



Local packers

The crucial task of packing the astronauts' personal parachutes now falls on workers at Ellington Field. Story on Page 3.



Pipeline progress

Crews have finished laying the new double-walled pipes for Bldg. 8's chemical waste disposal system. Photo on Page 4.

Space News Roundup

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No. 45

Consolidation may create 35 new JSC jobs

NASA Administrator Richard H. Truly provided new details Wednesday on the consolidation of the Offices of Space Flight and Space Station, a move that may bring 35 new jobs to JSC.

Associate Administrator William B. Lenoir will head the newly formed organization, called the Office of Space Flight (OSF). George Abbey will continue to serve as the deputy associate administrator for the organization.

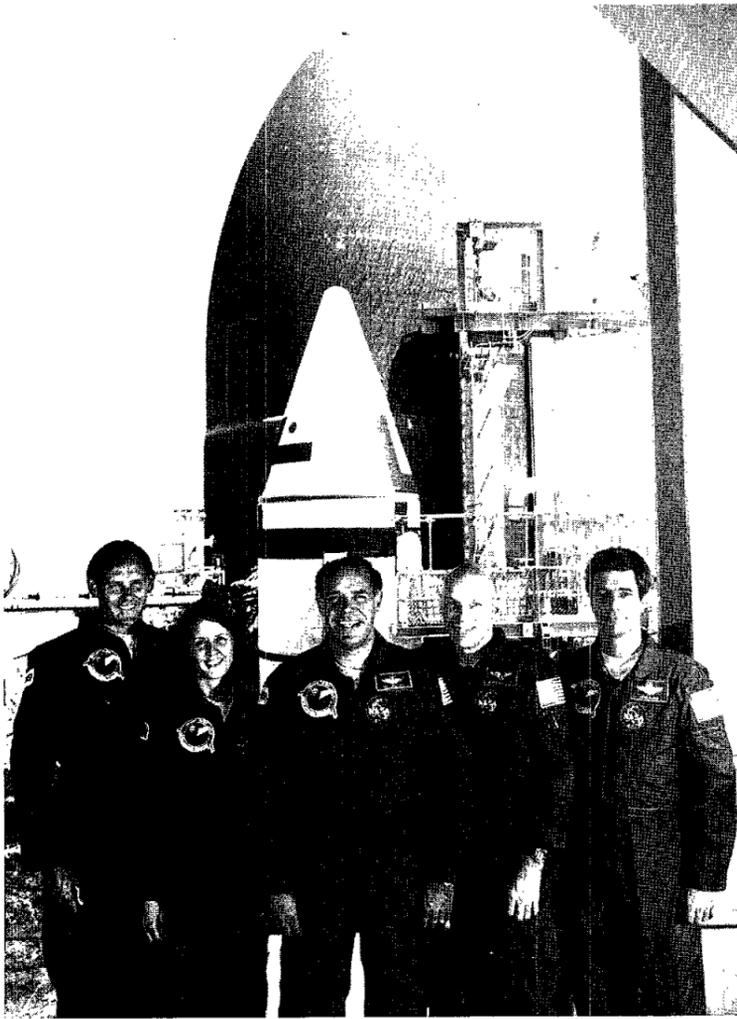
At JSC, the changes will establish a Level II Space Station Integration Office and a JSC System Integration Office, said Human Resources Director Jack Lister.

JSC will ask NASA Headquarters to approve the creation of 35 new positions, he said. The two office staffs will require five people, including two deputies, two secretaries and a resources management specialist.

In addition, the JSC System Integration Office will need five senior integration managers and 25 more people to work in the areas of distributed systems design integration, induced environments design definition, resource utilization integration, performance models and analyses, assembly integration and operations integration.

"The consolidation provides a structure within which the leadership and accomplishment of assigned programs and space transportation

Please see OSF, Page 4



NASA Photo

At the 215-foot level of Kennedy Space Center's launch pad 39-B, the crew of STS-33 pauses for a photograph. From left are Mission Specialists Sonny Carter and Kathy Thornton, Commander Frederick Gregory, Mission Specialist Story Musgrave and Pilot John Blaha.

Discovery gets marching orders for night launch

By Kyle Herring

Discovery will be launched no earlier than the evening of Nov. 20 from Kennedy Space Center's launch pad 39B on a dedicated Department of Defense flight.

The STS-33 mission, *Discovery's* ninth flight and the thirty-second for the space shuttle program, will begin with a liftoff sometime between 5:30 p.m. and 9:30 p.m. CST. It will be the first night launch since Nov. 26, 1985, when *Atlantis* and its crew of seven flew the STS-61B mission.

Processing of *Discovery* continued to proceed fairly smoothly this week with completion of the helium signature leak test. Though there was a slight misalignment in one of the pressurized hoses, the problem was quickly corrected and the test was completed on schedule.

Replenishment of the liquid oxygen tanks was completed this week and the Modular Auxiliary Data Systems (MADS) recorder aboard *Discovery* was retested Tuesday. Heat shield installation on main engines two and three has been completed as has the frequency response test of the main engines.

For a Nov. 20 launch, the crew will travel to KSC aboard NASA T-38 training aircraft on Nov. 17 for final launch preparations. Commander of the mission is Fred Gregory and Pilot is John Blaha; both are Air Force colonels. Mission specialists for this flight are Sonny Carter, Story Musgrave and Kathy Thornton.

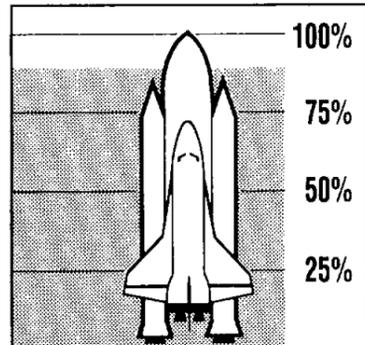


Carter and Thornton will make their first shuttle flights. Gregory previously flew on STS-51B.

Blaha flew earlier this year on STS-29. Musgrave is making his third flight having flown previously on STS-6 and STS-51F.

Meanwhile, in Orbiter Processing Facility (OPF) bay 1 *Columbia* is being readied for its move to the Vehicle Assembly Building next week. After being mated with its solid rocket booster/external tank stack, *Columbia* will be rolled to launch pad 39A later this month for the STS-32 mission to deploy a Navy communications satellite and retrieve the Long Duration Exposure Facility deployed from *Challenger* in April 1984.

It will be the first launch from Pad A since *Columbia* was launched Jan. 18, 1986, on STS-61C.



TOTAL GOAL: \$275,000



JSC gives 'Fergie' royal welcome

Duchess makes return visit to space city

By Linda Copley

JSC entertains members of royalty regularly during the course of any given year, including the King of Norway and Prince of Spain earlier this fall. The visit of Sarah Ferguson, Duchess of York (better known as "Fergie"), last Friday, however, created a stir among Anglophiles not seen since her brother-in-law, Prince Charles, came to call in 1977.

The duchess, commoner daughter of the royal polo manager, had requested a trip to JSC as part of her five-day visit to Houston. She had visited the center nine years ago, long before becoming a member of the royal family.

The second trip proved somewhat different in tone, with employees lined up to greet her outside the space station mock-up in Bldg. 9B. Acting JSC Director P.J. Weitz welcomed her to the center in brief ceremonies there.

Carl Shelley, deputy manager of the Space

Station Projects Office, found the duchess "very interested and inquisitive of space flight activities in general," as he escorted her through the mock-up.

"She was especially fascinated with the accommodations for humans living in space," he said. "She couldn't resist the temptation to operate the keyboard at the habitation module computer workstation," added Shelley.

As dozens of British and U.S. reporters craned their necks for a better view, Dr. Carolyn Huntoon, director of Space and Life Sciences, toured the duchess through a Space and Life Sciences exhibit set up outside the Space Station mock-up.

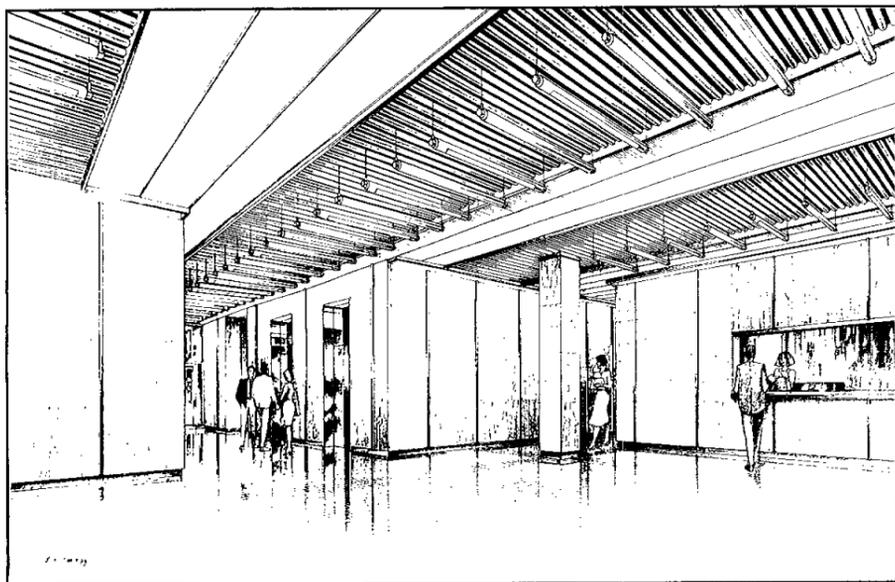
Huntoon found the royal visitor an interested and informed listener who refused to allow her tight schedule to trod over her curiosity about manned space flight.

Please see 'FERGIE', Page 4



JSC Photo by Benny Benavides

The Duchess of York tours the shuttle Full Fuselage Trainer in Bldg. 9A.



NASA Illustration

This artist's concept shows how the Bldg. 1 lobby should look after an automatic sprinkler system is installed and the existing ceiling is replaced.

Sprinkler installation will bring Bldg. 1 into safety compliance

By Linda Copley

Significant modifications to the lobby of JSC's administration building, Bldg. 1, are scheduled to take place during the first quarter of 1990.

The project, which also calls for the installation of automatic sprinklers on the first four floors of Bldg. 1, will require closing the entire building for at least two weekends.

"The project is the first phase of a program to install automatic sprinklers throughout the entire administration building," said project engineer Joe Fulton, Facilities Development Division. "We want to get the building in compliance with the current Life Safety Code for high rise buildings, which was not in existence when the building was constructed in 1963."

The nine-floor building is 135 feet tall. A "high-rise" is defined as buildings 75 feet tall

and above. To provide adequate safety protection, an automatic sprinkler system is required (currently, about 30 percent of the second floor has fire protection.)

Phase one, predicted to cost between \$600,000-\$800,000, is part of the fiscal year 1990 budget awaiting President Bush's signature. Phase two, which calls for sprinkler installation in the remaining five floors of the building, is programmed as a fiscal 1992 project.

Work in the lobby, anticipated to be the most disruptive, calls for Bldg. 1 to be closed for an entire weekend in order to remove the existing ceiling.

The open-ceiling area will be covered with plastic during the next week. The building must also be closed the following weekend, preferably over a three-day holiday, to allow

Please see SPRINKLER, Page 4

JSC

Ticket Window

The following discount tickets are available for purchase in the Bldg. 11 Exchange Gift Store from 10 a.m. to 2 p.m. weekdays.

General Cinema (valid for one year): \$3.50 each.

AMC Theater (valid until May 1990): \$3 each.

Sea World (San Antonio, year long): adults, \$17.25; children \$14.75.

Texas Renaissance Festival (open weekends through Nov. 12): adults, \$8.95; children \$4.95.

"Step on a Crack," a family play (Nov. 11, 2:30 p.m., UH-Clear Lake Bayou Theatre): \$3.50.

Delta Downs Bus Trip (Nov. 19, includes transportation, continental breakfast and drinks, and clubhouse admission): \$29 per person.

Delta Downs Overnight Trip (Nov. 18-19, includes transportation, light lunch and drinks, margarita reception at Luxury Hotel Inn, clubhouse admission, lodging, and breakfast buffet): \$59 per person.

Powderhorn Colorado Ski Trip (Jan. 23-27, includes chartered air fare from Hobby to Grand Junction, air transfer, lodging for 3 days, 4 nights): Trip package must be purchased by Nov. 10: \$385 per person, double occupancy.

Dickens on the Strand (Dec. 2-3): adults, \$3; ages 6-12 and 65 and older \$2.

Christmas tree sale: (Dec. 2-3, Gilruth Recreation Center).

JSC

Gilruth Center News

Sign up policy—All classes and athletic activities are first come, first served. To enroll, you must sign up in person at the Gilruth Recreation Center. Everyone will be required to show a badge or EAA membership card. Payment must be made in full at the time of registration. Classes tend to fill up four weeks in advance. For more information, call x35789 or x30304.

EAA badges—Dependents and spouses may apply for a photo I.D. 6:30-9:30 p.m. Monday-Friday.

Defensive driving—Course is offered from 8 a.m.-5 p.m., Nov. 18 and Dec. 16; cost is \$15.

Weight safety—Required for use of the Rec Center weight room. Classes will be 8-9:30 p.m. Nov. 29; cost is \$4.

Low-impact aerobics and exercise—Each eight-week session runs twice a week from 5:15-6:15 p.m. Cost is \$24.

JSC

Swap Shop

Swap Shop ads are accepted from current and retired NASA civil service employees and on-site contractor employees. Each ad must be submitted on a separate full-sized, revised JSC Form 1452. Deadline is 5 p.m. every Friday, two weeks before the desired date of publication. Send ads to Roundup Swap Shop, Code AP3, or deliver them to the deposit box outside Rm. 147 in Bldg. 2.

Property

Sale/Lease: 10 acres 1/2 mi. W of Hwy. 146 on FM 517, barn ponds, util., more. Trey, 280-4381 or 484-7834.

Sale: Seabrook, 3.29 acres w/sm. cozy home, 2-1, quiet, secluded, \$95,000. 532-4784.

Sale: Huffman, TX, 65' x 120' lot, BO over \$750, reply by 11-8-89. Whitney Ivanhoe, 488-9005.

Sale: League City, 3-2-2, assume 10.8, FPL, 4 fans, storage shed, \$65,000. 538-1928.

Sale: Friendswood, San Joaquin, 3-2-2, approx. 2,100 sq. ft., less than 4 yrs. old, lg. corner lot, assume 10.5% FHA, no approvals w/\$15,000 equity or buy for \$106,000. Rich, x38519 or 996-7630.

Sale: 5-yr. old A-frame house on 3 acres, furn., cov. patio, metal bldg. fruit trees, approx. 10 mi. from Crockett, TX, \$19,000. 486-9760.

Rent: Crystal Beach cabin, wknd. rentals, \$150, sleeps 8 adults. Joel, 333-5310.

Sale: 966 acres, 100 mi. SW of Houston, Pecan tree orchard, 4-2.5-3, FPL, 110' x 50' metal shop, sell all or part. (512) 771-3893.

Sale: Taylor Lake Estates, new, 5-3.5-3, study, gameroom, lg. lot, \$278,500. Don, x38039 or 333-3313.

Sale: Taylor Lake Estates, 90' x 135' lot, lakefront, \$36,500. Don, x38039 or 333-3313.

Trade: Custom canyon view, 4-3, off 360 West of Austin, prefer 5 yr. old, open plan w/ 20 min. of JSC. 471-8795 or 333-6083.

Sale: Wedgewood Village, Friendswood, 2 residential lots, ea. approx. 70' x 185', one mi. from Clearbrook High School, owner fin. w/10% down. 482-5226.

Sale: Seabrook, 3-2-2, approx. 1,800 sq. ft., all brick, never flooded, formals, lg. den, w/FPL, recently remod., new A/C, heater, carpet, roof, etc., redwood deck w/spa, \$69,900, must qualify, \$0 down. Richard, x30271 or 474-9334.

14x70 mobile home, 2-2, neat, curtains and mini blinds, assume \$16,000. 534-4770.

Sale: Lot, Lake Livingston, 80' x 140', elec., water, near lake, boat ramp, swimming pool and tennis, \$1,800, OBO. 488-5445.

Sale: Heritage Park, 3-2-2, qual. bond buyer pays \$3,500, move in, we pay closing costs, landscaped, decking, sec. sys. Linda, 282-5241 or 996-1990.

Cars & Trucks

'71 Dodge Charger, 318, A/D, auto., A/C, power, new urethane paint, ex. cond. 664-9472.

'29 Replicar, Mercedes, still in kit, Ford frame. Trey, 280-4381 or 484-7834.

'78 BMW 320i, 4-spd., A/C, \$3,000, OBO. 996-8022 or 282-4623.

'76 VW bug, AM/FM w/tape, runs good, \$1,800. 282-4623.

'79 Dodge Omni, 2-dr. hatchback, 5-spd. manual, good cond., \$1,000. Bob, x39079 or 488-5881.

'88 Toyota 4Runner, 5-spd., 4x4, AM/FM

cass., \$14,000. 333-6094 or 538-1928.

'81 Toyota Corolla, manual, AM/FM cass., good cond., 78K mi., \$1,200. 480-2590.

'85 Mitsubishi Tredia, 4-dr., 5-spd., AC, AM/FM cass., 70K mi., well maint., \$3,200. Bob, x32350 or 331-5089.

'88 GMC ivory coach custom van, 12K mi., P/W, P/L, paint seal, scotchguard, 350 V-8, ext. warr., 2-tone maroon and silver, new cond., \$18,000. 488-8368.

'72 Fiat Spyder convert, blue w/black top, int. and ext. ex. cond., runs great, many new parts. 488-2941.

'77 Corvette, 350 auto., T-tops, needs some mech. work, \$3,800. 480-3909.

'74 Chev. van, body rough, good eng., tags and insp. sticker, \$350. 559-1738.

'85 Toyota P/U, ex. cond., blue, 4-spd., AC, AM/FM cass., 50K mi., \$4,100. 481-5606.

'23' Dodge Brougham motor home, fully self-contained, roof AC, ex. cond., \$3,700. Carl, 486-1600 or 486-0713.

'79 Malibu Classic Landau, silver, needs work, 120K mi., \$800, OBO. 486-9620.

'81 Oldsmobile Delta 88, loaded, \$1,500. Phillip, x37260 or 479-0306.

'86 Nissan 300ZX, burgundy, auto., T-tops, 15K mi., new tires, immac., \$12,500, OBO. Mary, x32976 or 486-1766.

'70 VW Bug custom multi-color paint, custom mag wheels, new tires, low mi., \$1,200 nego. Wyleen, 484-0987.

'75 Porsche 911S, 5-spd., A/C, new int., tinted windows, 16" mag. w/Michelin ZXZ, \$14,500. 445-4037.

'82 Ford F-150, 1/2 ton PU, 2-tone red w/shell, rebuilt 302 V-8, auto. trans., 4bbl. Holley, dual exhaust, bucket seats, new tires, \$4,200. 280-1692.

'84 Chevy Celebrity, 4-dr., auto., A/C, P/W, P/D, P/L, cruise, tilt, deluxe uphol., reclining bucket seats, AM/FM w/cass., metallic brown, \$3,800. Edward, x36250 or 481-4889.

'81 blue T-bird, clean, good cond., 85K plus, \$2,300. Frank, 892-6983 or 486-5207.

Cycles

'26" 10-spd., \$20. Kathy, 332-0823.

'85 Honda Elite 80 skooter, 4K mi., beautiful, \$450. x30180.

Boats & Planes

'82 Wellcraft boat, 18', I/O XLS spec. ed., V-8, 195hp, runs great, \$4,900. x37432 or 480-7213.

'85, 35' Mallard motor home, loaded, low mi., \$35,000. 337-4051.

'16' Chrysler fiberglass trihull boat w/120hp Chrysler motor, power trim, canopy, gauges, water-ski tow bar, ladder and galv. trlr., good cond., \$800, OBO. Bob, 283-4146.

'13' AMF Zuma sail boat, w/trlr., \$850. Ted Guillory, 480-2367.

Dolphin sailboat and trlr., \$500. Bullock, 488-6526.

'14' Glassmagic skiboat, 80hp Merc., galv. trlr., skis, fresh water use, ex. cond., 38mph, \$1,595. x35180 or 326-3706.

'78 15' trihull Jemcraft boat, galv. trlr., 80hp, runs fine, good cond., \$1,100, OBO. 333-6558 or 339-1337.

'76 Merc. 20hp, good cond., plus gas tank, \$500, OBO. 333-6568 or 480-5997.

Sunfish sailboat and trlr., complete, \$950.

Today

Veterans Day—Most JSC offices will be closed in observance of the Veterans Day holiday. The Space News Roundup will be delivered Monday.

Cafeteria menu—Special: meat sauce and spaghetti. Entrees: baked scrod, liver and onions, fried shrimp. Soup: seafood gumbo. Vegetables: green beans, buttered broccoli, whipped potatoes.

Monday

Health Fair—To assist employees in making changes to their federal employees health benefits during open season (Nov. 13—Dec. 8), a Health Fair will be held Nov. 13, from 9 a.m.—2 p.m., in the Gilruth Recreation Center ballroom. Representatives from all the health plans available will be participating. Contact Employee Services at x32681 for additional information.

AFCEA meets—The Armed Forces Communications and Electronics Association (AFCEA) will meet at 11:30 a.m. Nov. 13 at the Nassau Bay Holiday Inn. Air Force Brig. Gen. James P. Ulm, vice director of the NORAD Combat Operations Staff will speak. Cost is \$10 for members; \$12 for nonmembers. Call Debbie Williams, 283-6667, by noon Nov. 10 to make reservations.

Cafeteria menu—Special: wieners with baked beans. Entrees: beef chop suey, breaded cutlet with cream gravy, grilled ham steak. Soup: beef and barley. Vegetables: buttered rice, Brussels sprouts, whipped potatoes.

Tuesday

Space technology—The third

Dates & Data

annual "Space: Technology, Commerce and Communications" conference will be Nov. 14-16 at the George R. Brown Convention Center in Houston. This year's theme is "Space Business: Charting the Course Into the Next Decade." Government and contractor employees may present their NASA badge or government identification for free admission to conference exhibits. Free shuttle bus service from JSC to the Convention Center will pick up on the hour from 10 a.m.-4 p.m. on Nov. 14, from 9 a.m.-3 p.m., Nov. 15, and from 9 a.m.-1 p.m. Nov. 16 at Ave. D, south of the Visitors Center. For more information, contact John McLeaish, 480-7445.

Cafeteria menu—Special: pepper steak. Entrees: fried shrimp, pork chop with applesauce, turkey a la king. Soup: celery. Vegetables: au gratin potatoes, breaded squash, buttered spinach.

Wednesday

Astronomy seminar—The next JSC Astronomy Seminar will feature a videotape entitled "Computer Dreams and the Other Side of the Moon." The meeting will be at noon Nov. 15 in Bldg. 31, Rm. 193.

Cafeteria menu—Thanksgiving special: ambrosia salad, turkey and dressing, giblet gravy, cranberry sauce, candied yams, green beans almondine, hot apple and mince cobbler; Entrees: fried cod, glazed ham. Soup: vegetable. Vegetables: buttered corn, beets.

Thursday

Video conference—A video con-

ference on "Computer Aided Systems Engineering" will be held from 7:30 a.m.-noon Nov. 16 at the Gilruth Recreation Center. The conference is sponsored by the Institute of Electrical and Electronic Engineers (IEEE), the Instrument Society of America (ISA) and the Clear Lake Council of Technical Societies (CLCTS). Call Andy Lindberg at x31474 by Nov. 13 to make reservations.

Cafeteria menu—Special: hamburger steak with onion gravy. Entrees: corned beef with cabbage and new potatoes, chicken and dumplings, tamales with chili. Soup: split pea. Vegetables: navy beans, buttered cabbage, green beans.

Nov. 17

Voyager: The Grand Tour Comes to a Close—This "wrap-up" presentation of the grand tour of Voyager and Pioneer spacecraft of the outer planets of the solar system will be at 7:30 p.m. Nov. 17 in the World Affairs Lounge, University Center Underground, University of Houston. Planetologists Dr. Stephen Clifford and Dr. Steven Williams of the Lunar and Planetary Institute and Dr. Faith Vilas, JSC's Solar Exploration Branch, will preside at the event, which is free and open to the public. Call 639-4221 for additional information.

Cafeteria menu—Special: barbecue link. Entrees: deviled crabs, broiled codfish, liver and onions. Soup: seafood gumbo. Vegetables: buttered corn, green beans, new potatoes.

x38278 or 326-2995.

Audiovisual & Computers

Osborne port, CP/M w/two 5 1/4" floppy drives, modem, ext. monitor, and 80 column upgrade, software incl., \$195. 326-1278.

NEC multispeed laptop computer, 2-720K disk drives, standard LCD display, complete w/manuals, \$650. 479-6312.

Tandy 1000 SX computer, 640K RAM, 2 disk drives, color monitor, software, \$700. x34750.

AT&T display enhancement board (DEB) 640x400, 16 color, works w/reg. AT&T color monitor, \$100, OBO. x30852 or 996-0981.

Commodore 1702 color monitor, 1571 disk drive, modem, misc. software. Susan, x34321.

Household

Round 42" oak pedestal table w/4 pressback chairs, ex. cond., \$485; triple dresser and mirror w/blk. formica top, \$40. Madeline, 480-2817 or 482-0554.

Cedar wood glider, seats 3 people, like new, \$60. x30180.

Chromecraft dinetter set, modern, Exec. walnut table, 4 diamond tufted blk. vinyl chairs, \$220. Boyd, 488-8806.

Holiday deadlines

Because of the Thanksgiving, Christmas and New Years Day holidays, Space News Roundup will not be published Nov. 24 or Dec. 29. Swap Shop deadlines will be affected.

The deadline for ads to be published in the Dec. 1 issue will be 5 p.m. Wednesday, Nov. 15. The deadline for ads to be published in the Dec. 29 issue will be 5 p.m. Wednesday, Dec. 20.

Contemporary tan sofa bed, \$250; matching wood and glass end and coffee table, \$125; ex. conds. x37432 or 480-7213.

DR table w/four chairs, \$150; lg. footstool on rollers, \$20; antique channel back chair, \$30; lg. oil painting, \$30; beautiful antique window bench, \$250. 488-5564.

Drop leaf table, \$150; dresser w/beveled mirror, \$145; desk, \$195; washstand, \$185; curio cabinet, \$189; lg. wardrobe, \$119. 283-5616 or 488-3595.

Pecan dble. dresser w/mirror; 2 matching nightstands, \$200; love seat and ladies highback chair, brn., rust pattern, good cond., \$175. 326-1529.

Solid wood buckeye maple BR set dble. bed w/headbd, matt., box springs, chest, dresser, mirror, nightstand, perf. cond., \$600, OBO; dble. bed, \$200, OBO; coffee table, \$75; lamp, \$30. 482-7265.

Rattan 3 pc. LR set, \$200; lg. microwave, many features, \$125; TV, \$125; VCR, \$75. 488-7750.

'19' B/W TV, ex. cond., \$30; 23.6 Kenmore depp freezer, \$200. 487-2377.

'81 model Kirby tradition upright vacuum, 6.0 amp motor, good cond., attach. incl., was \$750, now \$150, OBO. Sue, x35357 or 333-9197.

Koss Novabeam model one front projection TV,

good cond., \$100 w/out screen, \$400 w/6 1/2 foot curved screen. Leonard, 283-4150.

Sofa and chair, velour flower design, beige/brn., good cond., \$150; coffee table, pecan finish, all wood, \$100; end table, square, pecan finish, all wood, \$75. 282-4187 or 332-1832.

Sofa, lg. brn., very comfortable, good cond., 8' 2" long, \$75 cash. 488-6521.

Couch and loveseat, new, ex. cond., was \$650, now \$400, OBO; Amana microwave, lg. cap., ex. cond., \$100. x36346 or 486-0389.

King sz. waterbed, w/drawers, semi-motionless, pads and heater, new \$600. Laura, x31312.

New, uphol. bar stools, 30" high, writing desk, office style end tables and chairs. Tom, x31418 or 863-7561.

Sofa/sleeper, queen sz., velvet, avocado and gold, ex. cond., \$300. 482-1535.

Couch, like new, light tan w/designs, \$75. Ed, x36250.

Beautiful sleeper sofa and love seat, high-back, \$500. Matt, x34285 or 486-7260.

Lost & Found

Reward/Lost Blk. poodle (Woochie), last seen at Barringer Knoll Condos by Hwy. 3. 283-5616 or 488-3595.

Photographic

Nikon FE-2 w/35-70 Soligar zoom, \$350. 664-9472.

Minolta Maxxum 7000 camera, wide angle zoom lens, telephoto lens, zoom flash, other lenses and filters, carrying case, \$1,200 new, now \$500. x30180.

Pets & Livestock

Free, four adorable blk/white kittens, 3M/1F, 8 wks. old. 282-4307 or 649-0141.

Siberian husky fem. AKC, 1 yr. old, blk. and white, \$200. 554-6701.

Doberman puppies, born 8-20-89, \$100/ea., blk. and reds, tails and dewclaws removed, shots and wormed, very healthy, sire and dame on premises. Merrell, x37570 or 559-2017.

Ball python, 3 1/2' long, lame, 50 gal. aquarium w/strong wire cover and 2 logs, \$80. Bev, 554-2651.

Springer Spaniel pups, Labrador retriever father, good Springer markings, tails docked, plump and healthy, \$25. Steve, x36725.

CockaPoo puppies, blk., \$75/ea., regis. parents on premises. x30852 or 996-0981.

Wanted

Yamaha jog scooter, '86 preferred, also scooter tires, 2.75-10-4 pr. Fred, 488-8111 or 944-0493.

Want for Child Care Center, tricycles, wagons, sleeping mats or cots, all good cond. Dorothy, x33150.

Want/Trade: Concert/church elec. organ for 30' plus cabin cruiser. 337-4051.

Musical Instruments

Poole Spinnet piano, ex. cond., complete, ivory and matching bench, \$800. x33195 or 332-3077.

6-string Ovation acoustic guitar w/hard shell case, mint cond., \$565. x34205 or 488-8105.

Personal

Will the gentleman from Bldg. 1, who bought the child seat carrier for a bicycle from me, please call me. I found the shield part to cover the spokes

of the bike. Carole, x31698 or 480-2467.

Miscellaneous

2 shields, wood, \$25/both; antique 7 1/2 tall beautiful Grandfather clock, \$2,500. 488-5564.

Infinity mirror, elec., \$40; Avon collector steins; Western tan cowhide fringe coat, sz. 40, like new, \$75; Philco model 60B antique cathedral radio, restored, \$125, OBO. Boyd, 488-8806.

Wedding dress, veil, slip, sz. 8, white, off-shoulder, \$150. Kathy, 332-0823.

Antique English pump organ, value, \$3,200, BO over \$2,500. x34966 or 326-1529.

G&S dishwasher, \$10, works but noisy and old; old mint U.S. stamps at face value, \$10. 482-5393.

12hp Sears lawn tractor, 38" cut, \$750. x31363 or 479-5594.



JSC Photos by Kim Murray

At left, Northrop parachute rigger Adrian Jackson (left), PRAN Bruce Tangney, NWC (right, foreground), and Mike Herr, project engineer from China Lake (background), stow the parachute lines into the container as part of the packing procedure at Ellington Field's personal equipment shop. Below, Tangney, Artie Talbot of Northrop quality control and Jackson stow the last of the lines and are about to place the main canopy material into the container.



PARACHUTE PACKERS: Crucial shuttle task gets special care in Ellington's Personal Equipment Shop

By Linda Copley

The crucial task of packing the parachutes worn by astronauts aboard the space shuttle is now taking place in the crew members' "own backyard" at Ellington Field.

Packing of the Personal Parachute Assembly (PPA) for each shuttle flight since STS-28 has been performed by a team of JSC contractors from Northrop Worldwide Aircraft Services Inc.

Northrop had already been packing the parachutes for the T-38s and high altitude aircraft crews at Ellington in the Personal Equipment Shop. That area is now the location for the escape system parachute work as well.

The parachutes, developed for NASA at the Naval Weapons Center (NWC) at China Lake, Calif., after the Challenger accident, are an integral part of the crew escape system.

"Without the parachute, everything else (the pressure suit, the telescoping pole, etc.) is not needed—so the parachute is the heart of the crew escape system," said Bruce Sauser, subsystem manager for Crew Escape Equipment in JSC's Shuttle Support Branch.

"We have to be sure it is functionally correct," he explained. "There are a lot of integral parts, since packing a parachute is a sequence operation. It is imperative that during the repack cycle all of these vital functions are inspected."

The Navy supported NASA through the first four repack schedules (shuttle parachutes are

on an inspection cycle that call for them to be unpacked, inspected by a parachute rigger, and repacked every 120 days) but handed the duties over to the packers at Ellington in July.

Navy personnel supported the first inspection repack cycle completed at Ellington by the Northrop Parachute Rigging team, in its assumption of responsibility for the parachutes.

John Hopkins, a Shuttle Crew Support System technician from Lockheed, joined the certification process at Edwards Air Force Base in progress in 1988. Now, he supports Crew Escape Equipment and Launch Entry Suits at JSC, under the Shuttle Support Branch, Crew and Thermal Systems. The area also supports NASA technicians at KSC as they help the crews suit up in the orange partial pressure suits for flight, as well as supporting flight activities at KSC and Edwards Air Force Base with shuttle training aircraft.

Hopkins said the parachutes underwent extensive testing—more than 100 drops at different altitudes and air speeds, using both Navy parachutists and human-sized dum-

mies—before certification was complete.

Two Navy civil servants at China Lake—Russ Bates, manager of the Shuttle Crew Escape Program, and Mike Herr, systems project engineer—and a team of almost 100 engineers, clerks, contractors, and Naval test parachutists, designed and constructed the PPA, which utilizes the modified 26-foot Navy conical parachute.

"The escape system was tested at altitudes up to 25,000 feet, and air speeds of up to 200 knots," said Hopkins, who has more than 1,100 skydives under his belt.

"We were working to integrate the full-up system of the crew escape pole, launch entry suit, and the parachute system together," said Hopkins. "The entire crew escape system, with all its components, had to be reliable and functional before we could return to flight on STS-26."

NWC was contracted to develop the escape system and to provide technical support on a maintenance level," explained Hopkins. "Which was done at China Lake."

Design guidelines stipulated that as much

approved, off-the-shelf hardware as possible be used, in order to cut down on developmental and testing time.

The parachutes had to be lightweight and capable of high-altitude, high speed openings. They take the place of the seat back cushions on the crew seat in the orbiter and are designed to be used in conjunction with the escape system's telescoping 12-foot pole just prior to shuttle landing, under a very specific set of emergency situations.

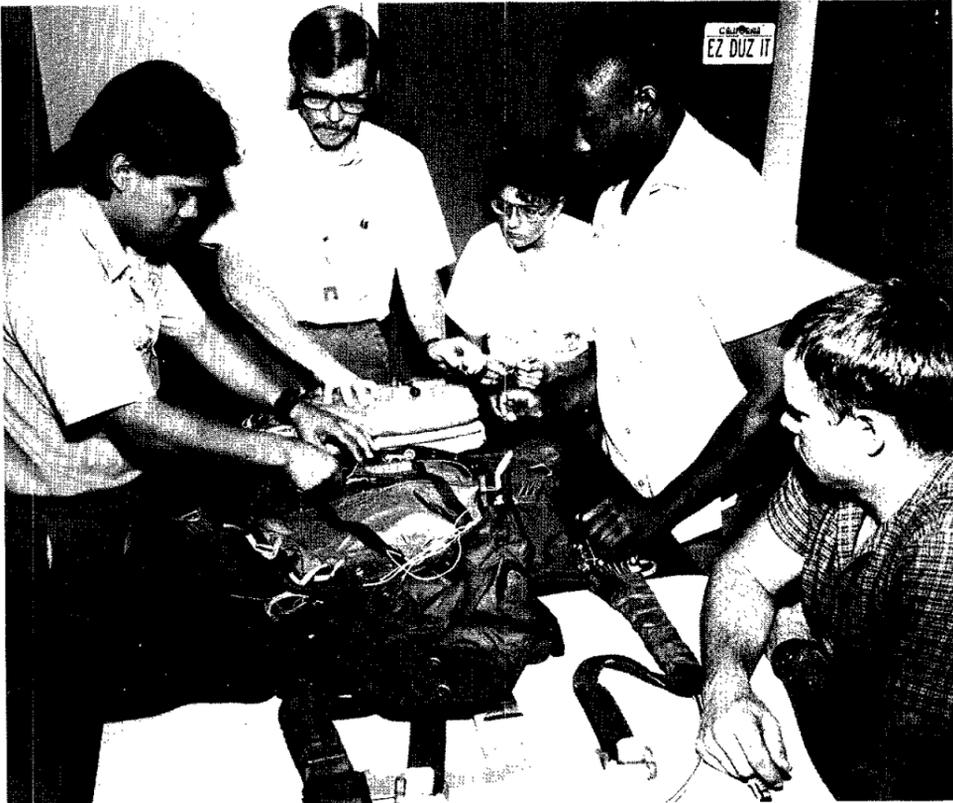
Repacking includes verification of the 13 pyrotechnic devices in each parachute. It also includes certification of the inflatable life raft and radio beacon featured in the escape system "backpack" worn by each crew member upon shuttle launch and reentry.

Each parachute assembly, weighing approximately 25 pounds and resembling a backpack, contains the main parachute canopy and a much smaller (4.5 foot) drogue chute deployed to stabilize the crewman until reaching 14,000 feet, when a barometric pressure sensing device automatically deploys the main canopy.

The extraction lanyard attached to the parachute container allows crew members to "hook up" to the escape pole. Sliding along the pole will give a crew person a clear trajectory path out of the way of the shuttle. The parachute, and the accompanying inflatable liferaft, if needed, are designed to open automatically during the escape operation.



Above, the drogue suspension lines are stowed in the drogue free bag, which is detached when the main canopy opens. At right, the liferaft is installed into the container. From left are: parachute rigger Chris Sanchez, Marty Lewis of JSC Aircraft Systems Quality Assurance, PRAN Peggy Sue Myers, Navy airman aircrew survival equipment man; Northrop parachute rigger Eddie Bradley, and PR 2 Craig Melotte, NWC. According to Lewis, it typically takes four people to pack each parachute: two Northrop parachute riggers, a Northrop Quality Assurance project manager and a project manager from NASA Quality Assurance.



Women's program working group members picked

By Linda Copley

Federal Women's Program Working Group (FWPWG) representatives have been selected for fiscal year 1990.

A selection committee made up of Federal Women's Program (FWP) Manager Freda Marks, Mary Ferguson, Women's Coordinator for AFGE Local 2284, and Robert Hall, Labor-

Management Relations Officer, selected the 10 FWPWG members from a field of 19 JSC management nominees and 10 union nominees.

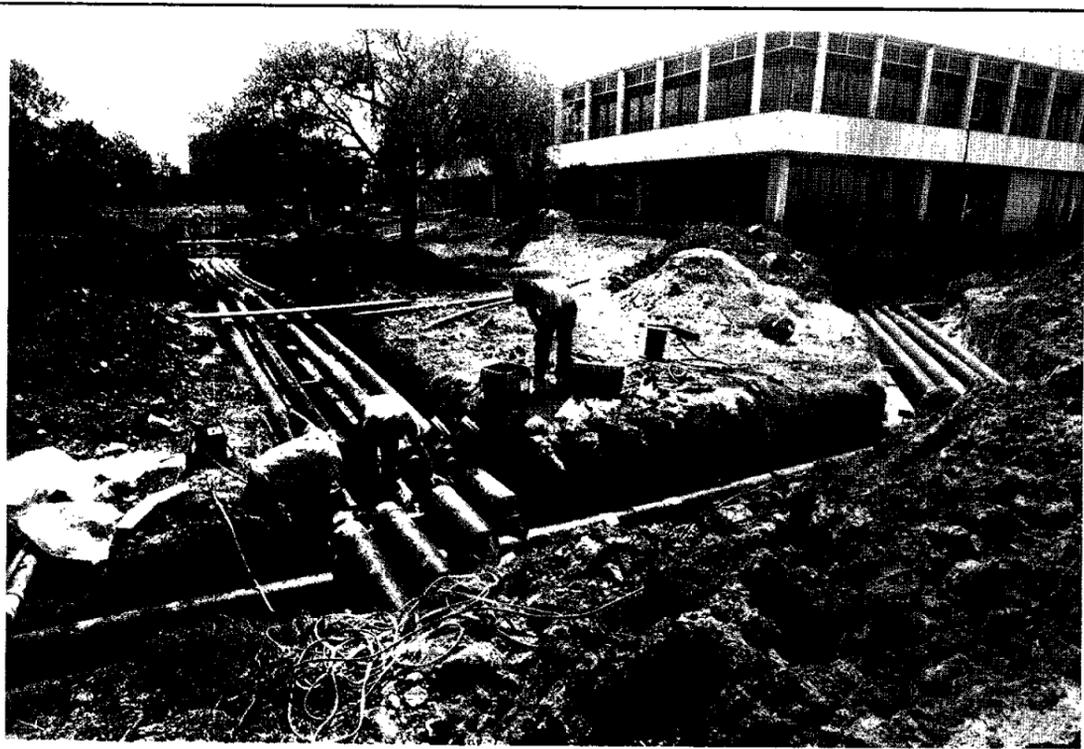
Those selected represent an even split between management and union nominees of five each, and include administrative professionals, engineers, a scientist, and office support staff.

The new group members are: Grace Martinez and Bridget Broussard-Guidry, Administration; Rhonda Moore and Chris Ovesny-Dendy, Engineering; Dawn Ward, Mission Support; Katie Nguyen and Janice Fearer, Center Operations; Marilyn Lindstrom and Patricia Ashmore, Space and Life Sciences; and Victory Williams-Earles, Orbiter and GFE Projects Office.

Besides providing advice and assistance to Marks, the FWPWG is assigned to: 1) assure the views of women are solicited and considered in preparation of the JSC Affirmative Employment Plan; 2) provide advice, assistance, and recommendations on issues with centerwide implications related to the employment, training, or advancement of female employees; 3)

accomplish other task assignments related to the FWP and considered beneficial by both the working group and the Equal Opportunity Program Manager; and 4) serve as a resource at JSC for the development of plans or programs related to women.

The new appointees will serve one-year terms, and have an option to remain for a second year.



PIPELINE PROGRESS—Workers install new pipe to update Bldg. 8's disposal system for hazardous chemical waste from the photography plant. Connection of the six-inch doubled contained plastic pipeline to four new double-walled disposal tanks, planned for an upcoming three-day weekend, will bring JSC's disposal system up to current federal standards. Little to no disruption of regular Photographic Branch activities was expected, according to Bill Owens, photo lab chemist.

Health benefits Open Season opens Monday

Beginning Monday and continuing through Dec. 8, JSC employees will have the opportunity to make changes in their health insurance coverage during Open Season.

To assist employees, the Human Resources Office is sponsoring a Health Fair from 9 a.m.-2 p.m. Monday in the Gilruth Recreation Center ballroom. Representatives of the health plans have been invited to participate and will have information about their plans available.

There are a number of significant changes in the Federal Employees Health Benefits Program for 1990. Aetna's Indemnity Benefit Plan will no longer participate, and the National Federation of Federal Employees (NFFE) High Option has been discontinued. Two Houston-area health maintenance organizations (HMOs)—Sanus-Houston and Maxicare-Texas—have consolidated their plans for 1990; the new plan is SANUS New York Life.

The official Office of Personnel Management (OPM) 1990 Enrollment

Information Guide and Plan Comparison Chart will be distributed to all employees as soon as they are received. Employees currently enrolled in the merging HMOs should pay particular attention to their guides and comparison charts for changes in benefits and premiums and make an Open Season change if the new plan does not fit their needs.

Open Season is an annual opportunity for employees to change from one health plan or option to another, move from self-only enrollment to family enrollment, or make a combination of changes. Eligible employees who previously declined health benefits coverage may elect to enroll during Open Season.

Changes and enrollments will be effective Jan. 14, 1990. Employees who are retiring before Jan. 14, 1990, and are contemplating making an Open Season change should contact their retirement counselor immediately.

For more information, call the Employee Services Section at x32681.

'Fergie' knowledgeable about space

(Continued from Page 1)

"They (consular officials) asked me to stay on schedule because she was running late," Huntoon said. "But she said, 'Now, I'm interested in this, so let's take our time'—and we did."

The duchess asked questions about the habitability aspects of space flight, comparing it to living conditions aboard a submarine she had toured in the past, Huntoon said. They also talked about preparing and eating food in space, and the duchess has specific questions about medical conditions in microgravity.

"We talked about medical aspects and what changes we're seeing and what we're doing about it," Huntoon said. "Because of her background in

aviation, she was particularly interested in space motion sickness and asked quite a few questions about that and the pooling of blood. She was very knowledgeable and asked a lot of questions."

Huntoon said the duchess also was interested in a bioreactor which is used in the study of cells. The bioreactor, an automatic cell growing device, has many applications on the ground as well as in space, a fact the duchess noted, Huntoon said.

Astronaut Mary Cleave then briefed the duchess for several minutes inside the Full Fuselage Trainer shuttle mock-up in Bldg. 9A.

The final stop on the 90-minute tour was the flight director's console in Bldg. 30 for a briefing by Flight

Director Wayne Hale. The duchess, who has earned her pilot's license, again impressed her JSC briefer with an obvious interest in the space program.

"We got the definite impression that she might be interested in flying in space," said JSC Protocol's Elena Salsitz.

Tourists on the regular 11 a.m. Public Affairs Mission Control briefing who chose to stay were treated to a "front row seat" of the duchess' briefing, from behind the viewing room glass—the same view then-commoner Sarah Ferguson had shared with other visitors on the self-guided tour years before.

(Pam Alloway and Billie Deason also contributed to this report.)

Sprinkler system to be installed

(Continued from Page 1)

work crews enough time to replace all current fireproofing (which does include asbestos) prior to the installation of the sprinkler system.

All remaining work to install the sprinklers and a new ceiling in the lobby, as well as work on floors 2, 3 and 4, will be completed during "second shift" hours to minimize the effect on building occupants and

visitors.

The new lobby ceiling will be made of a prefabricated system consisting of 1 1/2-inch stainless steel tubes spaced and attached to carrier rails, installed in a continuous line north to south. Areas of light gray corrugated acoustical tile will provide contrast as they are installed alongside the sections of tubing.

Suspended lighting fixtures, similar in design to the ceiling, will be installed parallel to the ceiling system. The fixtures will house fluorescent lamps, hang about 18 inches down from the ceiling and be spaced about 48 inches apart. There also will be recessed accent incandescent lighting installed in front of the elevators and near the wall around the acoustical tile areas.

OSF consolidates space flight, space station offices

(Continued from Page 1)

will be assured," Lenoir said. "The division of responsibilities is clear and the mechanisms to assure coordination are in place."

The new organization will include four major areas: Space Shuttle, Space Station Freedom, Space Flight Systems and Human Resources and Institutions.

Robert L. Crippen is acting director of the Space Shuttle Program, and Richard H. Kohrs is director of the Space Station Freedom Program. Joseph B. Mahon is director for Flight Systems, and Richard J. Wisniewski is director for Human Resources and Institutions.

The most significant change resulting from the consolidation has been a strengthening of program management within the space station program.

The program director's office now will include three major functions: engineering, operations and policy. The deputy director, Robert Moorehead, is located in Reston, Va.

A deputy for integration at JSC and a deputy for operations in Reston, who have not yet been named, will support the station program office. The deputy for integration will be supported by two field offices, with a manager for system integration at JSC and a manager for element integration at Marshall Space Flight Center.

Strong staff offices in system engineering and analysis, management integration, and safety, reliability and quality assurance will remain in Reston.

In the broad context of the reorganization, several offices and staff positions will provide Lenoir with direct support. Those areas are resources

management, with responsibility for resource evaluation and integration for all OSF programs, and program control for Space Station Freedom in Reston, and the space shuttle at JSC; transportation services, which will serve as the interface with space transportation customers; an executive unit with responsibility for correspondence control, audit functions, reviews of NASA Management Instructions, and administrative and management services to the OSF organization at NASA Headquarters; and technical integration and analysis, which will provide the associate administrator with a quick-response capability in dealing with selected technical issues or concerns.

The consolidation results in no major changes in the shuttle program. At Headquarters, the organization now in place continues with the major func-

tions of program plans, system engineering and analysis, and operations utilization. Two deputies, one for program and one for operations continue to be located at JSC and Kennedy Space Center, respectively. Lines of communication and decision making remain unchanged.

No major organizational changes have been made within the Space Flight Systems division.

A new focus on human resources management has been assigned to the Human Resources and Institutions organization. Primary responsibilities continue to be the advocacy, determination and recommendation of manpower, facilities and other institutional resources. The focus on leadership development within the Office of Space Flight at NASA Headquarters and across the centers will be strengthened.

Thompson to speak at JSC

NASA Deputy Administrator J.R. Thompson will visit JSC on Tuesday and address JSC civil service and contractor employees.

Thompson will speak to employees at 1 p.m. Tuesday, Nov. 14 in Teague Auditorium. Supervi-

sors are urged to allow employees to attend the meeting as workloads permit.

Thompson's stop is part of a tour of NASA centers, where he is receiving updates on ongoing activities.

Holiday deadlines set for Roundup

Because of the Thanksgiving, Christmas and New Years Day holidays, Space News Roundup will not be published Nov. 24 or Dec. 29. Swap Shop and Dates and Data deadlines will be affected.

The deadline for ads to be published in the Dec. 1 issue will be 5 p.m. Wednesday, Nov. 15. The deadline for receipt of information to be published in the Dates and Data

section of that issue will be 5 p.m. Wednesday, November 22.

The deadline for ads to be published in the Jan. 5 issue will be 5 p.m. Wednesday, Dec. 20. The deadline for receipt of information for the Dates and Data section of that issue will be 5 p.m. Wednesday, Dec. 27.

These dates supersede the announcement on Page 2 of this issue.

Equipment failures training available

Training is now available for NASA and JSC contract employees who document hardware, software, or administrative type equipment failures and anomalies on the STSOC Discrepancy Report RSO-8900-A series of forms.

The dates, times and locations of the training sessions, scheduled between now and Nov. 22, are available on both the NASA DPSP Prof's "VM" and the RSOC Prof's

"STSOC" Bulletin Board computer programs. Those interested in attending can identify the session that best fits their schedule from the information listed.

Reservations are suggested for attending any of the training sessions available, other than those in the Bldg. 30 auditorium. For reservations or additional information, contact Frances Willett, Rockwell Safety, Reliability, and Quality Assurance, at 282-3173, x2541.

Space News Roundup

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