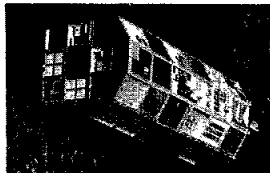




The crew of STS-37 saved the day with an unplanned space walk to help deploy the Gamma Ray Observatory. Photos on Page 3.



The first symposium to discuss the effects of space on the Long Duration Exposure Facility is coming up. Story on Page 4.

Space News Roundup

Vol. 30

April 26, 1991

No. 17

JSC hoists flag for 'Stars and Stripes Picnic'

JSC is getting ready to hoist the flag for "A Stars and Stripes Picnic" May 4 at the Gilruth Center.

The fun starts at 11 a.m. and runs through 5 p.m., said Norma McMinimy, co-chair. Tickets, still on sale at the Bldg. 11 Exchange Store, cost \$2.50 for children or \$4 for adults. Tickets won't be sold at the gate.

"Please come," she said. "We'll have entertainment for the whole family."

Activities begin early for the young people. For the younger children, the petting zoo will be open from 11

a.m.-3 p.m., pony cart rides will be available from noon-3 p.m., and magic shows are scheduled from 1-1:30 p.m. and 4-4:30 p.m.

Astroworld characters will roam the area from 1:30-2:15 p.m., and the Teenage Mutant Ninja Turtles will be there from 1-3 p.m. Midway booths will be open from 11 a.m.-5 p.m.

For older children and teens, there will be free video games from 11 a.m.-5 p.m., and a laser disc show.

Face painters will be looking for human canvases from 12-5 p.m., and a caricature artist will be available from 1-4 p.m.

For adults, registration for the horseshoe tournament begins at 11:30 a.m., and the pitching will be from 1-2 p.m. A new event this year will be a golf pitching wedge contest, also from 1-2 p.m.

The dunk tank victims will assume their perches from noon-2:15 p.m. An all-star cast has been lined up this year, said organizer Sandy Griffin.

"It's fun to see them all go crazy," Griffin said. "The people in their organizations love to see them up there."

Members of the "dunkee" organizations will bid for the honor of the first dunk, with proceeds going to the

Greater Houston USO.

This year's participants will include Harvey Hartman and Estella Gillette, Human Resources Office; Don Puddy and Bob Naughton, Flight Crew Operations; Don Holick and Rose Gardner-DeLapp, Center Operations; Bill Huffstetler and Marilyn Davison, New Initiatives; John Aaron and Bob Bobola, Space Station Freedom Projects Office; Randy Stone, Mission Operations; and John Arnold and Elena Huffstetler, Information Systems.

The Almost Anything Goes comp-

Please see PICNIC, Page 4



Endeavour to stop over at Ellington

By Pam Alloway

NASA's newest space shuttle, *Endeavour*, rolled out of Air Force Plant 42 in Palmdale, Calif., Thursday and was readied for its first ferry flight to Kennedy Space Center.

Endeavour is scheduled to leave Edwards Air Force Base in California next Thursday and stop at Houston's Ellington Field as it is ferried to KSC.

NASA Administrator Richard Truly called *Endeavour* NASA's finest space shuttle yet and praised the efforts of thousands of people on the NASA/industry team who have worked on the project.

"On behalf of NASA and the nation, I am extremely proud to be taking delivery of the space shuttle orbiter *Endeavour*, the latest in a line of magnificent flying machines," Truly said at the roll out ceremony.

"Painstakingly built by some of the finest and most dedicated members of the government/industry work force in America and equipped with extremely capable avionics and mechanical systems, *Endeavour* will join our fleet of remarkable space

Please see ENDEAVOUR, Page 4



Photo by Army Sgt. Kevin Breau

Skydivers from the U.S. Army's Golden Knights precision parachute jumping team join hands high above Kennedy Space Center's Launch Pad 39A to frame the Space Shuttle *Discovery*. Traveling at up to 120 mph in freefall, the team performed for a series of Army promotional photographs earlier this month.

Discovery tries again on Sunday

By James Hartsfield

Following a launch attempt halted by a balky main engine sensor, *Discovery* was back on track Thursday for an STS-39 launch at 6:01 a.m. CDT Sunday.

Kennedy Space Center technicians spent a day and a half unloading fuel from *Discovery's* external tank and safing the shuttle before they gained access to the engine compartment on Wednesday.

Once inside the engine compartment, they replaced a pressure sensor for the high-pressure oxidizer turbo-pump on main engine No. 3 and the electrical wires connecting it to the controller. Both the wiring and sensor were replaced with new equipment, and the old unit was sent to Marshall Space Flight Center in Huntsville, Ala., for testing.

The faulty sensor gave an abnormally high reading during the final hours of Tuesday's launch countdown, prompting managers to call off the launch to correct the problem. The sensor is one of two identical transducers that provide a reading on the pressure of oxygen being fed to the engine. Launch criteria state that both sensors must be functioning for a countdown to proceed.

With the sensor replaced, a second countdown began at 7:45 a.m. CDT Thursday at the T-43 hour mark. Work to replace the sensor took only about one day at KSC. The rest of the five-day launch delay was spent backing out of the first attempt, servicing the payloads and re-entering the countdown.

Elsewhere at KSC, *Columbia* was to be moved Thursday to the Vehicle Assembly Bldg. to be mated with the solid rockets and external tank for STS-40. *Columbia* could be moved to Launch Pad 39B as early as May 4 and launched by May 24. Managers will meet May 13-14 for a final review and set a firm launch date.

Atlantis is in Bay 2 of Kennedy's processing facility following its recent flight. This week, residual propellants were drained from its orbital propulsion systems and heat shields were removed from the main engines.



Observatory detects first gamma-ray burst

Gamma Ray Observatory scientists reported this week that one of the spacecraft's instruments has detected its first gamma-ray burst.

Technicians began spacecraft instrument calibration activities this week in anticipation of science operations to begin in mid-May. GRO's instruments will be trained three degrees off of the center of the Crab Nebula for the next four days so that all four instruments can begin calibration.

GRO, in a 287 by 280 statute mile orbit, is operating at 100 percent of its capabilities with all four instruments at full power. The

second of NASA's four Great Observatories was deployed by the crew of STS-37 on April 14.

The Burst and Transient Source Experiment instrument detected the gamma-ray burst April 18. Principal Investigator Gerald Fishman of Marshall Space Flight Center said the reading confirms that the instrument is working.

Gamma-ray bursts are mysterious flashes of energy that occur randomly in different parts of the sky. One burst is so powerful that it releases in just one-tenth of a second the same amount of energy produced by the

Sun over a thousand years.

The day after the burst was seen, controllers at the Payload Operation Control Center at Goddard Space Flight Center reported that the same instrument suffered what probably is a computer chip malfunction. The chip is in a redundant circuit board, however, and the backup board is operating well. The chips enable the BATSE instrument to see certain types of pulsars.

Sunday, controllers completed a test of GRO's B-side attitude control electronics. Technicians said the test was "very successful."

Veterans assigned to Spacelab missions

Hilmers to fly STS-42; Ross payload commander on STS-55

By Barbara Schwartz

Two astronauts have been named to fill key slots on upcoming Spacelab missions.

Marine Lt. Col. David C. Hilmers has been assigned as a mission specialist on STS-42, the International Microgravity Laboratory (IML-1) flight, and Air Force Lt. Col. Jerry L. Ross has been named payload commander for Spacelab D-2, STS-55.

Hilmers will perform the duties previously assigned to the late Manley L. "Sonny" Carter on IML-1, scheduled for February 1992.

"It is with regret that I have to make this selection under these cir-

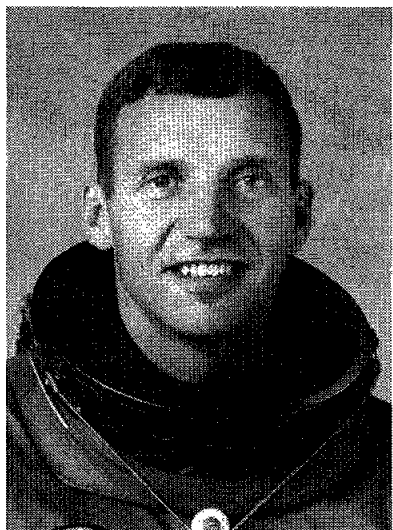
cumstances," said Don Puddy, director of Flight Crew Operations. "We all miss Sonny Carter. He was a special person and friend who can never be replaced."

Hilmers was a mission specialist on three shuttle flights, two of which were Department of Defense missions, STS- 51J and STS-36. He was one of five crew members on STS-26, the first flight after the *Challenger* accident, on which the crew successfully deployed a Tracking and Data Relay Satellite.

STS-55, the second German Spacelab flight, is scheduled for February 1993. As payload commander,

Ross will provide long-range leadership in the development and planning of payload crew science and training activities.

Ross has flown as a mission specialist three times. On STS-61B, the crew deployed three communications satellites and Ross performed two six-hour space walks to test space station construction techniques. STS-27 was a Department of Defense flight. During STS-37, Ross performed an unscheduled spacewalk to assist deployment of the Gamma Ray Observatory and a planned space walk to test maneuvering devices for outside space station.



David Hilmers



Jerry Ross

JSC

Ticket Window

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

- General Cinema (valid for one year): \$4.
- AMC Theater (valid until May 1992): \$3.75.
- Loews Theater (valid for one year, can be used two weeks after premiere): \$4.
- Astroworld (valid 1991 season): season, \$44.94; child less than 4-feet, \$10.12; one day, \$15.85; Waterworld, \$8.13.
- Seaworld of Texas (valid 1991 season): child (3-11), \$12.25; adult, \$17.25.
- Galveston Historical Homes Tour (May 4, 5, 11 or 12): \$11.
- JSC Picnic (May 4, Gilruth Center, includes barbecue dinner, children's rides and carnival games, entertainment, refreshments, bingo and laser show): child, \$2.50; adult, \$4.

JSC

Gilruth Center News

Sign-up policy—All classes and athletic activities are first come, first served. Sign up in person at the Gilruth Center and show a badge or EAA membership card. Classes tend to fill up four weeks in advance. For more information, call x30304.

EAA badges—Dependents and spouses may apply for a photo I.D. 6:30-9 p.m. Monday-Friday. Cost is \$5.

Defensive driving—Course is offered from 8 a.m.-5 p.m., July 13 and Aug. 10. Cost is \$15.

Aerobic dance—Eight-week session meets 5:15-6:15 p.m. Tuesday and Thursday nights. Cost is \$24.

Exercise class—Class meets 5:15-6:15 p.m. Monday and Wednesday nights. Cost is \$24.

Weight safety—Required course for employees wishing to use the Gilruth weight room. The next class will be from 8-9:30 p.m. May 8 and May 22. Cost is \$4.

Aikido—Martial arts class meets for six weeks from 6:30-7:30 p.m. beginning May 14. Cost is \$30.

Ballroom dance—Beginning and intermediate ballroom dancing lessons will be offered for eight weeks from 7-8:15 p.m. Thursdays beginning May 2. Advanced lessons will be offered from 8:15-10 p.m. beginning May 2. Cost is \$60 per couple.

Almost Anything Goes—Three teams still needed for JSC Picnic competition. Cost is \$10 per six-person team. Registration deadline is 7 p.m. May 1.

Intercenter Run—Two-mile and 10K runners may record their times throughout April outside Gilruth Rm. 146.

JSC

Property

Sale: Camino South, 3-2-2A, corner, new roof, trees, brick accent wall w/FPL, lg kitchen w/Island, oak cabinets, ceramic tile, lg Sathilo tile patio w/trellises, Jacuzzi, \$79.9K. x33335 or 326-2582.

Rent: Lake Travis cabin, private boat dock, CA/H, fully equip, accom 8, spring/summer, \$325-\$425, w/ky, \$80/\$85 die. 326-5652.

Lease: Galveston condo, 2-1, one block from Gulf, decorator accents, all appli, FPL, cov parking, \$500/mo. 289-6777.

Lease: Nassau Bay, 4-2-2, 2000 sq ft, 2 living areas, newly redecorated, deck, 1.5 story, no pets, \$990/mo. 484-4944 or 333-6806.

Sale: Bay Glen, 3-2-5-2, custom drapes, huge deck, \$105.9K. x30554 or 486-4369.

Sale: Bay Glen, 3 BR w/study, marble and ceramic floors, decorator window treatments, mid 120s. 486-3977.

Rent: Univ Trace condo, 2-2, W/D connect, FPL, res parking, nonsmoking, \$495/mo. x38889 or 480-1340.

Rent: Galveston condo, Seawall Blvd & 61st St, furn, sleeps six, cable TV, swimming pools, w/wknd/dly. Magdi Yassa, x38470 or 486-0788.

Rent: Nassau Bay townhome, 4-2-2, over 2000 sq ft, master dwn, huge garage, 2-story den, FPL, deck, atrium, \$1095/mo. Jarry, x38922, 488-5307.

Rent/Lease: Clear Lake marina condo, three level, all appli, FPL, wet bar, 2-2.5-2, \$850/mo. 474-4922.

Sale: Lake Livingston, Westwood Shores lot, util, \$6500 OBO. x30162 or 578-9230.

Rent: Lake Tahoe condo, Stateline, NV, sleeps 6, fully furn, July 1-8, \$425. x37144 or 474-5610.

Sale: Pearland, Southwyck, 3-2.5-2A, 3 yr old, 1.5 story, brick Tudor, 5 ceiling fans, mini-blinds, FPL, assume 9.5% w/approval, low equity, \$132K. 997-2069.

Sale: Baywind I condo, 2-2-2 psw w/FPL, split floor plan, all appli, \$39K. 488-8379.

Sale: Clear Lake 2-story condo, 1-1.5-1cp, patio, balcony, all appli, alarm, ceiling fan, FPL, \$38K assum low pmts. 486-0508.

Sale: Pearland, Dixie Hollow subdiv lot for med density homes, concrete street, curbs, all util. x39530.

Sale: Central Texas 2-story building, approx 10K sq ft, cash flow, reasonably priced. 482-5003.

Sale: Texas City, 3-2-5, almost 2 acres, assume 10.85%, \$87,922. Rick, x32695 or 559-2735.

Sale: Egret Bay condo, 2-2, cov parking, all appli, FPL, blinds, fan, patio, storage, pools, boat ramp, \$42.9K. x30092 or 481-3637.

Sale: Nassau Bay, 4-2.5-2 w/sun rm, landscaped corner lot, new carpet/paint, A/C, Shirley, 333-3613 or 333-2921.

Sale: Lake Conroe recreation/campground charter membership, \$4995. 488-2990.

Sale: Pipers Meadow, 3-2.5-2, formal LR/DR, FPL, loft, wet bar, fans, gar door opener, deck, landscaped, new paint, \$90K. Dennis, x34405 or 480-5076.

Sale: 2-story townhome condo, 1-1.5-1cp, all appli, new A/C, \$34.5K w/10% dwn wll finance remainder. 286-2605.

Cars & Trucks

'86 Toyota 4X4 PU, ex cond, \$7500 OBO. 992-3447.

'80 Pontiac Phoenix, V6, 5 dr ltrbk, auto, stereo AM/FM, new batt, good cond, \$1750. x30092 or 481-3637.

'77 Chev Monte Carlo, 350 V8, 115K mi, A/C, AM/FM/cass, new tires/trans w/1 yr warr, runs great, \$1500 OBO. Mark, x37491 or 335-1494.

'57 Porsche Speedster kit car, hi perf eng and trans, \$10.5K. David, 332-9044 or 929-7012.

'82 Pontiac Bonneville wagon, ex cond, all pwr, cruise, tilt, AM/FM/cass, V8 DSL, A/C, \$1300 OBO. Glenn, x38067 or 484-4709.

'79 Ford Fairmont, rusty, runs great, \$600 OBO. 471-2885.

'83 Ford Country Squire wagon, good cond, BO. Dan, 481-3056.

'87 Ford Tempo GL, blk w/red int, 4 dr sedan, 75K mi, ex cond, std, \$3500. 538-1051.

'84 Ford Mustang GT convert, red/blk, new clutch/muffler/tires, ex cond, \$6000. Gloria, 480-0235 or 485-7555.

'79 Ford PU, rebuilt 4000 eng, Datsun Z260; Chev S10 PU, rebuilt V6; '74 Chev 1 ton, good 350 eng, all vehicles for parts. 332-1811.

'83 Plymouth Turismo, 2 dr htrbk, ex cond, 62K mi, 5 spd, \$1500 OBO. Dennis, x34405 or 480-5076.

'79 Dodge Omni, manual trans, new brakes/clutch/batt, AM/FM/Cass, new inspec and license, \$800. 282-4898 or 481-9523.

'84 Honda CRX, ex cond, \$2900. 286-0136.

'82 Honda Accord, 5 spd, 4 dr, new A/C, good cond, \$1000. Peter, 280-0244.

'86 Honda CRX, 43K mi, ex cond, A/C, 5 spd, AM/FM/cass, \$4995. 480-1646.

'73 Airstream, self-contained travel trlr 26', ex cond, A/C sleeps 4, \$5500. Ken, 486-5432.

'88 Mitsubishi Precis, 3 dr, A/C, AM/FM/cass, new tires, 30 mpg, good cond, \$3900. 333-7070 or 482-2342.

'83 Subaru GL wagon, yellow, 5 spd, AM/FM/cass, loaded, \$1250 OBO. Bill Taylor, x38574.

'81 VW diesel PU, ex cond. Bitsey, x34834 or 946-6451.

'83 F-150 SuperCab, full 8 ft bed, 3 spd w/OD, tan, some rust, AM/FM/cass/CB, good cond, in line 6, 300 cu in, \$3000. 339-1337.

'79 Ford Granada, gold, 70K mi, good tires, fair body, \$700 OBO. Diana, 992-2443 or 282-4101.

'88 F-150, low mi, clean, \$7800. Steve, x33380.

'89 Ford Probe Turbo GT, 5 spd, A/C, P/B. P/S, D40M2 Dunlops 50 series, ex cond, \$11,750. Dan, 280-2780 or 457-2850.

'82 Ford XLT van, ex cond. x30425 or 941-2495.

'83 Cutlass Supreme, low mi, new paint, A/C, pwr locks/windows, ex cond, \$3300. 488-5019 or 332-8559.

'84 Camaro, pwr, A/C, IROC aoces, metallic gray, 65K mi, Rogers, x38851 or 944-7042.

'81 Chev wagon, brn, runs good, \$1000. 286-4774.

'84 Chevrolet Suburban Silverado, 4WD, trlr pkg, cruise, tilt, A/C, AM/FM/cass, navy blue w/silver, \$6800. Pam, 334-4986 or 244-4395.

'89 Camaro IROC-Z convert, factory loaded plus after market options, ex cond, \$1875 below book, finance. Pagemall, 762-8859.

'86 Buick Regal Ltd, V8, 2 dr, all pwr, ex cond, 70K mi, \$4600 OBO. 282-4041 or 337-2318.

'84 Buick Park Ave, 5.0L V8, ex cond, low mi, \$4995. 996-9157.

'85 BMW 524TD, 60K mi, books, records, loaded, auto, ex cond, tint, blk/beige, all pwr. Thomas, 280-2514.

'82 BMW 320i, 5 spd, sunroof, charcoal, new Pirelli tires, ex cond, \$3750. Wade, 482-2810.

'90 Tercel, 2 dr sedan, teal, auto, loaded, tint, ex cond. x30948.

'79 Toyota Celica, new paint, refurb int, Michelin tires, A/C, 5 spd, \$2400. 488-5019 or 332-8559.

Cycles

'83 Suzuki RM80, new top end, \$300 OBO. 532-3395.

'81 Honda 750 Custom, Windjammer radio, low mi, good cond, \$650 OBO. Bruce, 485-0396.

Boy's Huffly 10 spd bike, new, \$65. 334-2963.

Boy's Schwinn 20" bicycle, \$50. 332-1725 or 283-5465.

'84 Kawasaki GPZ 750 motorcycle, 8.5K mi, clean, \$2000. Shannon, x32646 or 484-5412.

Honda 125 4 wheeler, ex cond, \$500. 280-2563.

'75 Honda, 550cc, runs good, \$350. x30886 or 480-3260.

Boats & Planes

Quachita 17 aluminum canoe, \$400. 474-4663.

'89 18' Bass Tracker, 150 hp Evinrude, loaded, ex cond, warr. x39032 or 554-2206.

'88 Chaparral 178XL, 17 ft, 130 hp Merc, Shoreland'r galv trlr, all extras, under 20 hrs use, \$8100. 335-8553 or 280-0331.

Saliboard, intermed/low class, 5.5 sail fully battened, adj boom, composite mast, ex cond, \$400 OBO; BIC car rack, \$60 OBO. Kathy, x34546 or 486-7851.

'83 Renken 18 sailboat, roller furling jib, 4 hp aux, galv trlr, sleeps 4, good cond, \$2000. Phil, 339-3476.

'19' Flying Scot sailboat, galv spinnaker, spinnaker, British Seagull motor, \$2800. Phil, 282-3600 or 471-1471.

Bass fishing rig, 15' Tldecraft boat w/trlr, 50 hp Merc and Super Motorguide trolling motor, dry storage, carpet, front seat steering, BO. 488-4453.

'88 19' Sea Ray I/O V6, garaged, adult owned, 40 hr, extras incl, \$8500. 485-0396.

'59' Custom Hurricane surfboard, ex cond, no dings, twin optional tri fin, \$200; O'Neil 0,1,2,3 full wet suit, removable arms, med, \$80. 326-2251.

Audiovisual & Computers

IBM XT computer, 640K, 30 MB HD, 2 FD, color monitor, \$975 or trade for Mac SE. x30092 or 481-3637.

Pair of Advent Prodigy tower speakers, \$250; pair of Advent Baby II speakers, \$150; pair of Infinity book shelf speakers, \$150. Jimmy, x33572 or 996-1382.

Amiga 500 RAM expansion, MIDI interface, music SW, jo sticks, word processor, games. Joe, 996-1667.

JSC

Today

Cafeteria menu—Special: tuna and noodle casserole. Entrees: broiled codfish, fried shrimp, baked ham. Soup: seafood gumbo. Vegetables: corn, turnip greens, stewed tomatoes.

Monday

Lockheed NMA meets—The Lockheed National Management Association will present a brown bag luncheon at 11:40 a.m. April 29 in Lockheed Plaza 4, Rm. 44F. "Investment Problems Under Present Economic Conditions," will be the topic. For more information contact Charles Campbell at 333-6107.

Networking conference—JSC and the University of Houston-Clear Lake will co-host a Software Engineering Professional Education Center conference on "Networking as a Strategic Tool" April 29 at the Nassau Bay Hilton. Jack Garman, deputy director of JSC's Information Systems Directorate, will be among the speakers. Tutorials will be April 29, and the conference April 30. For more information contact SEPEC at 282-2223.

Cafeteria menu—Special: meatballs and spaghetti. Entrees: wieners and beans, round steak with hash browns. Soup: chicken noodle. Vegetables: okra and tomatoes, carrots, whipped potatoes.

Tuesday

Cafeteria menu—Special: fried chicken. Entrees: beef stew, shrimp creole, sweet and sour pork chop

with fried rice. Soup: beef and barley. Vegetables: stewed tomatoes, mixed vegetables, broccoli.

Wednesday

Co-op Job Fair—JSC's cooperative education students will hold a Job Fair from 9 a.m.-3:30 p.m. May 1 in the Gilruth Center ballroom. All JSC employees are invited. For more information contact Robert Bayt, x37547.

Cafeteria menu—Special: Swiss steak. Entrees: fried perch, New England dinner. Soup: seafood gumbo. Vegetables: Italian green beans, cabbage, carrots.

Thursday

Cafeteria menu—Special: stuffed bell pepper. Entrees: turkey and dressing, enchiladas with chili, wieners and baked beans. Soup: cream of chicken. Vegetables: zucchini squash, English peas, rice.

Friday

Cafeteria menu—Special: Salisbury steak. Entrees: baked scrod, broiled chicken with peach half. Soup: seafood gumbo. Vegetables: cauliflower au gratin, mixed vegetables, buttered cabbage, whipped potatoes.

May 3

Alumni League meets—The NASA Alumni League's JSC chapter will meet from 1-5 p.m. May 3 in Bldg. 1, Rm. 966. Call Jack Heberlig at 333-0928 for details.

AACE workshop—The American Association of Cost Engineers Hous-

ton Gulf Coast Section will present its annual spring workshop May 3-4 at the Hobby Airport Hilton. Max Engert, deputy director of Engineering, will be the keynote speaker. Cost of the 16-session workshop is \$150 for NASA and support contractors. For more information, call or write Ralph O'Neal at 492-3922 or 492-4000.

May 4

JSC picnic—The JSC Picnic will be from 11 a.m.-5 p.m. May 4 at the Gilruth Center. For more information, call Melody Goss, picnic committee chair, x33152.

Alumni League meets—The NASA Alumni League's JSC chapter will meet May 4 in conjunction with the JSC Picnic in the Gilruth Center (Alumni Rm. 2nd floor). Call Jack Heberlig at 333-0928 for details.

May 7-8

Electronic packaging forum—NASA Headquarters will sponsor a presentation on "Development of Electronic Packaging Technology" from 8:30 a.m.-4 p.m. May 7-8 at the Gilruth Center, Rm. 206. Unisys employees will conduct the presentation. For more information contact Clyde Evans, x36455, or Arnell Jalbuena, 335-2446.

May 9

NMPA meets—The JSC National Property Management Association's annual picnic will be at 5 p.m. May 9 at the new Gilruth pavilion. Bring a covered dish. Cost will be \$3 per person. For more information contact Sandra Pierce, 282-4151.

Swap Shop

Casio Data Bank watch, new, 50 tel no, scheduler, calculator, coupt up/dwn, world time, alarm, 2 yr batt, blk, \$30. Robert, x30778.

Infinity Quantum Jr speakers, 12" 3-way, \$400 OBO. 997-2069.

Coleco Vision w/Turbo Adapter and Atari attachment, good cond, 10 games. Jennifer, x32177.

Nintendo and Game Boy games, Peter, 280-0244.

IBM PCjr, 128K, 1 FD, color monitor, many extras and floppies. 326-4316.

HP 42S scientific calculator, 600 functions, 7.2K RAM, full HP 41 CV program compat, all manuals, ex cond, \$50; Tandy PC-6 pocket scientific computer, 16K RAM, programmable in Basic and Assembly, printer and cassette port, all manuals ex cond, \$50. David, 333-9820.

AT&T 6300 computer, 640K RAM, 30 MB hard card, 2 360K FD, game port and card, 8087 coprocessor, color graphics monitor, \$700 OBO. Keith, x38024 or 554-4309.

Realistic MICR-27 microcassette recorder, 2 spd capstan drive, voice activated, fast playback, 7 blank tapes, \$58; B&K model 290 elect multimeter, PR-21 probe, manual, \$150. Tom Clark, x49842.

Tandy 1000 EX, 7 mHz XT compat, 640K, 2 5.25" FD, ser and par ports, DOS 2.11 w/CGA mon, \$350. x30786 or 280-0437.

Tandy 1000SX PC, 2 FD, daisy wheel 220 printer, CM5 color monitor, computer desk, \$500. 280-2563.

"Build Your Own 80286 IBM Compatible and Save a Bundle" paperback, \$8; "Ability" integrated WP, SS, DB SW, \$8; "MSI Publisher" desktop publishing SW, \$25. 559-2528.

'86 Buick Regal Ltd, V8, 2 dr, all pwr, ex cond, 70K mi, \$4600 OBO. 282-4041 or 337-2318.

'84 Buick Park Ave, 5.0L V8, ex cond, low mi, \$4995. 996-9157.

'85 BMW 524TD, 60K mi, books, records, loaded, auto, ex cond, tint, blk/beige, all pwr. Thomas, 280-2514.

'82 BMW 320i, 5 spd, sunroof, charcoal, new Pirelli tires, ex cond, \$3750. Wade, 482-2810.

'90 Tercel, 2 dr sedan, teal, auto, loaded, tint, ex cond. x30948.

'79 Toyota Celica, new paint, refurb int, Michelin tires, A/C, 5 spd, \$2400. 488-5019 or 332-8559.

'83 Suzuki RM80, new top end, \$300 OBO. 532-3395.

'81 Honda 750 Custom, Windjammer radio, low mi, good cond, \$650 OBO. Bruce, 485-0396.

Boy's Huffly 10 spd bike, new, \$65. 334-2963.

Boy's Schwinn 20" bicycle, \$50. 332-1725 or 283-5465.

'84 Kawasaki GPZ 750 motorcycle, 8.5K mi, clean, \$2000. Shannon, x32646 or 484-5412.

Honda 125 4 wheeler, ex cond, \$500. 280-2563.

'75 Honda, 550cc, runs good, \$350. x30886 or 480-3260.

Srn blk terrier-dachshund mix, 1 yr old, shots, spayed, house-broken, free. Mark, 333-0989 or Audrey, 333-0932.

Himalayan cat not regis, and tabby cat, both neutered, free. Sam, x37967 or 332-8222.

Regis 14 mo Boston terr, \$150. Rosanne, x30939 or 487-3076.

Household

Modern pastel plaid queen sz hide-a-bed sofa, \$100. Kathy, x32021.

Kirby upright sweeper, carpet shampooer, all attachments, ex cond, \$200. 280-8746.

Full sz elec dryer, used 4 mo, ex cond, \$175 OBO. 474-5976.

Rust colored recliner, \$75; beige w/earthtone loveseat, rattan arm rests, \$125; exercise bike, \$50. Andrea, 282-6602. Sofa, ex cond, \$200; coffee table, 2 matching end tables, \$175. 333-6277 or 339-3562.

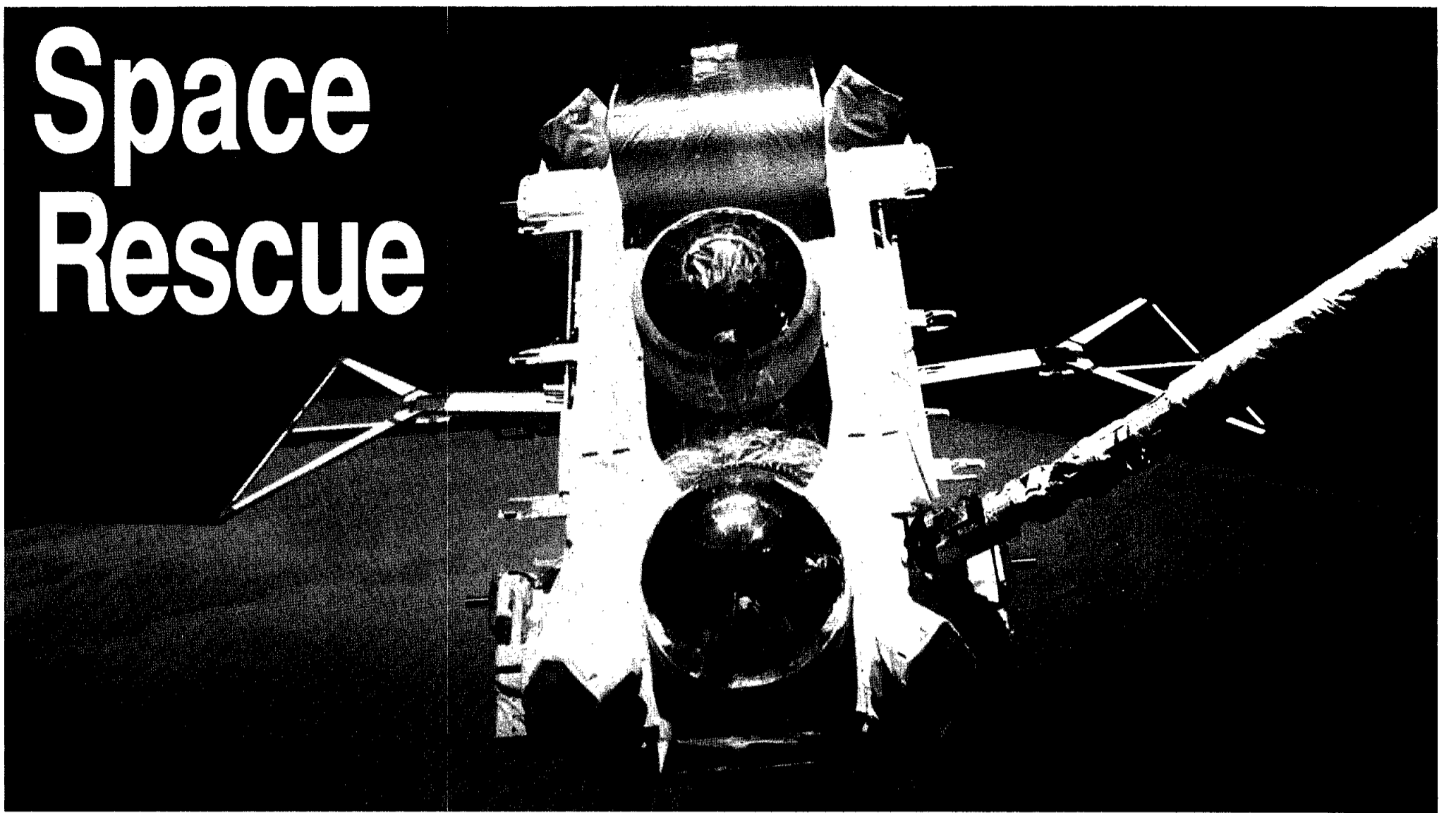
Queen sz matt/box springs, \$15. x38889 or 480-1340.

Mini blind, 48" x 48", brn, ex cond, \$15; lg comfy chair, \$10. Edward, x36250.

Antique green BR suite, full sz bed, mirrored dresser, 5 drwr chest, 2 night stands, \$650; GE dishwasher w/Potscrubber, built-in, almond, works but needs repair. Magdi Yassa, x38470 or 486-0788.

New carpet,

Space Rescue



Space walk and Gamma Ray Observatory views dominate the photography from the STS-37 mission, and for good reason. If not for the first unscheduled extravehicular activity in six years and the first successful unscheduled EVA repair job in the history of the shuttle program — the \$600 million observatory would not be preparing to take its first look at the universe's high-energy events.

Clockwise from above:

With the expansive desert of the Mideast as a backdrop, the Gamma Ray Observatory remains suspended in the grasp of *Atlantis'* remote manipulator system. Mission Specialist Linda Godwin is at the robot arm controls;

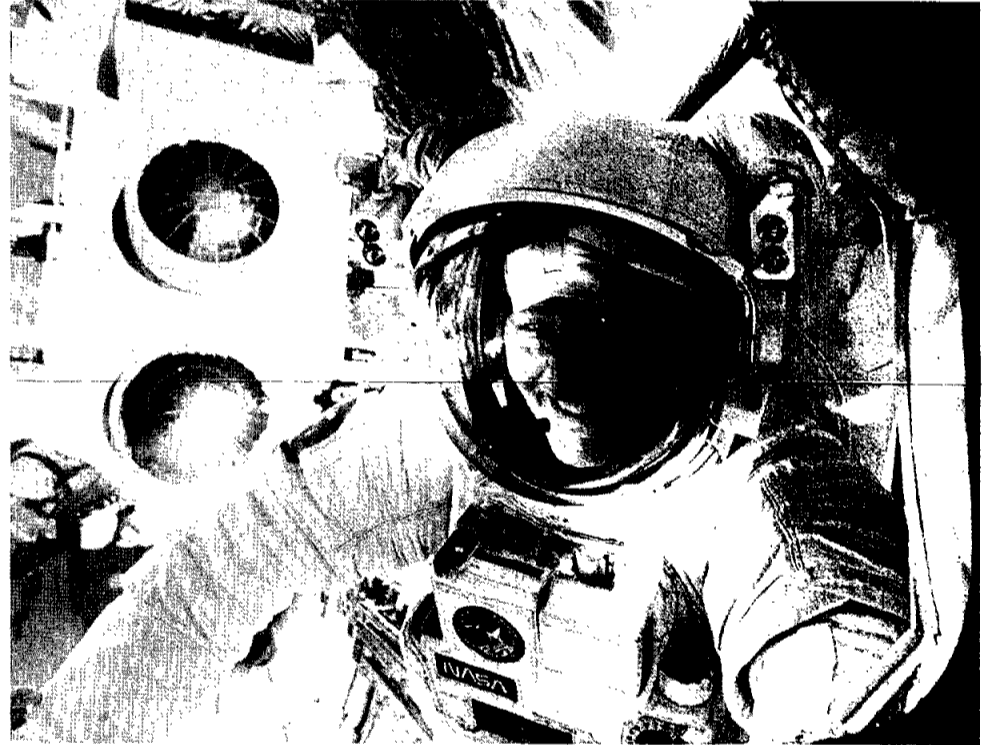
Mission Specialist Jerry Ross grins at his crew mates inside *Atlantis* after a successful space walk to free GRO's snagged high-gain antenna boom. It took Ross and companion Jay Apt just 17 minutes outside the airlock to salvage the mission's primary objective;

Oil fires in Kuwait spew huge plumes of black smoke into Earth's atmosphere;

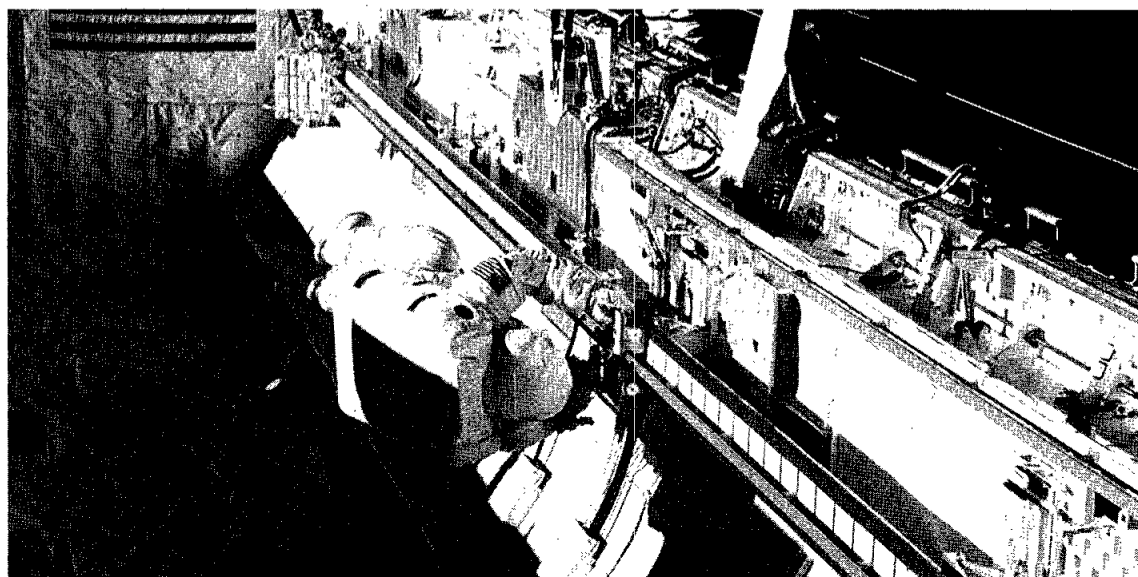
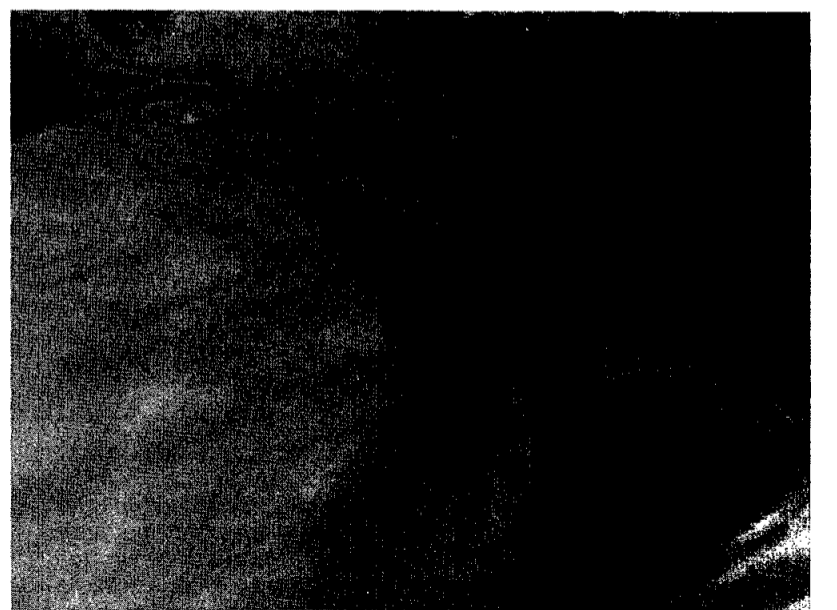
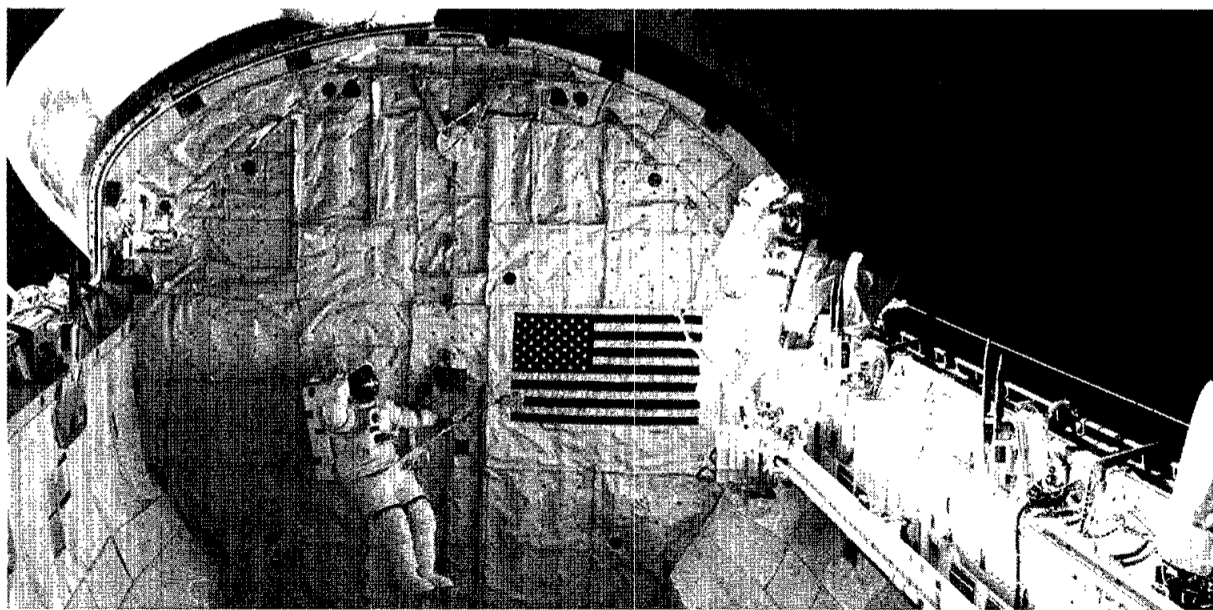
On the middeck, the STS-37 crew displays its calling cards. From left are Mission Specialist Jerry Ross, Commander Steve Nagel, Mission Specialist Linda Godwin, Pilot Ken Cameron and Mission Specialist Jay Apt;

Apt moves along the *Atlantis* monorail using a device called the tether shuttle during an evaluation of transportation devices proposed for use on Space Station *Freedom*; and

Ross, left, and Apt salute the American flag on the aft bulkhead of *Atlantis'* payload bay during a break in the Crew Equipment Translation Aid experiments.



NASA Photos



Magellan achieves primary mission objective early

The Magellan Project at NASA's Jet Propulsion Laboratory has claimed an early victory and announced that the spacecraft has achieved its primary objective at Venus more than a month early.

Project Manager Tony Spear said the quality of the radar images and the excitement they have generated among scientists have led NASA to extend the mission for a second 243-day mapping cycle beginning May 16.

Magellan reached its goal of mapping 70 percent of the planet on April 3, said Spear, adding that

by the end of the first mapping cycle May 15, the spacecraft will have acquired 84 percent of the planet's surface.

The radar imager used to penetrate the thick clouds of Venus and map the surface has worked flawlessly, Spear said. He added that the spacecraft is sufficiently healthy to continue mapping Venus well into this decade, "providing a windfall of additional, exciting science return."

The first objective of the extended mission is to collect the remaining 16 percent of the map, includ-

ing the south pole, which has never been imaged. Other surface features will be imaged from a different view angle to yield a new perspective, and image comparisons from one mapping cycle to the next will be made to look for surface activity, Spear said.

Beginning in mid-November, every fourth orbit will be dedicated to acquiring gravity data. Instead of mapping the surface on those orbits, Magellan's high-gain antenna will point to Earth and slight changes in the radio signal, resulting from variations in Venus' tug on

the spacecraft, will help scientists determine local gravity changes. That information will provide insight into the interior processes of the planet.

A number of other experiments that would use the radar in different modes to acquire higher resolution topography are under study.

Finally, near the end of the Magellan mission, the spacecraft may be dipped into the upper atmosphere of Venus to drag it into a circular orbit, a previously untried process called aerobraking. The maneuver would be a valuable

engineering demonstration for future missions, Spear said.

"More importantly," he said, "a circular orbit would greatly enhance science returns by permitting global, high-resolution gravity and imaging data acquisition."

Magellan is managed by JPL for NASA's Office of Space Science and Applications, NASA Headquarters, Washington, D.C.

The Hughes Aircraft Co. developed and operates the radar instrument, and the Martin Marietta Corp. built and operates the spacecraft.

Mission Control viewing hours set for employees

The Mission Control Center viewing room will be open to JSC and contractor badged employees and their families during portions of the STS-39 mission.

Based on a 6:01 a.m. CDT Sunday launch, employees will be allowed to visit the MCC from 11 a.m.-2:30 p.m. Monday; 11 a.m.-2 p.m. and 5-7 p.m. Tuesday; 11:30 a.m.-2:30 p.m. Wednesday; 11 a.m.-2:30 p.m. Thursday; 11 a.m.-2:30 p.m. and 5-7 p.m. next Friday; and 1-5 p.m. next Saturday.

Employees must wear their badges and escort family members through the regular public entrance on the northeast side of Bldg. 30. Visitors should limit their stays during busy periods. Children under the age of 5 will not be permitted.

The STS-39 crew return ceremony

will be held at Hangar 990 at Ellington Field about 8 1/2 hours after the crew lands at Edwards Air Force Base in California. Based on a planned 1:25 p.m. CDT landing May 5, the ceremony would begin about 10 p.m. Sunday.

Since many variables are involved in mission operations, viewing and crew return times may change with little notice. Employees are encouraged to call the Employee Information Service at x36765 for the latest information.

Mission Hours also have been set at the JSC cafeterias. The Bldg. 3 cafeteria will be open from 7 a.m.-4:30 p.m. weekdays and 10 a.m.-4:30 p.m. weekends. Bldg. 11 will be open from 6:30 a.m.-2 p.m. weekdays, including launch day, and from 7-10 a.m. weekends.

First LDEF symposium in June

The Long Duration Exposure Facility Science Office at Langley Research Center is planning the first LDEF Post-Retrieval Symposium in June.

Jim Jones, LDEF experiment manager, said the first of three planned symposiums will start the sharing process and begin dissemination of LDEF data with team members and the international science community.

The symposium will be June 2-8 at the Hyatt Orlando Hotel in

Kissimmee, Fla. For reservation information, call Arlene Levine at 804-864-3782.

LDEF was deployed in April 1984 by the STS-41C crew, and spent nearly six years in orbit exposing various materials to the harsh environment of space.

The crew of STS-32 returned LDEF to Earth in January 1990, and the scientists who designed its experiments have been examining it since. Scientists also are examining the LDEF structural elements.



GOOD AS NEW—JSC now has a roomy, fully outfitted ambulance thanks in part to the efforts of painting contractor Anchor Inc. The backup ambulance, which used to be the prime ambulance operated by the Houston Fire Department out of JSC's fire station, now is operated out of the Clinic in Bldg. 8 by Kelsey Seybold. It replaces a cramped converted van. Above: Richard Walker prepares to paint. Right: Doug Cook, Walker and Bill Sanchez show off their work.



JSC Photos by Scott Wickes and Robert Markowitz

Endeavour to stop over at Ellington on Thursday afternoon

(Continued from Page 1)

ships, *Columbia*, *Discovery* and *Atlantis*, in carrying out the world's grandest adventure, the exploration of this vast new ocean we call space."

Endeavour was assembled by Rockwell International Corp.'s Space Systems Division employees at Palmdale and Downey, Calif., under JSC's direction.

Plans call for *Endeavour* to arrive

at KSC next Friday. Prior to its delivery, *Endeavour* is expected to land at Ellington Field between noon and 2 p.m. Thursday atop NASA's second Shuttle Carrier Aircraft, NASA 911. The journey will mark the SCA's first flight.

NASA officials have planned a short ceremony that will begin immediately after the SCA and *Endeavour* have landed in Houston and been

moved near Hanger 990. The area will be open for the news media and public from about one hour prior to *Endeavour's* arrival through 10 p.m. Thursday. People will be permitted within 100 feet of *Endeavour* around a roped off perimeter. There will be open parking at the air field.

Speakers at the Houston ceremony are expected to include: JSC Director Aaron Cohen; Don Puddy,

director of Flight Crew Operations; Dan Germany, manager of the Orbiter and GFE Projects Office; and members of the STS-49 crew.

The first flight of *Endeavour* is scheduled for May 1992 when it will carry the STS-49 crew into space. During STS-49, *Endeavour's* crew will attempt to reboost a communications satellite, the International Telecommunications Satellite VI,

stuck in an errant orbit, and perform three spacewalks. STS-49 crew members are: Commander Dan Brandenstein; Pilot Kevin Chilton; and Mission Specialists Tom Akers, Richard Hieb, Bruce Melnick, Kathy Thornton, and Pierre Thuot.

Employees should check the Employee Information Service at x36765 to confirm the times of the Ellington stop over.

Co-op Job Fair is Wednesday

JSC's cooperative education students will host the spring 1991 Co-op Student Job Fair from 9 a.m.-3:30 p.m. May 1 at the Gilruth Center.

The fifth annual job fair will include displays on the functions of the divisions in which the co-ops are assigned and exhibit work that the individual co-ops have per-

formed.

The fair serves a dual purpose, giving co-ops a chance to share their work experiences and allowing supervisors and managers a chance to see the assignments other directorates are giving their co-ops.

All employees are invited to attend.

Picnic features stage shows, Almost Anything Goes games

(Continued from Page 1)

etition runs from 2:45-4 p.m.

Organizers are still looking for three more six-person teams to fill out the field; cost is \$10 per team and the deadline to sign up is 7 p.m. May 1. Bingo will be from 2:45-3:30 p.m.

The food starts flowing at noon, and the barbecue lunch will be available through 3 p.m.

Stage entertainment at the pavilion will start with a barbershop quartet from 1-1:30 p.m. Next, Mexican dancers will perform from 1:20-2 p.m. The Syncopation Cloggers will stomp from 3-3:30 p.m. And the adult dance band, 4th Wave Rhythm, will play from 2-5 p.m.

The Show Biz Kids will perform from 1:30-2 p.m. on a separate stage.

Space News Roundup

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

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. No phone or fax ads accepted.

Editor Kelly Humphries
Associate Editors Pam Alloway
Kari Fluegel

Advanced Xerox classes offered

The Office Services Section in JSC's Management Services Division is offering three-hour workshops in advanced applications for users of Xerox 6085 workstations.

These workshops have been designed to focus on basic graphics, data-driven graphics, free-hand drawing, tables, list manager, define and expand, mail merge, spreadsheets, fields and fill-in rules. Twelve-hour workshops on the use

of the Electronic Printing System and basic training for users of the Xerox system also are available.

Classes are scheduled as needed at the new Hernandez Engineering training facility at 17625 El Camino Real. Civil service and contractor employees may apply by submitting a completed JSC Form 596 to the Training Coordinator at JM32. For more information, call Doris Grosshauser at x34005.

Eight more receive promotions

An article in the April 19 edition of Space News Roundup inadvertently omitted the names of eight people who were approved for dual career ladder promotions by JSC's Senior Promotion Board.

A total of 27 employees earned the promotions to the GS-14 and GS-15 levels, which became effective April 21.

The eight promotions that were omitted went to:

Safety, Reliability and Quality Assurance: Richard S. Serpas.

Information Systems Directorate: George B. Roush.

Space and Life Sciences Directorate: Charles W. Lloyd, Faith Vilas, Herbert D. Yeates and Michael E. Zolensky.

Orbiter and GFE Projects Office: James T. Brown.

Lunar and Mars Exploration Program Office: David I. Kaplan.