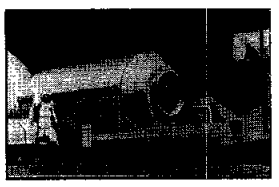
NASA
National Aeronautics and Space Administration
Lyndon B. Johnson Space Center
Houston, Texas



Crystal ball

Cross-discipline teams are an important part of managing technology development for future programs. Story on Page 3.

Open sesame

Help is on the way for those who have been caught in early morning traffic jams at JSC's main gate. Story on Page 4.

Space News Roundup

Vol. 30 | February 8, 1991 | No. 6

Pay reform plan 'a step in right direction'

By Kelly Humphries

Pay reform is coming to JSC and the rest of the federal government this year, but reducing the gap between federal and private sector compensation promises to be a gradual thing.

The Federal Employees Pay Act, which President Bush signed into law Nov. 5, is not a quick fix for all of the actual or perceived salary inequities, but it does give federal agencies new flexibility for recruiting and retaining high caliber employees.

"This is the first major piece of pay legislation in many years," said Harvey Hartman, acting director of Human Resources. "While it doesn't solve all of our compensation problems, it's certainly a step in the right direction.

"Although we are optimistic that JSC will benefit from pay reform, reducing the federal pay gap will not happen quickly," Hartman said. "Since most of the act's provisions are costly, its success will depend to a great extent on the amount of money Congress appropriates for implementation."

Susan Braymer, who is coordinating JSC's pay reform efforts for the Human Resources Office, said some changes are being felt already.

In California, Ames Research Center employees and JSC employees who work at resident offices in Downey, Palmdale and Huntington Beach, have received an 8 percent interim geographic adjustment that is providing immediate relief from higher costs in the Los Angeles and San Francisco areas.

If Houston qualifies, it could be one of the metropolitan areas that reaps similar benefits when a more widespread locality pay system is introduced in 1994, Braymer said.

The law also provides for a 5 percent increase for all professional employees at the GS-5 and GS-7 levels in 1991. Braymer said that although the final authority for the raise has not been given by the Office of Personnel Management, the increase is expected sometime this year.

Beginning in 1992, Braymer said, the government will base its annual pay raises for GS and GM employees on salaries paid in the private sector.

Please see **PAY**, Page 4

Shuttles switching buildings

By James Hartsfield

Discovery and *Columbia* are scheduled to swap buildings at Kennedy Space Center tomorrow as preparations to launch STS-39 in early March enter the home stretch.

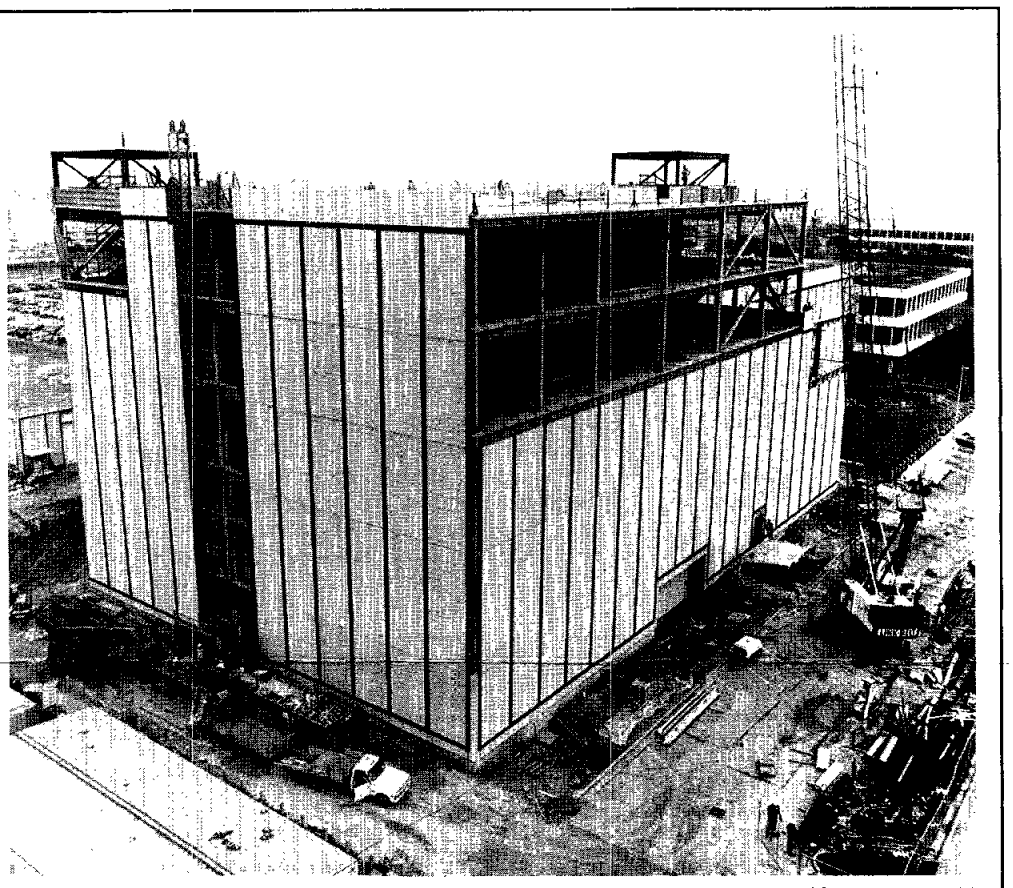
Three primary reaction control system thrusters, found to be leaking during standard preflight checks, have been replaced and successfully retested on *Discovery*. This past week was spent weighing the spacecraft and readying it for a move to the Vehicle Assembly Bldg. In the VAB, the external tank for STS-39 has been joined to the accompanying solid rockets and they now await *Discovery*'s early Saturday arrival.

STS-39

DISCOVERY

Within hours after *Discovery* leaves its current position in Bay 1 of the processing hangar, *Columbia*, stored in the VAB since December, will take the open processing spot. Some work has been accomplished on *Columbia* during its stay in the VAB, however much of the preflight processing can be done only with equipment that can't be moved from the processing hangar.

While *Discovery* and *Columbia* gear up to trade places, preparatory work on *Atlantis*, in Bay 2 of the processing hangar, has gone smoothly to ready that spacecraft for an April launch on STS-37. The Gamma Ray Observatory that *Atlantis* will place in orbit on that mission was moved on a one-mile trip Thursday from the Operations and Checkout Facility at KSC to the Vertical Processing Facility, where the final work to prepare it for space is performed.



JSC Photo by Bob Walck

MOVING RIGHT ALONG—Construction of the Space Station Control Center addition to Bldg. 30 moves right along, with 95 percent of the exterior wall panels in place this week. Jerry Taylor, JSC's construction manager, said work on the roof will begin in a week or two. Workmen representing half a dozen crafts are busy preparing the interior. Overall, the $14.9 million building is about 50 percent done and on schedule for completion in November.

Bush asks 13 percent NASA hike

President Bush on Monday recommended a $15.7 billion NASA budget for fiscal 1992, and NASA Administrator Richard Truly said the request demonstrates the President's continued strong support.

The request, part of a $1.45 trillion national budget proposal, includes $175 million for a New Launch System for heavy loads developed with the Department of Defense, and $15 million for related advanced technology research.

Another $15 million was earmarked for the New Initiatives Office-managed LifeSat, a multi-launch recoverable biosatellite to help determine radiation protection needs for long space flights.

The proposal also includes $122 million for Assured Shuttle Availability, a new program designed to improve NASA's ability to identify and incorporate high-priority improvements into the space shuttle.

NASA's portion of the President's budget request is $1.9 billion, or 13.6 percent more than the agency received in fiscal '91, but it still represents only 1 percent of the federal budget. Truly said the overwhelming majority of the budget supports programs that have already been approved, and the level of funding sought is essential to keep existing programs on track.

"The Administration's budget request for NASA is balanced and properly builds on our recent successes," Truly said. "It also represents an investment in America's future at a time when dramatic and dangerous events

Please see **SPENDING**, Page 4

NASA updates Mixed Fleet Manifest

NASA released an updated Mixed Fleet Manifest Monday, providing for a total of 26 flights through 1993.

No significant changes were made to the previous manifest for 1991 and 1992. NASA plans to launch seven shuttle missions this year, the first being STS-39, an unclassified Department of Defense mission in March, and eight missions during 1992.

Looking farther forward, the manifest calls for 27 flights from 1994 to the end of the 1996 fiscal year. Construction of Space Station *Freedom* is now scheduled to begin in the fourth quarter of fiscal 1995.

The manifest also schedules 13 flights by expendable launch vehicles, including the Extreme Ultraviolet Explorer and Geotail on Delta IIs in December 1991 and July 1992, respectively, and Mars Observer on a Titan III in September 1992.

Besides STS-39, the 1991 flights include the STS-37 Gamma Ray Observatory mission, tentatively set for an April launch on *Atlantis*, and the STS-40 Spacelab Life Sciences mission in May aboard *Columbia*.

Following STS-40, *Columbia* will be returned to the Rockwell International facility in Palmdale, Calif., for inspection and modification to accommodate the extended duration orbiter pallet.

The rest of the 1991 flights are the fifth Tracking and Data Relay Satellite in July, a DOD Defense Support Program satellite in August, NASA's Upper Atmospheric Research Satellite in November and the first International Microgravity Laboratory Spacelab mission in December.

Shuttle highlights in 1992 will include the first flight of the Tethered Satellite System, a joint U.S./Italian project. *Endeavour* will make its maiden flight, STS-49, in 1992. Astronauts will

Please see **MANIFEST**, Page 4

Gibson sets world altitude record

Delicate balance keeps home-built airplane on course

By Barbara Schwartz

Astronaut Robert L. "Hoot" Gibson soared to a world altitude record Jan. 31 in his experimental home-built airplane, working the throttle and "dancing" on the rudders all the way.

The record in the International Class C-1A piston engine aircraft category is for climbing to 27,040 feet and staying within 50 meters of that altitude for 90 seconds or 15 kilometers while his airspeed remained the same or increased.

Gibson surpassed the existing record for planes that weigh between 660 and 1,100 pounds by about 2,000 feet.

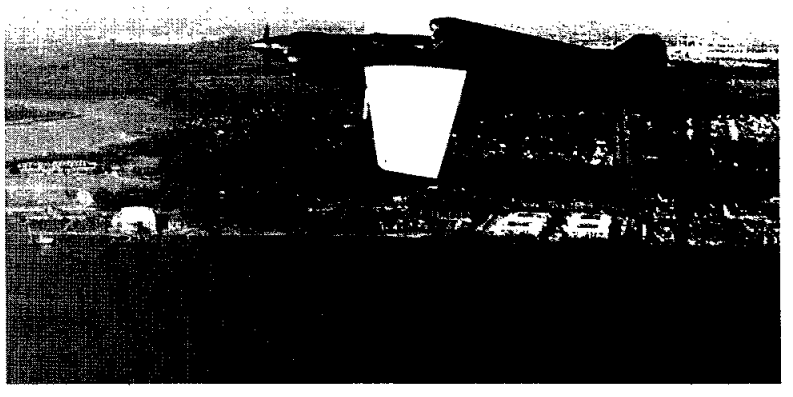
"It was actually a lot of work to keep the airplane precisely on the right airspeed because I only had a band of about 10 mph that I could be within," he said. "If I was faster than that I wouldn't be climbing, I'd be going down. And if I was slower than that, I wouldn't be climbing, I'd be running out of energy and falling out of the sky.

"Also, I had to keep the airplane in trim directionally using the rudder because the airplane has weak stability in yaw. I had to continually be dancing on the rudders to keep the airplane going straight and in the right direction.

"Then, keeping the engine at peak rpm was important. That engine was not intended to go that high, so the way you get it to go is by bleeding the mixture way, way up. I was continually working on the mixture — too rich and the engine would run too slow, too lean and the engine would shut off."

Gibson, enclosed in the cramped, unpressurized cockpit, wore a sweater and an aluminized jacket, which turned out to be inadequate in the 5-mile-high 30-degrees below zero temperature. He had an oxygen mask for above

Please see **GIBSON**, Page 4



Astronaut "Hoot" Gibson flies over Clear Lake in his record-seting, home-built, airplane.

JSC

Ticket Window

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

General Cinema (valid for one year): $4 each.

AMC Theater (valid until May 1991): $3.50 each.

Valentine Dinner Dance (7 p.m. Feb. 16, Gilruth Center): $15. Tickets go on sale Feb. 13.

Rodeo Extravaganza Day (March 2-includes bus transportation, Livestock Exhibitions, Chutes Corral Club, rodeo, and Oak Ridge Boys and Gatlin Brothers concert): $15.

Thermographed, raised lettering and logo business cards can be ordered by civil service employees; 250 cards per set. Old logos-$21; new logos-$18.

JSC

Gilruth Center News

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

Defensive driving—Course is offered from 8 a.m.-5 p.m., April 20 and May 18. Cost is $15.

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

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

Weight safety—Required course for employees wishing to use the Gilruth weight room. The next class will be from 8-9:30 p.m. Feb. 13 and Feb. 28. Cost is $4.

Country and western dance—Intermediate class meets Monday nights for six weeks beginning March 4. Cost is $20.

Personal safety—Brief lecture on personal safety awareness. Talk begins at 5 p.m. March 13 in the Gilruth Center ballroom.

JSC

Technical Library News

These new publications are available in the JSC Technical Library, Bldg. 45, Rm. 100.

Structured Fortran 77 Programming with Hewlett-Packard Computers. Seymour V. Pollack, 1983. QA76.8.H48 P64 1983.

Douglas Cobb's Paradox 3 Handbook. Douglas Ford Cobb. 1989; QA76.9D3 C62 1989.

Applications of Spatial Data Structures: Computer Graphics , Image Processing, and GIS. Hanan Samet, 1990. QA76.9.D35 S25 1990.

Managing Computer Projects. Francois Lustman, 1985. QA76.M3 L87 1985.

Fast Transforms: Algorithms, Analyses, Applications. Douglas F. Elliott, 1982. QA403.5 .E4 1982.

Dictionary of Space. Malcolm Plant, 1986. QB 497 .P57 1986.

The Crisis in Space and Earth Science: A Time for a New Commitment. QB500.266.U6 C75 1986.

Life Sciences Accomplishments. NASA, 1986. RC1128.U5 L5 1986.

Manual of Skin Diseases. Gordon C. Sauer, 1985. RL74 .S25 1985.

Applied Concepts in Microcomputer Graphics. Bruce A. Artwick, 1984. T385 .A77 1984.

JSC

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.

Saturday

APAC new year—The JSC Asian Pacific American Council will observe Lunar New Year at 6 p.m. Feb. 9 at the Gilruth Center. Banquet and dance cost $15 per person. The dance, which begins at 8:30 p.m., costs $10. For more information contact Hanh Nguyen-Xuan x36805.

Monday

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

Astronomy seminar—The JSC Astronomy seminar will be held at noon Feb. 13 in Bldg. 31, Rm. 129. For more information contact Al Jackson 333-7679.

PSI meeting — Professional Secretaries International will meet at 5:30 p.m. Feb. 13, at the Holiday Inn, NASA Road 1. Cost is $9. Bob Dey, of the U.S. Drug Enforcement Administration, will speak on "Drugs in the Workplace." For reservation or more information call Pat Woolcock at 754-2570, or Cynthia Thomasen at x30228.

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

Thursday

NCMA meets—The JSC National Property management Association will meet at 5 p.m. Feb. 14 at the Gilruth Center. For more information, call Sandra Pierce at 282-4151.

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.

Feb. 15

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.

Feb. 18

Presidents' Day—Most JSC offices will be closed in observance of the Presidents' Day holiday.

Feb. 19

AIAA meets—The American Institute of Aeronautics and Astronautics will present a Ground Testing and Simulation Technical Committee lunch and learning meeting at 11:30 a.m. Feb. 20 in the Bldg. 3 Cafeteria. For more information, call Dr. Sivaram Arepalli x35910.

Feb. 20.

Astronomy seminar—The JSC Astronomy seminar will be held at noon Feb. 20 in Bldg. 31, Rm. 129. For more information contact Al Jackson 333-7679.

Feb. 26

BAPCO meets—The Bay Area PC Organization will meet at 7:30 p.m. Feb. 26 at the League City Bank & Trust. For more information call Earl Rubenstien, x34807, or Tom Kelly, 996-5019.

Feb. 27

Laptop showcase—The Information Systems Directorate will sponsor a notebook laptop showcase from 10 a.m-4 p.m. Feb. 27 in Bldg. 12, Rms. 112, 254, and 256. For more information call the Product Demonstration Facility x37572.

Astronomy seminar—The JSC Astronomy seminar will be held at noon Feb.27 in Bldg. 31, Rm. 129. For more information contact Al Jackson 333-7679.

BANN program—The Bay Area NAFE (National Association of Female Executives) Network will present a program and luncheon buffet at 11:30 a.m. Feb. 27, at the South Shore Harbor Country Club. Al Garza will discuss self-defense and give demonstrations. Cost is $10 members, $12 non-members. Program only cost is $3 members, $5 non-members. Reservations deadline is Feb. 22. For information or reservations contact Sharon Westerman, x68927, or Wanda Spain, x31025.

Feb. 28

Space Trophy banquet—The National Space Trophy will be formally presented to JSC Director Aaron Cohen at the Rotary National Award for Space Achievement Foundation's annual banquet at 8 p.m. Feb. 28 at the Houston Hyatt Regency-Downtown. Broadcast journalist Jim Hartz will be master of cermonies. For more information contact John Francis or Dana Heard at 333-5986.

JSC

Swap Shop

Swap Shop ads are accepted from current and retired NASA civil service employees and on-site contractor employees. Each ad must be submitted on a separate full-sized, revised JSC Form 1452. Deadline is 5 p.m. every Friday, two weeks before the desired date of publication. Send ads to Roundup Swap Shop, Code AP3, or deliver them to the deposit box outside Rm. 147 in Bldg. 2. No phone or fax ads accepted.

Property

Sale: 1 BR Egret Bay Villa, on the water w/boat access to Clear Lake, pool, club house, pier, boat incl., $43K. Mr. Collins, 480-8190 or 996-7693.

Sale: Friendswood, lg. lot, 120x162, all util. avail., $34K. Rick, 283-1988 or 996-8961.

Rent: Pasadena duplex, 3-1.5, new carpet/paint/mini blinds, no pets, $400/mo. 996-0152.

Sale: El Dorado Trace condo, 1-1.5, 825 sq. ft., all appli., assumable loan w/approval. Bobbie, 481-9199.

Rent: CL townhouse, 2-2.5-2, FPL, all appli., gray carpet, fresh paint, $750/mo., nonsmokers. 488-2664.

Rent: Galv. condo, 2-1, FPL, all appli., new carpet, 69th St., $495/mo. 488-2664.

Sale: Fairmont Park East, 3-2-2, 1,925 sq. ft., all gas except AC, formal DR/LR, fans, mini blinds, $78K. Dave, 333-7359.

Sale: Oakbrook, 4-2.5-2, new carpet, backs up to golf course, $101.9K. 488-1374.

Lease: Piper's Meadow, 3-2-2, FPL, mini blinds, lg. open den, fen., ex. cond. 332-1609.

Sale: Brittany Bay, 4-2.5-2, $110K w/balance of $82K assumeable 8% FHA loan. 332-0047.

Sale: Middlebrook, 3-2-2, cul-de-sac, new paint/carpet/tile, $89K. 538-1051.

Sale: Bayfront lot in Seabrook, $125K; 2 water view lots near NASA, $38,500/ea. Don, x38039 or 333-1751.

Rent: River Oaks area, 2-1, library, FPL, hrdwds., $750/mo. plus dep. 774-3945.

Sale/Lease: San Leon area, 1 BR, rec. renov., owner fin. avail. Aubrey, 339-1402.

Sale: Friendswood, 3-2-2 on 3/4 acre lot, gas, FPL, new carpet/flooring, brkfst. room, $79,500, assumption. 992-1338.

Rent: Galv. condo, furn., sleeps 6, Seawall Blvd. & 61st St., dly/wkly/wknd rates. Magdi Yassa, x33479 or 486-0788.

Sale: Lots near Lake Livingston off Hwy. 356, 1/2 acre, $2K, owner fin. x34557 or 485-1541.

Sale: Pipers Meadow, 3-2.5-2, formal LR/DR, FPL, loft, wet bar, fans, gar. door opener, deck, new paint, $92K. Dennis, x34405 or 480-5076.

Rent: Hotel room in New Orleans during Mardi Gras, Feb. 11-12, approx. $70/night plus tax, near French Quarter. Joe, x39233 or 338-1443.

Rent: Lake Travis cabin, priv. dock, CA/H, equipped, accomm. 8, dly/wkly, $80/$325. 326-5652.

Rent/Lease: CL condo on marina, 3-level, all appli., FPL, wet bar, 2-2.5-2, $950/mo. 326-5652.

Sale: 3-2-3 on 3/4 acre in LC, very secluded, deck, hot tub. Bruce, 554-7657.

Cars & Trucks

'86 Buick Regal Ltd., V8, 2-dr., pwr., loaded, ex. cond., 70K mi., $5,800, OBO. 282-4041 or 337-2318.

'79 Toyota Supra, 95K mi., good cond., $2K. Levine, x38832 or 326-1444.

'85 Mitsubishi Starion, turbo, 5-spd., $3,450. 282-2810 or 334-3320.

'90 Ford Ranger XLT, super cab, ex. cond., 5-spd., warr., $9,500. Joyce, x32867 or 996-8937.

'87 reb. eng. in '85 customized '80 Ford van, color TV, radio, CB, 4 captains chairs, sofa bed, table, bar, icebox, running wtr., $4K. David, x35048 or Mary Fae, x35143 or 482-9061.

'81 Chevy C10 custom deluxe, auto., air, V8, looks/runs good, $2,800. 996-6014.

'83 Buick LeSabre, 2-dr., loaded, limited ed., ex. cond., $2,500. Scott, x39156 or 482-8017.

'85 Ford LTD Brougham, V6, 4-dr., loaded, auto., ex. cond., new tires, $2,450. Jim, 244-9844.

'89 Firebird, auto., 14K mi., 12 mo. tune-up warr., $9K. Carrie, x38506 or 333-4089.

'83 Honda Prelude, 5-spd., sunroof, ex. cond., 87K mi., $3,500. B. Craig, x32338 or 420-2936.

'88 Toyota Camry LE, pwr. sunroof/moonroof, loaded, $10K, 6 yr./75K mi. ext. warr. avail. for $695, 36K mi., ex. cond. Brian, 283-4121 or 996-9415.

'88 Chev. ext. cab, Silverado, V8, 49K mi., alarm, 72K warr., $9,800. 480-8682.

'68 Chevelle, 6-cyl., 100K mi., reg. maint., current safety inspection, $1K, OBO. Ed, 283-5716 or 333-1563.

'80 Chev. Citation, 4-dr. htchbk., AC, runs well, $550. 482-5621.

'75 Lincoln; '79 Omni htchbk.; Datsun wagon, does not run, BO. 283-4402.

'87 Chevy S-10 Blazer, ex. cond., 4-spd., 4-cyl., $5,500. 470-0777.

'76 Jaguar XJ12L Series II, AC, PS, PB, good cond., extra parts, $5,500, OBO. Nandin, x39408 or 480-7136.

'81 Buick Skylark Limited, 4-dr., 4-cyl., auto., 105K mi., $1,950. Bob, x35263 or 481-2733.

'86 Honda Prelude, 5-spd., sunroof, new tires/brakes, $6K. x31237 or 488-8614.

'87 Ford Tempo GL, 4-sr. sedan, 75K mi., ex. cond., $4K. 538-1051.

'81 Plymouth Tourismo, 2-dr. htchbk., sports model, 56K mi., 2.2 litre eng., $1,800. Jack H. Cohen, 333-7602 or 488-3171.

'67 Chevy Impala, 327, auto., good tires, high mi., $400. Campbell, x38948 or 326-3071.

'89 Ford Probe GT Turbo, 5-spd., 100K mi. warr., $11,950. Dan, 280-2780 or 457-2850.

'86 Hyundai XL GLS, ex. cond., 4-dr., auto., 62K mi., $2,400. Ruben, x33829 or 486-0817.

'74 MGB, 4-spd. w/OD, reb. eng./trans., new batt., Michelin tires, needs top, runs great, $1,800. 992-5608.

'80 Mazda 626, 4-cyl., $1,300, OBO. x30428 or (409) 925-8081.

Cycles

2 girls bikes for 6 yr. old and 9 yr. old, ex. cond., BO. Bob, x33149 or 488-7036.

'81 Honda 650cc, CB, new tires/batt., windshield, back rest, good cond., $850. Gene, x36424 or 474-4289.

'84 Kawasaki GPZ 750, 8K mi., super clean, $2K. Shannon, x32646 or 484-5412.

'86 Honda VFR 750 Interceptor, ex. cond., $2,950. Andy, 333-6671 or 332-9105.

Boats & Planes

'72 30' Morgan sailboat, new diesel eng., $17,500, OBO. Bill, 283-5384 or 326-1880.

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

'79 Renegade 1540 ski boat, 140hp Evin., SST prop, trlr., ex. cond., $2,500, OBO. 333-6868 or 486-7846.

Audiovisual & Computers

PC SW, Xtree Gold 1.0, 5 1/4" and 3.5" disks, file viewers, text search, supports ARC, split wndws., like new, $35. x30852.

PC 386 clone, True 386 (20 MHz), 1MB RAM, 40MB HD, Super VGA color graphics up to 800x600, wndws. 3.0, $1,300. Charles, x33599 or 474-9259.

Expo 286 IBM clone, 1.2M, 1.44M floppies, EGA color, 40MB HD, 1MB RAM w/extras, SW, games, books, $1,250. 481-4238.

Macintosh 512 Enhanced, 800K drive, used very little, $400. 280-8796.

El Gar, model SPF 880, rating 550 VA, batt. backup for computers, 60 min., ex. cond., $300. Mari, x39309.

Zenith 150 computer sys., 640K RAM, RGB monitor, EGA capable, ex. cond. 480-7257.

Amiga 1000 computer, 512K, color monitor/printer, modem, ext. 3.5 drive, clock card, all documentation/magazines, $600. Dan, 282-3737 or 337-1767.

Sony 5-disc CD changer w/all features, ex. cond., $150, OBO. x37990.

AT&T 6300 personal computer, 640K CPU, 8087 coprocessor, 2 360K drives, $300. 488-0189.

Musical Instruments

Antique Beethoven pump organ, 64" tall, $950. 333-2395.

Vantage Entertainer elec. guitar w/case, ex. cond., $150. Dan, 282-3737 or 337-1767.

Pets & Livestock

Baby cockatiels, very sweet. Linda, 484-7834.

Rat Terrier, male, 3 mos., B&W, playful, house trained, only pay vaccination costs. Juliette, x38459 or 480-9449.

Reg. exotic min. Vietnamese pot bellied pigs, $300-$2K/ea.; exotic doves/finches, $5/ea. James. 335-6710 or 482-6744.

2 AKC collies, breeding pr., tricolor male, sable fem., $90/ea., or $150/both, BO. 484-7583.

1/2 Bobcat, part Persian kitten, male, very sweet, $35. 339-2792.

Photographic

Sankyo EM-40XL Super-8 movie cam., pwr. zoom; Bell & Howell projector; dual eight editor-viewer; quick splicer, BO. Scott, x31756 or 532-1659.

B&K model 290 elec. multimeter, manual and PR-21 probe, $190. Tom Clark. 244-9842.

Household

Contemp. bev. edge rect. glass top DR table w/cream color marble finish, trestle base, ex. cond., $280, OBO. Katie, x33185.

Queen sz. bed, matt., box springs, frame, $150. Kay, 486-6177.

Rollaway bed, 3/4 sz., $50. x36080 or 482-5621.

Amana side-by-side refrig./freezer, 25 cu. ft. avocado, $300; red easy chair, $75. Boykin, x37341 or 326-1267.

Sofa, blue/brn./beige striped w/cushions, $100. 482-2396.

Frost free freezer, upright, $150. x37595 or 488-1359.

Brn./white Traditional swivel rocker, ex. cond., $40; brn. tweed recliner, ex. cond., $65. Linda. 333-2347.

2 leather sided glass top coffee tables, $50/ea.; Amana Touchmatic II microwave, needs repair, BO; 2 wire wheel covers, $25/ea. 482-6744.

Toshiba microwave, digital touch controls, 1.5 cu. ft., $60. 486-5734.

Antique buffet, refin., $325. Judy, x36078 or 538-4197.

Oak wall unit for queen sz. bed, incl. drwrs., cab., light bridge, $800, OBO. 280-2772.

Queen sz. bed w/mirr./lighted/bookshelved hdbd., 5-drwr. dresser, 8-drwr. vanity w/mirr./shelves, matt., box spring, $500. Ann, x31336.

Couch/loveseat, navy/tan design, solid oak frame, ex. cond., $325. Ann, x31336.

DR table w/6 chairs, oak. ex. cond., $350. 335-4204.

China closet, Danish, 36x66, sliding glass panels up, drwr./encl. stor. down, ex. cond., $150. Ream, x32795 or 326-5746.

Amana 19.5 cu. ft. upright freezer, frost free, 10 yr. old, new comp., has icemaker kit, $250. Mary, x30622.

Queen sz. w/rbd. w/liner, htr., matt., platform, all wood, ex. cond., $175, OBO. x30768.

Alum. sliding glass door, storm door, 6 lg. single pane wndws.; king sz. w/rbd. matt., htr., liner, $75. 480-5130.

Round table, 30", new w/4 antique Bentwood chairs, $125; childs old table, refin., $20; 2 sets wndw. drapes, $100; doll cradle w/doll, $15; childs antique rocker, ladder back w/matching chair, $25/ea. 488-5564.

Queen sz. hide-a-bed, love seat, 3 tables, $350; antique green full sz. bed, mirr. dresser, 5-drwr. chest, 2 night tables, $750; G.E. dishwasher w/pot scrubber, needs adj., $75. Magdi Yassa, x33479 or 486-0788.

Port. dishwasher, $35; Sears car top carrier, $25; sm. wood desk, $35; 2 boys Diamond Back bikes, $80/$100; FPL grate, tools, $10; 9x14 plush wine carpet, $140; lg. room humidifier, $20. x32768 or 326-2795.

Wanted

Want roommate to share lg. house w/2 others, $270/mo., incl. util., maid. Eric, x38420 or 484-9179.

Want roommate to share lg. 3-2.5-2 home in Bayglen, nonsmoker, $300/mo. plus 1/2 util. Lyndon, 282-3215 or 480-9448.

Want old mech. wrist watches, any cond. x30186.

Want fem. to share 3-2-1 brick house in Friendswood, no pets, ref., $300/mo. 282-4308.

Want anything you were going to throw away or give to Goodwill. Margaret, x36524 or Barbara, x36529.

Want fem. to share 2-2 apt. in CL area, nonsmoker, $280/mo. plus 1/2 util. Gina, 282-4391 or 996-5978.

Want riders for vanpool starting from SW side and Braeswood-610 to JSC. Chau, x31451.

Want fem. nonsmoker to share 2-2-2 house in Pipers Meadow, $300/mo. plus 1/2 util. Tracy, x32526 or 486-3946.

Want van pool riders from Sugarland, West Wood Mall, Fondren, Loop 610 Park & Ride to JSC. Alice, x35234.

Want '82 Datsun 200SX hardtop coupe, auto. Fred. 944-0493.

Want free/cheap solid white cat/kitten, prefer kitten. Ramona, x33164 or 645-0378.

Want to trade wide carriage, 132 column Radio Shack DMP 430 dot matrix printer for comparable 80 column printer. Clare, x34874 or 480-9646.

Want to buy sm. PU in good cond., auto., AC, will pay up to $1K, OBO. 332-0047.

Want fem. in Brookwood subdiv. to care for 7 yr. old boy after school. x31636 or 286-9036.

Want heavy canvas cov., 10x14 or larger, cheap. Don, x38039.

Want car batt. charger, reas. Eddie, 534-3649.

Want GAF Timberline shingles in weather wood pattern. Ed, 471-2542.

Want '75-'80 Ford Pinto, auto., no pwr., no AC, body damage OK, does not need to run, must be towable. Trey, 280-4275 or 484-7834.

Want Kitchen Aide or Equivelane HD mixer w/bowls/access. 486-8463.

Want roommate for studio apt. in downtown Houston, $875/mo. Mike, 283-5890 or 280-9005.

Miscellaneous

Rossignol Stinger skis, 185cm, Solomon bindings, K2 poles. Eric, x38420 or 484-9179.

Fiberglass camper top for full sz. truck, sliding glass wndws. w/screens, ex. cond., $325. Andy, 333-6671 or 332-9105.

Metal office credenza, blk. w/formica wood grain top, good cond., 2 hanging file drwrs., bookcase shelves w/doors, $175, OBO. Dennis, x34405 or 480-5076.

Harley Davidson leather jacket, "Willy G," unused, sz. 42-44, $295; greenhouse, 12x8, fiberglass/wood, fan w/thermostat, $95. Jeff, x31974 or 286-1935.

Professional quality 4x8 slate pool table w/access., ex. cond., $1K. 280-0502.

2 matching blackboards w/erasers, sm., $15/both; fluorescent desk light, $10; lightweight move 2-wheel truck, $17.50. 488-5564.

Sears Craftsman riding lawnmower, 6hp, 25" cut, good cond., $175. x35180 or 326-3706.

Cellular mobile phone, Novatel, ex. cond., $400, OBO. 866-8875.

Presidents & 1st Ladies Chartergold membership, $800, OBO. Russ, 996-0876.

3-wheel elec. cart, used 5 wks., $1,800. Linda, 333-2347.

Olympic style free wgt. set, 315 lbs., $125. Dave, 333-7359.

Fisher Studio Standard CR-W49 ster. dbl. cass. deck, $50; Fisher CA-274 100 W ster. amp./tuner, needs work, $10. Brad, x37999 or 474-5609.

Surfboard, 6'-8", round pintail, tri-fin, ex. cond., $150; volleyball, I 016 pro, $15. 286-7128.

Stanley Blacker navy blue blazer, sz. 38R, $40; Panasonic port. dual spkr., 8 track player w/tapes, $25. 335-1386.

Exer. bike, $40, good cond. x30750 or 585-8162.

4 blk. wire mesh rims, 14" 5-lug, used 1 mo., $200. 996-8961.

Garrett PB Groundhog metal detec., ex. cond., $135; AMD 80C286-12 math co-processor for IBM 12 MHz computer, $65; Onyx chess set/wood board, $10. 481-4238.

Lg. telescope, 10" f/8 Newtonian, good optics, incl. eye pcs., 60mm finder scope, needs mount, $500, OBO. Ed, 283-5716 or 333-1563.

25hp Evin., elec. start, new, $1,700. Jerry Craig, 283-5311 or 420-2936.

PRECOR life rower, 6.2 w/digital display, $200, OBO. Monna, x36346 or 480-9203.

White Simmons canopy crib w/blue/green/peach bumpers, dust ruffle, canopy, ex. cond., $300; White Simmons changing table, ex. cond., $50. 480-3368.

Bridal set, oval diamond solitaire, 1/4 carat, $400. Jim, 244-9844.

Ster. components, Technics AM/FM rec., Akai cass. deck, O'Sullivan ster. rack/cab., $50/ea. component, OBO. Mark, x36126 or 326-1192.

Gas logs, used 2 mos., natural gas, $100; auto. cutoff pilot for propane, $25. 488-5509.

3 Goodyear 255/50 UR16, $35/ea.; 1 Goodyear 255/50 UR16, $180. Fred, x32888 or 486-9234.

Gold rope necklace, 19", 14K, 18 grams, antique finish, $250. Tom, 283-5696.

4 33x12.5-15 tires on 10" rims, $600; rollbar for Toyota PU, $75. Henry, 283-6380.

Signed/numbered prints, framed, $25-$35; blk. leather Italian sofa/chair, $700; blk. Melamine entertainment center, $250, ex. cond. Katie, x33185.

2 tires, P205/75R14 WSW, steel belts, less than 500 mi., $18/ea. or $30/both; 1 Bridgestone P195/70HR 14 series 300, less than 4K mi., $20. Ream, x32795 or 326-5746.

3-pc. wedding ring set, white gold, 1/5 ct. bands, $200, OBO; queen sz. wtrbd. w/6 drwr. ped., $150, OBO; 4-pc. luggage set, $40; rowing/exer. mach., $35. 280-2772.

Solid oak wall unit, $250; solid oak contemp. Child Craft baby bed, $200; 15 cu. ft. Kenmore upright freezer, $250; Graco baby swing, $35; baby stroller, $30; Bentwood rocker, $50; ster. rec. w/spkrs., $50. Steve or Thomas, 480-3325.

'84 Celebrity/Citation shop manual; '79 Olds donut tire w/wheel; rollerskates, Protype, sz. 5 & 7; weightlifting bench w/wgts., exer. bike. Aaron, 944-0493.

RCA ster. console TV, pecan fin., $450; Sanders mens western boots, sz. 10, $65; Kenmore floor cleaner/polisher, $100; Kenmore rower/exer., $125; end and cocktail table, $50; cocktail dress, sz. 5/6, $50. Diane, 283-5618.

Ruger Blackhawk .44 mag w/1.5X Leopold scope, holster for scope mount and std. holster, $475; Ruger .22, 9 1/2" barrel w/mag cylinder, $185; RBC reloader w/cab., $450; Winchester bolt action 30.06 w/3x9 Leopold scope, sling, $425. Linda, x37536.

9mm Browning pistol, hi-pwr., case, holster, 2 clips, Pachmayr grips, $425. Matt, 333-6045 or 474-3760.

Books on cass., "The Thirty-Nine Steps" by John Buchan, "Capital Crimes" by Lawrence Sanders, "The Night of the Moonbow" by Thomas Tryon, "The Lonely, Silver Rain" by John McDonald, $7/ea. Ronnie, x32539 or 538-1649.

Century Kanga-Rocka-Roo infant seat, $8; Century super swing, $10; playpen, $20; infant car seat, $8; wicker bassinette, $20; wicker changing table, $25; Whirlpool model 7000 port. dishwasher, $175, all ex. cond. x30647 or 339-1912.

15" Probe GT Turbo wheels, ex. cond., $300; custom trlr. hitch for Ford Probe flat, $150. Dan, 280-2780 or 457-2850.

Remote control car, RC 10, Airtronics control unit, charger, 2 batt., 2 bodies, some parts, $315. Burk, 482-8330.

Technology for Tomorrow

JSC teams adopting Total Quality Management philosophy to point research in right direction

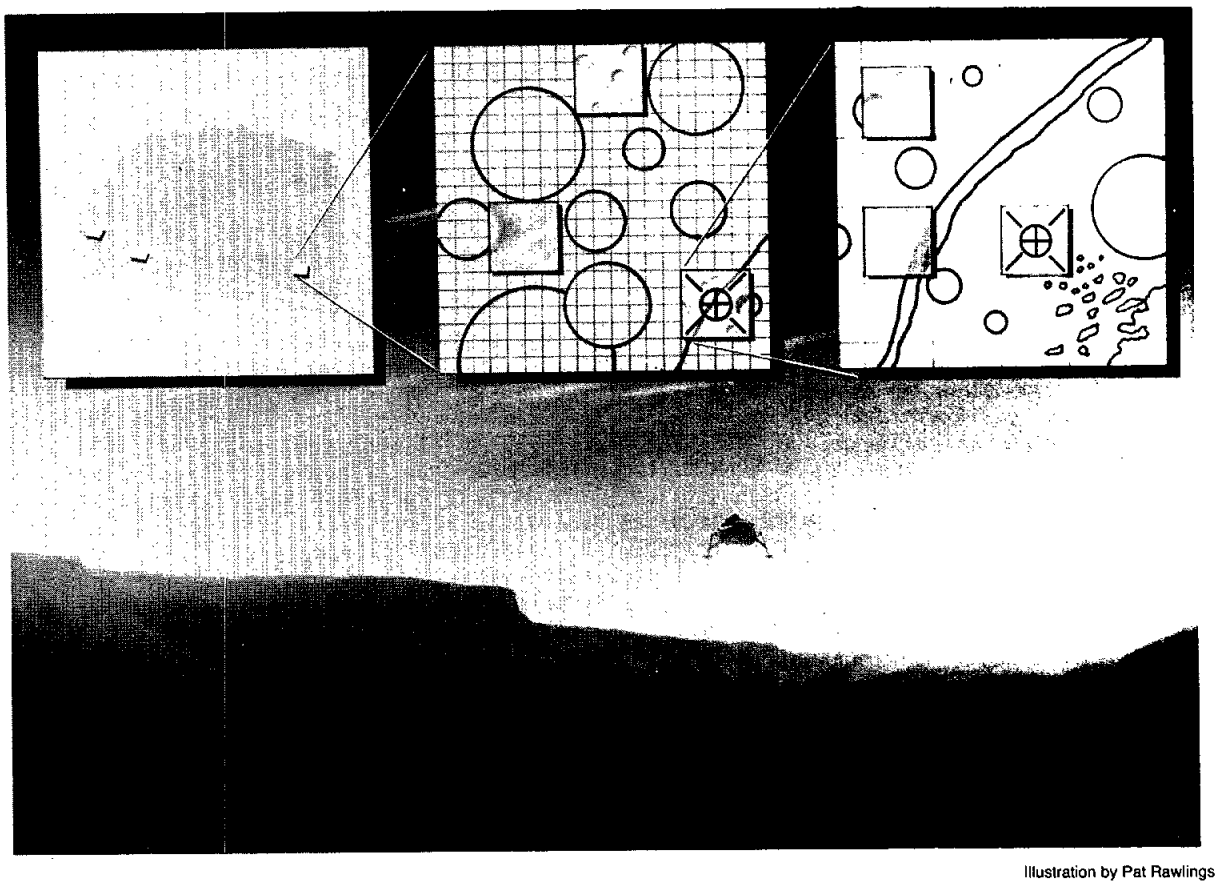


Illustration by Pat Rawlings

By Billie Deason

Managing the development of new technologies for future programs may sound like a high-level management function, but in reality it's a job spread among all working levels and all organizations at JSC.

Right now in Bldg. 7, for example, lettuce grows in a specially outfitted chamber — the first stage of a test bed for scientific and engineering studies. The greenery marks the start of long-term advance work on a regenerative life support system that could be used for a lunar or Mars outpost.

The job of orchestrating technology management has fallen on the JSC Technology Coordinating Committee, an outgrowth of the 1987 JSC Strategic Game Plan, known locally as "the green book."

That strategic planning meshes into the Total Quality Management methods now being implemented at JSC. Strategic planning for quality is a basic element of total quality practices. The previous strategic planning brought to light the center's need for a business process to manage JSC's current technologies and to develop new technologies.

In classic TQM settings, the organization focuses on its customers. The technology committee enables JSC to understand what technologies its customers — in this case, NASA programs, both current and future — need to carry out their efforts in the manned space flight arena.

"In an R&D organization such as JSC, the ability to stay abreast of a wide variety of technologies is critical to our success," said Les Sullivan, chief of the Management Analysis Office and one of those who is helping move JSC toward TQM. "It is the basic means by which high quality is embedded in our products and services. We cannot be a world-class high-tech organization without having a good handle on our most important technologies.

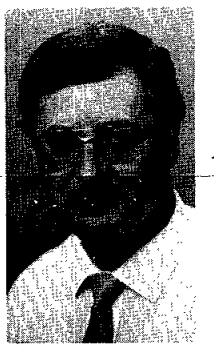
"As we move more extensively into total quality during the coming months, technology will remain a high priority area," he added. "We will also begin to use teams to look at ways of improving the flow of work within our major processes, both programmatic and institutional."

The Technology Coordinating Committee began its work in 1988, before JSC began emphasizing TQM techniques.

"Senior managers went back and looked at what the teams were doing and found their activities correlated quite well with the tenets of the TQM program," said Mark Nolan, manager of Technology and Commercial Projects for JSC's New Initiatives Office. Nolan spearheads the Technology Coordinating Committee's work.

"The committee coordinates activities across directorates, acting as a focal point for the identification and prioritization of technologies," Nolan said. "One of the first things the Technology Coordinating Committee did was to review the list of technologies that came out of the early strategic planning. The list has been updated and prioritized.

"We're taking a look across the total set of programs — space station, shuttle, ACRV, Personnel Launch System, lunar and Mars — to determine what we need in the technology area and when chronologically those technologies might be needed. Then, we determine what we need to do over the next several years to several dozen years to have that technology mature and ready for those programs," Nolan said.



'If their work is done right, the technology plan ought to be sufficient to guide the activity in that area for a number of years.'

—Mark Nolan, JSC Technology Coordinating Committee

The committee, which is made up of representatives from each directorate and project office, charters special emphasis teams to focus on specific technologies from the priority list.

The multidisciplinary teams working across organizational lines carry out two basic tenets of TQM, team orientation and process orientation.

"We ask each of the teams to step back and define what they perceive the requirements for technology to be in their particular area as it applies to the various programs. Then, we ask the teams to develop a set of requirements for that technology based on the missions. Finally, we ask the teams to put together an implementation plan," Nolan said.

Requirements describe the elements of a technology needed to support a program and the maturity level the technology must have to be effective. Requirements also define manpower, budget and facilities necessary to develop the technology. Another facet lays out which engineering and research activities must be started now for the technology to be ready when it's needed in the program schedule.

An implementation plan is the roadmap of the activities that must be completed to ensure a technology is ready when the program needs it.

Three teams have been formed thus far to work on the top priority technologies of the 19 on the committee's list.

The regenerative life support special emphasis team formulated a technology development plan that called for an immediate start-up of research. The team completed its work in September 1990.

Regenerative life support technology would provide self-sufficiency. Crews will need the food, air and water, for the two-year-plus round trip to Mars with minimum resupply from Earth. Such a system would employ bioregeneration processes, much like those in the Earth's ecosystem, to clean the air and the water using plants and microbes.

Wil Ellis, chief of JSC's Crew and Thermal Systems Division and a team member, said it is most likely technologists will choose some combination of a bioregenerative method and the present-day shuttle life support technology to cleanse the crew's air and water. In an environment as small as a spaceship, devices such as pumps, fans and filters would still be needed.

By getting an early start on the bioregenerative technology, engineers can determine the optimum balance between the two kinds of systems.

"Life support system work was split between two directorates, Engineering and Space and Life Sciences," Nolan said. "That special emphasis team recommended that personnel should be consolidated into one organization to pursue the technology."

The people working on regenerative life support technology were combined into the Life Support Systems Branch of the Crew and Thermal Systems Division as part of the recent Engineering Directorate reorganization.

"They are now addressing both the physicochemical life support which is the technology we have been using to date, and also the biological life support that will most likely be a part of future life support systems," Nolan said.

Another team is evaluating the needs for mission automation technology. That team's focus includes flight design, mission analysis capabilities and crew training.

"We expect their final report to senior staff in about three months," Nolan said.

The human performance special emphasis team recently completed its work and reported in early February to center managers.

"At the beginning, we found that everyone meant something slightly different when talking about human performance," said Dr. Patricia Santy of JSC's Medical Sciences Division and leader of the human performance team. "A standard definition was needed to unify the group's focus on the specific technologies that apply to human performance on space missions."

The team developed an operational definition for human performance: "the interaction of the human elements with each other, with spacecraft systems and with the physical space environment in order to accomplish mission goals." To measure human performance, the team built an integrated model of human performance for space exploration that can be applied to all space programs and all technologies and disciplines across the center's organizations.

Human performance technologies fell into four general areas: human systems, ground support, living and working conditions and the physical space environment.

Because the human performance special emphasis team's model was so useful, they were asked to present it to a White House group for applications to some of their projects.

"We're assembling a summary of what we learned from the first three special emphasis teams to help future teams be more efficient," Nolan said. "We expect to form two or three more teams in the next few months."

Because the teams are ad hoc in nature, when the task is complete, the team is disbanded.

"If their work is done right, the technology plan ought to be sufficient to guide the activity in that area for a number of years," Nolan said. "Periodically, we revisit the plan as agency programs evolve and we have a better understanding of each program. Also, the technology coordinating committee periodically reassesses the technologies and their priorities. In fact, our spring 1991 agenda calls for an update to our priority list."

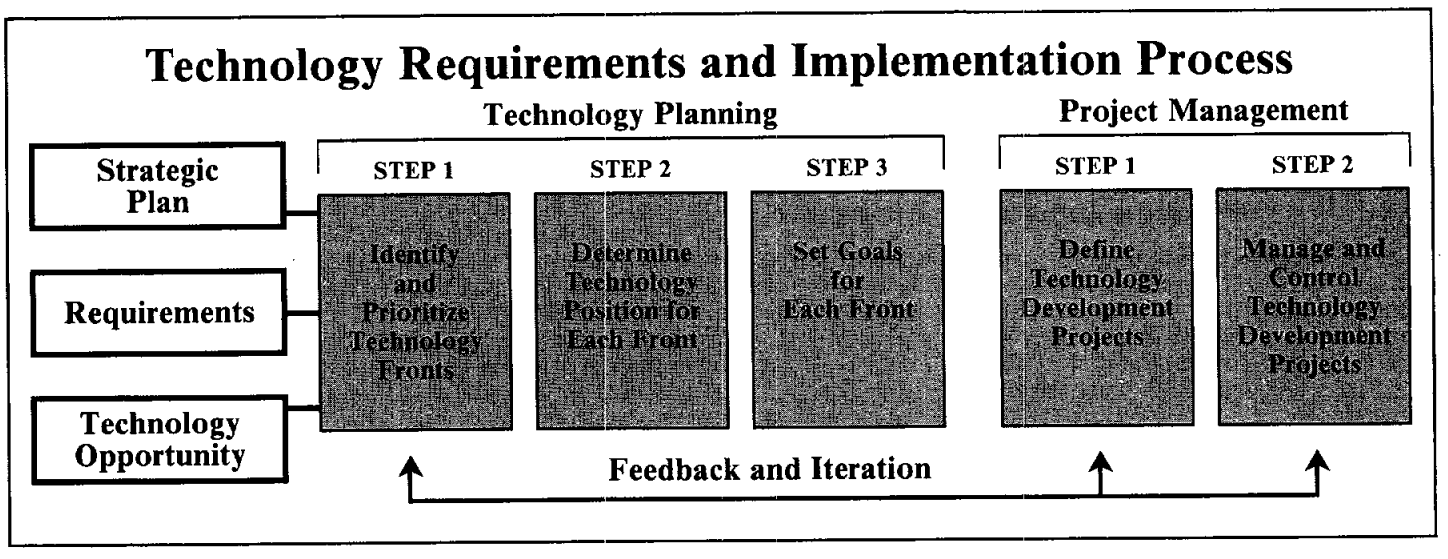
Although the Technology Coordinating Committee sets the initial priorities and charters the special emphasis teams, "the technology programs that evolve in the process are, for the most part, the products of the teams," Nolan said.

Members of the special emphasis teams are the agency's experts in an area, and are recognized for their expertise. Such expertise adds weight to the findings reported to Headquarters program managers.

"The teams' work provides ample information and ample ammunition to convince those who hold the purse strings that this technology development needs to be done," Nolan said.

Future special emphasis teams will meet for a few days at locations outside JSC for accelerated work instead of meeting at JSC for a few hours weekly or biweekly.

"Each time a team goes through this process, we give the team not only a question to answer, but the tools to aid them in rapidly getting to an answer," Nolan said. "If we do it often enough, we ought to get pretty good at it."



Top: One artist's concept shows an automated lander using orbital data to evaluate landing sites on Mars. In the left inset, the lander chooses from prospective sites on a digital map. Next, the lander narrows its choices to the area of a ridge. Finally, it selects a spot in a valley below the ridge as its landing site. Left: The Technology Coordinating Committee uses a structured approach to manage the development of needed technologies. A technology front is defined as a potential area of emphasis for capitalizing on strengths or minimizing a weakness.

Orbital rendezvous pioneer Lineberry dies

Edgar C. Lineberry, manager of Mission Development and Operations for the Lunar and Mars Exploration Program Office, died Jan. 31 at his home, apparently of a heart attack.

A JSC employee since 1961, Lineberry was instrumental in developing and perfecting techniques for orbital rendezvous, a keystone of the Gemini, Apollo, Skylab, Apollo/Soyuz Test Project and Space Shuttle Programs.

Lineberry joined NASA in 1959 at Langley Research Center. He arrived at JSC, formerly the Manned Spacecraft Center, as a senior level Rendezvous Analysis Branch engineer in the Flight Operations Division. He became the head of that branch in 1964, and then the chief of the Mathematical Physics Branch in 1972.

He was named technical assistant ot the chief of the Mission Planning and Analysis Division in 1974, chief of the Mission Integration Branch in 1975, chief of the Flight Planning Branch in 1976, deputy division chief in 1980, and division chief in 1985.

He joined the New Initiatives Office in February 1989, and became manager of its Mission Development Office in December 1989. When the Lunar and Mars program office was established in February 1990, he accepted his most recent assignment.

JSC

People

Lineberry received numerous individual and group awards during his 32-year career, including the NASA Exceptional Service Medal in 1981. A second Exceptional Service Medal had been approved for him just prior to his death. Lunar and Mars Exploration Program Office Manager Mark Craig will accept the award on his behalf.

Fitzmaurice to lead education programs

Dr. Robert Fitzmaurice will become Center Education Programs Officer within the Public Affairs Office next week.

Fitzmaurice, an administrator with the La Porte Independent School District who has extensive hands-on experience as a high school teacher and a university associate professor, begins work Monday.

Fitzmaurice will become the senior person in the Public Services Branch's educational efforts. Those efforts are designed to encourage interest in the fields of aerospace, engineering, mathematics and science among public school and university students in an eight-state area.

Employed by the La Porte district since 1981, Fitzmaurice was instructional coordinator for kindergarten through high school, responsible for science, health, sex education, drug education and physical education curricula. He also was district coordinator of the Texas Teacher Appraisal System, the Teacher Career Ladder, and professional growth for teachers and administrators.

Lineberry

Fitzmaurice

Munson

Fitzmaurice, an educator since 1978, was an assistant and associate professor in Professional Education and Biological Sciences at the University of Houston-Clear Lake from 1976 to 1981. He was assistant director of UH-CL's Teacher Center from 1978 to 1981.

Munson new IEEE fellow

John B. Munson, vice present and general manager of Unisys' Space Systems Division, has been elected a fellow of the Institute of Electrical and Electronics Engineers.

Munson was recognized for helping organize, establish and direct the world's first software mass-production facility, the Software Factory at Systems Development Corp., a Unisys predecessor.

Unisys supplies software products, services and support for space shuttle and space station operations, Space Station Control Center development, Mission Control Center upgrades to JSC, as well as software product and quality assurance.

Second gate opens early for traffic

Tired of having to fight traffic at JSC's main gate just to get *to* work early in the morning? Center Operations has a plan to help you.

Recent morning traffic jams at the main gate have spurred a decision to open a second NASA Road 1 gate early.

Bob Gaffney, chief of the Security Operations Branch, said that starting Monday the Third Street entrance will open at 6:45 a.m. instead of 7 a.m.

Gaffney said observations of the congestion at the main gate on Second Street showed the problem was occurring only between 6:45 and 7 a.m.

Opening the second gate is expected to alleviate the pressure on the main gate.

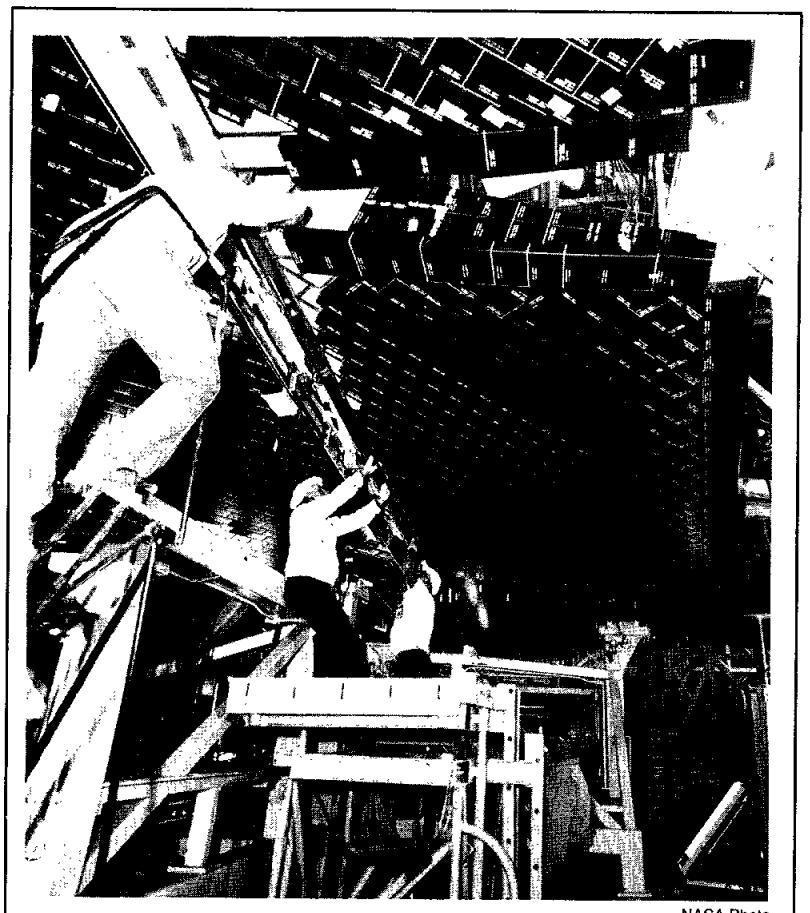
Manifest update

(Continued from Page 1)

attach a new perigee kick motor to a stranded INTELSAT communications satellite which failed to reach its proper orbit after launch on a Titan rocket. *Columbia* will return to flight status in mid-1992 carrying the first U.S. Microgravity Laboratory.

In 1993, the STS-57 Atlas-2 mission will move to April, ahead of the May STS-58 TDRS-F launch. A major milestone in the 1993 launch year is the first revisit to the Hubble Space Telescope, planned for STS-64 near the end of the year. Also planned for 1993 is the second German Spacelab mission including the flight of two German Payload Specialists.

Throughout this three-year period a variety of activities in support of Space Station *Freedom* development will be performed, including two flights with space walks to test station equipment and techniques.



NASA Photo

WORTHWHILE ENDEAVOUR—Workers at Rockwell's Palmdale, Calif., facility mate a tile-covered elevon to the Space Shuttle *Endeavour's* left wing. Construction of the new orbiter is on track, with delivery scheduled in April and first flight scheduled in May 1992.

Scholarships offered for JSC dependents

Applications are now being accepted for two scholarship programs to assist dependents of JSC employees in continuing their educations after high school.

Both the JSC Exchange Scholarship Program and the NASA College Scholarship Fund Inc. are accepting applications until March 29.

The JSC Exchange Scholarship Program has provided financial assistance to 61 dependents of center employees since the fund was established in 1967.

The Exchange Scholarship provides up to $1,000 per year for four years at any college or university. Four such awards are planned for 1991.

Applicants must plan to graduate from a public, private or parochial high school in 1991 or must currently be enrolled in college in good academic standing. Applicants must have a high school grade average of 2.5 on a 4.0 scale, or the equivalent. They must be dependents of JSC employees who have been with JSC or its field activities for at least two years.

Criteria for the award includes overall scholastic achievement, financial need and involvement in school and community activities.

Applications are available in Bldg. 45, room 706, or by contacting Nicky Dinick at x33161.

The NASA College Scholarship Fund, now in its eighth year, will be awarding three scholarships of $1,500 each. The scholarship is renewable for six years, not to exceed $6,000.

Applicants must be pursuing a course of study that will lead to an undergraduate degree in science or engineering at an accredited college or university in the United States.

Applicants also must be dependents of current retired NASA employees who have been employed by NASA for two years as of January. They will be ranked in academic standards, including all high school and any college grades, high school rank and pattern of courses; school activities; community activities; aptitude test scores; written recommendations; and a one-page statement of academic purpose by the applicant.

Applications are available in Bldg. 1, Room 840. All completed applications must be received by March 29 and may be mailed to JSC, the NASA College Scholarship Fund Inc.; Mail Code AH12/Scholarship Committee; Houston, Texas; 77058.

More information is available from Mary O'Connell, x39168.

Gibson not in hurry to challenge altitude record again

(Continued from Page 1)

10,000 feet and an oxygen bottle in his lap. His videotape recorder was strapped to his left leg to record instrument readings. The National Aeronautics Association put its own instrument on the flight, a barograph, to verify the altitude.

"It was a very busy flight," Gibson said. "That's why when I got down and opened my canopy one of the first things I said was, 'I'm not in a big hurry to do that again real soon.'"

Gibson said he had flown even higher, to 28,000 feet, during practice. He said rate of climb and fuel consumption are the deciding factors. Gibson said he had more oxygen (5 to 10 minutes) than fuel left when he landed.

The airplane was built in 1970 by Floyd Bert and rebuilt in 1983 by Gibson. He designed and built a more efficient wing for racing and replaced the wings in 1990, doing the modifications and stress analysis at home in his garage.

"The wing has flown very nicely, and it did what I wanted it to do. It made the airplane more slippery, more clean, less drag, and more efficient," Gibson said.

"I'd like to break my own record eventually, but the airplane doesn't have enough performance right now to do it.... Now it may be that by making some changes to it, a different propeller, maybe a little bit of a fuel additive, I'll get even higher," Gibson said.

The NAA will confirm Gibson's national altitude record in about a month, and the Federal Aeronautique Internationale will take about three to four months to verify it as a world record. Gibson will receive recognition and a plaque at the annual FAI ceremony at the Smithsonian Institute banquet later this year.

Pay reform will be gradual

(Continued from Page 1)

The percentage increase will be computed by the Bureau of Labor Statistics based on the change in the Employment Cost Index. Annual raises will be equal to the ECI in 1992 and 1993, and will be equal to the ECI minus half a percent in 1994 and beyond, she said.

The ECI is a broad-based index of compensation paid by non-federal employers, so it is difficult to predict percentage increases from year to year. Since 1987, however, the ECI percentage has been from 0.1 to 1.8 percent greater than the actual raise granted four out of five years. In 1989, the ECI increase was almost 1 percent lower than the actual raise granted federal employees. Under the law, the President will retain significant discretion in determining increases.

Another component of annual pay increases will be the locality pay system to be introduced in 1994. Locality pay provides an added annual increase for geographic areas where a pay gap of more than 5 percent exists between the federal and private sectors. The increase will be phased in gradually until the gap is no more than 5 percent.

"It's too early to tell whether the Houston area will qualify for additional pay increases under locality pay," Braymer said.

Since Houston has a relatively low cost of living, but relatively high salaries in the private sector, JSC employees could benefit if covered by locality pay.

Still more compensation tools, aimed at recruiting and retaining top-flight people, may be available as early as fiscal 1992, assuming funding is available. They include lump-sum bonuses of up to 25 percent of base bay for hard-to-fill positions, allowances of up to 25 percent of base pay spread out in pay checks to retain employees with crucial skills, and time off with pay as an incentive award.

"Our philosophy at NASA and JSC is to use the maximum flexibility in implementing the new compensation tools," Braymer said.

Space News Roundup

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

Editor .....Kelly Humphries

Associate Editors ....Pam Alloway
Kari Fluegel

Sign language class

JSC and contractor employees who are interested in taking an "Introduction to Sign Language" class should call Human Resources' Beth Hall at x33078.

If enough interest is shown, a one-hour class will be offered once a week for eight weeks. Class participants will learn the fundamentals of communication, including beginning vocabulary and JSC specific terminology.

Spending plan boosts NASA

(Continued from Page 1)

around the world call for leadership, including leadership in such critical areas as science, technology, space exploration, the environment and education."

Truly indicated he anticipates spirited Congressional debate about the agency's request, especially in light of last year's $1.2 billion cut to help meet deficit reduction targets.

"It ought to be a hard fight," Truly said. "These are difficult economic times and we ought to be forced to justify our funds and our investments to the satisfaction of the Congress.

"The percentage increase requested by the President is much more in line with the indications we have from the congressional people and therefore I believe we will be able to get their support," he added.

Space science will continue as a top priority, with a 21 percent increase over last year's budget, Truly said. The space science portion of the budget supports coordinated research and development with emphasis on global processes, life sciences, microgravity, advanced communications and investigation of the solar system and beyond.

The budget includes $2.2 billion for Space Station *Freedom*, an 8 percent increase; $5.6 billion for space shuttle operations, a 9 percent increase; 2.4 billion for research and program management, an 11 percent boost; $7.2 billion for research and development, a 19 percent jump; and $480 million for construction of facilities, a 3 percent drop.

Construction projects requested for JSC include a $13 million addition for Flight Training and Operations; $5.7 million to replace the central plant chillers and boiler; $4.4 million in modifications for earthquake protection at Downey and Palmdale, Calif.; and $1.3 million to repair the water system at White Sands Test Facility.

The budget provides for eight shuttle flights in fiscal '92, nine in fiscal '93 and 10 in fiscal '94, Truly said.

NASA-JSC