# SpaceNews Roundup 

Vol. $24 \quad$ No. 21


Members of this flying human chain are the prime and backup payload specialists for two upcoming Shuttle missions. The group shared some 40 parabolas in the
KC-135 aircratt Nov. 20. Left to right are Gerald Magilton, RCA backup PS for 61-C; Sharon Christa McAuliffe, citizen observer on $51-\mathrm{L}$; U.S. Rep. Bill Nelson, an KC-135 aircraft Nov. 20. Left to right are Gerald Magilton, RCA backup PS for 61-C; Sharon Christa McAuliffe, citizen observer on 51-L; U.S. Rep. Bill Nelson, an observer on 61-C; Barbara Morgan, backup to McAuliffe; and Robert J. Cenker, RCA PS for 61-C. (Photo by Otis Imboden)

A request for proposal has been issued by the Marshall Space Flight Center inviting the three aerospace companies involved in previous definition studies - LTV, Dallas, Tex.; Martin Marietta, Denver, Colo. and TRW, Redondo Beach, Calif. - to compete for the design, development and manufacture of an Orbital Maneuvering Vehicle (OMV)
Often called a "space tug", the vehicle would be used to transfer satellites and other objects between Earth orbits. The maneuvering reach of the Space Shuttle by about reach of the
1000 miles.
1000 miles.
The companies have until Dec 20, 1985 to respond to the request 20,1985 to respond to the request.
From the proposals submitted, NASA will select one of the three companies to build the vehicle. The first contract is expected to be awarded June 1986 with the first flight planned for early 1991.
The contract includes provisions for testing and hardware flight test(Continued on page 2)

## Contracts to study station power

The Lewis Research Center has awarded a total of $\$ 8.7$ million in four advanced development contracts in support of the definition and preliminary design (Phase B) of the power system for the Space Station.

A major technical issue in Phase $B$ is a determination of whether solar-generated power for the Space Station will be best supplied by photovoltaic arrays or by a solar dynamic (heat engine) system. cepted system used to produce electricity for both manned and unmanned space missions. How-
ever, the electrical power requirements for the Space Station are 10 times higher than any mission flown to date and would require arrays of approximately one half acre for the initial station. Interest in solar dynamic systems lies in their higher overall efficiency and relatively smaller size.
In a solar dynamic system, electricity is produced by an alternator driven by a turbine in a heat engine cycle. Heat for these cycles is provided by focusing the sun's rays, by means of a concentrating mirror an a heat receiver where the

The system operates as a closedcycle heat engine and a radiator cools the working fluid and rejects the waste heat to space.
Under a $\$ 1,010,303$ cost-plus-
fixed-fee contract fixed-fee contract awarded to Sund strand Corp.. Rockford, IL., two issues of an Organic Rankine Cycle engine will be studied. The Rankine is a vapor cycle using the boiling and condensing of an organic fluid such as toluene. The magnitude of possible chemical and thermal degradation of the working fluid will be studied. The contract will runfor 36 months with performance at Rockford

A $\$ 1,010,000$ cost-reimbursement contract to Grumman Aerospace Corp., Bethpage, NY, will study the solar dynamic waste heat radiator technology. The contract will run for 27 months with performance at Bethpage

A \$3,117,059 cost-plus-fixed-fee contract to Boeing Aerospace Co., Seattle, Wash., will study the heat receiver/storage unit and identify and recommend testing required for concept verification. The contract will develop tooling and fabrication processes, perform detailed engineering design and analyses, fabricate test hardware, and con-
duct verification and demonstration tests. The contract will continue for 36 months in Seattle.

A $\$ 3,619,870$ cost-sharing contract to Harris Corporation Melbourne, FL, will generate conceptual designs for the solar dynamic dish concentrator. The contract will further identify and test materials, identify and recommend testing required for concept verification, perform engineering designs, fabricate the concentrator and conduct verification and testing. The contract will continue for 36 months in Melbourne.

## 'Tis almost the season

## A sampling of upcoming Yuletide events

## Women's Christmas Dinner is slated for Dec. 10

 Tickets are now on sale for the annual dinner for JSC women. which will be held at 5 p.m. Dec. 10 at the Gilruth Recreation Center. The dinner, open to all women on site, will be limited to 200 persons. Reservations are required persons. Reservations are required with directorate or program office secretaries ate or program to Betty Sue Fedderson. coordinator of the event. For the first time, the JSC Exchange Council will be subsidizing a portion of the party expenses. The event will consist of a social hour from 5 to 6 pm with a Chicken Kiev dinner beginwith a Chicken Kiev dinnerbeginning at 6:15 p.m. A git exchange will follow the dinner. For more torate or program office secretary.EAA sponsoring Christmas tree sale at Gilruth
This may be the best bargain around when it comes to shopping for a Christmas tree this year. For \$16, employees will be able to choose from a large selection of trees, ranging in size from four feet to eight feet, at the Gilruth Center
beginning at 9 a.m. Saturday, Dec 7. The trees will be on display within the boundaries of the tennis courts at the Rec Center. Tickets will go on sale at 9 a.m. sharp for $\$ 16$ each. The ticket buys admission to the tennis courts. Twenty shoppers will be allowed in at a time, first come, first served. There will be a limit of two trees per customer. A refund is available if no tree is selected. The sale is open to all Civil Service and contractor em ployees. For more information call Ann at $\times 2948$
Boat Lane Parade on Clear Lake is Dec. 7
The annual Clear Lake Christmas Boat Lane Parade, sponsored by the NASA Area Shrine Club, will be held beginning at 7 p.m. Saturday, Dec. 7. Billed as the world's largest Christmas boat parade, the event will feature "more than a million dollars worth of brightly lighted boats." according to George Glauner, a spokesman for the event Viewing sites include the KemahSeabrook Channel, Harris County Park, Watergate, Glenn Cove and Clear Lake Shores Park. For more information, call Glauner at 3333526 or 326-1054. Live coverage

## EAA has tickets for Dickens on the Strand

Discount tickets are now available from the Employees Activities Association for Dickens on the Strand, the annual Victorian Christmas celebration in Galveston. The celebration runs from 10 a m. to $10 \mathrm{p} . \mathrm{m}$ Saturday and Sunday, Dec. 7 and The tickets are $\$ 3$ and are available 8. at the Bldg. 11 Exchange Store. The Strand is located between 20th and 25th Streets. The event is being sponsored by the Galveston Historical Association.

EAA Santa Clause to visit at Children's Christmas party The EAA will sponsor a Christmas party for children of JSC employees from 10 a.m. to noon Dec. 7 at the Gilruth Recreation Center. Activities will include pictures taken with Santa Claus. Tickets are on sale for $\$ 1.50$ in the Bldg. 11 Exchange Store.

## NARFE to hold Christmas

dinner Dec. 3
The NASA Area Chapter of the

National Association of Retired Federal Employees will hold its annal beginning at 6 p.m. On Tuesday, the Harris County Park Bldg. on NASA Road 1. For more information, call Dick Jacobs at 532-1075. The local NARFE chapter also holds monthly meetings throughout the year.

EAA sponsoring Christmas dances Dec. 13 and 14 The Employees Activities Association will mark the holiday season with two Christmas dinner dances for employees on Dec. 13 and 14 Both dances will feature the music of the Mark Davis Orchestra and Sunshine Festival. The Dec. 13 dinner, roast beef with trimmings will be $\$ 10$ per person. The Dec. 14 dinner, prime rib with trimmings, will be $\$ 15$ per person. Both events begin with a social hour at 6:30 p.m., followed by dinner at 8 p.m. and dancing from 9 p.m. to 1 a.m. Tickets are now available at the Bldg. 11 Exchange Store and will be on sale through Dec. 11, limit 8 tickets per person. For more in format
$\times 6251$.

## M. D. Anderson cards

 available locallyChristmas cards designed by the young cancer patients at M. D. Anderson Hospital have been a Houston tradition since the 1970s The cards are available again this year at a variety of locations in year at a vare locations in to benefit the Pediatric Depart o bent the hospital There are ment al the hosplal. Thereare eight designs to choose from A package of 20 cards is $\$ 7$. The A package of 20 cards is $\$ 7$. The cards are available at Joske's in Baybrook Mall, Sakowitz on NASA Road 1, all Pizza Huts, Dorothy Stall \& Associates Realtors at the Nassau Bay Shopping Center and at all Allied Bank outlets. For more information, call 792-CARD

## New Year's Eve dance

 planned by EAAAlthough details were incomplete at press time, the EAA is now planning for the annual New Year's Eve dinner dance at the Gilruth Recreation Center. Employees interested in the event should consult the next issue of the Roundup (which will be dated Dec. 6) for details.

## Space News Briefs

## Voyager 2 closing on Uranus

The venerable deep space probe Voyager 2 is closing on the planet approach scheduled for 8 a.m. CST an. 24. Voyager has already imaged the planet and its five known moons and, at a distance of almost 50 milion miles, was able to send back a faint image of the outermost, or epsilon, ring of Uranus. Since the rings are believed to be composed of some of the darkest material in the Solar System, scientists were somewhat surprised that an image, however faint, was possible at such a distance. At 11 a.m. CST Nov. 26, Voyager will be 1.82 billion miles from Earth and 46.8 million miles from Uranus. Voyager's geocentric velocity (its speed relative to Earth) is 101.070 miles per hour Images of Uranus to date have shown is oratures in the per hour. Images of Uranus to date have shown no feaints of light and the pant itself roses, in the words of points of light, and the planet itself resembles, in the words of one scientist, "a fuzzy blue tennis ball." Voyager 2's sister ship, Voyager 1 , is now 11 Astronomical Units above the Ecliptic Plane, traveling at a velocity of abouth and the Sun, or about 93 million miles.an distance

## JSC to build Station thermal test bed

Plans are in work for the construction of a test bed at JSC for determining thermal loads on components of the Space Station. The Center has selected Rockwell International Corp. of Houston for negotiations leading to the award of a contract for the design and test sequence studies on the test bed. The goal of the facility will be to determine what thermal loads will be placed on the habitation modules and structure of the Station by the space environment. The $\$ 6.1$ million cost-plus-fixed-fee contract will run from Jan. 1, 1986 through Dec. 30 , 1990 and will be performed at JSC and at Rockwell facilities in Clear

Nelson to conduct crystallography test
Rep. Bill Nelson, D-Fla., the Congressional Observer who will fly on STS $61-\mathrm{C}$ in December, will attempt to grow protein crystals in space for the cancer research program at the University of Alabama at Birmingham. Researchers are trying to understand the molecular structure of proteins as they look for ways to combat cancer in the body. Knowing the structure is the key to understanding how the molecules carry out their biological functions. if the molecules can be linked to cancer, their behavior could then be altered with drugs so as to inhibit the growth of cancer cells. But researchers need a relatively large and well formed crystal for X -ray diffraction studies, and such crystals are difficult to grow on Earth. Nelson will be building on a new procedure for seeding the crystals that will first be tried by Payload Specialist Charlie Walker during the STS 61-B flight next week

## Austria and Norway become full ESA members

Austria and Norway were unanimously approved as full member states of the European Space Agency at the 71 st meeting of the ESA Council in late October. The agreement between the Republic of Austria and the Kingdom of Norway will be put forward for governmental approval and parliamentary ratification as both nations move toward full membership status by Jan. 1, 1987. That would bring the total number of nations Within ESA th. The two countries have been associate member states since 1981.

## Bulletin Board

## JSC blood drive is Dec. 5

The third JSC blood drive of 1985 will be held from 8:30 a.m. to 4 p.m Dec. 5 at the Gilruth Recreation Center. Appointments for donating blood can be made by calling Helon Crawford, $\times 5238$, Jim McBride $\times 6226$, or Bob Jones, x625

## Comet discussions highlight brown bags

The two remaining noontime discussions in the JSC Astronomy Brown
Bag series will focus on viewing Comet Halley and on comet nuclei morphology. The seminars ewing Comet Halley and on comet nuclei Conference Room 193 of Bidg. 31. On Dec. 4, Mark Lardas of the JSC Astronomical Society, who is editor of the Society's newsletter, "Starscan," will discuss telescopes and what to look for when choosing something with which to view Comet Halley. On Dec. 11, Jim Zimbelman of the Lunar and Planetary Institute will describe what is known about the nuclei of comets. The Dec. 18 meeting will be an open discussion and no meeting is scheduled for Dec. 25. Persons interested in giving presentations in the fields of astronomy and spaceflight should call A Jackson at 280-2285

## BAPCO meets Dec. 17

The Bay Area PC Organization, BAPCO, the local IBM-PC user's group, will hold its next monthly meeting at $7 \mathrm{p} . \mathrm{m}$. Tuesday. Dec. 17, at the Holiday Inn on NASA Road 1. BAPCO meets regularly on the third Tuesday of each month. For more information, call Earl Rubenstein at 3501 or Jack Galvin at 326-2983

## "Planet Earth" to air in January

"Planet Earth," a new public television series produced by WQED/ Pittsburgh and the National Academy of Sciences, will air on PBS beginning January 22. The series, featuring stock footage from the JSC film archives, explores geoscience on Earth and throughout the Solar System. The eight-episode series runs for one hour each Wednesday and concludes March 5 .

## Mrysin in <br> SpaceNews Roundup




The four JSC employees named as the Outstanding Employees of 1985 by the Federal Business Association gathered recently for a group photo. Pictured are, back row, left to right, Jesse T. Adkins, Jr. and William J. Nunnery, and front row left to right, Lillian M. Hudson and Freda M. Lowe.

## EAA to be restructured

When the 24th General Assembly of the Employees Activities Association convenes Jan. 1, it will be amidst an effort to revitalize the organization with new people and ideas.
For the first time, representation in the EAA will be based on organizational structure, rather than the physical location of JSC employees. "We're trying to get a little better visibility for the EAA," said Harvey Hartman, Chairman of the Exchange Council, which oversees EAA and other NASA Exchange operations. "In the past, the EAA has drawn its representatives from districts, with the districts based on floors and buildings. That repre-
sentation went across organizato flow more logically among em ployees within an organization.
New districts have been created which are based on employees within a division. The districts are grouped by location.
Another change will be the way in which representatives are chosen. In the past, elections were the uniform method. Beginning with the 24th General Assembly, repre ever method the organizations choose appropriate organizations

Our goa
EAA a little stronger," Hartman
aid. We are looking for othe deas, on how to expand outdoor acilities for instance, and we want to hear from people around the Center. The hope is that this change will revitalize the EAA

The EAA is one arm of the employee oriented programs at ISC, all of which are overseen by the Exchange Council. Other elements of the NASA Exchange are the Cafeteria, the Gilruth Center and Exchange Operations. The Exchange Council is appointed by the Center Director, and includes three primary officers of the EAA The EAA budget this fiscal year is $\$ 110,000$.

## Diversity pleases this secretary

For Kochetia Morman, no two to the Director of Center Operations. Morman, named JSC's Outstanding Secretary for October, works in an office where phone calls; visitors and out of the ordinary situations abound.

Since the Center Operations Directorate is responsible for the multitude of support services that keep JSC running, public and employees relations are important and frequent. "The directorate is tasked daily with unusual requests as well as routine requirements," said Center Operations Director Kenneth Gilbreath. "We often receive sug gestions and complaints on how to make JSC better. As a result, Mrs Morman gets many visitors in the

directorate office. She is usually whenst person that a visitor sees when contacting Center OperaFor.
For Morman, that diversity is welcome. "It's really made the job
interesting." she said. "There is something differentevery day." Comments and suggestions, she said, range along a wide variety of topics, from the beauty of the grounds at JSC to the quality of the Center's toilet paper. "You name it, we hear about it," she said
As with other directorate secretaries, Morman's duties are extensive. She has full responsibility for office management and procedures, correspondance for the directorate and division offices, action items for the organization, administrative management of all training, Equal Opportunity reporting, awards and personnel status

She can always be counted on to give 100\%," Gilbreath said. "And she has made herself a very vital part of this organization

## OMV proposals sought

(Continued from page 1) ing prior to its actual operational missions. One maneuvering vehicle will be built with an option by NASA to build a second
The vehicle would be an element of the present Space Transportation System, the heart of which is the Space Shuttle. Although the Shuttle already has proven to be an effective ferrying system in moving satellites and other equipment to space and back, the range extending capabilities of the maneu vering vehicle make it a valuable addition to the Space Transportation System
The OMV would have the ability to retrieve satellites from high orbits, bring them back to the Shuttle for maintenance and repair, then return the repaired satellites to their operational orbits. It also would serve as a means of reboost-
ing satellites as their orbits gradually decayed.
The maneuvering vehicle will be an unmanned spacecraft, 15 feet in diameter and approximately 4 feet in length. Its life will be approximately 10 years with refurbishment and on-orbit maintenance included in the design.
Plans call for the maneuvering vehicle to be deployed from the Shuttle for short duration missions. Later it will remain in orbit for extended periods for use in both Shuttle-based and Space Stationbased modes of operation. Its role in support of a future Space Station is viewed as one of the maneuvering vehicle's essential attributes. The OMV is expected to be available for assembly and buildup of the Space Station in the early 1990s. The maneuvering vehicle then wour maneuvering vehicle then would become an essential element of Space Station operations.

## F-8 oblique wing planned

NASA has awarded a $\$ 400,000$ contract for the preliminary design of a pivoting wing for an F-8 supersonic aircraft
The contract went to North American Aircraft Operations Rockwell International Corporation.
The pivoting wing is set in the conventional aircraft flight position for take off and landing operations. For faster flight speeds, the wing is pivoted so that one side is swept forward and the other side is swept aft, forming an oblique angle with the aircraft's fuselage. In the oblique wing configuration, the aircraft encounters less air resis tance in high-speed flight.
This contract covers Phase " $B$
of a joint NASA/Navy program.

## Das Leben auf dem Spacelab D-Eins


ife aboard Spacelab D-1 on STS 61-A was a busy, anal collection of over 70 experiments. The firs mission to be chartered by another nation, it was
 also the first to have a remote payload control center overseas. The results were ausgeseichnet, according to the Germans. Scenes from the mission included, above, a crowded Spacelab module during shift handover and, above right, with Wubbo Ockels as the test subject, a series of experiments designed to understand bodily adaptations to micro-gravity. Halloween was celebrated, at left, by Commander Hank Hartsfield in a do-it-yoursel hask, whie, bestraint of his own design Views of the Earth included a dramatic shot of Houston on Nov 5 included a dramatic shoting cloud from the explosion at a refinery in Mont Belvieu, below left, a view of the 61-A landing site at Edwards Air Force Base, right, and an oblique view of Hurricane Juan, below right. At bottom, the largest spaceflight crew in history gathered for a group portrait.


# Roundup Swap Shop 

Alswap Shop ads must be submitted on a JSC Form 1452. The forms may be obtained from the Forms Office. Deadline for submitting ads is 5 p.m. the first Wednesday after the date of publication. Send ads to Roundup, AP3, or deliver them to the Newsroom. Bldg. 2 Annex.
Room 147. No phone in ads will be taken.

Property \& Rentals
Lease: CLC 3-2-2, Camino South FPL, split bedroom plan. ready Jan. 1986. Brian, x5111 or 480-5194.

Rent: Galveston/Tiki Island, furn. new 3 BR home on canal, boat dock, fishing, etc., TV, master bath spa, weekend
weekly or monthly rates. 486-9335. weekly or monthly rates. 486-9335.
Sale: 4 cottages near Galveston Ba Sale: 4 cottages near Galveston Bay
furn., $\$ 49,500,10 \%$ down, balance furn., $\$ 49,500,10 \%$ down, balanc
financed at $11 \%$ for 15 yrs. 339-1951. inanced at $11 \%$ for 15 yrs. $339-1951$. Sale: Lakefront lot, Brazoria Cty.,
access to fishing, golf, swimming, access to fishing, golf, swimming,
tennis, $12 \%$ assum. Don. $280-6307$ or 554-6205.
Lease: Barringer Knoll 2-1, fan. W/D hookup, \$330/mo. + \$200 deposit Lease: Annalea/Friendswood 4-2 near school/shopping, Ig. corner lot, new paint and fans. \$515/mo. + deposit. James, $\times 5595$ or 486-0410.
Sale: Heavily wooded lot, $75^{\circ} \times 150^{\circ}$ vew of Taylor Lake, all utilities, $\$ 21,500$ 474-3181.
Sale: Clear Lake Shores 2-2, 1,098 sq. ft., mini blinds, fans, appliances faces water, $\$ 43,500$. Jenny, $\times 4920$. Sale: Memorial Point, Lake Livingston akeview lot, near pool/tennis/marina, paved streets, sewe
security. $946-3945$.
Rent: Assume rent \& utilities from $12-$ $1-85$ through $3-31-86$. clean, quiet,
upstairs. 670 sq. ft . $\$ 250 / \mathrm{mo}+\$ 40$ upstairs, 670 sq. ft., $\$ 250 / \mathrm{mo}$. ${ }^{+}$
Sale: Alvin 3-2-2, den, study, forma dining. FPL, good location, $9 \%$ assum $\$ 56,000$. Kaye, $\times 5222$ or $585-3570$.
Sale: EI Dorado 1 BR condo, FPL W/D, alarm, weight room, tennis, jacuzzi, etc., $\$ 1,900$ down, no closing, assume payments. Call collect, (409) 744-8674 Sale: Dickinson 3-2-2 executive colonial, custom cabinets, formals, wet bar, FPL, master w/2 walk-ins, huge deck
off den. Melody, x 2731 or $534-3991$. off den. Melody, x2731 or 534-3991.
Lease: Imperial Estates 3-2-2 Lease: Imperial Estates 3-2-2 riendswood, large wooded lot, patio 0102 .
Lease: 2-2 townhouse, new W/D, min. to NASA, maintenance free 4800 or 333-4040.
Sale: 105 ft . frontage waterfront lot. marina. (409) 855-2063
Sale: Fully furnished 3-1 house, acre, on small fishing lake, Trinity Rive at Horseshoe Lake Estates. Peterson $\times 3138$ or 479-5594
Rent: Garage apartment 3 mi . to NASA, on lake, 2-1, furnished, cooking equip., sep. entrance, off street parking Rent: Luxury West Galveston Island Rent: Luxury West Galveston Island sleeps 14 , weekend $\$ 300$ week $\$ 625$ 280-8771.
Sale: Mobile home, 3-2, FPL, wet bar fenced, screened patio. 559-2925. 4 acres on Hwy. 150 near Hwy. 59 houses, near schoois, $\$ 65,000.326-2187$. Sale/lease: 2-2.5 custom townhouse all appliances, FPL, jacuzzi, fans, paid other extras. Mike, 280-4313 or 554-6378

## Cars \& Trucks

' 82 Chevy S-10 Tahoe, longbed, V6, 4 -spd, cruise, AC, PS, PB, AM/FM/ NADA avge. 482-1535.
' 83 Pontiac Bonneville, 4-dr., V-8, many ext
$280-8403$.
' 84 Chevy custom van, all extras showroom condition, new
' 73 Ford Gran Torino wagon. blue PS, PB, AC, auto, radio, good cond. dependable, \$900. 482-2527
' 82 Firebird V-8, AC, PS, PB, auto Eagle GTs \& louvers, 24 K mi., good condition. Don, $x 4451$ or $480-2597$. 81' Chevy Silverado, $1 / 2$ ton SWB auto, $A C, P S, P B$, tilt, cruise, aux. tanks 4864. '83 Dodge custom van, PS, PB, AM/FM cassette, tilt, $37 \mathrm{~K} \mathrm{mi.} \$ 10,$,000 OBO $\times 4739$ or 484-4598
'78 Ford Lariat F-150, fully equipped, excel. cond., high miles, $\$ 2,295$. Schnell, 480-9005 or 480-1074.
'66 Ford Mustang, w/w tires, radio, heater, AC, excel. cond., 1-owner, 53,800 mi. 528-7245.

68 Cadillac Coupe convertible, rare classic, good condition, strong engine. excel. cond., loaded, $\$ 5,000$. Mike, 3336821 or 474-5228.
' 82 Camaro V6, AC 4-spd, new tires excel cond \$6,300. Tammy 280-1500 $\times 3364$ or $488-2400$
'79 Chevy Malibu Classic, 2-dr., brown sedan, PS, PB, AT, AC, radio, 73 K mi., $\$ 1,500$ OBO. Virginia, x $\times 803$ or 480-4131. ' 81 Datsun 310 GX Coupe, frontwheel drive, 5 -spd., hew exhaust, Ken wood stereo, car alarm, front spoiler, $35 \mathrm{MPG}, \$ 3,000$ OBO. Jezierski, $\times 5954$ or 554-5910.
'77 Chevy Luv truck, camper top. 1,200 OBO. Mike, $\times 3314$ or $585-8055$. '79 Olds Cutlass Salon, AC, AM, V-6 Mary, 629-6561 or 932-1202.
Motor home, sleeps 6 , full bath/w tub, ref., oven, dual air, '75 Dodge chassis, $\$ 6,000$.
' 81 Chevette, 2-dr., excel. cond. AC AM/FM/cassette, 38 K mi., std., new tires, $\$ 2,400$ OBO. Donna, $\times 2708$ or 481-0679.
Toyota Cariena, runs but needs work, good parts car, make offer. Bob, $\times 4734$ or 921-1715.
' 70 Datsun pickup, 4 spd., runs great, no rust, $\$ 1,000$ OBO. David, 333-0813 or 996-9715.
84 Toyota Supra, clean, loaded sunroof, tinted glass, power, AC. 5 spd., reduced to $\$ 13,000$ firm. 486-9406 '76 Blazer 4WD. 350-V8, AT, AC, PS AM/FM/Cassette, CB, Cheyenne pkg
$\$ 2,500.333-2218$.

## Boats \& Planes

80 Monark bass boat, 50 HP Evinrude roll mtr., depth finder, galv. Dilly trail 4,000. Don, 280-6307 or 554-6205. Sportcraft, $23,165 \mathrm{HP} / \mathrm{O}$ ex. cond
many extras, $\$ 5,500$. Bill, $486-0581$. $16-\mathrm{ft}$. Hobie Cat fully equipp trailer, like new. $\$ 2,800$; single scull w/oars and Martin Oarmaster, $\$ 500$. 27-ft. Ericson sloop, new engine, \$16,500 firm. Horton, 474-7100.
Beech D-35 Bonanza, 225 HP , hyd CS prop, 1000 SMOH, 100 STOH, dua nav-comms, ADF, 3 LMB, A/P, xpndr $\$ 15,000$ or sell $/ 2$ interest. 488-3265 ready to sail, good cond., $\$ 750$. Kelly $\times 3441$ or (409) 925-5477.

## Cycles

71 Honda CB450, $2,400 \mathrm{mi}$., Wixom fairing, cr
$486-9335$.
' 82 Honda V45 Magna $2,200 \mathrm{~m}$
garaged. \$2,500. Craig. 326-1628
'80 Suzuki 450, \$850. 488-2652
81 Vespa scooter, 200E, 200cc, 1,000
\& rear fender protectors, backrest and luggage rack. Jim Sherman, 280-2187 luggage rack
or 326-3058.
Audio/Video \& Computers
5" B\&W portable TV. AM/FM radio combo, \$50. Adam, 486-0581 Combo, $\$ 50$. Adam, 486-0581.
Dokorder stereo tape deck, 10.5 reel-to-reel, Model 1120 many features used approx. 100 hrs ., $\$ 350.334-1934$ Cobra 25 GTL CB radio, 40 -channe antennas included, \$75. Ed, x5489 or 480-0273.
Band equipment: Lite system w/2 trees, Atlas tripods, cables \& control lers, $\$ 300$; floor monitor w/12" horn $\$ 75$; misc. cables, mics etc. Mark, 480 422 or 486-8851.
Dual 1218 turntable, excel. cond. $\$ 50$ firm. Minette, x 3431
Radio Shack color computer, 64 K extended color Basic, silver chassis some cartridges, $\$ 250$ Ken $\times 4154$ or 997-1280.
Indus GT disk drive for C64/C128 software includes word proc., file mgr./ OBO. Jeff, x 3696 or $480-6839$.
Atari $5200 \mathrm{w} /$ Centipede, Gorf, Q*Bert PacMan \& Frogger games, \$90. 996-9058 Atari 600XL home computer, brand new \& still in box, \$100. 534-3415.
Atari video computer system
w/games, like new, $\$ 100$ OBO. Walt, $w /$ games, like new
$\times 2951$ or $532-1032$
13" Sanyo color TV, great picture 75: 9" GE B\&W TV, \$25. 334-1934

## Household

Sealy full-sized bed, mattress \& box spring, frame, excellent condition, $\$ 50$; or $480-5194$.
Foam backed draperies $72=$
burnt-orange, like new, $\$ 10$. Ed, $\times 5488$ or 480-0273.
Queen size sleeper sofa and rocking hair, \$125 OBO. 334-4894.
Black naugahyde couch, gold trim $\$ 45$ OBO; floral couch, \$75; loveseat, $\$ 75$. Kaye, $\times 5222$ or 585-3570
Maple desk, \$225; Puddy diamond lough custom couch, $\$ 400$; black viny ouch, $\$ 100,2$ blue velvet chairs, $\$ 100$

Rattan light yellow BR set, dbl. high back headboard, triple dresser w/mirror bedside table, excel. cond., $\$ 50$. Virginia $\times 3803$ or $480-4131$
King size bed, $3-\mathrm{pc}$. set, plus frame good cond., \$100. Jan, 486-4420, x409 or 484-6286.
Sears washer, good cond., \$125; Sears small dryer, $\$ 35$. Betty, $\times 2811$
Day bed, $\$ 35$; chair foam cushion bed, $\$ 15$; full-size antique rock maple Claire, 474-4310.
Carpet and pad, 86 yards, good shape \$100 OBO. Ray, x 3954 or $474-4885$. Kenmore washer \& dryer, heavy duty
white less than 3 yrs old $\$ 350$ Wayne 488-9005, x272 or 486-7674.
Five-drawer lockable file cabinet, avacado,
$481-1172$.
Frigidaire refrigerator, $21 \mathrm{cu} . \mathrm{ft}$. side-by-side, needs new compressor \$100; Zenith VCR w/remote, needs work $\$ 100$. Jeff. $\times 4235$.
Portable washer, $\$ 75$; matching elec. dryer, needs new motor, $\$ 30$. Jim G.,
$\times 6241$. $\times 6241$
Queen size sofa bed and rocking
chair, $\$ 125$ OBO. 334-4894 chair, $\$ 125$ OBO. 334-4894.
Antique table and 4 hand carved
chairs, $\$ 450$ : antique china $\$ 375$; antique buffet, $\$ 350.488$ - 5564 . Early American sota $\$ 350.488$ - 5564 . Early American sofa, rust tweed, large,
excel. cond., $\$ 100$ OBO. Dorothy, $\times 3176$ or 996-8750.
Royal Doulton china, 6 -place setting less 4 salad plates, medium platter, $\$ 100$ OBO. Linda, x 7251 or 455-7587. Mediterranean style love seat, well
used, lots of life left, $\$ 50.482-0755$.

## Musical Instruments

Cortley acoustical guitar, hard case, excel. cond., $\$ 220$ OBO. Walt, $\times 2951$ or 532-1032
Ludwig professional drum set, 5 drums, high hat, 2 cymbols. Gil, $\times 3591$

## Photography

Leica IIIF, \$160; Nicca (Leica copy), $\$ 90 ; 50 \mathrm{~mm}$ f2 Nikkor, Leica mount, $\$ 20$; 35 mm f 35 Schact, Leica mount, new,
$\$ 25$ : Durst enlarger, accessories, $\$ 80$. Earl, x6445.
Bausch \& Lomb Balomite 500 projector, $5^{\prime \prime}$ f3.5 lens, remote, 8 slide trays, $\$ 75$; Radiant screen w/cover, $50^{\prime \prime}$ $\times 50^{\prime \prime}$, $\$ 25.941-5908$.

## Wanted

Want lot near League City or Dickin son, 1 -acre or less, util. preferred, not required. Jezierski, x5954 or 554-5910. Jackson to Bay Area/NASA 8 ange Jackson to Bay Area/NASA, 8 a.m. to 265-0950.
Want roommate for 3 BR home, 12 mi. to NASA, full privileges, bills paid, $\$ 250 / \mathrm{mo}$. Runnels, $\times 4739$ or $484-4598$ Want ukeleles and seek members for
fun group of Hawaiian music players, we'll teach you how. John Trebes, x6313. Want golf items-books, magazines, clubs, gadgets, etc. John Trebes, $\times 6313$ or 333-4374
Will buy U.S. coins and mint sets, cash. Tyler, 333-6621 or 488-4859.
Want carpool from Preston to Beltway
8 to JSC, 8 a.m. to $4: 30$ par

## 8 to JS $\times 5996$.

Want Sony TC-800 AC/batt.-powered reel-to-reel tape recorder or equivalent Terry White, 332-5177

## Pets \& Livestock

AKC registered Shetland sheep dog, to play with, $\$ 200$. Carlene $\times 3041$ ren 554-6733.
Appaloosa mare, 9 yrs. old, reg.
trained in Eng. riding \& jumping, 15.2 hands. West, 331-8853 or 585-8035.

## Miscellaneous

Ride West Loop park and ride vanpool o JSC. Heetderks, x4651
Garmont Omnilite ski boots, women's
size 9, black, almost weightless
OBO. Karen, x6156 or $520-8348$.
OBO. Karen, $\times 6156$ or $520-8348$.
Wheel covers for ' 82 Dodge 400 .
Wheel covers for 82 Dodge 400, 14
Flatbed utility trailer, $5^{\prime} \times 7^{\prime}$, lights
Flatbed utility trailer, $5^{\prime} \times 7^{\prime}$, lights,
$16^{\prime \prime}$ wheels, current registration, $\$ 150$. Wayne, 488-9005, x272 or 486-7674. 100 National Geographic magazine dates in '60's and collector's editio from 1976, $\$ 30$ for all. 488-5564. 4 oil paintings, 2 large, 2 small, in
frames, by Cantrell, forest/stream scene gold/brown tones, best offer. Linda Four 455-758
Four used high back van seats, $\$ 15$

Nine foot garage door set, all hard ware, good condition, $\$ 100$; 14 " Herford sadd
8035.
3 Goodyear GT raised white letter tires, good condition, G70-15, $\$ 75$ OBO Henry. x7484 or 554-6803
Wedding dress, beautiful, worn once handmade veil. Paul, $\times 4824$ or $486-6813$.
7 -strings outside Christmas lights, approx. 100 light bulbs, \$9. 941-5908.
Black "Gama" mink coat. appraised or Helon, 427-5068.
Wet suit, small, new, never used, $\$ 35$ Navy pea coat, $100 \%$ wool, size 42 , new

Set of 4 aluminum rims, $14^{\prime \prime}, \$ 6$ Bob, $\times 2871$ or 333-3885. DP1000 Shape Master rowing m hine, excel. cond., $\$ 100$. 333-3234. Fresh honey, $\$ 10 /$ gal.; papershel pecans, $\$ 1.25 / \mathrm{lb}$. Clarence Blume, $\times 5159$ or 554-2911.
Girl's fur coat, size 12, like new, $\$ 50$ 944-6457.
Spalding skis, his and hers, $\$ 150 / \mathrm{pr}$ boy's bikes: Kent, $\$ 30$, Schwinn Sting Ray, \$40; 14-ft. jon boat, 6HP Johnson 550. 326-2187

Carpool from Strawberry-Spence area, Pasadena, to NASA, drive one day a week, every 4 th week drive twice
a.m. to 4 p.m. Morton, $\times 3537$ or 946-4752.

## Gilruth Center News

Weight safety class - This course is required for any person interested in using the weight room at the Rec Center. The class covers proper use of the machines and the safety aspects of the facility. The next available classes meet Dec. 8 and Dec. 18 from 8 to 9:30 p.m. The cost for eithe one-night session is $\$ 4$ per person and pre-registration is required.
Defensive driving - Learn to drive safely and qualify for a 10 percent reduction in your auto insurance for the next three years. This class meets Dec. 14 from $8 \mathrm{a} . \mathrm{m}$. to $5 \mathrm{p} . \mathrm{m}$. at a cost of $\$ 20$ per person. Space is limited.
Exercise class - This general exercise class, offered on a monthly basis will begin Dec. 2 from $5: 15$ to $6: 15$ p.m. It meets Mondays and Wednesdays and is open to males and females at a cost of $\$ 20$ per person.
Orienteering race - A thinking person's sport, this is a cross country race with a map. Three courses will be offered in this Dec. 7 event. Beginners will run a 1.53 kilometer race; intermediates will run a 3 to 4 kilometer race, and the advanced group will run a 5 to 7 kilometer race Check in time is 9:30 a.m. and the guns sound at $10 \mathrm{a} . \mathrm{m}$.
Ballroom dance - Learn the basics of such steps as the rhumba, the foxtrot, the cha cha and the waltz in this eight week class which will be offered to beginning, intermediate and advanced dancers starting Jan 2. Beginners and intermediates will dance from 8:15 to 9:30 p.m., whil the advanced group will dance from 7 to $8: 15 \mathrm{p} . \mathrm{m}$. The cost is $\$ 60$ per couple, with no individual registration.
Yoga - Gain inner peace and better control of your body in this class consisting of classic yoga exercises. The eight-week course begins Jan 14 and runs from 7 to $8 \mathrm{p} . \mathrm{m}$. The cost is $\$ 28$ per person. Space is limited

## Cookin' in the Cafeteria

Week of November 25 - 29, 1985
Monday - French Onion Soup; BBQ Sliced Beef, Parmesan Steak
Monday - French Onion Soup; BBQ Sliced Beef, Parmesan Steak,
Spare Rib w/Kraut, Chili \& Macaroni (Special); Ranch Style Beans 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

