

First Shuttle orbital flight paced by main engine testing

The readiness schedule for the first Shuttle orbital flight test has no slack for additional major test problems, according to a statement issued last week by NASA Associate Administrator for Space Transportation Systems John F. Yardley.

Pacing item in Shuttle testing is the main engine, although most of the major program elements are between two and three months late to meet the original target launch date of March 1979. "The greatest unknown factor in assessing Shuttle schedules is the main engine," said Yardley.

A June 1979 first flight launch date allows ample time for completions of the engine development and qualification testing, but has no slack for any more test problems.

FY 80 budget planning underway now is based upon a June 1979 first flight, but alternate budget planning looks at later

first-flight dates. Since 1973 the first manned orbital flight was scheduled for the second quarter of 1979.

Shuttle flight test schedules will be adjusted in September after main engine testing to date is evaluated. The next main engine test firing will be in December or January.

The four tests in the first phase were conducted on April 21, May 19, June 15 and July 7, 1978. The systems were operated at thrust levels ranging from 70 to 90% of rated power for durations of up to 100 seconds. During the final test the engines were throttled from 90 percent thrust down to 70 percent, then back up to 90 percent.

The engines have been removed from the test stand at NASA's National Space Technology Laboratories in Bay, St. Louis, Miss., and are now being modified and updated for further firings this winter. During this next series of tests the engines will be run at rated power levels (357,000 pounds or 1.67 million newtons at sea level) for more than the 500 seconds it will take to lift the Space Shuttle into orbit.

Astro tyros survive water

A three-day course in water survival was held this week at Homestead AFB, Florida for 16 JSC astronaut candidates, including the six female candidates. The 19 other candidates in the group of 35 had water survival training prior to coming to JSC.

The course was a mix of classroom lectures and training that included sliding down a wire in a parachute harness to a water landing, being towed behind a boat in a parachute harness, and water landings from a descent in a parasail towed aloft.

The USAF Water Survival School is run by the 3613th Combat Crew Training Squadron headquarters at Fairchild AFB, Washington.

Garriott, Parker named Spacelab mission specialists

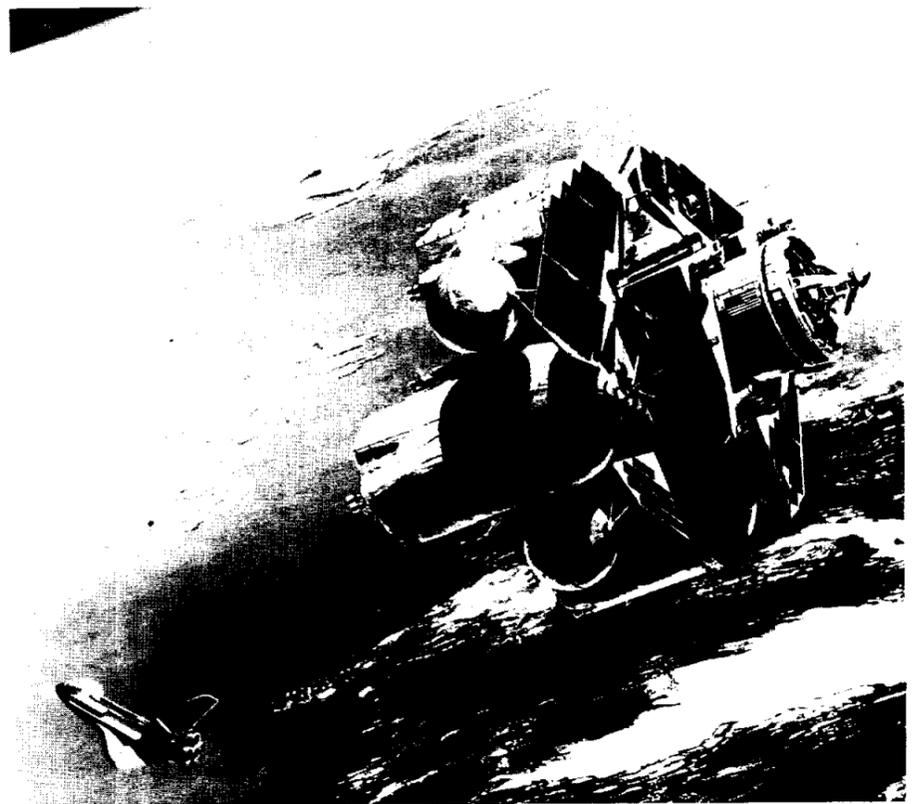
Astronauts Dr. Owen K. Garriott and Dr. Robert A. Parker have been selected by NASA to serve as mission specialists on the Spacelab 1 mission which is scheduled for the early 1980's.

This first flight of Spacelab is planned as a seven-day flight and is primarily for the verification testing of the Spacelab systems and Spacelab and Orbiter interfaces. In addition, approximately 40 experiments will be on board.

Garriott flew on the second manned Skylab mission of 59 days duration. Experiment operations on that flight were very successful and involved a multiplicity of experiments in several disciplines.

Parker served as mission scientist and spacecraft communicator during Apollo and Skylab. On Skylab he made many of the decisions that insured the successful accomplishment of experiments during

(Continued on page 4)



R2D2, MOVE OVER!—It doesn't whistle and peep, but this Teleoperator Retrieval System being built by Martin Marietta for NASA Marshall Space Flight Center may be the interceptor to give space station Skylab the deep six—provided Skylab is still hanging in when the second Shuttle orbital test flight is launched. A TV camera will allow an Orbiter crewperson to guide the TRS Apollo-type probe into Skylab's end docking port.

Skylab may be near running out of gas

A machine that was only guaranteed for a year, space station Skylab is hanging onto life with a tenacity provided by flight controllers in Mission Control-Houston. At *Roundup* press time Skylab was again back in the low-drag, small-end-forward attitude.

A week earlier, the nitrogen gas attitude thruster system and the large gyro flywheel system apparently disagreed with each other and some 1800 pound/seconds of nitrogen were hosed out through the thrusters. The amount of nitrogen remaining in the space station's tanks can only be estimated based on tank pressure and temperature telemetry readings—and Mr. Boyle's law. A margin of 5000 pound/second remaining at Orbiter second test flight is needed to allow docking of the Teleoperator deboost package. About 7600 pound/seconds remain now.

"People are used to NASA accomplishing miracles," said JSC Director

Christopher C. Kraft, Jr., "but maybe this is one miracle we can't pull off. I don't think the odds are very good. That isn't to say we ought not to try. I think we have to do everything we can."

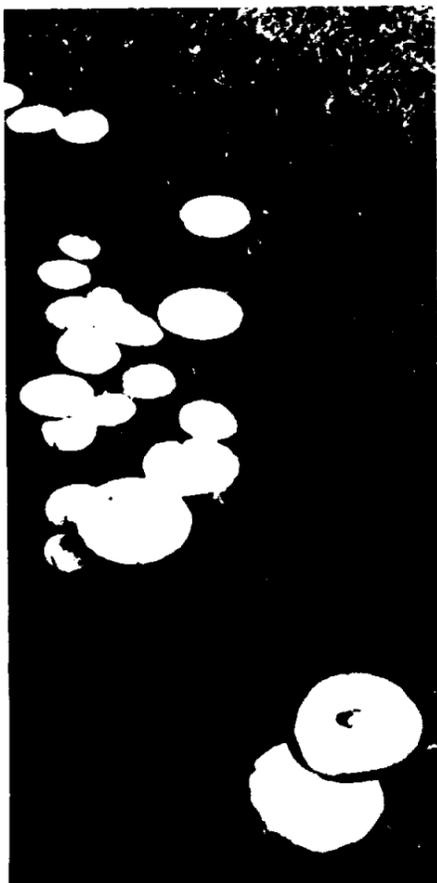
Two teams of flight controllers from JSC and Marshall Space Flight Center are giving it the "college try," but Kraft believes there is a "slim chance" that Skylab could be nursed into holding low-drag attitude for the next year and a half. "The equipment is in very bad shape," said Kraft. "It was already deteriorated when we left it in 1974. We did not build it to be resupplied or as a vehicle we could wake up and make live again."

Kraft sees the flurry of public interest in Skylab's decaying orbit as a reaction to a Soviet Cosmos satellite plowing into Arctic Canada carrying radioactive material last winter. NASA had announced several months before the Cosmos incident that Skylab's orbit was wearing out faster than first predicted.

"The likelihood that it is going to hit something or someone is very, very low," said Kraft, "and the odds of it's becoming a dangerous vehicle are slim."

Old space stations never die...

May 14, 1973	Unmanned Skylab workshop launched
May 25-June 22, 1973	Conrad, Kerwin and Wertz live aboard for 28 days, make extensive repairs in 3 EVAs
July 28-Sept. 25, 1973	Bean, Garriott and Lousma live in for 59 days, make 3 EVAs
Nov. 16, 1973-Feb. 8, 1974	Carr, Gibson and Pogue stay 84 days, bringing total manned days to 171; make 4 EVAs
March 6-13, 1978	Initial reactivation contact thru Bermuda
April 23, 1978	Second contact, batteries start charge
During June 1978	Onboard computer loaded, control moment gyros spun up, heaters on, nitrogen thruster system turned on to stabilize attitude, Skylab placed in solar inertial attitude, gyros in control
June 9, 1978	Skylab placed in low-drag attitude 1st time; drifts out of low-drag using one-third of remaining nitrogen
June 11, 1978	Skylab placed into low-drag 2nd time
June 28, 1978	MCC command Skylab out of low-drag because of out-of-limits attitude
July 6, 1978	Skylab back into low-drag for 3rd time
July 9, 1978	Skylab goes out of low-drag due to power problem
July 25, 1978	Skylab placed back into low-drag for 4th time; still hanging in at <i>Roundup</i> presstime.



SAUCER FLY-IN—Nope. Just a cluster of toadstools on a JSC lawn as the right combination of temperature and humidity trigger the spores into growth. Look but don't eat.



PRESIDENTIAL KUDOS—John W. Kiker and David E. O'Brien recently received letters from President Jimmy Carter in recognition of their money-saving suggestions. Kiker's idea for Orbiter/747 piggy-back ferry and approach and landing tests saved an estimated \$30 million. (See May 26, 1978 *Roundup*.) O'Brien's suggestion for substitution of a flight recorder will save an estimated \$152,000.



MDP Graduates at director's luncheon, left to right are: Dr. Pledger, Dr. Jay Shafritz, and Dr. Natemeyer, UHCLC; MDP Coordinator Eugene Horton, JSC; MDP graduates Daniel Bland, Allen Manson, Merlyn Lausten, Will Brugger, Jim Briley, William Farries, Marion Coody, Bruce McCandless; Stanley Goldstein, Chief, Employee Development Branch, JSC Personnel Office; William Huffstetter, and Dr. Singleton, UHCLC. Not pictured: Harold Doiron and Robert Spann.

Sixth group ends management course

Eleven JSC employees received certificates of recognition last month for having successfully completed the two-year long Management Development Program run by the JSC Employee Development Branch and the University of Houston at Clear Lake City.

JSC Director Christopher Kraft presented the certificates during an honors luncheon held in the Executive Dining Room. Attending the ceremony from the University of Houston at Clear Lake City were: Dr. Rosemary Pledger, Dean, School of Professional Studies and professor in Business and Industrial Management; Dr. Jay Shafritz, associate professor in Public Management and Human Resources Utilization; Dr. Walter Natemeyer, assistant professor in Business and Industrial Management and Behavioral Sciences; and Dr. Timothy Singleton, assistant professor in Business and Industrial Management and Human Resources Management. Dr. Natemeyer serves also as the University's manager of the Management Development Program.

The graduates represented the sixth MDP which began in September 1976.

Students attended four graduate level courses offered over a two-year period (one course per semester). Topics ranged from JSC organizational theory to the governmental processes surrounding federal science and technology programs.

The purpose of the MDP is to bolster performance in administering and managing JSC's programs, and to reinforce

Project IQ chooses 11 for college study

The fourth group of participants for Project Increased Qualifications has been selected by the Employee Development Branch.

Chosen from among applicants for the college study program were H. Cheryl Bouillion, Betty G. Brown, Bennie R. Cole, Vivian L. Derricks, Kathleen T. Hosea, Kristi K. Keyser, Joyce W. Mayes, Cynthia C. Martin, Suzanne N. Miller, and Carol A. Tull.

Project IQ was designed to allow selected employees to enroll in one or two college courses during duty hours for four semesters.

The following employees have just completed the program: Monica B. Kruest, M. Kathryn Millsap, Barbara J. Baldwin, Barbara A. Beasley, Naomi P. Huggins, Carole R. Myers, Sharon J. Martin and Mary B. Westover.

Stanley H. Goldstein, Chief of the Employee Development Branch, said the program has been successful and he expects it to be offered annually.

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

employee decision-making. Each course can provide three semester hours of graduate credit at the University of Houston at Clear Lake City, subject to University requirements.

Women's credit borrowing tips

by Rae Chambers
Member of Federal
Women's Program Committee

The Equal Opportunity Act of 1975 provides access to credit regardless of sex or marital status. The act specifically provides women the right to:

- Receive credit in their own name
- Refuse to answer questions about childbearing
- Have their income considered on the same basis as a man's on a credit application
- Have alimony and child support considered as income
- Find out the reasons for credit denial

Since passage of the Equal Credit Opportunity Act, women in increasing numbers are successfully securing goods and services based on their creditworthiness. One area of intrigue and interest to women, whether married or single heads of household, is the mortgage credit process. In an effort to provide information regarding Mortgage Credit, the Department of Housing & Urban Development/Federal Housing Administration (HUD/FHA) was contacted. This agency was approached because the common opinion among women is that HUD/FHA is the best deal in town as it relates to better interest rates, structural guarantees, minimum down payment and fair housing costs. The FHA does not make loans. It insures mortgage loans made by banks, building and loan associations, mortgage companies and other lending institutions approved by FHA. This insurance makes it possible for home buyers to finance homes on more liberal terms than would otherwise be available. Bill Robertson and Loleen Allen, both of HUD/FHA, responded to inquiries during an interview.

Q. Do women have a more difficult time successfully obtaining mortgage loans?

A. No. The chief requirements for any borrower are that they have a good credit record, the cash required for down payment and closing costs, and a steady income which will enable them to make the monthly mortgage payments without difficulty. When women applicants are rejected, usually it is due to lack of income.

Q. Is there an increase in the number of mortgage loan applications submitted by women?

A. No. We believe this is due to lack of information and knowledge regarding mortgage credit requirements and buying options. Within HUD/FHA's Mortgage Credit Section, no cost mortgage counseling is available upon request. In addition, similar services are

Pioneer 11 zeros in on Saturn

Mission controllers have completed final course adjustments for the Pioneer 11 spacecraft's encounter with Saturn Sept. 1, 1979, man's first visit to the giant ringed planet.

Spacecraft controllers at NASA's Ames Research Center, Mountain View, Calif., report Pioneer 11 is now locked onto a trajectory that will bring it to within 30,000 kilometers (18,000 miles) of the edge of Saturn's outer ring. The spacecraft will then swing under the plane of the rings to 25,000 km (15,000 mi.) from the planet's surface.

Pioneer 11 will take the first close-up color pictures of Saturn and its rings and make other first-time measurements of the planet's magnetic field, atmosphere and other features.

Without the course correction, Pioneer 11 would have flown by Saturn at a much greater distance (100,000 km—60,000 mi.) from the planet's surface. "We're going as close as we dare," said Jack Dyer, chief of mission analysis at Ames. Getting any closer to the ring edge would

risk impact with orbiting fragments in the planet's ring plane.

From data transmitted by Pioneer to NASA tracking stations, it appears the spacecraft responded perfectly to a day-long series of commands to alter its trajectory. The course maneuver involved a series of timed rocket thrusts which nudged the spacecraft away from Earth and onto its desired flight path.

Shields returns

Vernon Shields recently returned to JSC after a year of study at Harvard University where he earned a master's degree in public administration. He was on a U.S. Civil Service Commission education for public service management fellowship.

Shields is assigned to the Shuttle Payload Integration and Development Program Office.

available through Gulf Coast Community Services.

Regarding buying options, Section 203 (b) of the National Housing Act provides for the basic and most commonly used HUD/FHA program. This program carries a mortgage limit of \$60,000 for single family homes. Under this plan, the mortgagor would be required to invest 3% of the first \$25,000 of value and closing costs, and 5% of value and closing costs in excess of \$25,000.

Other available HUD/FHA mortgage plans—

The Graduated Payment Mortgage Plan is likely to appeal to the first time home buyer in the middle income range because it enables them to tailor their installment payments to their expanding incomes, thereby taking advantage of those expected increases and buy a home sooner.

221D2 Program - This insured mortgage limit is \$36,000.

Q. Is the age of the female mortgage applicant consideration?

A. FHA has no arbitrary rules with respect to age or income. It does consider these factors, but only in relation to your ability to repay the loan over the period of your mortgage. Each application received by FHA is considered individually on its own merits. There are guidelines, but they are not rigid. No two families have exactly the same circumstances. Family obligations, responsibilities,

future prospects, and ideas on spending all differ widely.

Q. What formula is used in evaluating the mortgage application?

A. The following guidelines are used:

Housing expense to include house payment, taxes, insurance, utilities and maintenance are not to exceed 35% of net effective income (after taxes). Also total fixed payments (long term of one year or more) should normally not exceed 50% of net effective income. Compensating factors may be considered in the evaluation such as good reserves and job potential.

Q. What is the minimum down payment required for a HUD/FHA insured mortgage loan?

A. The down payments vary in accordance with purchase options.

Q. What is the current interest rate?

A. The current interest rate is 9 1/2%. This rate fluctuates with market conditions and is subject to frequent changes. In addition to the interest rate, a mortgage insurance premium equal to one-half of one percent is added to monthly payments.

Q. What documents are required as part of the package submitted to HUD/FHA?

A. The basic loan package is comprised of the credit report, verification of employment, verification of deposits and the earnest money

(Continued on page 4)

What's cookin' in the JSC cafeteria

WEEK OF AUGUST 7 - 11

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

TUESDAY: Celery Soup; Frito Pie; Turkey a la King; Pork Chop w/Apple sauce; Chinese Pepper Steak (Special); Au Gratin Potatoes; Breaded Squash; Buttered Spinach.

WEDNESDAY: Clam Chowder; Fried Catfish w/hush puppies; Braised Beef Ribs; Mexican Dinner (Special); Spanish Rice; Ranch Beans; Buttered Peas.

THURSDAY: Green 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); Breaded Squash; Green Beans; Lima Beans.

WEEK OF AUGUST 14 - 18

MONDAY: French Onion Soup; BBQ 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 w/onions; Baked Ham w/sauce; Corned Beef Hash (Special); Butter Cabbage; Cream Style Corn; Whipped Potatoes.

WEDNESDAY: Cream of Tomato Soup; Cheese Enchiladas; Roast Pork w/dressing; Oven Crisp Flounder; BBQ Link (Special); Pinto Beans; Spanish Rice; Turnip Greens.

THURSDAY: Beef & Barley Soup; Roast Beef w/dressing; Stuffed Flounder; Lasagne w/meat; Chicken Fried Steak (Special); Whipped Potatoes; Peas & Carrots; Buttered Squash.

FRIDAY: Bean Soup; Fried Shrimp; Broiled Halibut; Beef Stroganoff; Fried Chicken (Special); Breaded Okra; Buttered Broccoli; Carrots in Cream Sauce.

EAA Attractions

ROBERT GILRUTH RECREATION FACILITY

CLASSES

Sign-up in person at the Gilruth Recreation Center. Payment is due upon registration and is non-refundable. Call X3594 for further information. Summer classes are as follows:

Auto Mechanics, Basic, Deadline, August 30, classes September 6, 13, 20, 27, lab-September 23, \$24.00.

Auto Mechanics, Intermediate, Deadline, October 4, classes October 11, 18, 25, November 1, labs-October 21, 28, \$45.00.

Tennis Lessons - Starting August 22, 24, 29, 31, September 5, 7, 12, 14. Sign-up deadline August 21. Beginners 7:30-8:30. Intermediate 8:30-9:30. \$30.00.

SPORTS

Volleyball

A 10 week long mens volleyball season and a 10 week womens season start the week of August 21, 1978. Team captains have until 5 p.m. August 8, 1978, to turn in completed rosters and entry fees. All participants must be NASA Civil Service or contractor employees. In addition, spouses and dependents 14 yrs. and over may participate. Team entry fee is

\$70.00. Teams with 100% 1978-79 EAA membership are eligible for a \$35 EAA subsidy, and will pay only a \$35.00 team entry fee. All other teams must pay the \$70.00 fee. Both the mens and womens leagues will be divided into A and B divisions according to levels of proficiency.

Softball Tournaments

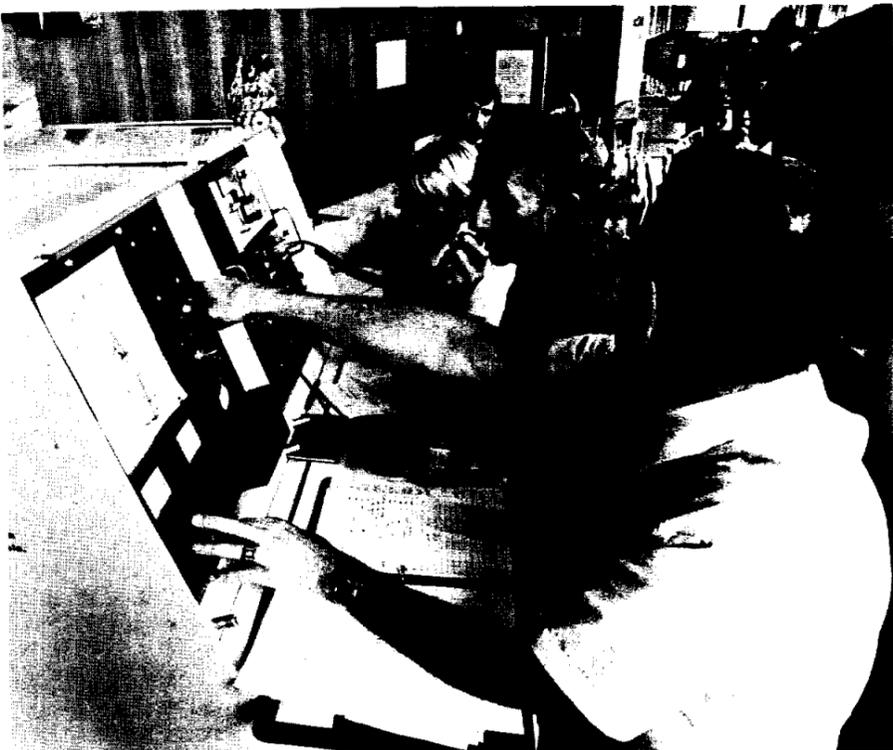
JSC teams may be eligible to participate in two mens slow pitch softball tournaments being sponsored at the Gilruth Recreation Facility.

The first is a Federal Business Association Tournament open to Civil Service employee teams on August 26 and 27. The second is a Houston-Galveston Area Industrial Recreation Council Tournament being held on September 9-10, 1978. This is for teams representing HGAIRC member companies. NASA teams must be 100% civil servants. Additional NASA area HGAIRC members eligible to enter their own teams are: MDAC, LEC, G.E., Singer, Rockwell and Hamilton Standard.

Both tournaments are double elimination. Entry fees are \$45.00. The sign-up deadlines are Thursday, August 17th and Thursday, September 7th respectively. Rosters are available at the Recreation Center.

Defensive Driving

By popular demand, the EAA will be offering another defensive driving course. This course is scheduled for August



HAMATEURS—JSC ham radio operators talk to fellow hams from the newly-installed OSCAR (orbiting satellite carrying amateur radio) station in the JSC Exhibit Hall. Scientist-astronaut Dr. Owen Garriott, (W5LFL) center, talked with operators in Florida, Connecticut, Texas and Mississippi during a 19-minute pass July 21. At left is JSC Exhibits manager Chuck Biggs (WA5GNB), and Ken Schnell (W5OBR) at right operates the station's antenna azimuth/elevation controls. Operating under the call sign of W5RRR, the station was designed and built by the JSC Amateur Radio Club and the JSC Public Affairs Office. Satellite Oscar 7 was built by amateur radio operators on a volunteer basis with donated funds and components, and was launched piggy-back with other payloads in November 1974 into a 915-mile circular polar orbit.

14-17, 1978 from 6-10 p.m. at the Gilruth Center. The classes are two four-hour sessions; Mon. - Wed., or Tues. - Thurs., in room 204. The cost for the course is \$8.00 per person. The course is con-

ducted by the College of the Mainland in cooperation with the Red Cross. Only 70 can be accommodated. Registration to be held on August 7 from 11:00 a.m. to 1:00 p.m., in the Lobby of the Rec Center.

Roundup Swap Shop

CARS & TRUCKS

67 Pontiac Executive Station Wagon \$600. Odenwalder x3977 or 534-2702.

71 Mercury Marquis Brougham, 4 dr., Excellent Condition Throughout, loaded, 63,000 miles, Radial Tires. One Owner. \$1175 McConnell 941-0489.

67 Chevrolet Impala, 9-pass. sta. Wagon auto Trans., Power Steering, Air cond., V-8 Engine, New Battery, original paint, excellent condition, original owner. 944-4581.

70 Plymouth Duster. 225 Slant Six. Runs good, body rusted, good for parts. Mark - 334-4171, \$200 or best offer.

73 Datsun Pickup, Air, Auto., Excellent condition. \$1925, 331-1230, Wayland Rippstein, x4251.

76 Ford F250 Pickup, 40,000 miles, 360 2V, auto., air, PS, PB, no dents. Extra clean. \$4100. 471-2447.

73 Vega, good looking car, runs fine =775. Morris 481-3900.

73 Hurst Oldsmobile, serious inquiries only. \$3500 J. Adams 534-3243.

74 Ford F100 Custom Pickup with camper shell. 390 V-8, LWB, Auto, Air. Equipped but never used for towing, no rust or dents, always garaged, looks, runs, & drives like new. 26,000 miles. x3427 or 585-5735 after 5:30.

76 Honda 1000 Gold Wing full dress, cruise control, air shocks, new tires. \$2650. 471-0520 after 5:00 p.m.

48 Chrysler Windsor, 2 dr., excellent condition, inside & out. Hydramatic drive, runs good. \$1900. Call after 6:00 p.m. 486-1151.

70 VW Bus, good body, good tires, good mechanical condition. \$950. 488-4158.

72 nine-passenger Volkswagen bus, new motor & radials. \$1950. 488-2453 Jerry Carney or x2913.

76 Vega Hatchback, 17,000 A/C, Stereo, 4 Spd. \$2300 482-5432.

76 Olds Delta 88, Royale, 4 Dr., PS/PB, Air, AM/FM, 38,000 miles, rust-proofed, Judy, x4231 488-0066.

74 Blazer, 4/WD, complete package ext cond. \$4000. 645-1663.

71 Winnebago 20', Low miles, all extras, J. W. Kalk x4207 or 554-6093.

23' Travel Trailer 74 Invader, self contained, air, good cond., sell separate or with 74 chev Blazer, 36,000 miles, \$8,000. both. 488-1514.

Starcraft Tent Camper 69, sink, stove, ice box, elect. good condition \$950. Foster 487-0155.

CYCLES

Speed parts for Honda XR75 (75-76) Race Cam, 22MM Carb., Intake Manifold, Cylinder (81CC), Piston, New rings, gaskets, and compound valve springs, Half price \$75. White 474-2214.

BOATS & PLANES

10 H.P. Johnson outboard \$125, runs good. Stoker 534-3460.

72 Glastron V156 open bow, 65 HP Johnson outboard, top, tach, speedometer, 2 tanks, ss Prop, fire ext., 2 life jackets, big wheel galvanized trailer \$1850. 554-6685. Roundtree.

71 18 1/2 ft. grady white boat, 115 HP Johnson w/power tilt and trim \$4800. 948-2429 after 6 p.m.

MUSICAL INSTRUMENTS

Selmer Series 10 Clarinet, professional model, exc. \$400. Bundy Flute, exc. \$130. Hansen x4801 or 488-2412 eves.

King Cornet, back Mouthpiece, \$150. Stoker 534-3460. x6301.

CAMERAS, STEROS, & TV

CB antenna for base station. Half-wave, 3.75-DB Gain. Also 12-inch wall mounts and 10 ft. mast. \$25 takes all. Wayne 488-4158.

New CB Converter \$10, Hickok Tube Tester \$20. Gobs of electronic parts, tubes, radios, all for \$35. Sam x2553 or 488-0125.

Teledyne PB100 AM/FM 8 track solid state FET Stereo 2 Teledyne Speakers \$75. Ron 488-1550.

PETS

Free-To a good home, 2 yr. old female (spayed) Irish Setter. Needs home with children and room to run. Has had all shots. Call Steve or Eleanor 485-4034.

HOUSEHOLD ARTICLES

Antique Hoosier kitchen cabinet \$180, Cedar chest \$75, deep freeze \$25 (runs good) Miller 334-1147 or x3301.

ICE BOX (Frigidaire), Dresser & Headboard, Mattress & springs, no frame. Big recliner, two like new living room chairs, big orange chair, black & white TV. Needs some work done on it. Blue Night Stand. All for \$675. Call 477-2229 anytime.

Gas Dryer, Sears, Good condition \$35. Foster, 487-0155.

2 modern bookcases with enclosed shelf on bottom, like new, \$60 for both, antique child's school desk, excellent condition \$40. 2 brass antique table lamps, \$175 for pair, 1 beaded antique ceiling light fixture, very unusual \$75. 2 windows, stained glass, \$70 pair. 488-5564.

Swap Shop advertising is open to JSC federal and on-site contractor employees. Goods or services must be offered as advertised, without regard to race, religion, sex or national origin. Non-commercial personal ads should be about 20 words and include home phone number. Typed or printed ad copy must be received by AP3/Roundup by Wednesday of the week prior to publication.

Home Interior's Castellena Cabinet, \$25, Spanish Style gold/green 6 ft. couch, \$100 or best offer. 488-7698.

Early American gold and green couch \$100 or best offer 488-7698.

Lawnmower, 19 inch, runs good, \$20. Smith 483-4468.

PROPERTY & RENTALS

Rent: Semi furnished lake Livingston retreat on the water at Nugents cove. \$35. Weekend \$76 week J. W. Kalk x4207 or 554-6093.

For Sale: Large corner wooded lot in big thicket area. Access to fishing lake. Leach x3584 or 474-3386.

Vacation Lake Livingston Cape Royale a Beautiful resort community with all amenities. Enjoy charming custom 3-21 comp. furn. home nestled among trees by the water. Rent Wk/Mo/Yr. 488-4487. Richichi.

Lake Livingston Lots for sale Large, wooded, waterfront or off the water. Owner financed. Call Sue at 331-5692 after 5:30 weekdays or 594-5621 on weekends.

For Lease: Efficiency Baywind Condo on Bay area Blvd. Fireplace, icemaker refrigerator, draped with all appliances, doll house for single or close couple. Available Aug. 1. No pets. Call Dan Lockard 333-3925.

For Sale: Clear Lake City-Townhome, 3 bedr., 2 bath, low equity, \$399 month. 488-5692 J. H. Chappee

Rent: Lakeside vacation retreat at Cape Royale on Lake Livingston. New 3-bdrm waterfront home compl. furn. Facil inc tennis, pool, golf, boat launch, Rent by the wk or mo. 488-3746. R. W. Nolte.

Waterview lot at Lago Vista Estates on Lake Travis, near Austin. Class A Resort. Golf, tennis, marina, etc. Stephen Jacobs x3561 or 777-2173.

Newport Project-Access to Lake Houston and San Jacinto River. Selling my lot with golf, tennis, and swimming membership. 485-1179.

Lease: El Lago, 3-2-2, draped, carpeted, fenced, washer/dryer, freezer, refrig., access to tennis cts & pool, avail. Sept. 1, fee negotiable, 334-2286 after 6.

For Sale: 76 14x80 mobile home, 3 bdrm/2 bath, w/160x60 lot, League City area, convenient to downtown, 554-6601 after 5 p.m. J. English.

Rent: Room in 3-bedroom house, in Kemah. Washer/Dryer avail/fenced yard for pets. 334-2156.

For lease: Townhouse Sagemont 3-2 1/2, 2190 sqft., swimming pool-club house, auto garage door opener, smoke detectors, burglar alarm, walking distance to elementary school and high school, Krogers Super X, etc. 3330 or 4241, after 5 p.m. 481-2336.

Galveston West End 2 Br. By-the-sea condo, full furn. \$180/wk off season, \$260 wk in season. Clements. 474-2622.

WANTED

Old Orchard Independence Stoneware. Any serving pieces, soup or cereal bowls. 481-6928.

Wanted to borrow: ACM SIGPLAN notices September 1975. Elliott 334-5688.

Wanted: Medium size American car, good condition, reasonable price. x2634 or evenings 482-3596. Marie Lutz.

Wanted: Car Pool, 8150 Gulf Freeway, 8:00 to 4:30 shift, x3196, or 643-7104.

MISCELLANEOUS

Three 3-ft. fluorescent light fixtures \$5. Miller 334-1147 or x3301.

New Pulsor Shower Massager \$12. Large Metal Trunk with top tray \$12. Sam x2553 or 488-0125.

Telescope, refractor, works, 2 inch diameter \$20. Hansen x4801 or 488-2412. evenings.

Delco AM car radio with fronts & rear speakers. \$15. White 474-2214.

HO Gauge Bowker engine, Tender, 4 old time box cars, 3 coaches and caboose. \$30. White 474-2214.

Random collection of 16 HO Gauge Railroad Cars. All in boxes. \$15. White 474-2214.

Aircraft ONMI indicator removed from 1966 PA28-140 \$40. Working when removed. White 474-2214.

British Seagull 5 HP putboard, long shaft, shows it age, but runs good. \$150. Musgrove 488-3966.

Remington 270, 700 BDL, 4X Redfield Scope, 2 carrying cases. Excellent Condition. J. Adams 534-3243. \$225.

Besselar 23 C II enlarger, 50 mm lens, negative carrier \$239, also thermometer, safelite, unidrum II and easel, all like new. 488-1514.

Playback/fold Ping Pong table, paddles & balls, net \$30. 488-1514.

2 Scuba Tanks 71.2 cubic foot with boots like new \$70 each. 488-1514.

Treadmill, Sun Supply Co., with speedometer and handrails. \$90. 482-7607 after 6 p.m.

Discount Postage, 15 cents—4 per cent below face. 13 cents—5 per cent below face. \$20 minimum. Call 482-5393 after 5 p.m. or weekends. Sugano.

Childrens Street King Outdoor Skates Sizes 1 and 3. \$5 each 488-7698.

Trailer Hitch, Fits 1972 Chevy, \$15. A. Smith x4468.

LOST & FOUND

Lost: Flat brown leather briefcase, in parking lot at Building 2. Call Frank x2931. Frank Hickey.

Helon Crawford makes JSC blood program work

Blood drives such as the one underway during August at JSC are taken for granted by most employees, but the JSC blood bank program did not just happen by accident. Much of the program's success can be attributed to the efforts of one person—Helon Crawford.



Crawford

Active in many employee organizations since joining JSC in 1965, Crawford has been a representative, board member and vice president in the EAA, a board member of Local 2284, AFGE, and member of the JSC Federal Credit Union credit committee.

She became chairwoman of the JSC

Mission specialists

(Continued from page 1)

the flight. For the past four years Parker has been actively involved in reviewing all aspects of the development of Spacelab for the Astronaut Office.

Mission specialists have the overall responsibility for the coordination, with the commander and pilot, of Space Shuttle operations in the areas of crew activity planning, consumables usage, and Shuttle Transportation System/payload interaction.

Spacelab, developed and financed by 10 European nations under agreements concluded with the European Space Agency, will be carried in the cargo bay of the Shuttle Orbiter.

The lab will supply investigators with a fully furnished laboratory adapted for the weightless environment of space and pressurized for working without spacesuits.

In addition to the commander, pilot and two mission specialists, Spacelab 1 will include two payload specialists, one European and one U.S. citizen who have primary responsibility for operating the science instruments.

With six crewmen onboard it will be possible to have two operational shifts of three crewmen each, consisting of a mission specialist, commander/pilot, and payload specialist.

Allen returns

Scientist-astronaut Dr. Joseph P. Allen, has returned to active flight status in the Astronaut Office at JSC.

From August 1, 1975 until his return to JSC, Allen has served as Director, Office of Legislative Affairs at NASA Headquarters. He will wear both hats until a replacement is named.

Allen returns to JSC as a senior scientist-astronaut and will be eligible for selection as a Space Shuttle crewman.

Allen was selected as a scientist-astronaut by NASA in August 1967. He completed the initial academic training and a 53-week course in flight training at Vance AFB, Oklahoma.

He served as mission scientist while a member of the astronaut support crew for Apollo 15 and served as staff consultant on science and technology to the President's Council on International Economic Policy.

blood donor program in 1975 after JSC signed a contract with St. Luke's Blood Bank. Working with cochairmen Bob Jones, Jim McBride and Les Wynn, Crawford worked toward increasing participation in the program.

Technicians from St. Luke's regularly visit JSC and aerospace firms in the Clear Lake area to collect blood, and many employees have had new life provided by the blood bank. JSC donors are covered by donor insurance that entitles them and their families to needed blood. The program also allows donors to volunteer blood in another person's name, thereby giving that person donor insurance benefits for a year.

Each pint of blood volunteered in the JSC program goes farther than it once did, for St. Luke's, Texas Children's Hospital and the Texas Heart Institute perform hundreds of operations each week. Many of these operations would not be possible without JSC-donated blood. One unit of blood can now be separated into three components, and blood not used in surgery and transfusions is used in research.

Crawford and the JSC blood donor committees were presented a plaque by St. Luke's "in appreciation to the employees of JSC for their extensive involvement in the volunteer blood program . . . to provide top quality blood and blood components to those patients who have need of this service."

USSR sets space mark

The Soviet Union Wednesday passed the U.S. in number of man-days in space when Salyut 6 cosmonauts Vladimir Kovalenok and Aleksandr Ivanchenkov boosted the Soviet total past 937 man-days.

Better tennis with TM?

What one thing could bring you increased efficiency in your work, better relations with others, decreased tension and anxiety, increased intelligency and improved learning ability, faster reaction time, improved health, and perhaps a better tennis game?

A miracle drug?

No, but perhaps 20 minutes of Transcendental Meditation (TM) technique morning and evening.

Scientific research indicates that just 20 minutes of TM technique practice twice daily gives a wide range of benefits. Deep rest and relaxation are only the beginning.

A free introductory lecture on the TM program and its benefits will be given Wednesday August 9 at 8 pm in the Gilruth Recreation Center Room 209. Everyone is welcome.

Bowlers start 14th season

The JSC Men's Bowling League will start its 14th season August 31 with the first ball thrown at 6 p.m. The league is open to all JSC federal and aerospace industry employees.

The league is a five-man team league with competition based on the new 40 point system, and will bowl Thursdays during the winter season at Fairlanes in Clear Lake City.

Teams or individuals should contact Bill Moon/2491, Dwayne Forsythe/5931 or T. Bruce/6226. The next League meeting will be August 10 at 5:30 p.m. in Rm 204 of the Gilruth Center.



—Scrounged from the Chicago Tribune

Women's credit borrowing

(Continued from page 2)

contract. However, if the applicant is self employed, balance sheets and profit and loss statements are required in lieu of employment verification. In the case of the individual including overtime pay in his salary composite, an Internal Revenue Service return may be required to verify overtime regularity and value. Additionally, the divorced women must present verification of alimony and or child support if used as income.

Bill Robertson stated that each application is carefully weighed. The HUD/FHA processing involves a thorough analysis of the entire transaction—the qualifications of the mortgagor, the property's estimated value and conformance to HUD/FHA minimum property standards for location, design and construction and the suitability of the mortgage terms for the mortgagor and for FHA. In summary, Robertson recommends that women:

- Not incur debts prior to making mortgage loan application—pre-

sent the best case.

- Prepare a complete loan package evidencing all positive information. If alimony and or child support is used as income, payments should be received through courts since all sources of income must be verifiable.

- Deal with a qualified, professional licensed broker, realtor, or realtist.

Gwen Modisette, who has been a mortgage loan officer with United Savings for 12 years, was also interviewed. In her opinion, women are no longer treated unfavorably by lenders since passage of the Equal Credit Opportunity Act. Lenders, however, look closely at the income-to-debt ratio. Overextension, she reports is the most frequent obstacle in mortgage loan approvals for women. Modisette advises that women look closer at financial management.

Continued next issue

Sharon Whitcomb named outstanding secretary

Sharon Whitcomb, secretary to Spacecraft Design Division chief Al Louviere, has been named JSC Outstanding Secretary for July.

In his nomination memo, Louviere said that Whitcomb relieves him of many routine and time-consuming tasks, while accepting responsibility readily. "She displays a high degree of originality in accomplishing her assignments and is highly respected among her peers in the organization," wrote Louviere.

Louviere cited her "exemplary performance" in supporting a Shuttle Orbiter payload bay mechanisms preliminary design review. "Her professional attitude and personal dedication have served to significantly increase the operating efficiency of the division," said Louviere.

Whitcomb has taken several JSC and San Jacinto College courses in her own program of self development.

