

National Aeronautics and Space Administration

Lyndon B. Johnson Space Center Houston, Texas



Home improvement

JSC's fleet of T-38 training aircraft receives an in-house upgrade. Story on



VIP visit

The agency's Associate Deputy Administrator spends time at JSC. Photo on Page 4.

Space News Roundup

Kraft to lead independent review team

Independent group to make maintaining safety its top priority

Former JSC director Christopher Kraft will form and lead an external independent team to evaluate the resources and the requirements being expended on human space

The team will review the findings of the Space Shuttle Functional Workforce Review, initiated in September 1994, and make recommendations to Administrator Daniel Goldin for implementation.

Kraft's team, which will be formed by next week, is charged with evaluating the current processes and procedures for conducting shuttle operations at the Johnson, Kennedy, Marshall and Stennis Space Centers and related contractor activities with the intent of recommending a new and more optimum operating structure-with program safety the first priority.

Kraft's team also will provide rec-

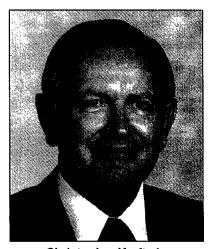
ommendations on a plan to transition to any new organizational structure. Initial efforts will focus on KSC operations. As part of his charter, Kraft will review the management and contractual relationships for the operation of the space shuttle pro-

Kraft's team will review related space station activities, as required, to ensure the necessary shuttle support of the international station.

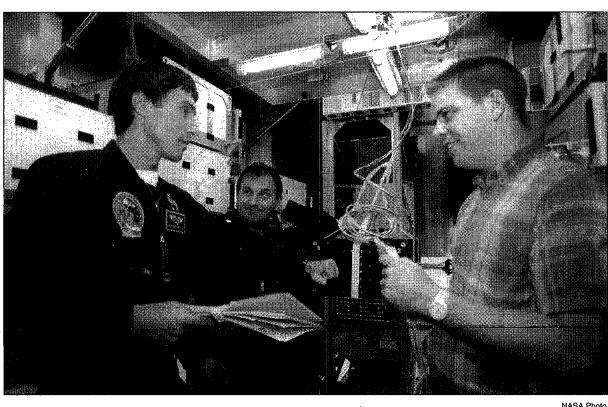
Kraft's team is expected to complete its work by March 15, 1995.

Dr. Kraft joined the National Advisory Committee for Aeronautics in 1945. He was instrumental in developing Project Mercury and served as Flight Director for all Mercury missions and many Gemini missions.

He is an honorary fellow of the American Institute of Aeronautics and Astronautics.



Christopher Kraft, Jr.



Developer Clark Thompson, left, discusses the operation of the Charlotte robot in the Spacehab training mockup at Kennedy Space Center with STS-63 Mission Specialist Vladimir Titov, center, and fellow Russian astronaut Sergei Krikalev. Charlotte, named for the clever spider in the children's book, is a robotic device that will perform simple tasks such as servicing experiments and remote video observation during its first flight on the upcoming STS-63 mission.

Discovery sets sights on first flight of 1995

an early February launch that will see the orbiter and its six-member crew rendezvous with Russia's Mir space

The spacecraft remains in place at Kennedy Space Center's Orbiter

Processing Facility as technicians prepare the vehicle for flight. Tuesday, the Spacehab module and Spartan-204 payload were installed in Discovery's payload bay. Earlier this week, technicians completed a check of the forward_reaction_control_system and water spray boilers.

Today, work will begin to replace a yaw actuator controller in main engine number 2 after a bent pin was discovered. The actuator controller gathers data from the main engine controllers during ascent allowing the engines to be gimballed to steer the orbiter during the final 6 1/2 minutes of powered flight. The

Discovery continues to take aim at work will not affect the launch processing schedule.

The STS-63 crew—Commander Jim Wetherbee, Pilot Eileen Collins. Payload Commander Bernard Harris, and Mission Specialists Janice Voss, Mike Foale and Vladimir Titov-is set

to participate in a final countdown dress rehearsal for the launch in mid-

Discovery remains on track for a Jan. 9 rollout to Launch Pad 39B.

Technicians also continue to ready Endeavour for its planned 16-day mission carrying the ASTRO-2 payload.

Work in progress includes functional checks of the orbital maneuvering system pods and electrical testing of the extended duration orbiter pallet. Stacking of Endeavour's solid rocket boosters continues in the Vehicle Assembly Bldg.

The ASTRO payload will be moved Please see ASTRO, Page 4

Commander, pilot, flight engineer fill out STS-73 crew

By Kyle Herring

The remaining astronauts have been

named for the second United States Microgravity Laboratory mission that will equal the longest flight in space shuttle history and continue laying the foundation for microgravity research in space.

Ken Bowersox and Kent Rominger, both Navy commanders, will be the commander and pilot. respectively, and Michael Lopez-Alegria, a Navy lieutenant commander, will serve as a mission specialist and flight engineer on the mission scheduled for launch in the fall of 1995 aboard Columbia.

The three astronauts will join Payload Commander Kathy Thornton, Mission Specialist Cady Coleman,

and Payload Specialists Fred Leslie and Albert Sacco Jr.

The 16-day mission follows the first U.S. Microgravity Laboratory flight, STS-50, flown in June and July 1992.

The mission will contine the series of shuttle flights dedicated to study-

ing microgravity materials processing technology over extended durations in space through research sponsored by government, industry



and academia. The mission will focus on materials science, biotechnology, combustion

science, the physics of fluids and many other scientific experiments to be housed in the pressurized Spacelab module.

Bowersox, 38, will be making his third flight aboard the shuttle and his first as mission commander. He flew on the first USML mission aboard Columbia and

most recently was a member of Endeavour's STS-61 crew that serviced the Hubble Space

Telescope in December 1993.



astronaut class of 1992 and will be making

his first flight aboard the shuttle. He was born in Del Norte, Colo., and received a bachelor of science degree in civil engineering from Colorado State University in 1978. His masters degree in aeronautical engineering from the U.S. Naval Postgraduate School was earned in 1987.

Lopez-Alegria, 36, was born in Madrid, Spain, and considers Madrid and Mission Viejo, Calif., his

hometowns. He earned a bachelor of science degree in systems engineering from the U.S.

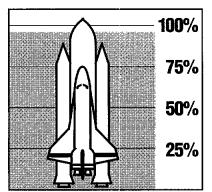
Please see ADDITIONS, Page 4

CFC donations still coming in

The Combined Federal Campaign came very close to its 1995 goal as the campaign closed last week.

'Contributions are still being tallied," said Teresa Sullivan, manager of exchange operations. "We expect to be closer to the 100% mark."

To date total contributions are \$450,419.40, which is 97% of the goal of \$463,300. Sixty-seven percent of civil service employees participated in the campaign serving hundreds of volunteer agencies. Contributions should be directed to CFC coordinators. The winners of the final week airline ticket were Greg Oliver of the Systems Division in the Mission Operations Directorate, and Kathy Thornton of the Astronaut Office.



1994 GOAL: \$460,500

Ukrainian welding tool on shuttle NASA has signed a contract with the Paton Welding Institute in Kiev,

Ukraine, to develop a plan for flying a space welding tool aboard the space shuttle in October 1997.

The \$36,000 contract is for the definition phase of the project. Specialists from the Institute will work with NASA engineers to design a flight experiment and conduct the required safety reviews.

The Ukrainian Universal Hand Tool is an electron-beam welding device developed at the institute. In 1984 and 1986, Salyut 7 cosmonauts performed the first electron beam welding in space experiments during extravehicular activitiesspace walks-using the UHT.

NASA signs agreement to fly

While full details remain to be worked out with Ukraine, as currently envisioned the experiment would involve a U.S. astronaut conducting sample welds on a variety of materials mounted in the cargo bay during a spacewalk. These sample welds would demonstrate the ability of the UHT to perform contingency or emergency repairs to simulated elements of the International Space Station. Ukrainian specialists will be extensively involved in all phases of

the flight experiment. "When you consider the life span of some of our vital space assets, like the space station, being able to repair structures in orbit is an important capability," said George Levin, space welding experiment program manager at NASA Headquarters. "We will need the capability to conduct welding in space, and the Ukrainian technology is the state of the art in space welding."

The definition phase contract ends in June 1995. A separate contract will be awarded for the flight phase of the project. Marshall Space Flight Center, has been given project management of the welding tool flight demonstration.

Ticket Window

The following discount tickets are available for purchase in the Bldg. 11 Exchange Store from 10 a.m.-2 p.m. Monday-Thursday and 9 a.m.-3 p.m. Friday. For more information, call x35350 or x30990

Rockets Tickets: Houston Rockets vs. San Antonio 7:30 p.m. Dec. 10 or Rockets vs. Phoenix 7 p.m. Dec. 22 at the Summit. Cost is \$16.50 upper prom.

Power Rangers: Mighty Morphin Power Rangers will perform live at 10:15 a.m. Dec. 31 at the

Astroarena. Cost is \$16.50. Christmas Dinner/Dance: 7:30 p.m. Dec. 9 & 10 at the Gilruth Center, Cost is \$22.50 per person

includes prime rib dinner. Nutcracker Ballet: Clear Lake Metropolitan Ballet presents "The Nutcracker," 8 p.m. Dec. 9 & 10

and 2 p.m. Dec. 10 & 11 at the University of Houston Clear Lake. Cost is \$12.

Clear Lake Symphony: Clear Lake Symphony presents "Christmas Pops Gala" 8 p.m. Dec. 3 at the University of Houston Clear Lake. Cost is \$5.

Bay Area Chorus: Bay Area Chorus presents "Songs of the Season" 8 p.m. Dec. 3 at University of Houston Clear Lake. Cost is adults \$8, students and seniors \$5.

Dickens on the Strand: Dec. 3 & 4 in Galveston. Cost is \$6.30 per person.

Moody Gardens: Discount tickets for two of three different attractions: \$9.50

Space Center Houston: Discount tickets: adult, \$8.75; child (3-11), \$7.10. December special buy one get one free.

Metro tickets: Passes, books and single tickets available.

Movie discounts: General Cinema, \$4.75; AMC Theater, \$4; Loew's Theater, \$4.75.

Stamps: Book of 20, \$5.80

Stocking Stuffers: Bldg. 11 store will have a variety of gift and stocking stuffers for Christmas

JSC history: Suddenly, Tomorrow Came: A History of the Johnson Space Center, \$11. Shuttle music: Space shuttle musical parodies. Cost is \$7.50.

Upcoming Events: Children's Christmas Party from 8 a.m.-noon, Dec. 17 at the Gilruth Center. Cost is \$4 child, \$1 adult.

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 NASA badge or yellow EAA dependent badge. Classes tend to fill up two weeks in advance. Payment must be made in full, in exact change or by check, at the time of registration. No registration will be taken by telephone. Call x30304.

EAA badges: Dependents and spouses may apply for photo identification badges from 7 a.m.-9 p.m. Monday-Friday; and 8 a.m.-4 p.m. Saturdays. Dependents must be between 16 and 23

Weight safety: Required course for employees wishing to use the weight room is offered from 8-9:30 p.m. Dec. 14 and 29. Pre-registration is required. Cost is \$5.

Defensive driving: Course is offered from 8:15 a.m.-3 p.m. Saturday. Next class is Dec. 17.

Aerobics: High/low-impact class meets from 5:15-6:15 p.m. Tuesdays and Thursdays. Cost is \$32 for eight weeks.

Exercise: Low-impact class meets from 5:15-6:15 p.m. Mondays and Wednesdays.

Alkido: Martial arts class meets from 5-7 p.m. Tuesdays and Wednesdays. Cost is \$25 per month. New classes begin the first of each month.

Volleyball & Basketball: Registration for winter volleyball and basketball begins Dec. 5. Volleyball

registration schedule is Mixed C and Women's, 7 a.m. Dec. 6; and Men's and Mixed B, 7 a.m. Dec. 7;. Basketball registration is Men's and Men's Over 30, 7 a.m. Dec. 8.

Flag Football & Soccer: Registration for Flag football and Soccer leagues will be held on Dec. 12-16. Outside teams will register after 4:30 p.m. Dec. 16. For information call 483-3345.

Tennis league: A fall tennis league may be started if there is sufficient interest. Contact the Gilruth

Country dancing: Beginners class meets from 7-9 p.m.; advanced class meets from 8:30-10 p.m.

Partners are required. For additional information, contact the Gilruth Center at x33345.

Fitness program: Health Related Fitness Program includes a medical examination screening and a 12-week individually prescribed exercise program. For more information, call Larry Wier at x30301.

Dates & Data

Today

Crew briefing: The STS-66 astronauts will brief the public at 11 a.m. Dec. 1 at Space Center Houston. For additional information, call 244-2140.

IMAX movie: Space Center Houston will feature screenings of the newest IMAX film "Destiny in Space" at 8 and 9 p.m. Tickets are \$5 adults, \$4 children 3-11 and senior citizens. For additional information, call 244-2105.

Cafeteria menu: Special: fried chicken. Total Health: vegetable lasagna. Entrees: pollock hollandaise, beef stroganoff, vegetable lasagna. Vegetables: steamed broccoli, carrots vichy, Italian zucchini, breaded okra.

Monday

Security conference: The Mission Operations Directorate and Texas Gulf Coast Chapter of the Information Systems Security Association will sponsor the third Technology for Information Security '94 Conference December 5 through 8. For registration or further conference information, call 282-3336.

Cafeteria menu: Special: meat sauce and spaghetti. Total Health: potato baked chicken breast. Entrees: wieners and beans, sweet and sour pork chop, potato baked chicken, steamed fish, French dip sandwich. Soup: cream of broccoli. Vegetables: French cut green beans, seasoned rice, California vegetables, buttered beans.

Tuesday

Cafeteria menu: Special: smothered steak with dressing. Total Health: baked potato. Entrees: beef stew, liver and onions, shrimp Creole, baked chicken, fried cod fish, French dip sandwich. Soup: navy bean. Vegetables: steamed rice,

seasoned cabbage, corn O'Brien,

Wednesday

Astronomy seminar: The JSC Astronomy Seminar will meet at noon Dec. 7 in Bldg. 31, Rm. 129. For additional information, call Al Jackson at 333-7679.

Toastmasters meet: The Spaceland Toastmasters will meet at 7 a.m. Dec. 7 at House of Prayer Lutheran Church on Bay Area Blvd. For additional information, contact Darrell Boyd, x36803.

Cafeteria menu: Special: salmon croquette. Total Health: baked potato. Entrees: roast pork, stirfry baked perch, steamed fish, vegetable lasagna, Reuben sandwich. Soup: seafood gumbo. Vegetables: mustard greens, okra and tomatoes, vegetable sticks, lima beans.

Thursday

Cafeteria menu: Special: stuffed cabbage rolls. Total Health: baked potato. Entrees: beef tacos, ham and lima beans, pork and beef egg rolls, steamed fish, catfish, French dip sandwich. Soup: beef and barley. Vegetables: Brussels sprouts, green beans, buttered squash, pinto beans.

Friday

Cafeteria menu: Special: baked chicken. Total Health: roast beef au jus. Entrees: deviled crab, baked chicken, beef cannelloni, steamed pollock, Reuben sandwich. Soup: seafood gumbo. Vegetables: seasoned carrots, peas, breaded okra, steamed cauliflower.

Dec. 13

Christmas music: The Lockheed Choir and Brass Band will perform sounds of the Christmas season from 11:30 a.m.-noon, in Bldg. 3.

Dec. 14

Astronomy seminar: The JSC Astronomy Šeminar will meet at noon Dec. 14 in Bldg, 31, Rm. 129. For additional information, call Al Jackson, 333-7679.

PSI meets: The Clear Lake/ NASA Area chapter of Professional Secretaries International will meet at 5:30 p.m. Dec. 14 at the Holiday Inn on NASA Road 1. For more information, contact Elaine Kemp, x30556.

Toastmasters meet: The Spaceland Toastmasters will meet at 7 a.m. Dec. 14 at House of Prayer Lutheran Church on Bay Area Blvd. For additional information, contact Darrell Boyd, x36803.

Station fighters: Space Station Future Fighters will meet at noon Dec. 14 at the Freeman Library, 16602 Diana. For additional information call David Cochran at 335-0185.

Christmas lunch: The cafeteria will host a lunch special from 11 a.m.-2 p.m., Dec. 14. Dinner will include Waldorf salad, turkey and dressing, giblet gravy, cranberry sauce, Italian green beans almondine, candied yams, roll and butter. Cost is \$3.30. Apple and mince cobbier will be available for 75 cents.

Dec. 21

Astronomy seminar: The JSC Astronomy Seminar will meet at noon Dec. 21 in Bldg. 31, Rm. 129. For additional information, call Al Jackson, 333-7679,

Toastmasters meet: The Spaceland Toastmasters will meet at 7 a.m. Dec. 21 at House of Prayer Lutheran Church on Bay Area Blvd. For additional information, contact Darrell Boyd, x36803.

Dec. 26

Christmas holiday: Most JSC offices will be closed in observance of the Christmas Holiday.

<u>Swap Shop</u>

Sale: Baywind II condo,1-1, new carpet/fresh paint,

W/D, fridge, DW, FPL, \$23k, 486-8047. Rent: El Dorado Trace 2-2, W/D, furnished, \$675/mo + elec. 333-8126 or 488-1327.

Rent: Pipers Meadow, 3-2-2, FPL, ceiling fan, fenced yard, avail now, \$810/mo + dep. Walter, 332-1609.
Rent: Winter Park, Colorado, condo, 2-2, fully furnished, sleeps 6. 488-4453.
Rent: University Trace condo, 2 BR or 1 BR & study, covered parking, \$495/mo. 286-1934.

Sale: League City, Bayridge sub, 3-2-2, cul-de-sac, nice neighborhood, \$58k. 286-1934.

Sale: '94 Fleetwood mobile home, 14 x 70, 2-2 w/lot, nice subdivision, near Alvin, 388-0350 or 280-0480. Sale: Heritage Park, Friendswood, 3-2-2, new A/C,

new roof, \$75k. x38074. Lease: N. Wedgewood Village, Friendswood, 3-2.5-2, approx 2000 ft, \$975/mo + dep. Mark, 282-5271. Sale: Mobile home, Friendswood, 12 x 65, 2-2, w/utility

room, cntrl heat, 4 window A/C units, appli, dbl carport, \$5.5k. Pat, x35011 or Sue, 339-4555.

Sate/Lease: Pipers Meadow, 3-2-2A, ceiling fans, FPL, \$79.9k or \$950/mo + dep. Keith, x39053 or Ann, 486-Sale: Camino South, 3-2-2A, pool, FPL, new carpet,

Sale: Camino South, 3-2-2A, pool, FPL, new carpet, reasonable. Mike, 480-0336.

Rent: Pagosa Springs, CO, 2 BR, sleeps 8, 11/19-12/17 or 1/7/95-2/4/95, \$700/wk. Scott, x34614 or 334-2278.

Sale: Meadowgreen, 3/4-2-2, \$93.5k. 280-8087.

Lease: Bacliff Villas, 4-1.5-1, \$575+ dep. 488-0664.

Sale: Baywind I, 2-1.5-1, W/D, ground fir, new dishwasher/carpet, \$35k. financing avail. Tom, 333-3992.

Sale: Rockport, TX, 3-2-2D, modular home, new septic, A/C, appli, handicap access, \$72.5k. x34507.

Sale/Lease: Pebblebrook condo, 1-1, W/D, appli, FPL.

Sale/Lease: Pebblebrook condo, 1-1, W/D, appli, FPL,

Sale: Waterfront condo. 3-2, pwr boat slip under roof,

W/D conn, all amenities, \$59/cash, \$62.5k your financing owner will carry 2nd note. 326-2221. Sale: Pipers Meadow home, 2-2-2, 1165 sq ft, \$61.9k.

Tracy, 244-7120 or 486-3946. Sale: Santa Fe/Alta Loma, 2.5 acres, mineral rights. 337-1311.

'85 Ford Tempo GL, runs well, A/C not working, new tires, \$1.5k, 334-1098.

85 Porsche 944, black, 5 spd, sunroof, A/C, AM/FM/ cass, ex cond, \$4,995, x35180 or 326-3706. '85 Toyota long bed PU w/cover, \$1,495. 334-3320.
'92 Black Eagle Talon Tsi Turbo, 195 hp, CD, A/C,

'86 Alpha Gold 35' 5th wheel travel trir, W/D, 6.5 kw gen, qn bed, appli, A/C, ex cond, \$12k. Mark, 282-5271.

'88 Lincoln T-Car, 79k mi, ex cond, \$5.2k/obo; '88 Nissan Sentra, 91k mi, 2 dr, A/C, 5 spd, AM/FM/ cass, \$2.3k/obo. Walt, x47392.

*86 Dodge Ram 50 PU, A/C, PS, 5-spd, AM/FM/cass,

alarm, pwr wind/locks, 34k mi, \$13k/obo. Jim, x31168.

\$1.5k. Ray, 992-5697.

'92 Mazda Miata MX-5, red/blk, B-package, 24k mi, warranty, ex cond, \$16k. J, x31064 or 334-1766.

'80 Corvette, 74.5k mi, wht/silver bottom, red leather

'88 Honda Accord LXI, white, 2 dr-hatchback, 4 spd,

A/C, loaded, ex cond, \$4.9k. x36486 or 488-2276.

'90 Ford Mustang LX 5.0, 5 spd, A/C, pwr, AM/FM/

'86 Pontiac Firebird SE, auto, AM/FM/cass, PS/PW, Ttops, V8, 305 cu in. \$4.4k/obo. x48911. '69 Jaguar, E-type, 4 spd, restored, 6 cyl, 17k mi, red

"84 Chevy S10 Blazer Tahoe, V6, 4 spd, 2 wheel drive, A/C, AM/FM, good cond, \$3k. 488-5092.
Mazda MX-6, V6, std, loaded, AM/FM/cass, moonroof,

P/W, A/C, 4 dr, \$5k, Fred, x30770 or 996-5179. 81 Honda Accord, A/C, good work car, \$1.2k. x49637

runs great, \$2.8/obo. Steve, x41009 or 532-1949.

Ladies 24" Schwinn bicycle, 10-spd, Caliente model, red, \$50. x31446 or 474-2607.

Greg Sims, x35560 or 474-7634.

Raleigh Olympian 12 spd bike, Shirmano 100 series pedals, Vetta computer, 90 psi tires, good cond, \$125. Keith, 335-2514 or 332-9414.

'82 Honda 500cc XL Enduro, ex running cond, \$500.

'83 Honda Nighthawk 650cc, 25k mi, fairing & backrest, \$900. x34333 or 480-9370. Bell Tourstar series motorcycle helmet, full coverage,

never worn, \$100. Billy, 938-1655. 89 Honda XR 250RK, 4 cycle Enduro, very good cond, 500 mi, \$1.2k. Michael, 333-6939.

Ross 27", 10 spt touring bicycle, men's 23" frame, new tires, extras, \$65. x37010 or 334-2612.

Honda Passport motor scooter 70 cc, \$225. 328-3840. Avocet seat. \$20: Profile a \$50, 332-8126 or 488-1327

'90 VIP Valiant, 19'; '93 115 hp Merc O/B, ex cond.

cludes access, cover & canopy, \$11.5k. Jerry, x38058 Wind Surfer, Mistral, ex cond, \$250. x30737.

CD player, Techniques SL-P310 single disc w/ remote control incl paperwork, \$50. Mark, 488-0056.

Mandi Vassa 333-4760 or 486-0788 430-450 MHz xceiver, \$375. Bill, x36650 or 713-554-

Mac Ilsi computer, 8/80, 13" color monitor, ergonomic kybd, Comstation 5 modem, 14k fax/data. x48769

10 MB RAM \$600; dot matrix printers \$25 - \$50, several: HP-1 laser printer, \$100. x35549 or 554-7104. Atari 800 computer, Indus GT floppy & Magnavox

green monitor, \$100, Keith, 335-2514 or 332-9414. Peavey CS-800 pwr amp w/400 watts per channel & bi-amping capa, \$400. James, x33571 or 337-5583.

Crate Bass amp & head, one 15" speaker, ex cond.

PC CD-ROM's: AEGIS Guardian of the Fleet, \$40; The

Atari Mega ST, 2 MB RAM, 80 MB HD, extra software

\$500/obo. Stacey, x32649 or 338-4983. Commodore 64, w/modem, joysticks, software, will

separate, \$75/obo; Epson dot matrix printer, \$100/obo. Sandy, x33315 or 334-7542. Photographic Cannon video camera w/portable Panasonic VHS recorder, batteries & access; VHS-C Zenith Camcorder

w/batt, tapes/charger/ac adapter, head cleaner, std VHS adapter, ex cond, \$290, x31694 or481-8561.

Musical Instruments

Fender Twin Reverb, 100w guitar amp, \$250. Russ,

Casio PCM stereo musical kybd, 20 voices/chords. rhythm drums, 49 mid-sz keys, \$45. x37010 or 334-2612.

Pets & Livestock

Dalmation, full-blood, no papers, female, 15 mos, spayed & current shots, \$75. 331-0627. Bairds rat snake, \$35; children's python, \$200; cages included; Silver Mit ferrets, 1 m, 1 f, w/cage, \$200/pr, indiv \$75/ea; cage \$50 nego. Tim, 282-6843.

Free to good home, 3 yr, wht, long-haired female cat, not to friendly to children. x49702 or 332-7168.
Free dogs, 1 m, 1 f, both terrier mix. Dawn, x32304 or

Doberman pups, tail docked & wormed, red, blue, fawn, blk/tan, \$50/ea; Congo African Greys, Amazons-Mexican Red-head, others seasonally. Pat, x45384 or

Free kittens, 2-orange/white & 1-black/brown, 10 s, mother cat, Calico, 10 mos, spayed & shots. Rich, x36437 or 486-7851.

Free grey cat, male, great personality, neutered, declawed. Kim, 333-4222. TRigelding, 17 hands 9 yield, adult hunter & equitation horse, schooling 3'3"-3'6". Karen, 331-6853.

Household

Stand-up bar, \$25; couch & chair set, off-white, \$50; twin bed, complete, \$50. Brian, 480-5430. Gas oven w/microwave, \$100. Jeff, x49860 or 554-

Comtemporay sect, 3 pcs, w/2 matching chairs & ottoman, med brn fabric/wood trim, coffee table, \$1.2k. James, 282-3586. GE electric dryer, model DDE6500G, ex cond,

\$225/obo. 996-6062.

Bedroom set, dresser w/mirror, night stand, qn sz hdbd & bedframe, \$200; sm entertainment center/TV stand.

\$50. Jeff, x33143 or 280-8177. Leather sofa, loveseat, chair, brown, \$700. x37124 or 335-5357. Kenmore electric dryer, \$30; 4-P225 60VR 15 Faulken

Bassett maple crib & changing table & 280 coil Kolcraft mattress. ex cond, \$375/set. Sharon, x38506.
Childcraft oak crib w/mattress & matching 4-drwr dress er changing table, ex cond. 486-5239. Black simulated leather gn sz sleeper sofa, ex cond,

\$225; Hoover canister vacuum cleaner w/attachments, \$15; bike rack fits on back bumper, \$10. 488-4367. GE 4-burner electric stove top, coppertone, matching ent hood, ex cond, \$75. 484-0987

Twin size box spring, \$30, 992-3014

headboard, liner, \$175. x31370.

Couch & love seat, navy velour, \$150/obo; laundry cenrshelf unit, \$20. Sandy, x33315 or 334-7542.
Black wrought iron bunkbed, dbl sz on bottom, twin on top, 6 mos ald, \$75, x33946 or 488-7647.

Bed, dresser, couch, loveseat, tables, dinette 335-0608. Sofa, blue & cream colored, ex cond, \$250. x48928 or 996-9690. Kg sz waterbed, frame, mattress, heater, 6 drawers,

Large sofa, loveseat, w/lacquer trim & lacquer

w/cabinet & mirror, ex cond, \$300/both. 474-4763. Kg sz lacquer air bed, \$150; kg sz ortho mattress boxsprings/ & frame, \$500. Joe, x32464 or 486-4026.

x32686. Waterbed, kg sz, nego price. 282-4271 or 996-9646. On sz sleeper sofa, ex cond, \$85; child's wooden desk

w/bookcase, \$60, 488-1537. Contempo birch kitchen tbl w/4 matching chairs, \$85; antique wood/cane armchair, \$55; kitchen/work tbl

PC rolltop desk honey color, solid oak, \$900; Lady Kenmore washer, 2 spd, lg cap, \$125; Panasonic microwave, 700 watts, 1.5 cu ft, \$75; sectional sofa, 3 pcs, rectang glass top table, \$750/both pcs. Donald Thompson, 334-3998.

Want non-smoker to share 3 bdr condo, CL, all appli-

ances, 2 pools. Hank, x32010 or 338-5068. Want low priced school/work car or truck. 271-7011.
Want non-smoker carpoolers from Sugarland, 59 &
Hwy 6 area to JSC, 7:00 a.m. to 3:30 p.m. Norman,

Want to buy '78 - '82 Honda Accord for parts, or run-Want parts for Magic Chef washing machine, inner tub

Want new/used lumber, 2x4's, 1x6's, exterior plywood, Want a person who reads Japanese, have 3 workblock prints, would like to know who the artist is, x34210 or 947

Want to swap retired/suspended Precious Mo pcs w/other collectors. Katie, x33185. Want to talk to someone who has tried Mega Memory

course. Jackie, x37112 or 339-1367. Want inclosed trailer similar to horse or U-haul, minimum sz. 4' x 8' . Bob. x30825 or 998-7372. Want set of metal TV trays. x34100.

Want Nintendo game, "Thunder & Lighting", Fave, 470-Want paintball rifle, prefer semi-automatic. x47135.

Miscellaneous

Eventlo car seat, ex cond, \$60, x37113 or 286-3019 Ruger 1B 7 mm Win mag scope rings included, ex cond, \$425. George, x31228 or 485-1509. Portable basketball goal, acrylic backboard, ex cond,

\$225. 333-5456 or 480-8682. Steel wts w/bar & bench, 135 lbs; 2-45 lb olympic plates w/o bar, \$100/obo, James, x33571 or 337-5583. Slate top pool table, 4'x8', access, \$525. 332-3243.
Southwest Airlines round trip ticket, good anywhere

SW flies, \$250 cast/neg. x45715.
Pappasan couch, \$50; baby bed, \$25; 19" white porcelain sink, \$20; electric piano, \$200. x37520.

Golfclubs, Big Bertha & Ping Zing2 metal wood clones, \$75/ea; Ping Zing2 & King Cobra iron clones, \$160; Bullet B-52 oversized irons, \$225; putters, Big Bertha Tuttle clone, \$40; Ram Zebra, \$30, Ken, 283-9233 or 473-2602. Wedding dress, sz 6, w/slip & veil, short sleeves, long train, \$375. x37124 or 335-5357.

Wieder wt hench w/stairstenner \$150/obo: men's Huffy mountain bike, 10 spd, \$100/obo; Nissan LW bedliner, \$40; blk poly 2 compartment tool box for PU, \$50/obo. x46121. Sears Kenmore 24', frostless refrig w/ice maker, almond, \$225; Weatherby Mark V 7mm Weathrby Mag

Bedliner, GM shortbed PU, \$100/obo. Dick, x34037 or 922-5124. Canon Typestar 110 typewriter, \$100. 486-7111. Wht french prov full bed, hdbd/ftbd/rails, dresser w/ mir-ror, 5 dwr chest, \$350; elect mower, \$50; Weber kettle

grill, \$25; sm pet taxi, \$12; DP rowing/multiuse machine, \$40. x47780 or 486-4668. Set of 5 all terrain 15" truck tires, less than 4k mi,

\$250/obo, 480-6379.

Victorian style wht wedding dress, long sleeve, w/small train, sz 5-8, head piece, veil, shoes, \$325. 333-2366. Tropical plants, all in permanent pots, Ig to sm szs, various kinds, \$5 & up/nego. Bob, x33149.

Trailer hitch for Jeep Wrangler, Draw Tite model, \$50.

John, x31114 o r 486-0898. Coleman rooftop A/C w/heater, \$295. 334-3320.

Wedding dress, wht, sz 6, long sleeve, off-shoulder, & headpiece, \$300/obo. Pam, x30646 or 335-0373.

Slicks, Mickey Thompson ET drag, sz 25.0/10/0-15, \$100/pr. Faye, 470-1455. Dolls, porcelain, vinyl, plastic, ex cond, Doll Reader magazines. 488-6521.

Rifle with redfield scope, Marlin 336-30/30, 2.75 scope sited, ex cond, \$275. 944-9152.
Free Mark IV MHF aircraft radio, covers 2-10 MHz, 6 crystal control channels. Ted, x30621 or 474-2214.

Pres First Lady Premier Plus membership, \$550/ obo Graco stroller, \$20; Evenflo Jovride infant carrier, \$5 x34749 or 645-5746 Baby blankets, \$3/ea; baby quilts, \$12/ea; full sheet

sets, \$3/ea; twin sz Ninja Turtle bed set, curtains/comforter, \$25/set; 16" boy's bike, \$20; 20" boys bike, \$30. Sam. 332-3168. Apple Ile computer w/printer & software, \$200/all; FPL

bag, \$185; carseat, \$20; etc. 487-7449. Browning A-Bolt Stalker, 7 mm Rem Mag, 3x9 Leupold scope, \$600. x47698 or 482-3696. 50-in-1 Fitness Center, similar to Soloflex, perform vari-

ety of exercises, \$200. x39239. Exercise equip stair climber, \$390; rowing machine. \$105. 335-6409 or 328-3840. Seaclear acrylic aquariums, 55 gal, \$115; 35 gal, \$75;

fish, Blue-eyed pleco, \$25; Calico fantail goldfish, \$15. David, x40211 or Robynn, 488-4876. Soloflex home gvm w/leg extensions & butterfiv attach-

ments, \$650, Bob, 488-3717. Oilers/Arizonia, 12/4, Seattle, 12/11, Jets, 12/24; 2 tick ets, \$31/ea, upper box, 2nd row. Ray, x38030.

Shotgun 20 gauge, single shot great cond, \$100. Bill, 938-1655. Set of 4 Chevy wire spoke hubcaps with locks, \$95/oho 484-0987 Antique oak table, 48"x48", \$350; Walton exercise

cycle, \$50. 488-5564. Wicker changing table, \$15; black Halogen torchiere mp, \$12; Beatrix Potter comforter, \$10; RCA 19" color

Outdoor lighting kit w/12 lights, all wiring, \$30. 992-Antique box camera, \$50; old Remington portable type-

writer, \$50; 3-gage barometer, \$10; plants, alivera, pencil, banana, tern, \$6-\$8. 488-5564. Free river rocks, you pick up. 480-3424

Midwest metal dog crate, 19'x36"x22", \$50, 280-0285. Fisher Price sandbox, w/lid, red/yellow/blue, good condition, \$20, 922-1768. Horse tack, saddles, blankets, bits, wooden stands, lead ropes, etc. Jim, 991-0533.

Handcrafted xmas trees, made from recycled baby food jars, decorated w/lights, tinsel & ribbon, \$ on display 16 rm 232, B17 rm 268, B44 rm 216A, \$20/ea Shelia, x34772 or 286-0219.

Dog kennel, 6x6x12 w/12x12 cement blocks, \$250. Greg Sims, x35560 or 474-7634. Ping pong conversion table, fits on any sz pool table,

hunting rifle w/ 3x9 Weatherby scope, \$650. Frank, net incl, \$65. Tony, x32305 or 554-2690.

'82 Chevette, 4 cyl, 4 spd, runs great, good work car, \$600/obo. 485-4008.

int, T-tops, loaded, auto, \$9k neg, x30087.

'36 Cougar, red, loaded, make offer, 998-1280.

'92 Chevy Blazer K5 4x4, garnett, Silverado, 63k mi, autospeced, xfrable wrty, \$21,550. x47660 or 526-6880.

'86 Mazda RX7 GXL, leather, A/C, pwr, sunroof, ex cond, 84k mi, \$5k. x36604 or 482-7156.

cass, crystal blue/blk inter, \$5.5k. 554-2879.

w/blk leather int. \$23.5k. 373-0422. '84 Pontiac Fiero SE, 4 spd, loaded, sunroof, new tires, 53 k mi, \$3k. 488-5092.

23k mi, ex cond, \$17.5k. x31891. '86 Mustang GT w/modifications, \$4.5k. 280-0285. '89 Dodge Spirit Le, maroon, 2.5IL turbo, auto, P/L,

or 486-9604. '94 Edipse, 5 spd, under 7.5k mi, payoff loan, approx

'84 Ford F150 PU, auto, w/overdrive, A/C, 140k mi,

'89 Honda Cr 250, runs great w/access, \$15k firm.

Raleigh 16", 21 speed, men's hybrid road bike w/new treads, ex cond, \$175. Robin, x49695 or 480-2157.

Boats & Planes Two Kawasaki 440 cc Jet Skis w/trailer, ex cond, \$3.5k.

Audiovisual & Computers Commodore computer w/monitor & floppy drive, lots extra software & games, \$125. 488-4367.

Citizen printer, CSX-140 w/GSX color option, \$250.

Nintendo, 2 controllers, 2 guns, 1 Ne's Advantage, 4 tapes, \$90/all or separately. Sam, 332-3168. IBM PS/2 Mod 80, 386DX w/MaCo, VGA, 70 MB HD,

Full page color scanner, 600 dpi, 24 bit, Wordscan OCR for Windows, IPhoto Plus, \$450. 484-6062. Three monochrome CRTs, \$25/ea. 488-0664.

Lawnmower Man, \$30. Ray, x38030.

Commodore 64 w/monitor, disk drive & xtra games, other software, \$100. 488-4367.

ove seat, brown/gold tone velour print, good cond \$100; row & peddle exercise bicycle, \$45. x40250.

> Kg sz waterbed, mirrored headboard, footboard, 6er under-dresser, mattress/heater/liner, \$200. 280

5848 or 338-2603

Black vinyl sofa bed, good cond, \$60; 2 roof wind turbines, heavy duty, \$10. Rudy, x33836 or 946-7028.

Private collection quality antiques, 100 yrs - 200 yrs old, chairs, clocks, tables, porcelain etc. x31057.

table & lamp table, \$600/all. x36339 or 997-7246.
Hardwood dressers, 2-6 drawer upright & 8 drawer

Maytag W/D, large capacity, 2 spd, \$700/obo. Rita,

w/extensions, \$30; sm chest of drws, \$25; Oxford rolling file cabinet, \$20. Jenny, 474-7370.

Wanted

shingles, windows, exterior doors. Tim, x38843.

Avionics upgrade a first

Program will gain several advantages

By Karen Schmidt

n a bold move on the part of JSC managers, a major modification to JSC's fleet of T-38 aircraft has begun.

The modifications include an update to the avionics system, cockpit configuration and communications systems. NASA 960 is the first production aircraft of the T-38s to receive the new cockpit and other avionics upgrades and is meeting all expectations of doing the work in-house.

"This program is making changes to the way the Aircraft Operations Division maintains its aircraft," said Dave Leestma, director of Flight Crew Operations Directorate. "The program provides a lot of advantages in the long run. We will not only save dollars, but turn-around time and aircraft availability as well."

The T-38 upgrades include a complete change to the way the aircraft is maintained.

"Major components, structural redesign and repairs, or small subsystems work now will be done in-house. We used to rely on outside contractors for this kind of expertise on a large project such as the avionics upgrade," Leestma said. "This time, we have pooled our resources to get the best of both the maintenance contractor and civil service engineering support."

NASA 960 is the first aircraft in

the production phase of the program that will modify the remaining 25 T-38s.

In-house production required coordination by several organizations including Manufacturing, Materials, and Process Technology Division who manufactured

graded avionics in 1991, plans were to evaluate the changes and develop a request for proposal and accept bids for completing the project. A team of managers including Leestma made a decision in Spring 1992 to consider the in-house effort and begin a

all the mechanical piece parts and the wiring harnesses for the modification; DynCorp Johnson Support Division who are modifying the T38s in Hangar 990 at Ellington Field; and Loral Space Information Systems who is editof the maintenance manual to reflect the changes made in the

pre-production phase.

"This was to see if we really could handle the work," Leestma acquired during the modification for future aircraft support." said Al Manson, project manager. Manson notes this is a big step towards completing the T-38

quality, control cost, and retain

the benefits of knowledge

"The modification will maximize

updates. With this first production plane under its belt, Aircraft Operations can move quickly to complete this second phase.

The avionics upgrade adds or changes 21 major systems in the T-38. The flight instruments include an Electronic Flight Information System or "Glass Cockpit"; a weather radar system to help pilots avoid severe weather; a fiber-optics gyro installed in the Attitude, Heading and Reference System, a new pitot static system with a new air data computer; a solid state altimeter; an altitude alerter with a minimum descent altitude warning and temperature indicator; a Flight Management System; and a Radio Management System.

"All the communication and navigation radios have been changed, "Manson said. "And scheduled to be replaced anyway, so this task was combined LTV Sierra being awarded a contract to develop the cockpit redesign.

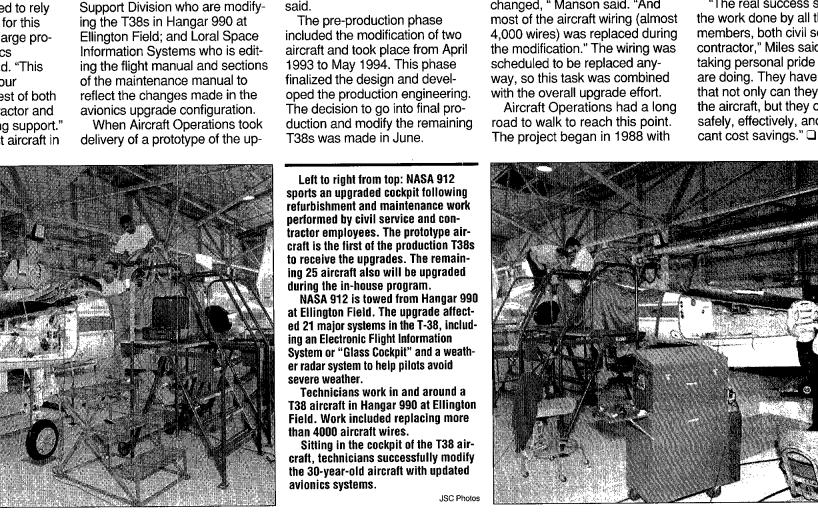
"As early as 1987, we identified the need to modify or replace the T-38," Manson said. "The aircraft is more than 30 years old, it's avionics systems are outdated. The weather radar will improve the safety of flight operations as well. An Avionics Upgrade modification proved the best and most cost effective solution to this problem".

NASA 912 was sent to the Sierra Research Division of LTV as the upgrade prototype. JSC took delivery in July 1991. NASA 912 has been utilized as a test bed to correct design deficiencies and develop the final configuration. It is currently used for training.

"Astronauts are requesting the upgraded T-38s," said "Roc" Miles, the project pilot. "It is easier to fly and the safety enhancements are great. Turn-around time is reduced so the aircraft is more available than it has been in the past.'

The real success story here is the work done by all the team members, both civil service and contractor," Miles said. "They are taking personal pride in what they are doing. They have confidence that not only can they maintain the aircraft, but they can do it safely, effectively, and at a signifi-





Holiday celebrations come in many shapes, sizes at JSC

The holidays will be celebrated in a variety of ways at JSC, from choir performances to dances to shopping specials.

Employees can reduce shopping stress by picking up items at the JSC Exchange Store or Space Center Houston.

Many items are available in the exchange store for holiday gift giving. Adult gifts range from gold jewelry to key rings. Prices start at \$1. For children, shoppers can pick up a variety of books and toys. Prices start at \$2.

Training aids

Emergency Response team re-

"I was very pleased in the way the

a coordinated effort by emergency responders to resolve emergencies and prevent them from becoming more serious. The system is mandated by and the Occupational Health and Safety Administration and recommended by National Fire

The Emergency Response team consists of members from Center Operations Emergency Management, Plant Engineering, Environmental Services and Security, Public Affairs, Safety Reliability and Quality Assurance Institutional Safety and Quality Division, and Occupational

dent command set up by the safety office helped us prepare for this type of emergency, "Gaffney said.

through a rigorous 40 hour training session with mock emergencies to prepare for incidents of this type. Training was conducted by members of the Houston Fire Department Hazardous Materials Firefighters.

also enhanced the emergency. A first responder assisted a injured worker, notified the dispatcher there was an emergency, and directed individuals away from the hazardous

Space News

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.

Dates and Data submissions are due Wednesdays, eight working days before the desired date of publication.

Swap Shop ads are due Fridays, two weeks before the desired date of pub-

.....Kelly Humphries Associate Editor Karen Schmidt

Space Center Houston is in the holiday spirit with a two-for-one offer on tickets. Employees can purchase either an adult or child's ticket and receive an equivalent one free.

The JSC cafeteria and Public Affairs will host choir programs in December for JSC employees. The Lockheed Choir and Brass Band will perform sounds of the holiday season from 11:30 a.m.-noon Dec. 13 in the Bldg. 3 cafeteria. The fourth and fifth grade choir from McWhirter Elementary will sing carols from 12:30-1 p.m. Dec. 15 in Teague Auditorium.

Space Center Houston will host choir performances beginning Saturday. Several choirs will perform for one hour beginning at noon-3 p.m. this Saturday, Dec. 9, and 10. There will be one performance at 1 p.m., Dec. 16, two at noon Dec. 17, and one at 1 p.m. Dec. 22. All performances are included in the regular price of admission.

The Employee Activity Association will hold its annual Christmas tree sale of fresh Virginia Pines from 9 a.m.-noon Saturday at the Gilruth

Center softball field No. 4. Santa will share refreshments with children and adults.

The annual EAA Christmas Dinner/Dance will be held Dec. 9 and 10. This year, four different bands will perform in two different rooms at the Gilruth Center on two nights. The evening of Dec. 9, "Jimmy Luke & the Midnite Flyer Band" will play real Texas rhythm and blues with horns in the ballroom, and the "Quick-Get-Away Band" will play country/southern rock in the gym. On Dec. 10, "Rhythm Mission Band" will perform swing, big band, bossa nova, jazz and easy listening in the ballroom, while "Toonz Band" will play classic rock in the gym. Social hour begins at 7:30 p.m. and a dinner of prime rib will be served at

The JSC cafeteria will offer its Christmas dinner from 11 a.m.-2 p.m. Dec. 14 in both the Bldg. 3 and 11 cafeterias. For \$3.30, employees can enjoy turkey and dressing, Waldorf salad, giblet gravy, cranberry sauce, Italian green beans almondine, candied yams, rolls and tea.

emergency response team

For the first time since training, the sponded to a fire in Bldg. 45. According to observers the emergency was handled more efficiently than before.

incident command system operated," said Keith McQuary, Incident Commander, on the scene.

Because of recent training, we performed very well as a team. We each did our job, and the individual members performed extremely well."

"Response was quick and well coordinated by the Incident Commander," said Bob Gaffney, a member of the response team.

The incident command system is Protection Association.

The certified training in the inci-

Members of the team went

Hazardous Awareness training

The short-circuit and flash fire in Bldg. 45 interrupted electrical power to portions of the building. Two contractors who were in the area did receive burns on their faces and hands. They were transported by Houston Fire Department's ambulance stationed at JSC, to Hermann Hospital for further examination.

restoration complete tems. "We're going to conduct more than 50 Construction crews are putting the finishing

TOP LEVEL VISIT—Jim Milhoan, right, facility manager of the JSC Engineering

Directorate's Thermal Branch, explains the operations of the Arc Test facility in bldg.

222 to John Dailey, Acting Deputy Administrator, left, as Engineering Director Leonard

Nicholson and Sue Garman, executive assistant to JSC Director Dr. Carolyn Huntoon,

look on. Shown are several test articles including an electode and part of an electric

Unique NASA wind tunnel

touches on a \$115 million restoration of a unique NASA wind tunnel at Langley Research Center that began operating nearly 50 years ago.

arc heater, which are used to test thermal reentry.

Built in 1946, the 12-foot Pressure Wind Tunnel at Ames' Moffett Field, Calif., facility

has tested models of most U.S. commercial aircraft in service over the past half century, including the Boeing 737, 757 and 767; Lockheed L-1011; and McDonnell Douglas DC-9 and DC-10.

"This has been one wind tunnels," said Harry Gobler, acting project manager. "There's no other facility in the country that duplicates the testing it does. No other tunnel has such excellent air flow quality."

The new wind tunnel replaces the original, which due to extensive

use, gradually suffered a deterioration of its pressure shell. By 1986, cracks in the tunnel walls had eliminated its pressurization capability. "The shell's structural steel began cracking after 41 years of service," Gobler said. "Essentially, it just wore out."

Reconstruction began in 1990 and included the complete rebuilding of the closed-loop pressure vessel and installation of an innovative air lock system around the test section. The new air lock system allows access to the test section without depressurizing the entire tunnel, thereby significantly increasing its pro-

Engineers will spend the next 11 months testing the wind tunnel's new mechanical, automated controls and data acquisition sysunique tests to make sure they operate properly," Gobler said.

The tests will be conducted in five phases. First, the tunnel will be pressurized to test its air compressor and pressurization safety systems. In phase two, engineers will operate the

> main drive compressor to check out operating systems as wind is pushed through the tun-

The third and fourth phases will test the tunnel's aerodynamic performance, model supports and automated control systems under simulated operating conditions. The final test phase will calibrate the data acquisition system by performing simulated aerodynamic tests using standard models with well-known aerodynamic properties.

"It's an unusual tunnel," Gobler said. "It has race track turns rather

than mitered corners, and an outstanding turbulence reduction system which produces outstanding airflow quality and very reliable aerodynamic data."

The new tunnel is about 300 feet long and about 100 feet wide, with the diameter ranging from the 12-foot test section to a maximum of 68 feet in the settling chamber. Powered by a 15,000-horsepower synchronous electric motor, the tunnel is designed to test aircraft models at airspeeds up to Mach 1 (the speed of sound).

"We're essentially finished with construction," Gobler said. "We'll complete landscaping in the spring and have a dedication ceremony next summer." The new wind tunnel will begin normal operations in September 1995.

Huntoon will address AIAA annual meeting

Center Director Dr. Carolyn Huntoon will present a 'State of JSC" address at the American Institute of

Aeronautics and Astronautics' annual director's reception Thurs-

The dinner meeting will be held in the Gilruth Center ballroom. The evening's activities being with a social hour at 5:30 p.m. followed by dinner at 6:30 p.m. and the program at 7:30 p.m.

Cost to attend is \$11 members, \$12 non-members, and \$5 for students and unemployed members.

For reservations and additional information, call ext. 31175, 333-6277 or 282-3160.



Huntoon

Astro mission on track

(Continued from Page 1)

to the OPF for installation into Endeavour's payload bay in mid-December.

The STS-67 crew—Commander Steve Oswald, Pilot Bill Gregory, Payload Commander Tammy Jernigan, Mission Specialists John Grunsfeld and Wendy Lawrence, and Paylaod Specialists Ron Parise and Sam Durrance—will work in two separate shifts providing 24hour support to the compliment of telescopes that comprise the ASTRO payload.

Launch currently is planned for late February or early

Space News Roundup offices make move

The offices of the Space News Roundup, Daily Space Fax Roundup and telephone Employee Information Service are in a new location.

The move is part of a JSC Public Affairs Office reorganization that has shifted employee communications responsibilities from the renamed News and Information Branch into the new Education and Information Services Branch, Mail Code AP2. The News and Information Branch has become the News and Media Services Branch, Mail Code AP3.

The Roundup office is now in Bldg. 2, Rm. 181, and the mail code has changed from AP3 to AP2. The main Roundup telephone number remains x38648, and the fax number is still x45165.

Electronic mail messages should be sent to the editor, Kelly Humphries, at khumphri@gp301.jsc.nasa.gov or the associate editor, Karen Schmidt, at kschmidt @ssf1.jsc.nasa.gov.

Story ideas and calendar items may be sent by fax or E-mail, but Swap Shop ads must be sent by interoffice mail or delivered in person.

NASA, SOLE team up

NASA headquarters and the Society of Logistics Engineers recently signed a memorandum of agreement to participate in development of logistics and support solutions for space applications.

"SOLE will be able to provide their expertise to NASA logistics managers," said L.J. Graham, director for local SOLE district.

SOLE's first project is to produce a professional development program for logisticians. A compressed logistics management specialist career track will be developed.

Employees interested in participating in the program development or interested in a logistician career are asked to call Graham at x30913.

Additions round out crew

(Continued from Page 1)

Naval Academy in 1980 and a master of science degree in aeronautical engineering from the Naval Postgraduate School in 1988. STS-73 will be his first shuttle mission and he, too, is a member of the astronaut class of 1992.

Thornton will be making her fourth shuttle flight, while Coleman, Leslie and Sacco all will be making their first.