. Call 486-4217.

Sears 16 cu. ft. frostfree refrigerator in good condition, \$75. Call Gary, x3411 or 488-0353 after 5 p.m.

3-section sofa, \$150; small refrigerator, \$20; barbecue grill, \$30; desk, \$20; 7-pc dining rm set, \$150. Call 482-6609.

Microwave cart w/storage compartment; queensize sofa-sleeper; TV cart. Call 471-0680.

Penney's washer & dryer, 7 yrs. old, harvest gold, excellent condition, \$75 each. Call 482-4941.

GE heavy duty washer and electric dryer, harvest gold, both in very good condition, set \$150. Call 333-2636 after 5 p.m.

Informal dining table, 6 chairs, china cabinet, \$250; kingsize headboard, frame, dresser, chest, night stands, \$250; 2 lamps, \$50. Call 480-4688.

Carved dining table, seats 8, \$350; coffee table, \$50. Call 488-5564.

Sears recliner, green, good condition except small holes (cat) on the arm tops, needs cover for this purpose only, \$20; car seat by Strolle, 3 position, good condition, free. Call Shannon 4831, Bill 3866, or 331-6260.

Brand new kingsize waterbed, bookshelf headboard w/etched mirror; moving to apt. & must sell, paid \$560, sell \$400. Call Johnna, 484-0706.

Couch, brown corduroy; gold cord. wallaway chair; coffee table, 2 glass inserts on doors at bottom. Call Scott, x5257.

Gaffers & Statler built-in oven, good condition, \$75. Call 482-7546.

Four matched antique chairs, already stripped, need caning, \$30/set. Call 482-8729.

Moving overseas, lots of household items for sale. Call Horst, x3161 or 480-5338.

Queensize mattress w/box springs w/Hollywood frame, \$50. Call Judy, x3470 or x4781.

GE built-in oven, cooktop, range hood; Kenmore dishwasher; gas water heater. Call 332-3287.



People Helping People The United Way

Miscellaneous

1980 14x16, 2-2 mobile home, Western Mansion, take over \$270.04/mo. Call 334-5441.

Coleman camper, like new condition, with extras, \$2,500; Call 482-7546.

1970 Brougham 20' travel trailer, air, awning, bike rack, self-contained, good condition, \$1,500. Call Rice x2594 or 481-3451.

24" Girl's 10-spd. bike, \$40. Call 332-3287.

Regulation size 7/8 in. slate pool table with accessories and light \$500. Call 997-1358 after 6 pm.

6' aluminum Christmas tree, \$20; 5' green artificial tree, \$15; 5-game TV video game, \$15; 15" emergency tire for Chevrolet, \$50; fooseball game, \$20; Call Ethel, x3325.

Bundy clarinet w/case and stand, excellent condition, used 4 mo., \$215. Call Marie, x3606 or 488-2870 after 5 p.m.

Smith & Wesson mod. #49 Bodyguard, .38 special, \$230; .22 cal. 6-shot pistol, \$75. Call Cliff Meyer, 480-5132 or 943-7054.

Springfield "03" military issue 30.06 rifle in mint condition, sporterized walnut stock with 3X Savage scope, leather mil sling, bolt action, 5 shot.

Cookin' in the Cafeteria

Week of January 16 - 20, 1984

Monday: Beef & Barley Soup; Beef Chop Suey, Breaded Veal Cutlet w/Cream gravy, Grilled Ham Steak, Weiners w/Baked Beans (Special); Buttered Rice, Brussel Sprouts, Whipped Potatoes. Standard Daily Items: Roast Beef, Baked Ham, Fried Chicken, Fried Fish, Chopped Sirloin. Selection of Salads, Sandwiches and Pies.

Tuesday: Celery Soup; Fried Shrimp, Pork Chop w/Applesauce, Turkey a la King, Chinese Pepper Steak (Special); Au Gratin Potatoes, Breaded Squash, Buttered Spinach.

Wednesday: Seafood Gumbo; Fried Catfish w/Hush Puppies, Braised Beef Ribs, Mexican Dinner (Special); Spanish Rice, Ranch Beans, Buttered Peas.

Thursday: Green Split Pea Soup; Corned Beef w/Cabbage & New Potatoes, Chicken & Dumplings, Tamales w/Chili, Hamburger Steak w/Onion Gravy (Special); Navy Beans, Buttered Cabbage, Green Beans.

Friday: Seafood Gumbo; Deviled Crabs, Broiled Halibut, Liver & Onions, BBQ Link (Special); Buttered Corn, Green Beans, New Potatoes.

Week of January 23-27, 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.

Gilruth Center News

Call x3594 for more information

Defensive driving — Learn to drive safely and qualify for a 10% reduction in your auto insurance rates for the next three years. The class meets from 8 a.m. to 5 p.m. Saturday, Jan. 21. The cost is \$20 per person and space is limited.

EAA Cards — Cards for membership at the Rec Center are now available and being mailed to all NASA employees. Contractors can pick up cards by presenting their badges at the Rec Center.

Yoga — This class teaches classic Yoga exercises for awareness and control of your body. The class runs from 7 to 8 p.m. Tuesdays beginning Jan. 17 and costs \$20 per person.

Ladies exercise — This class meets on Tuesdays and Thursdays from 5 to 5:45 p.m. at a cost of \$12 per month.

Pest control class — The bugs are coming indoors this cold winter, and you might want to learn how to safely and effectively apply pesticides through this class held one night only on Jan. 26 from 7 to 10 p.m. The cost is \$7.50 per person.

Guitar lessons — Beginner's and intermediate's classes will be offered beginning in January. Beginners meet beginning Jan. 12 from 7 to 8 p.m. for six weeks. Intermediates meet beginning Jan. 12 from 8 to 9 p.m. for six weeks. The cost of both classes is \$25.

Home buying — Find out the in and outs of home buying in this class which begins Jan. 19 at the Rec Center. The class meets from 7:30 to 9:30 p.m. Thursdays for two weeks and the cost is \$10 per person.