



Top techs

The craftsmen in the Technical Services Division pride themselves on being able to fabricate whatever is needed. Story on Page 3.



Pressure check

The JSC Clinic will be conducting blood pressure screening next week at various locations on-site. Story on Page 4.

Space News Roundup

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Flight safety panel plans meeting here

The promotion of flight safety will be the main message of the NASA Flight Safety Panel to be held at JSC on June 15 and 16, according to panel member Bill Reeves, flight director.

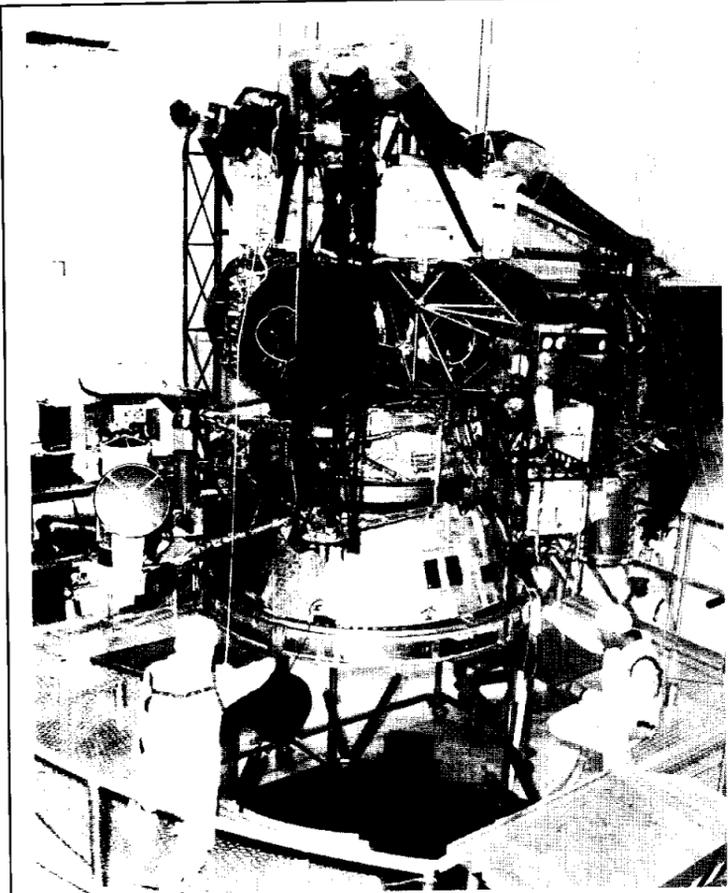
Government or contract employees who wish to discuss flight safety concerns with the panel should contact Astronaut Dick Covey, panel chairman, at x35723, or Reeves, x35436, to arrange a confidential interview.

"We want to encourage people with serious concerns to come forward," said Reeves. "Anyone, either government or contractor, who has a flight safety concern which they feel is not getting proper attention through regular channels, can arrange for a confidential interview with the panel."

Other panel members include Lonnie Owen, NASA Headquarters safety manager, John Coplin, NASA test director, Kennedy Space Center, and Joe Cremlin, Marshall Space Flight Center mission manager. Members are appointed for two-year terms, ending at different times, according to Reeves.

The panel was established as a result of the Presidential Commission on the Space Shuttle *Challenger* Accident in September 1986 to promote flight safety awareness throughout the manned space

Please see **SAFETY**, Page 4



GALILEO GROUNDWORK—Technicians in Kennedy Space Center's interplanetary spacecraft checkout facility lift *Galileo* onto its workstand. The entire assembly includes the 5,870-pound spacecraft, an entry probe that will descend into the Jovian atmosphere and an inertial upper stage booster. *Galileo* is scheduled for launch aboard *Atlantis* on STS-34 in October.

New structure readies MOD for tandem programs

By Brian Welch

Four veteran managers in the Mission Operations Directorate (MOD) have been given new assignments in the first of a series of organizational moves intended to pave the way for both space shuttle and space station support in the 1990s.

The new assignments, announced May 19 at a directorate all-hands briefing by Mission Operations Director Eugene F. Kranz, are being made in an acting capacity pending formal approval by NASA Headquarters. The moves are part of an effort to position the operations community for multi-program responsibilities stretching into the next century, Kranz said, and are in keeping with the strategies outlined in the MOD Ten Year Plan, which was released in 1987.

Two of the managers, Flight Director Office Chief Tommy W. Holloway and Systems Division Chief Stephen G. Bales, were named to new assistant director positions within MOD. Kranz said the assistant directors will "provide an additional level of management oversight within MOD and also help us use our people and facilities in the most effective fashion possible." A third MOD assistant director, responsible for Space Station *Freedom* operations, will be named in about a year, Kranz said.

As assistant director for National Space Transportation System (NSTS) programs, Holloway will be responsible for space shuttle mission preparation and flight operations. Kranz said the new assignment formalizes responsibilities Holloway has had since 1986 as chief of the Flight Director Office and as MOD's lead for the return-to-flight effort. "The biggest change is that Tommy now gets to start working budgets," Kranz said.

Holloway joined NASA in 1963 as an aerospace engineer. He has held several management positions in flight

operations, including service as head of the Mission Operations Section and later as chief of the Flight Activity Planning Branch. He was selected as a flight director in 1978 and served as ascent/orbit flight techniques manager for STS-1. Holloway was named chief of the Flight Director Office in 1985.

Larry Bourgeois, deputy chief of the Flight Director Office, will become acting chief, Kranz said. Bourgeois was lead flight director for STS-26 and was given primary management responsibility for flight operations during the recent STS-30 mission. He

came to JSC in 1966 as a flight controller in the old Flight Control Division and later specialized in lunar module communications during the Apollo program. During the early 1970s, he worked with experiments aboard Skylab and the Apollo-Soyuz Test Project, and in the last half of the decade was involved with integration of the payload assist module and the inertial upper stage as elements of the shuttle system. He began training as a flight director in 1981 and first served in that capacity for STS-7.

Bales, named assistant director for program support, will head an organization that is seen as ultimately providing training, software production and mission integration services to both the NSTS and the space station programs. Initially, Kranz said, Bales will oversee planning within MOD for developing techniques and processes necessary to space station support, while also continuing to provide many of the same functions for space shuttle flight operations. Kranz said he expects the plans and processes will continue to evolve as new organizational structures emerge to support U.S. operations in space in the mid to late 1990s.

Bales came to JSC in 1964 as a flight control engineer and has held several supervisory positions in FOD

Please see **MOD**, Page 4



Crew checks Columbia's progress

By Kyle Herring

Crew members for *Columbia's* return to flight in late July on space shuttle mission STS-28 climbed aboard the spacecraft earlier this week to take part in the Crew Equipment Interface Test (CEIT).

The CEIT allows the crew to review progress of the vehicle's processing and equipment interfaces aboard the orbiter. Crew members Brewster Shaw, Dick Richards, Dave Leestma, Jim Adamson and Mark Brown will return to the launch center early next week to take part in the traditional vehicle walkdown to look for any sharp edges or items that could be installed differently.

The frequency response test of *Columbia's* hydraulically activated control surfaces and valve systems was essentially complete last week with only minor tests remaining. The orbiter has been lowered onto jacks and tests are under way on the brakes. Alignment of the air data probe was completed late last week allowing continued work in the payload bay.

The helium signature leak checks of the main engines and main propulsion system began Wednesday afternoon. This test verifies the integrity of all plumbing lines throughout the system.

Meanwhile, other scheduled powered-up testing and routine tile work continues on the orbiter. Fifty-three tile cavities remain to be filled, and maintenance work remains on the auxiliary power units and the communications antenna before *Columbia* can be moved from the Orbiter Processing Facility to the Vehicle Assembly Building late next month for mating with its external tank/solid rocket booster stack. The dedicated Defense Department mission remains scheduled for launch July 31.

In the VAB, checks of the solid rocket booster instrumentation were completed and the ET/SRB stack was relocated from high bay 1 to adjacent high bay 3. This was done in preparation for beginning stacking operations for the STS-34 mission to deploy the *Galileo* planetary probe using the orbiter *Atlantis*.



Controlled freedom

JSC engineer's technology transfer efforts may improve care for Alzheimer's patients

By Kari Fluegel

JSC engineer Shayla Davidson recently was honored by the Federal Laboratory Consortium for her role in the transfer of tracking technology that could improve care for Alzheimer's patients.

Davidson, along with 30 other individuals across the country, received the FLC Special Award for Excellence in Technology Transfer on May 3 in Chicago.

The Locator System for Wandering Individuals is a JSC Technology Utilization Applications Engineering Project.

The project, managed by Davidson, an engineer in the Systems Analysis Office of the Tracking and Communications Division, was a spinoff from tracking and communications advances made by NASA.

"The idea for this development was based on a study done by NASA

and four health agencies," Davidson said. "The study identified the problem of wandering behavior as a candidate for NASA technology transfer."

"The four health agencies are the Administration on Aging, the National Institute on Disability and Rehabilitation Research, the National Institute on Aging and the Veterans Administration. Cortex Electronics is the manufacturer producing the system."

The system is based on micro-electronics and data sequencing technology. A transceiver is worn by the person being monitored. From a base station the transmitter emits a radio frequency signal that is received by the transceiver worn on the person being monitored.

The transceiver then transmits a response to the base station where a microcomputer performs the cal-



Shayla Davidson's tracking and communications expertise is helping home caregivers keep track of wandering patients.

culations necessary to determine if the person being monitored is beyond the limits set by the base station.

The system provides controlled freedom rather than enforced re-

striction for the wanderer, self-monitoring and memory training for some wanderers, security and peace of mind for family caregivers, and signal locating and tracking

Please see **FREEDOM**, Page 4

Magellan healthy, project reports

The Magellan spacecraft is in good health following the long holiday weekend, according to the project office at NASA's Jet Propulsion Laboratory.

The Venus radar mapper probe, launched from *Atlantis* during the STS-30 mission, is more than 3.735 million miles from Earth and traveling at an Earth-relative velocity of 5,531 miles and hour.

The Magellan attitude control team determined on May 27 that a ground software error was responsible for an attitude update problem and the error is being corrected. No flight software changes are required, but gain changes will be uploaded.

The Cruise-3 computer command sequence that will arm the Star 48-B solid rocket motor next Wednesday has been verified. The sequence will prepare the booster for its burn to put Magellan into orbit upon its arrival in early 1990. Arming is performed early so that any possible problems later in the cruise will not prevent its arming.

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: FBA cards are still available to civil service employees at Bldg. 11 store. FBA Scholarship applications are now available in Building 1 room 840 for FBA members.

- General Cinema (valid for one year): \$3.50 each.
- AMC Theater (valid until May 1990): \$3 each.
- Sea-Arama Marineworld (Galveston, valid until Aug. 17, 1990): adults, \$8.75; children \$5.50.
- Sea World (San Antonio, year long): adults, \$17.25; children \$14.75.
- Palm Beach at Moody Gardens (valid until September): adults \$2.75; children \$1.50.
- Astroworld (valid 1989): adults, \$14.12; children under 4, \$11.99; season pass, \$32.36; Waterworld (valid 1989): \$8.15.
- Salt Dome Festival-Concert (June 3, West Chambers County Houston Raceway Park, includes Willie Nelson, Ray Benson, Asleep at the Wheel, Tony Perez and Chaparral): \$12.50.
- Houston Astros vs Los Angeles Dodgers (June 3): \$7.
- World Figure Skating Champions (June 6, 8 p.m., Summit, features 1988 and 1989 gold, silver and bronze medalists): \$18.
- Houston Balalaika Concert (June 10, Cullen Theatre of Wortham Center, features NEVA Russian Dance Ensemble, songs from "Dr. Zhivago," "Fiddler on the Roof": \$14.

JSC

Gilruth Center News

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

Defensive driving—Course is offered from 8 a.m.-5 p.m., June 17 or July 7: \$22.

Weight safety—Required for use of the Rec Center weight room. Classes will be 8-9:30 p.m., June 14 and June 29; cost is \$4.

Aerobics and exercise—Both classes are ongoing: cost is \$24.

Tennis lessons—Beginning tennis, Mondays 5:15-6:45 p.m. Six week course begins June 26; \$32 per person.

Scuba lessons—The course includes classroom and pool sessions, open water dive. Five-week class begins July 10; cost is \$45, plus additional fees.

JSC

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Dates & Data

Today

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

Monday

Blood pressure screening—In observance of National Blood Pressure Week, the JSC clinic will conduct free blood pressure screening clinics in the lobbies of JSC buildings, the Beta and Vanguard buildings, Ellington Field, and the Bldg. 8 clinic on varying days and times during the week. Contact the JSC clinic at x34111 for more information.

Cafeteria menu—Special: chili and macaroni. Entrees: barbecue sliced beef, parmesan steak, spare rib with kraut. Soup: French onion. Vegetables: ranch beans, English peas, mustard greens.

Tuesday

Cafeteria menu—Special: corned beef hash. Entrees: meatballs and spaghetti, liver and onions, baked ham with sauce. Soup: split pea. Vegetables: buttered cabbage, cream style corn,

whipped potatoes.

Wednesday

Cafeteria menu—Special: barbecue link. Entrees: cheese enchiladas, roast pork and dressing. Soup: seafood gumbo. Vegetables: pinto beans, Spanish rice, turnip greens.

Thursday

AFGE to meet—The American Federation of Government Employees (AFGE) will meet at 5:30 p.m. June 8 in the Gilruth Recreation Center lounge. Nominations for executive board members will be accepted and those officers elected by acclamation will be installed during the meeting. Elections for contested positions will be held by mail ballot before the July meeting. For more information, call Bob Bryant at x34277.

AIAA awards banquet—The annual American Institute of Aeronautics and Astronautics (AIAA) Houston Section will hold its annual honors and awards banquet at 5:30 p.m. June 8 in the Rec Center. Dinner will be served at 6:30 p.m. and the program will begin at 7:30. Dinner reservations deadline is

noon Monday, June 5. Dinner reservations are not required for attending the program only. Contact Frankie at 333-6064 or Judy at 282-3782 for information.

Cafeteria menu—Special: chicken fried steak. Entrees: roast beef with dressing, fried perch, chopped sirloin. Soup: beef and barley. Vegetables: whipped potatoes, peas and carrots, buttered squash.

June 9

Cafeteria menu—Special: fried chicken. Entrees: fried shrimp, baked fish, beef stroganoff. Soup: seafood gumbo. Vegetables: okra and tomatoes, buttered broccoli, carrots in cream sauce.

June 16

CLCTS awards banquet—The annual Clear Lake Council Technical Societies' Awards Banquet will be at 6:30 p.m. June 16 at the Center. The featured speaker will be Richard Underwood, discussing "Space Through the Eyes of the Camera." Tickets are \$10; deadline for reservations is June 12. Society members or the general public wishing to attend should contact Marcia Taylor at x30195.

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: Neat League City home, 3 BR, 2-car gar., new carpet, paint, formica, French doors, built-in T.V., fenced yard, deck, laundry room, owner finance, \$52,900. 538-3038 or x36889.

Sale: Brand new 3-2-2 on oversized lot in League City, pick own colors, laundry room, French doors, lg. wrap-around deck, \$72,500. 538-3038 or x36889.

420 acres, 1 mi. outside Center, TX, 300 Timber, 120 pasture land, 1/2 mineral rights. 482-4365 or (409) 254-3462.

Sale: Seabrook, 3-2-2, approx. 1,800 sq. ft., lg. den, FPL, recently remod., new A/C, roof, carpet, spa w/redwood deck, all brick corner lot on cul-de-sac, assume 9 7/8%, \$70,000. Richard, x30271 or 474-9334.

Sale: 60 acres, 3 mi. from Karnes City, TX, on Hwy. 80, [50 mi. from San Antonio], 783-9164.

Sale: 1 BR condo, 10 min. from NASA, very nice, new A/C, new dishwasher, W/D, private entrance, vaulted ceiling, ceiling fan, pool, tennis, loan bal. \$23,600, owner fin. 280-1989 or (409) 925-8593.

Rent: Mobile home lot, \$85/mo., \$50 dep., OK, and Kinne, Bacliff. 488-1758.

Sale: Kemah lot on Lewis Drive for home building, 111' by 180', some trees, \$7,300. 334-1883.

Sale: Middlebrook, 3-2-2, well maint., many updates, new paper, paint, FHA assum., low equity, \$79,700. x32805 or 486-1888.

Lease: Webster spacious 2 BR apt., \$360/mo. Dave, 483-8161 or 486-5181 or Eric, 483-8420.

Lease: League City, 4-2-2, fenced, fans, blinds, like new, comm. pool/park/tennis, avail. 8/1/89, \$650/mo. 554-2434.

Sale: Friendswood/Sun Meadow Estates, wooded lot in estab. neighborhood, cul-de-sac, bordered by stream and golf course on 2 sides, approx. 245' deep and up to 86' wide, util. on site, \$31,500. Doug, x32860 or 486-7412.

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

Sale: Webster, 3-2-2, new roof and carpet, gameroom, det. gar., handy to JSC, Webster med. cen., Baybrook, \$59,500. 332-5177.

Sale: House, Lake Livingston, 2-1, 2-car gar., det., approx. 300' from lake, \$46,500. 333-4587.

Rent: Furn. condo, 1 BR, study, 1 1/3 BA, color T.V., microwave, dishes, linens, pools, tennis, exer. room, spa, close to NASA, \$450. 282-6422 or 488-7038.

Rent: League City, 212 Pecan, FPL, 3-2-2, avail. 6/15/89, \$750/mo., incl. lawn care. 554-6200.

Sale: Two lake lots, Toledo Bend Lake, heavily wooded, all util. 944-5624.

Rent: Cancun, MX, 1 BR villa, 5-star resort, sleeps 4, satellite T.V., kitchen, maid serv., rec. amenities incl. \$76/night, Jul 29-Aug 5, 729-0654.

Sale: Rancho Del Ray park, League City, 16' x 80', 3-2 mobile home, assume payments of \$250.28, (space rent, \$150), very good cond. Linda, x39313.

Sale: Alvin, 3-2-2 plus extra oversize 2 car gar., lg. closets, brick, FPL, mini's, .67 acre, out of city, \$52,900 or 15K and assume \$562 total (16 1/2 yrs.). 483-8456 or 388-1090.

Lease: Sagemeadow, 4-2-2, fence, FPL, formal dining, private courtyard, good neighborhood, avail., 6/15, \$625/mo. plus dep. 480-0667.

Sale: Friendswood/Heritage park, 3-2-2, comm. sec. sys., FPL, ceiling fans, lg. den, fenced, \$1,000 equity, OBO, assume \$830/mo. Danny, x33605.

Rent: Western Heights, Alvin, 3-2-3, 1 acre, \$650/mo. 977-0223.

Sale: Heritage Park, 3-2-2 home, freshly painted ext., spa, lg. deck, FPL, stammaster carpet, 10.5% assum., near pool, tennis courts and elem. school. 996-0289 or x36619.

Sale: Univ. Green patio home, 2 BR plus study, 2 BA, 2-car det. gar., 8' brick fence, 5 blks. from JSC, exec. home, \$92,000. Bob, 488-0397.

Rent: Kauai, Hawaii condo, July 8 thru 14, fully furn., sleeps 6, \$65/night or \$400/wk. Lisa, x32683 or 480-3859.

Cars & Trucks

'82 Pontiac J-2000, blue, P/S, P/B, 64K mi., good work/school car, \$1,500. D. Ellis, 480-8190, x54 or 280-8390.

'82 Chev. Malibu station wagon, blue, P/S, P/B, auto., V-6, CB radio, \$2,200. Matt, x34285 or 486-7260.

'76 Dodge Power Ram, 4x4, very good running and driving cond., new clutch, new brakes, power winch, \$3,000. George, 944-9761.

'78 Corvette, silver anniv. edition, new 2-tone silver paint w/white int., T-tops, all power, 14K mi. on new Vette eng., restored to showroom cond., \$9,750. Richard, x30271 or 474-9334.

'79 Chevy Chevette, \$900, OBO. 486-1532.

'85 BMW 325 E., loaded, auto., B.B.S., gold rims, stereo cass., sun roof, ex. cond. 326-3044.

'82 Camaro, 63K mi., V-8 305, auto., A/C, tilt, power windows and locks, \$3995. x36026 or 334-3896.

'82 Buick Le Sabre, ex. cond., 74,830 mi., vinyl top, brown, one owner, \$3,550. x32810.

'83 Toyota Corolla sta. wagon, 5 spd., AM/FM, \$2,800; '72 Chevy P/U, 350 eng., custom hrs., AM/FM/cass., shell, \$1,100, runs good. Charlie, x33301 or 488-1070.

'81 Camaro Berlinetta, V-8 eng., 4 spd. manual (w/OD), LTD, slip rear-end, tilt, cruise, power, A/C, AM/FM/cass., \$3,800. Charlie, x33301 or 488-1070.

'86 Plymouth Voyager LE, 2.6 liter Mitsubishi eng., loaded, ex. cond., extra clean, 50K mi., \$9,000, nego. 280-2417 or 486-8601.

'80 SAAB Turbo 900, 2 dr., needs some work, \$2,000, OBO. 996-5165.

'77 Buick LeSabre sport coupe Landau, 350 V-8 w/4 bbl., carb., four mags, new fuel pump, starter, rear brake cylinders, motor mounts and belts just tuned up, carb. just rebuilt, Trany just serviced, \$875, OBO. 339-1337.

'86 Nissan Sentra, 4 dr., 45K mi., P/S, P/B, A/C, AM/FM stereo, ex. cond., \$4,800. 480-9446.

'77 Toyota Corolla, new clutch, new tires, ex. mech. cond., \$1,000 firm. Chuck, x36339.

'80 Toyota Tercel, new clutch, A/C, depend., good work car, \$900. 283-6948 or 481-8608.

'82 Ford Fairmont, needs eng., body in great shape, no rust, \$600, OBO. 488-7740.

'79 Lincoln Versailles, ex. cond., 88K, one owner, \$3,995. 488-7740.

'82 Camaro, 405 V-8, A/C, AM/FM, tilt, P/W, W/D, P/lock, 63K mi., \$3,995, OBO. x36026 or 334-3896.

Cycles

'66 Triumph Trophy 500cc motorcyle, restored w/new paint, rebuilt eng., \$1,350, OBO. 996-8110.

'82 Yamaha Virago 920 V-twin, less than 2K mi., sport fairing, like new, \$1,600. 280-1579 or 482-5536.

Bicycles, one men's 26", one ladie's 26", coaster-style, serviceable, \$10/ea. Ed Pavelka, 482-7461.

'86 Honda Interceptor VFR, gear-driven cam V-4, like new, beautiful, red/white/blue, gar. kept., 1,300 mi., \$3,700. x31588 or 488-1326.

'79 KZ 1000, shaft drive, fairing, saddle bags, backrest, lugg. rack, great highway bike, \$850. Will, x36050 or 332-6986.

'79 Honda Elsiwore, \$500; '83 Honda 250R 3 wheeler, \$500. 482-8433.

'85 Honda Shadow, ex. cond., new batt., low mi., \$1,600. Shari, x38504 or 996-7736.

Raleigh-Rampar 10 spd., 27" bike w/water bottle, book rack, speedometer/odometer. Bryan, 282-3277.

Boats & Planes

'75 Bayliner, 21' w/cuddy, new V-6 crusader 165hp, sleeps 4 comfortably, has sink, toilet, ice box, holds 54 gal. of fuel, will trade for camper trailer or \$4,900 cash. George, 944-9761.

'79 Renegade 16' ski boat, low profile, silver and red hull, 115hp Evinrude OB motor w/SST prop, 50mph plus top spd., new seats/floor, customized trailer w/new fenders, ex. cond., \$4,195, OBO. 486-7846.

'15' tri-hull TEMCRAFT w/80hp Johnson and Trailer, walk thru front, new paint, upper eng. unit tuned up in April, lower end rebuilt in April, no water time, \$1,150, OBO. 339-1337.

Coronado 15 sailboat, 3 sails, rigged for racing, Jib track, trapeze, tiller ext, galv. trailer, \$1,000. 280-7413 or 474-7935.

12' AMF Zuma sailboat w/trailer and cover, \$700. Clark, x37080.

Audiovisual & Computers

Radio Shack PC-6 pocket comp., new boxed w/printer, cass. interface and cable, \$115; Casio fx-7500G graphics comp., 4000 program steps, \$55; Casio fx-5000F scientific calc., 128 built-in formulas, \$30. Tom Clark, x39942.

New Global Specialties LOGIC probes; LP-3, 35 MHz, pulse memory, \$20; LM-1 16 pin clip monitor, \$25; DP-1 digital pulser, \$20. Tom Clark, x39842.

Compaq Desk Pro, 2 floppies, 32 Meg hard drive, 1200 baud modem, incl. programs and blank discs, \$1,800, OBO. Marilyn, x37324 or 337-5563.

Ti 99/4A comp. w/28 video games, ex. keyboard (never used); joysticks, speech synthesizer, manuals, \$125, OBO. Marc, 488-5288.

Photographic

Nikon AF 50mm lens, 1.8, brand new, in orig. box, \$75, OBO. 280-2417 or 486-8601.

Konica 200mm Telephoto lens, almost new, paid \$200, asking \$100, incl. case and skylight filter. Emily, 333-0922.

Nikon Photomic FTn camera w/Nikkor 50mm/1.4 lens, Vivitar 28mm/2.5 and 85-205/3.8 lenses, \$350; Nikon FG w/Nikon 28mm/2.8 E lens, \$200; Vivitar 283 flash, \$40, nego. Bill, x32833 or 488-7936.

Pets & Livestock

AKC reg. German Shepherds, born March 26, beautiful markings. Billie, 482-4365.

Free kittens to good home, cute, loveable, warm fuzzies, 6-7 wks. old. (2) blk. and grey (1 M, 1 F) plus (1) solid blk. F. Amanda, 280-9956 or 480-1225.

Free cats to good home, lg. B and W long hair male, smart, laid back, loveable, vac., neutered, andsm. blk. short hair female, likes and needs affection, vac., spayed soon, prefer not to sep. Amanda, 280-9956 or 480-1225.

Maitese puppies, 2 males, 1st round of shots, papers, 12 wks. old, \$225/ea. 487-1535.

AKC reg. Rottweiler puppies, championship bloodline, tails docked, dewclaws removed, shots, born 3/29/89, \$500 firm. Barbara, (409) 925-2950.

Wanted

PU bed cover for '79-'83 Toyota, must be lockable. 554-6307 or 483-1586.

Want Volvo 15 in. Turbo wheel (5 spokes) in good cond. Vincent, x30874 or 333-1316.

Want '70-'74 Dodge Challenger or Plymouth Barracuda, comp. car or parts. Michael, 282-5443 or 863-8710.

Want to rent a 3-4 BR house in Clear Lake area for last 2-3 wks. in December. x31538 or 480-6351.

Roommate wanted for 3 BR house in League City, \$250/mo. plus 1/2 util. Will, x36050 or 332-6986.

Wanted women softball players for summer NASA league, must be able to play Thurs. or Tues. nights. Mark, x32622.

Carpool riders needed from Katy Fwy./Hwy. 6 or Hwy. 290/Little York Park & Ride to NASA, working hrs. 7:30 a.m. to 4:00 p.m. Dinesh, 333-4743 or Bill, x34936.

Want metronome for piano. Don, x38039 or 333-3313.

Want carpool from the Medical Center/Rice area in early June, will consider other Houston carpools. Mary, x37251 or 996-8694.

Rider needed, van pool West Houston to NASA. Richard, x37557.

Want food scale or baby scale capable of weighing items 0-20 lbs. 554-6200.

Want Inversions boots. 333-7206 or 480-9198.

Household

Contour chair, lg. size, elec. positioning, vibration, and heat, new chair like this sell for \$1,000, asking \$80. Ed, 483-4244 or 471-2542.

'7' octagonal spa, portable, cover, chemicals, good cond., needs skirting, \$1,200. 337-2718.

Leather look vinyl sofa, 7', great for college student or vac. home, \$125. x34847 or 486-4548.

Two new elegant Swedish "Copenhagen" chairs, natural laminated wood w/natural white canvas seat/back, \$200/ea., OBO. Justin, x35336 or 474-9220.

5 pc. dining room set, med. shade wood, rec. table w/leaf, wood/cloth chairs, ex. cond., \$225. Jana, x31653 or 532-3008.

Personal

The University of Houston-Clear Lake is offering noncredit evening classes in French, German, Russian and Spanish. For information call 488-9277.

Musical Instruments

Ibanez pro-line elec. guitar w/program, pickups, hard case, 35 watt practice amp, \$500. Richard, 282-3398 or 480-0524.

Kawai elec. organ, dual keyboard, rolltop cover, solid oak, ex. cond., \$1,800. 332-9585.

Miscellaneous

Garden tiller, Troy-Bilt, 5hp Pony Model, like new, \$600. 280-1579 or 482-5536.

Radio Shack 50 watt speakers, ex. cond., \$100/pr.; Heathkit 100 watt integ. amp., fair cond., \$50. Samonski, x33573 or 480-9376.

Pioneer 100 watt audio-video receiver, still under warr., \$150; Pioneer cass. deck, ex. cond., \$125. Samonski, x33573 or 480-9376.

Dan Wesson, 357 mag., 6 in. vent rib heavy barrel, w/Pacmayr grip and access. and box, ex. cond., \$215. Howard, 282-2878.

SKS rifle, 7.62x39, new in box, w/chest pouch, \$300; NoI MKIII British Lee Enfield, full milit. stock, matching number, ammunition, \$95. Howard, 282-2878.

Household goods, furn., piano, games, garden tools, lawnmower, edger, plants, bass boat, and more. Matt, x34285 or 486-7260.

Sale: Dodge motor, 383 cu. in., \$300. Michael, 282-5443 or 863-8710.

Boat/motor, Sears 10' V and 5hp motor used twice, \$600. 534-3802.

Pickup camper, Bethany, pop-up, extras, like new, \$1,500. 534-3802.

1847 Wm. Rogers silverplate set of 56 pcs. plus 7 extra pcs., serving for 8; antique wheelchair, wooden back, seat handle and foot rest, good cond. Ruby, 783-9164.

Old galv. water jug w/spiget, \$20; pr. of wood heads on shields, \$25. 488-5564.



TOP TECHS

Technical Services Division "finds a way to get it done"

1988 Employee of the Year Winner Willie Richardson Jr., aerospace technician, puts his machinist skills to the test.

By Linda Copley

The 88 engineering technicians that make up the Technical Services Division must be doing something right. For the third year in a row, one of their number was selected as Federal Employee of the Year by the Federal Executive Board/Houston Area Federal Business Association.

Joseph Zamaitis, the 1989 winner, is a mechanical engineering technician in the Instrument Machine Section. He joined JSC 10 years ago as an apprentice in the Sheetmetal and Model Branch, graduated and was transferred to the Instrument Machine Section, "where he can always be found, working hard, and ready to start on anything else that comes up," according to Machine Branch Chief Boyce Sterling.

Zamaitis participates in the earliest stages of project development by consulting with project engineers about design and manufacturing alternatives, proper materials, and processing techniques. He also assists in the preparation of specifications and drawings, when needed.

Current projects of Zamaitis include the Shuttle oxygen flow control valve housings and the Reaction Control System (RCS) clamshell assembly which was used

to repair the oxidizer leak in the Orbiter.

"Joe is not only a great worker and a thoroughly conscientious person," said Sterling, "but he carries those characteristics home. He is very active in his community, in everything from Little League to Scouts, to designing and assisting in the construction of new playground facilities for his church in League City."

For the record, last year's federal employee of the year winner was Willie Richardson Jr., also a mechanical engineering technician, who worked extensively on the crew escape pole system. And in 1987, Quinan Swing, Electronics and Computer Systems Branch, was among five JSC workers to receive the honor.

The recognition of technical excellence awarded to these employees is "just another part of the daily tasks of the Technical Services Division," according to Deputy Chief John Allen. "Whatever it is we're asked to do, we try to find a way to get it done."

The three main branches of the division include the Machine Branch, with 35 employees under Sterling, the Sheetmetal and Model Branch, with 26 answering to Chief John Heckler, and the nine-member team

of the Electronics and Computer Systems Branch, under Chief James Clarke.

"The remainder of our employees are made up of the nine-member planning office and those located in the front office," said Allen. "And we have outside contractors that we can go to when necessary, to the tune of about \$1 million dollars in business last year."

JSC's diversified shop complex is supported by these three branches, which have the capacity to fabricate precision components and assemblies from small models to life-size structures that are necessary in research and development activities.

Included in the list of areas within technical services are machining, sheetmetal and welding fabrication, model building, electronic/electrical fabrication, precision grinding, patternmaking, sculpturing, optical tooling, plastics fabrication, numerical control machining, and electromechanical assembly including battery servicing, engraving and marking.

"We even were asked by Headquarters to fabricate engraving for an executive desk set that will be presented as a farewell gift to outgoing NASA administrator James C. Fletcher," said Technical Services Chief J.D. Williams.

As Williams sees it, the division's prime role is supporting all JSC goals and programs with whatever fabrication requirements they might have.

"We average some 1,400 requests per year ranging from \$250 to hundreds of thousands of dollars. With the increased momentum of the space station program, and the continuing shuttle program fabrication requirements, our workload continues to increase. And in order to meet both program schedule commitments, we are requiring fabrication support.

"It seems we just finish one major project like the crew escape pole, and there are two more, just as challenging, waiting for our technicians."

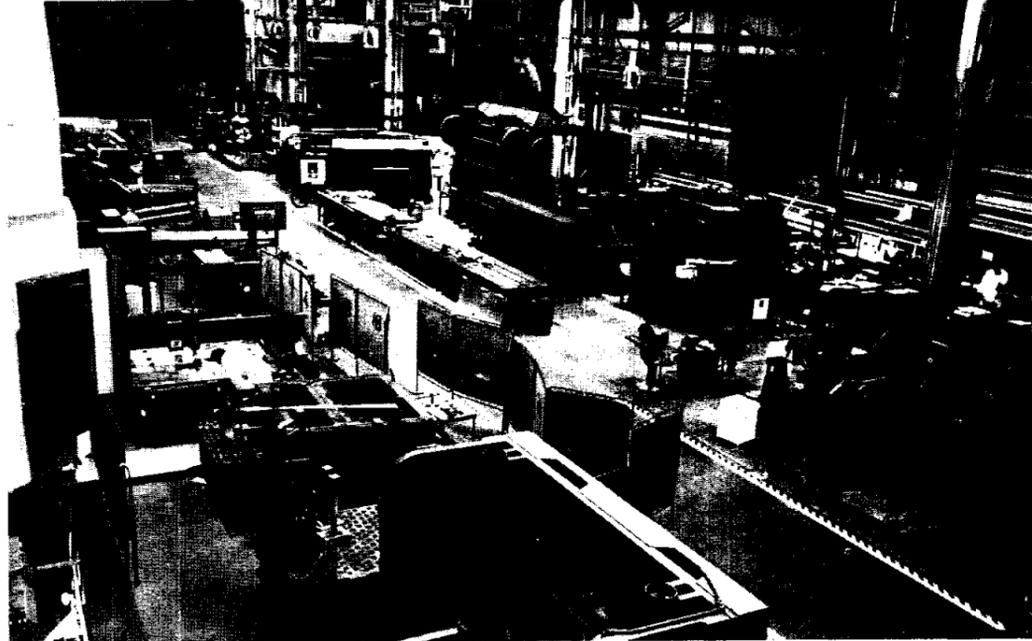
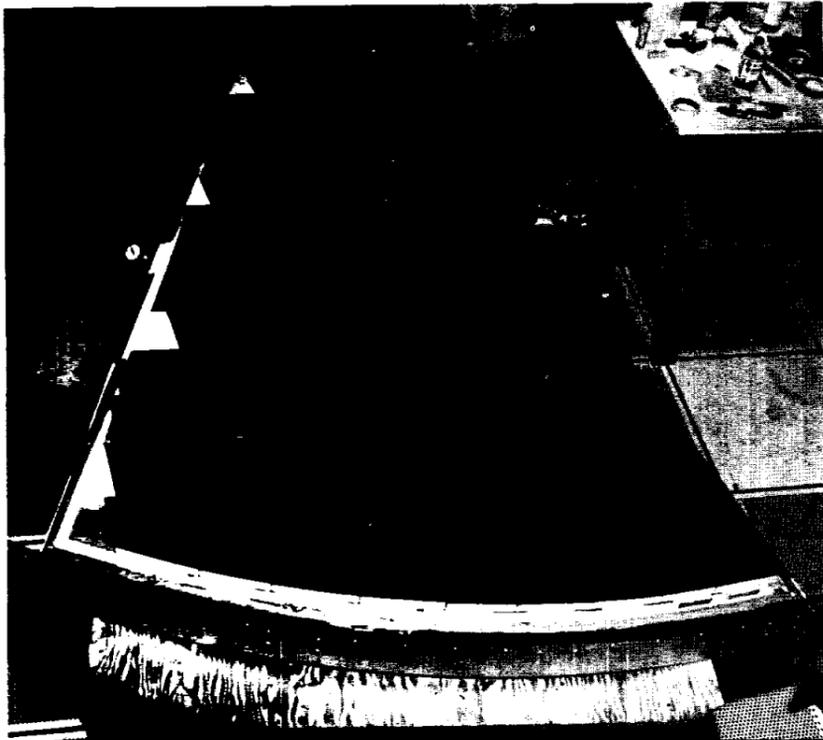
"At this time our work on new and special projects is pretty well spread out between the branches, explains Allen. "For example, the machine shop is already working on the CETA (Crew Equipment Translation Aid) at the request of the Crew Systems Division. That device will be installed on the trusswork of the space station to transport crew members and small pieces of equipment easily and efficiently."

The Sheetmetal and Model area, Allen said, is working on the Aeroassist Flight Experiment (AFE), a

braking system that can slow an orbital transport vehicle down prior to going into orbit. And the Electronics Section is working on developing hardware for the modification of the galley that flies aboard the orbiter, which will enable it to be flown on long-duration missions at the same time as the MAR (Middeck Accommodations Rack). "That project won't be ready to fly until about the fall of 1990," Allen said.

"The diversity of our work, more than any other factor, keeps our technicians highly motivated," said Williams. As testimony to this observation, he quotes from a letter recently received and addressed to the entire department, from the widow of a technical services employee, John McKinney, who died in January after an unexpected illness.

"We (the family of the deceased) have been truly blessed by having been part of your Technical Services team. You each know who you are ... for you are what NASA is all about, being one big family, one big united team. Although Elaine and I have lost John, your actions continue to make us feel like members of the NASA team. We will always be proud that John was a part of the Technical Services Division."



Top) Work grinds to a halt for the 16 employees in the Sheetmetal and Welding Branch in Building 10.; Left) Actual tiles are placed on a section of the Aeroassist Flight Experiment (AFE) by the Sheetmetal and Model Area of Technical Services.

Last Canadians break 'pact' to leave together

By Kelly Humphries

The "pact" started several years ago when Roundup printed a story about Peter Armitage's retirement and reported erroneously that he was the last of the original AVRO Canadians to leave JSC.

That's when Burt Cour-Palais jokingly suggested to Les St. Leger that as the "real" last Canadians, they should go out together.

Cour-Palais, hypervelocity impact guru in the Space Sciences Branch, retiring after 29 years of service to NASA and its manned spacecraft programs and leaving St. Leger as the last of Dr. Robert Gilruth's Canadian imports.

"I told him he's the last and he

can go out with the Canadian anthem playing," Cour-Palais said Wednesday. "I'm absolutely certain we're the last."

Cour-Palais started work for NASA's fledgling Space Task Group (STG) in 1960 at Langley Field, Va., working on the Mercury launch tower and preliminary design concepts for the Apollo spacecraft structure. That's when he first was introduced to the then-predicted dangers of meteoroids at hypervelocity and the severe damage tiny particles can exact when traveling at up to 10 kilometers a second, which he has continued to study throughout his career.

He moved to the Manned Spacecraft Center, now JSC, at the end

of 1961 with the rest of the STG, working in the Structures Division and later in the Space Physics Division's Meteoroid Technology Branch. He became chief of the Meteoroid Sciences Branch and Apollo subsystem manager for meteoroid protection until the end of the Apollo program.

He went on to serve in the Environmental Effects Office studying space shuttle launches, and the Technology Planning Office, and ended up in the Space Science Branch studying the effects of orbital debris in hypervelocity impacts with the space shuttle and space station.

An interesting sidelight to the "last Canadians pact" is that neither Cour-Palais nor St. Leger are native

Canadians. Cour-Palais was born and reared an English subject near Nagpur, India, where his father helped built railroads. He moved to England at the age of 21 to finish his education and was recruited there to work for AVRO in Canada in 1957.

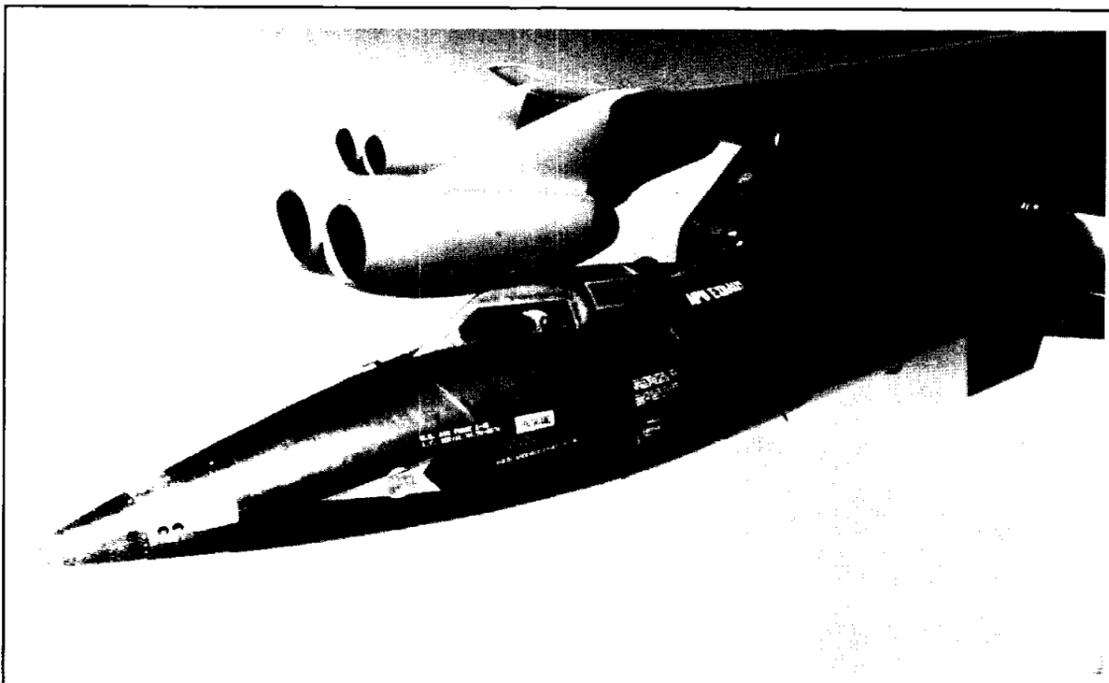
St. Leger, now manager of the Structures Test Laboratory in the Structures and Materials Branch, was born in London and recruited by AVRO in England as well. Both men are naturalized United States citizens.

St. Leger said he believes the reason he and Cour-Palais were at one time the "forgotten Canadians" was when AVRO lost its Canadian-government contract and Gilruth

recruited the displaced engineers from up north, most of them moved to Virginia in a group. Cour-Palais and St. Leger arrived separately on slightly later schedules.

"When you think about it, a lot of people who came down did finish up in responsible positions," St. Leger said. "They really were very important when it came to that first Mercury flight. There were only about 80 people total, but 30 of them were Canadians."

Cour-Palais said he plans to stay in the Clear Lake area and continue his hypervelocity impact studies. St. Leger said he is considering retirement at the end of this year. Presumably, that's when the band will start playing "O, Canada."



An X-15 clings to a B-52 aircraft high above Edwards Air Force Base in 1963. June 8 will be the 30th anniversary of the X-15's first flight. U.S. Air Force Photo

NASA celebrates first flight of X-15

Original hypersonic research aircraft turns 30 years old

Thirty years ago on June 8, 1959, NASA's famed rocket-powered X-15 knifed through the clear desert sky over California to become the world's first hypersonic research aircraft, eventually flying at more than six times the speed of sound.

North American Aviation pilot A. Scott Crossfield was at the controls for the first flight. X-15s flew until Oct. 24, 1968, when NASA's William H. Dana, now chief test pilot at Ames-Dryden, made the last flight of the program.

Among the other X-15 pilots were Neil Armstrong, who went on to fly Gemini and Apollo missions, and Joe Engle, who went on to fly space shuttle missions.

The three X-15 research aircraft flew a total of 199 flights in what is widely regarded as one of the most successful aeronautical research programs ever conducted. The X-15 flew to altitudes in excess of 67 miles, making it the first "spaceplane."

The X-15 was developed to provide research data on aero-thermodynamics, aerodynamics, structures, flight controls and the physiological aspects of high-speed, high-altitude flight. While the original design goal was 4,000 miles per hour, 4,520 miles per hour was achieved. The highest altitude flown—354,200

feet—far exceeded the original goal of 250,000 feet.

Since the X-15 flew to the edge of space, researchers were able to fly many experiments on a repeated basis that aided in developing space technology. The capabilities and limitations of the human pilot in flying space trajectories and reentry maneuvers were thoroughly explored.

Based on the success of the X-15 design, development and flight program, the Mercury, Gemini and Apollo spaceflight programs were accelerated.

"The result of the focusing and stimulating effects of the program was to generate aerospace vehicle technology at a highly accelerated rate compared to the more leisurely rate that existed prior to the X-15," said X-15 program official John V. Becker of NASA's Langley Research Center. "Thus when it became clear that the Space Age was upon us and the need to put a human into Earth orbit became a matter of national urgency, a massive backlog of aerospace technology was already at hand in the X-15 program."

Officials at NASA's Ames-Dryden Flight Research Facility, Edwards, Calif., are planning a technical symposium on June 8 to mark the anniversary, which includes a panel of eight former X-15 pilots.

MOD organization changing with times

(Continued from Page 1)

and MOD, including head of the Software Operations Section, chief of the Guidance and Propulsion Systems Branch and deputy chief of the Systems Division. In addition to his work as Chief of the Systems Division since 1985, Bales also has participated in operational planning for the Crew Emergency Return Vehicle

(CERV) and the Orbital Maneuvering Vehicle (OMV).

"Steve brings the skills of an operator to the facilities and training side of the house," Kranz said, "and his exposure to these other programs has given him an insight which will help us pull the big picture together in MOD."

Kranz also announced that Jack

Knight, currently deputy chief of the Systems Division, will succeed Bales as acting chief. Knight has been a JSC employee since 1965, specializing in spacecraft systems work in the Apollo, Skylab, ASTP and early shuttle programs. He later held several supervisory positions before being named deputy chief of the Systems Division in 1986.

Clinic screens for hypertension

The JSC Clinic observes Blood Pressure Week, June 5-9, by urging all employees to visit the blood pressure screening clinics being conducted throughout the center.

"Control of hypertension has definitely reduced the incidence of stroke and other cardiovascular accidents," said Dr. Richard Jennings, chief of the Flight Medicine Clinic.

"Most hypertensives have no symptoms," he continued, "and the only method to detect hypertension

and reduce death is by blood pressure screening. Employees should take advantage of this observance of Hypertension Month and attend a screening to reduce their personal risk of premature illness due to this silent killer."

Screenings will be held in the lobbies of most JSC buildings, the Beta and Vanguard buildings, Ellington Field, and the Bldg. 8 clinic on varying days and times during the week. Contact the JSC clinic at x34111 for a complete list.

Space News Roundup

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Editor..... Kelly Humphries
Associate Editor..... Linda Copley

JSC Women's Week features speakers, networking booths

The 12th annual JSC Women's Week program ended last Friday with the presentation of this year's Virginia P. Hughes award to Izella Dornell, chief of the NSTS Integration and Operations Budget Office.

Joseph Atkinson, chief of JSC's Equal Opportunity Programs Office, presented the award to Dornell for her contributions toward furthering the cause of female employees at JSC.

Other closing activities included a luncheon featuring speaker Cavett Robert, who admonished the 75-plus member audience to "Change with the Changing Times: Think People."

The week began May 23 with an enthusiastic response to opening session guest speaker Dr. Pauline Clansy, director of psychological services for the Houston Independent School District. The audience continued the day's activities with a warm response to psychotherapist and health educator Mary Hilliard's workshop on "Maintaining a Positive Attitude."

An all-new "JSC Network" event that afternoon featured more than 25 exhibitors representing JSC organizations such as Mission Operations,

New Initiatives, Educational Services, Lunar and Mars Exploration, and Logistics, and Space and Life Sciences.

Bendix, McDonnell Douglas, Grumman, Krug, International, and Ford Aerospace were among the contractors who set up manned booths "to familiarize the average JSC employee with the way all the JSC areas interlink with one another," according to Judy Stovall, program chairperson for the Women's Week program.

Among the most popular workshops were, according to Stovall, "Financial Tips for Women," "Managing Stress," and "How to Write a Job-Winning KSOAC." The introductory workshop discussing JSC's new planned on-site child care facility attracted a full audience as well.

"We'll probably make a few changes next year, like opening our JSC network exhibit at the same time as the workshops are going on," said Stovall, "so that attendees can take a look while on their breaks or between sessions. But the exhibit concept seems to have real possibilities."

Savings bond campaign results

JSC's 1989 U.S. Savings Bond Campaign netted an employee participation total of 47.4 percent, just under the center's goal of 50 percent participation. That brings the total number of JSC employees purchasing savings bonds through payroll deduction to 1,656.

The current level of participation prior to this year's campaign was

42.3 percent, or 1,479 employees. During the two-week campaign ending on May 16, 177 employees began purchasing bonds, while 108 increased their allotments.

Deductions as low as \$3.75 per pay period may be set up anytime throughout the year by filling out the enrollment card available by contacting Payroll, x34832.

Apollo gala tickets go on sale June 12

Tickets for the 20th Anniversary Gala Celebration of the First Lunar Landing go on sale June 12 at the Gilruth Recreation Center. The tickets are \$65 each, with a limit of two per person.

The tickets will be sold from 11 a.m. to 6 p.m. in the Ballroom of the Rec Center on a first-come, first-served basis. A NASA civil service or contractor badge will be required for purchase. Checks or cash will be accepted; checks should be

made payable to "AIAA."

Any tickets remaining after June 12 will be available for purchase at the NASA Exchange, Building 11.

The Gala is scheduled for Friday, July 21, at the Hyatt Regency downtown. Following a cocktail reception in the Atrium lobby at 7 p.m., will be dinner, a program, and dancing in the Imperial Ballroom, beginning at 7:45 p.m. Walter Cronkite will be guest speaker. Dress for the evening is black tie.

Freedom is result of technology transfer effort

(Continued from Page 1)

should the older person become lost. "The device is small enough to be comfortably worn by the patient," Davidson said. "It allows an electronic system to monitor the patients' location, thus allowing the caregiver more freedom to perform other tasks."

Combining the resources and

expertise of five agencies and industry to transfer technology was a new approach to spinoffs. The success of the teamwork has become a model for future JSC Technology Utilization transfer projects.

Davidson said the system is expected to be available no earlier than 1991.

Safety panel meets here next week

(Continued from Page 1)

programs, and reports directly to George Rodney, associate administrator for Safety Reliability, Maintainability and Quality Assurance at Headquarters.

"The panel meets about every two months at various NASA and contrac-

tor installations," Reeves said, "and as a result provides an independent communications link to top levels of NASA management in matters pertaining to space flight safety."

Only matters affecting flight safety, as opposed to industrial safety, can be addressed by the panel.