



Working at play

JSC's Gilruth Recreation Center workers strive to provide inviting facility and activities for employee fitness and well being. Story on Page 3.



Water colors

A new painting in JSC's Visitor Center shows how water helped the STS-26 crew members train for their upcoming mission. Photo on Page 4.

Space News Roundup

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No. 30

America will stay in space, Reagan says

President Reagan praised the work of JSC employees and contractors Thursday as he spoke to thousands of them and their families gathered in a flag-waving, cheering crowd in front of Bldg. 9A.

"You don't launch rockets, you launch dreams," the President, flanked by a model of Space Station *Freedom* and two full-scale Orbiter mockups, told all NASA employees. "You are the space program, and America's proud of you."

Reagan met the crew of STS-26, who, along with JSC Director Aaron Cohen, NASA Administrator Dr. James Fletcher and Associate Administrator for Space Flight Richard Truly, joined him on the stage.

"It's not some impersonal technology that puts Americans into space, it's the dedication of people like you," Reagan said. "People who see no limits, only possibilities. America's going to space again, and we're going there to stay."

The ceremonies were a celebration of the return to flight, in honor of the first launch of a Space Shuttle in more than two and a half years, scheduled just one week away. And, Reagan said, he came to thank those whose work has made it possible.

"What today we can only dream of will, by tomorrow, be not only feasible, but inevitable," Reagan said. "It is only

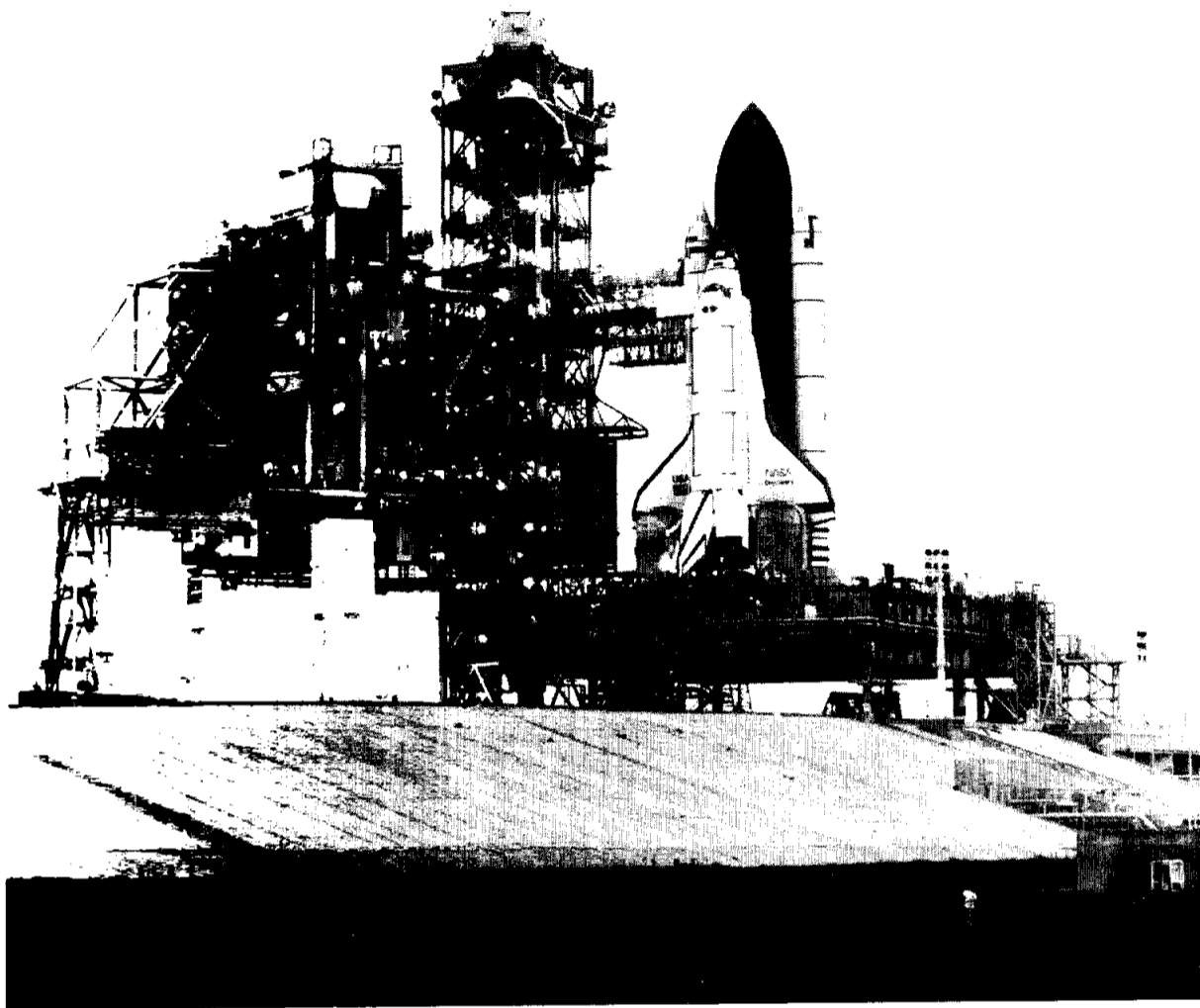
in a Universe without limits that we will find a canvas large enough for the vastness of the human imagination."

Reagan compared the exploration of space to the pioneer spirit that built America, and the hardships frontiersmen faced along the way. "Ill fortune can slow us down, but it cannot stop us," he said. "How better can we pay tribute to those who came before us then by continuing their quest for knowledge, their struggle against limits?"

"When we launch *Discovery*, even more than the thrust of great engines, it will be the courage of our heroes, and the hopes and dreams of every American, that will lift the Shuttle into the heavens," he said. "And may the hand of God bring it back safely to Earth."

In introducing Reagan, NASA Administrator Fletcher said the return to space has taken the dedication of many, "but no one has been more dedicated, more committed or more supportive than President Reagan."

Discovery's Commander Rick Hauck presented the President with a flight jacket from the STS-26 crew at the conclusion of the ceremony. "We'd love to take you with us on this flight, but since we can't do that... we'll take the name tag and patch for this jacket, fly it with us and return it back to Earth and to you," Hauck said.



NASA Photo

Discovery stands by on Pad 39B at Kennedy Space Center as Tracking and Data Relay Satellite-C (TDRS-C) is readied for installation in the Orbiter's payload bay. Both Discovery and TDRS-C, the primary STS-26 payload, will be powered up and given final communications checks before Thursday's scheduled launch.

Launch preparations climax in countdown

By James Hartsfield

A crescendo of clockwork effort will begin at 11:01 p.m. CDT Sunday at Kennedy Space Center to take aim at Thursday's launch of the first Space Shuttle in more than two and a half years.

When the countdown for STS-26 picks up at T-minus 43 hours Sunday, electricity will charge *Discovery*—and doubtlessly the nation—as technicians power up the Shuttle. Liftoff is scheduled for 8:59 a.m. Thursday.

Throughout the early morning hours Monday, workers will prepare Launch Pad 39B, removing handrails, putting flame deflectors in place, filling water troughs and gearing up the liquid hydrogen loading system. Simultaneously, the Orbiter will begin being readied for flight, with technicians

adjusting various electrical connections, checking out systems and cycling valves in the Orbital Maneuvering System and Reaction Control System. Tracking and Data Relay Satellite-C (TDRS-C) also will be powered up at the start of the countdown.

The count will reach T-minus 34 hours at 8 a.m. Monday, and closeouts of *Discovery* and the pad's ground support equipment will begin. *Discovery's* main engines will receive final preparations throughout the day Monday, the Orbiter's middeck will be inspected at noon, and several middeck experiments will receive final checks during the afternoon.

At T-minus 30 hours, about noon Monday, the payload bay doors will be shut, and *Discovery's* navigation aids will be activated.

Discovery's crew will fly from JSC to Kennedy on Monday afternoon.

At 3 p.m. Monday, T-minus 27 hours, the count will go into a scheduled, eight-hour hold. During the hold, closeouts of the payload bay will continue, and, during the last half-hour, just before 11 p.m. Monday, the White Room surrounding *Discovery's* hatch will be prepared.

At midnight, the count will resume and the pad will be cleared as liquid hydrogen and oxygen are loaded into the Orbiter's power reactant

storage and distribution system. When *Discovery* is in flight, the two chemicals are combined to produce electricity and, as a byproduct, water. At 4 a.m. Tuesday, T-minus 22 hours, communications between JSC, Goddard Space Flight Center and the Merritt Island Launch Area tracking station will be checked.

At T-minus 19 hours, 7 a.m. Tuesday, the count will enter another eight-hour hold, during which the Rotating Service Structure (RSS), which has surrounded *Discovery* for several weeks, will be made ready to move.

The count will resume at 3 p.m. Tuesday, and the pace will quicken. Workers will spend seven hours preparing for the loading of liquid hydrogen and liquid oxygen into the external tank (ET).

Please see **COUNTDOWN**, Page 4



Discovery gets final fixes

Minor repairs bring STS-26 closer to launch

Discovery's crew members will fly from JSC to Kennedy on Monday afternoon—the first leg of their journey to space.

All work at Kennedy's Launch Pad 39B this week has been in support of the launch of STS-26, scheduled for 8:59 CDT Thursday. On Tuesday, two spacesuits were installed in *Discovery* as part of final preparations.

Several tests of various systems have been conducted this week, and two defective parts have been replaced: a redundant inertial measurement unit in TDRS-C's Inertial Upper Stage (IUS) and an actuator for the fuel burner oxidizer valve in main engine 3.

The inertial measurement unit is

part of the IUS's guidance system and was found to be defective during the weekend. After installation of a new unit Tuesday, the system was retested and verified.

The actuator in main engine 3 failed Tuesday during a frequency response test of the main engine valves. The faulty actuator was removed and shipped to Rocketdyne in California for analysis.

A replacement actuator arrived at Kennedy and was installed on Wednesday. A retest of the system was accomplished Thursday. Replacing the actuator is not expected to impact the launch schedule.

In other work, the aft compartment of *Discovery* was closed out on

Tuesday and engine heat shields were installed. Wednesday, the surfaces of the mobile launcher platform and Pad 39B were washed in preparation for launch, along with the flame trench.

Tuesday, the crew—Commander Rick Hauck, Pilot Dick Covey and mission specialists Mike Lounge, Dave Hilmers and Pinky Nelson—were given Launch-minus 10 days preflight physicals at the JSC Flight Medicine Clinic. Wednesday, the crew completed a long-duration simulation of the Tracking and Data Relay Satellite deployment.

On Thursday, they went through a final crew escape pole deployment. Please see **STATUS**, Page 4

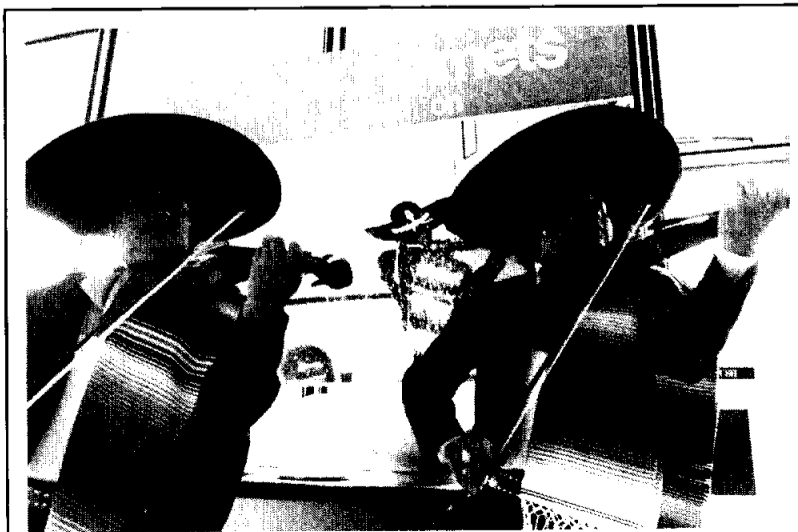
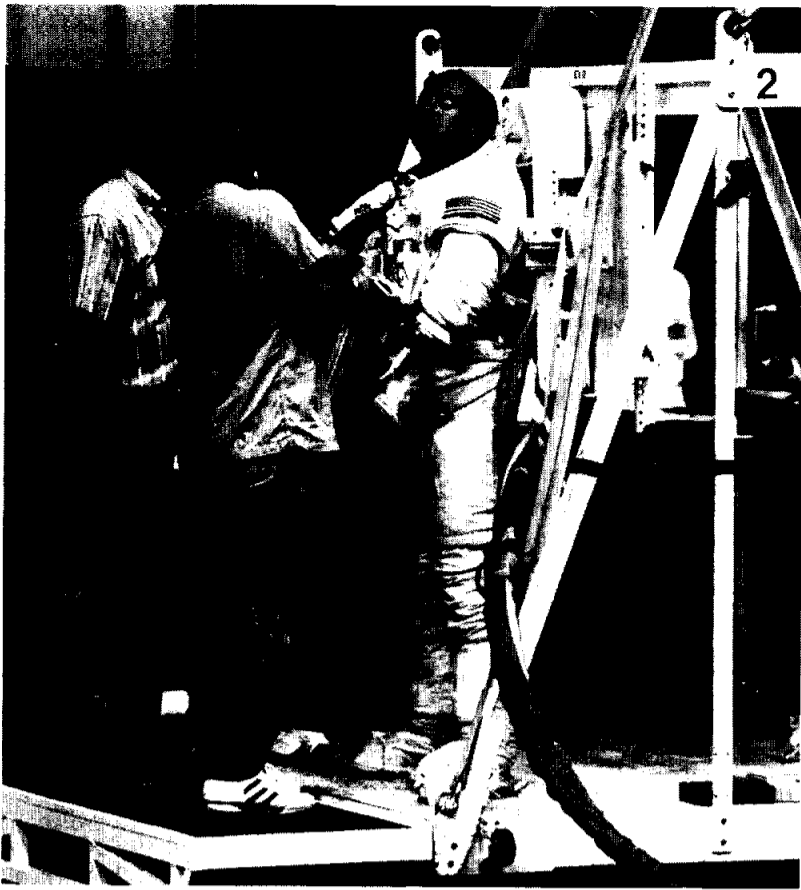


Photo by Pete Vazquez

SPACE HELMETS?—The sign reads "Space Helmets," but the hats are definitely sombreros as mariachi musicians celebrate JSC Hispanic Heritage Day in the Bldg. 2 Teague Auditorium. The theme of the Sept. 14 conference was "Education: The Solution, A Year Later."



WATER WORK—Mission Specialist Mike Lounge gets helps from technicians before descending into the Weightless Environment Training Facility (WETF). Lounge and fellow STS-26 Mission Specialist Pinky Nelson were about to participate in a simulation of a contingency extravehicular activity.

JSC

Space Shorts

NASA provides facilities for commercial launches

NASA and McDonnell Douglas Astronautics Co., St. Louis, have announced the signing of an agreement providing for the firm's use of facilities at Kennedy Space Center and technical support from the Goddard Space Flight Center in support of commercial launches.

Advancing the government's objectives to encourage and assist the growth of a robust U.S. commercial launch industry, the umbrella agreement signed Sept. 7 enables McDonnell Douglas to gain access to NASA-

managed launch support facilities when the firm begins conducting commercial launches of the Delta rocket.

The Delta program was initiated by NASA in 1959 and the first launch took place in 1960. Since then, the Delta rocket, manufactured by McDonnell Douglas under contract to NASA, has been a reliable workhorse of the space program.

McDonnell Douglas expects to begin commercial launches of the Delta in 1989.

JSC

Swap Shop

Property

Sale: 420 acres, 1 mi. outside Center, Tx., 300 acres timber, 120 pasture land, 1/2 mineral rights, 482-4365.

Sale: League City, 3-2-2, cul-de-sac, landscaped, low equity, FHA 10% fixed assum. David, x35464.

Sale/Rent: Lake Livingston townhouse, 2-2/2 CP, 24 hr. sec., clubhouse, pool, tennis/volleyball courts, playground, boat ramp, on the water. 554-5514.

Sale: Inside lot at Rayburn Country, Jasper, Tx., 80' x 200'. 645-0008.

Rent: West Galveston beach house, 2-2, beach 100 yds., boat landing, marina w/pool, \$500/wk., weekend rates avail. Fendell, x31206 or 538-1147.

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

Lease: Baywind I condo, 1-1, upstairs, refrig., stove, dishwasher, \$260/mo., plus dep. Bill Gordon, x35023 or 280-8671.

Sale: Kirkwood South, large custom built 2-story, 4-2-5-2, 2,400 sq. ft., formals, FPL, intercom, oversized cul-de-sac, near Dobie H.S., \$74,500. 488-5210.

Sale: Madisonville, Tx., 18,763 unimproved acres, timber, mostly hardwoods, good road, elec., telephone, water avail., ex. squirrel and deer hunting. \$950/acre. Roland, 480-3377 or 538-1697.

Sale: Friendswood/Sun Meadow, 4-2-2, FPL, new carpet, 16x18 deck overlooking golf course, \$74,500. 482-8614.

Lease: Baywind I condo, 2-1.5-2CP, ex. cond., all appl. incl., washer & dryer. \$350/mo. L. Das, x33235 or 488-5532.

Lease: League City, 3-2-1, CA/CH, fresh paint, fenced, \$465/mo. plus dep. References. 481-6440.

Rent: 2 BD apartment, NASA/Ellington, \$350/mo. Eric, x38420 or 484-9179, Herb, x38161 or 481-1253.

Sale: Middlebrook, 3-2-2, study, FPL, wet bar, covered patio, large lot, ex. cond., FHA assum. 10%. 480-9363.

Sale: Friendswood/Sun Meadow Estates, wooded lot in established neighborhood, cul-de-sac, bordered by stream & golf course on 2 sides, approx. 245' deep & up to 86' wide, approx. 1/3 acre, util. on site, \$31,500. Doug, x32860 or 486-7412.

Sale: University Green patio home, 2 plus study/2/2D, carpet and tile upgrades, newly

Painted. \$98,700. Call Allgeier, 488-0397.

Cars & Trucks

'59 Mercedes Benz 220S, \$3,000. David, x35464.

'69 VW Beetle, new paint, strong engine, 4-spd., \$1,295. John, x36484 or 486-1186.

'81 Honda Accord, 5 spd., A/C, AM/FM, cass., \$2,500. OBO. Mitch, x35481 or 486-0958.

'83 Porsche 944, silver, 5 spd. trans., sun roof, alarm system, two new tires, ex. cond., 46,000 mi. Frank, 333-5251.

'80 Chevy Citation, V-6, P/S, P/B, A/C, AM/FM stereo, new paint, clean, 70K mi., \$1,000. Bob, x31151 or 481-2754.

'77 Ford F250, 4 WD, 4 spd., \$750. Lisa, x35374 or Pat, 482-3346.

'67 Mustang classic, 289 V-8, 3 spd., A/C, new exhaust, battery, starter, cables, ex. cond., \$2,995. Mike, x38169 or 482-8496.

'85 Camaro, fully loaded, V-6 w/fuel inj., T-tops, A/C, tinted glass, AM/FM stereo cass., 41.7K mi., red w/black/grey int., ex. cond., \$7,000. Jerry, x31147 or 482-3896.

'85 Camaro Berlinaetta, V-8 w/T-tops, 4bbl Quadra-jet, digital, AM/FM/cass, tinted glass, A/C, P/S, P/W, 2 new tires, black w/tan int., low mi., \$9,500. OBO. Leslie, 482-6491.

'83 C3-7 Laredo jeep, black/black, ex. cond., \$5,900. Kelly, x36151 or 925-1819.

'86 GMC Safari van SLE, 2-tone, below book, 38K mi., fully loaded. Bob, 335-6066 or 486-1766.

'85 Ford XLT Club Wagon van, 302 V-8, AOD, dual A/C, cruise, tilt steering, P/D, P/W, P/S, P/B, AM/FM cass., 4 capt. chairs, seat bed, like new, \$11,500. OBO. 282-4677 or 481-1207.

'79 Honda Civic 1200, dependable work car, good cond., \$1,200 firm. Walter, 933-5527.

'84 VW Rabbit, Wolfsburg Edition, 5 spd., A/C, AM/FM stereo cass., 80K mi., good cond., \$3,895. Plauchre, 483-9034.

'79 Mustang V-6, air, auto. trans., \$1,000 firm. Plauchre, x39034 or 474-2660.

'84 Dodge Ramcharger SE, 318 V-8, 2-tone blue, P/S, P/B, auto., A/C, cruise, AM/FM stereo, Posi-track, captain's seats, tinted, 44K mi., ex. cond., \$7,400. 333-2395.

Cycles

Yamaha 80cc Moto Four, ex. cond., \$800. 482-4365.

'83 Honda Shadow 500, low mi., w/windshield, ex. cond., \$1,400. x36462 or 996-1410.

'85 Yamaha Maxim 700cc, new rear tire, battery, sticker, \$1,700. Terry, 280-2043 or 930-

JSC

Dates & Data

Today

Nature symposium and plant sale—Armand Bayou Nature Center will host its fourth annual symposium from 9 a.m. to 5 p.m. Sept. 23-25. The event will promote landscaping that maximizes benefits for both homeowners and the community. A plant sale to raise money for the non-profit nature center also will be held.

EAA Badges—Dependents/spouses may apply for a pictured I.D. badge from 6:30-10 p.m., Monday through Friday.

Aerobics and exercise—Both classes are on-going. Sign up at the Gilruth Recreation Center.

Cafeteria menu—Entrees: seafood gumbo; broiled codfish, fried shrimp, baked ham, tuna and noodles casserole (special). Vegetables: corn, turnip greens, stewed tomatoes.

Saturday

JSC-EAA Variety Dance—The JSC-EAA will host a Variety Dance at 9 p.m. Sept. 24 at the Rec Center. Pop, country and western and big band music will be provided by Mike LaTouche. Social hour is 7-8 p.m., and a roast beef dinner will be served 8-9 p.m. Cost is \$10. For more information, call Larry Davis, x31977 or x38055.

Lovin' Feelings VII concert—The seventh annual premier rock n' roll oldies show will be at 7:30 p.m. Sept. 24 at the Summit. Featured artists are Johnny Rivers, the Kingsmen, the Drifters, the Platters, the Guess Who, the Grass Roots and Tommy James and The Shondells. Tickets are \$15 at the Bldg. 11 Exchange Store. For more information, call x35350.

Monday

Cafeteria menu—Entrees: Chicken and rice soup; ham steak, parmesan steak, beef and macaroni (special); Vegetables: green beans, carrots, au gratin potatoes.

Tuesday

BAPCO meets—The Bay Area

PC Organization (BAPCO) will meet at 7:30 p.m. Sept. 27 at the League City Bank and Trust. For more information, call Earl Rubenstein, x34807, or Ron Waldbillig, 337-5074.

Cafeteria menu—Entrees: tomato soup; potato baked chicken, BBQ spare ribs, Mexican dinner (special); Vegetables: squash, ranch beans, Spanish rice, broccoli.

brussels sprouts, green beans, whipped potatoes.

Thursday

Mixed soccer sign up—Registration for the Saturday mixed soccer league will be at 7 a.m. Sept. 29 at the Rec Center for badged teams and 5:30 p.m. for unbadged teams. League play will begin Oct. 1. For more information, call, x30303.

Weight Safety—The next weight safety course required for employees wishing to use the Rec Center weight room will be from 8-9:30 p.m. Cost is \$4.00.

Fall Classic softball tourney—The last men's softball tournament of 1988 will be a two-day Men's Open C Tournament limited to the first 24 paid teams. Entry deadline is 5:30 p.m. Sept. 29. Cost is \$95. Sign up at the Rec Center.

NACA reunion—The National Advisory Committee for Aeronautics (NACA) will hold its fourth national reunion Sept. 29 through Oct. 2 in San Jose, Calif. NACA Reunion IV is for former employees, spouses and military detailees and will be held at the Red Lion Inn in San Jose. Super meeting saver air fare discounts are available with a savings of up to 40 percent from American Airlines in cooperation with Abel Love, Inc. For airfare information, call the JSC Travel Office at x38688. For other information, call x33067.

Cafeteria menu—Entrees: beef and barley soup; chicken and dumplings, corned beef w/cabbage, smothered steak w/dressing (special). Vegetables: spinach, cabbage, cauliflower au gratin, parsley potatoes.

Oct. 13

Return to flight celebration—The eighth annual North Galveston County Chamber of Commerce's Bayou Festival will adopt "A Return to Space Flight Celebration" as its theme Oct. 15-16 at Walter Hall Park in League City. A return-to-flight banquet has been slated Oct. 13 at the South Shore Harbour Resort and Conference Center.

Listen!

Need the latest information on what's happening at JSC?

The JSC Employee Information Service may have just what you're looking for.

Updated every day at 11:30 a.m., the recorded announcement can be reached by calling:

483-6765

Wednesday

Introduction to Bridge—A basic introduction to the game for those who have never played. Meets 5:15-7p.m. every Wednesday at the Rec Center starting Sept. 28 for three weeks. Cost is \$10. For more information, call x30303.

Beginning Bridge—The fundamentals of bidding, declarer play and defense will be taught from 5:15-7:30 p.m. every Wednesday at the Rec Center beginning Oct. 19 for eight weeks. Cost is \$35. For more information, call x30303.

Cafeteria menu—Entrees: seafood gumbo; baked scrod, liver and onions, ham steak, baked meatloaf w/creole sauce (special). Vegetables: beets,

2 RCA XL-100 color TV's, '81 & '76, good condition; 2 TV stands, good cond., BO. 486-8865.

Teenage girl's bedroom suite, oak, 3 hutchers plus canopy bed. Renee, 482-6607.

Wanted

Trade 22' sailboat, 3 sails, 7 1/2hp O.B., great family boat, for car suitable for teenager, est. value \$4,000, will consider trade down or up to \$7,500. 474-4529 or 282-2847.

Want to buy 2 tickets to JSC football weekend in Dallas on October 8 & 9. Mary, x37147 or 484-6630.

Jugglers unite! Anyone interested in getting together to juggle, experienced or not, after work at Gilruth. Scot, x32498.

Want car cooler from Spring area to JSC area, 7 a.m. to 3:30 p.m. Pat, x38636 or Roy Parker, x38233.

Rock band "Powered Flight" needs keyboardist and/or vocalist. Tom, x33651 or 532-2209, Rene, x35121 or 488-7909.

Pets & Livestock

Free female cat, 1.5 yrs. old, spayed, all shots, very affectionate, indoor/outdoor. J. Homick, x37108 or 486-8463.

Spirit puppies, 3 mos. old, great watch dog but loyal to owners, \$50. Teresa, 337-6925.

Free affectionate tabby kitten, shots, housebroken. x38518.

Rent: Stalls and/or pasture, Dickinson area. 534-2806 or 333-7098.

Musical Instruments

Clarinet, Buffet, Crampon, "Evette", good beginner, like new w/case, \$150. 532-4766.

Lost & Found

Bicycle missing from Mission Control Center. J. Axford, x37671.

Personal

Will the person who took all my makeup on Thursday, Sept. 1 from the ladies room on the first floor of Bldg. 45 please return. No questions asked.

Miscellaneous

Satellite dish, \$500. Jim, x38321 or 334-4631.

Antiques - Primitive pie safe, \$200; grain bin, \$150; sm. pine book case, \$75; maple doll cradle, \$25; oak sewing rocker, \$150; decorative curtain rod, barkwood w/matching woodrings, 90" wide, \$25. 532-4766.

Winchester 12 gauge automatic shotgun, paid \$425, asking \$289, like new, case, vest & shells. Terry, 280-2043 or 930-8042.

Tour Model System II golf clubs, 1-9 PW, SW, brand new, peripheral weighted, ex. golf clubs, \$185. 554-5514 or 282-3827.

Troy built "Pony" garden tiller, ex. cond., \$650. 280-1579 or 482-5536.

Schwinn 27" men's traveler racing bike w/trip computer, ex. cond., orig. \$300, will sell for \$200. x36462 or 996-1410.

Membership in San Jo Cove Recreation Center, Lake Conroe. 550-4112.

MRC Railmaster 2400, never used, \$24. Steve, x35764.

Nagel's, Patrick, commemorative prints, #7, #11, #12, #13, #14, #15, \$150 to \$500. Mike, x32439 or 326-3947.

Boat generator installation instruction booklet for low-cost light-weight air-cooled generator. Data provided will save considerable time & money, \$24.50. 280-8796.

Polaris portable spa w/lounger, \$1,200; 14K gold bracelet w/14 opals, \$400; leak ships wheels, \$40 ea. 470-1132.

Class II, 3500 GVW bumper hitch for 70's models GM rear drive vehicles, \$30. OBO. Walt, x35939.

Stereo, AM/FM radio & turntable, comb. dual speakers, \$50; Beritz French instruction tapes, all course materials, \$60. Pat, x39313 or 480-7406.

Schwinn 3 spd. men's bicycle, lightweight frame, hand and coaster brake, folding rear side carriers, has been stored more than ridden, orig. \$240, sell for \$100. 482-8262.

Lakewood ladder bars for coil spring differential, \$50. 464-8694.

Custom made knives, all descriptions. Haines, x30425 or 941-2495.

Triumph TR-4 "basket case" engine, 2100cc, block, head, crank, pistons, generator, starter, etc., \$100. Bill, x39020 or 991-0361.

Sharpening equip. - Sharp ALL, \$500; chain saw sharpener, \$250; auto. filer, \$700; chain saw access, \$100; auto. retooler, \$475; auto. setter, \$500; manual setter, \$45; used Ford A/C compressors, \$25 for all. Jim, x38321 or 334-4631.

Black lights, one small tube, one med. tube, one lg. double, \$20 for all. Allgeier, 488-0397.

Man's black Florsheim "lightweights" dress shoes, 10-E, composition sole, soft inside, worn twice, \$30. x31604 or 333-3103.

Girl's 10 spd. Freespirit bike, red, good cond., \$50. Beth, 480-2817 or Christy, 480-7774.



Tim Sartor, left, and Shari Miller coordinate the myriad of sports and recreation activities happening daily at the Gilruth Recreation Center. Their glassed-in office overlooks the weight room in the background, and the basketball court.

RECREATION: Gilruth Recreation Center caters to health, well-being, enrichment of JSC's employees

By Beverly Green

Recreation is the game at the Gilruth Recreation Center and a myriad of activities are available to help shake the cobwebs off of bathing suit bodies, sports enthusiasts, or party goers.

"We do so many different things that are diverse. If we started to list them it would be close to impossible," said Ted MacDonald, Gilruth Recreation Center manager.

"Softball is among one of the favored sports programs we coordinate," said Tim Sartor, recreation coordinator. "The game doesn't require a lot of athletic ability in a player to be successful; neither does a person have to be in the greatest physical condition," he said. There are four softball fields where deer forage in the morning but are ready for softball teams at 5:30 p.m.

The 32-acre site also includes five tennis courts, a half-mile shaded jogging trail and is anchored by the recreation center building. The weight room, gym and ballroom serve as primary activity rooms for employees.

After five o'clock some employees will slip off their Stacy Adams or Florsheim dress shoes, tie their tennis shoe strings, and join team mates in a game of softball. "We have seen an increase in the number of teams this year and there are more than 2,500 players," Sartor said. "The recent addition of a new softball field has largely contributed to greater participation along

with the influx of young people working at the center," he said.

Sartor, who has been working at the Rec Center since the summer of 1986, knows what he's talking about when it comes to exercise. He has both a bachelor's and a master's degree in exercise science from McNeese State University in Lake Charles, La., where he was a long-distance runner.

He and Shari Miller are in charge of coordinating the myriad of sports and recreation activities offered at the Rec Center. Miller, too, is well versed in the dynamics of exercise, with a masters in exercise physiology from the University of Houston-Clear Lake. She also has a bachelor's degree in marketing from Hardin-Simmons University in Abilene, Texas.

"The Recreation Center has grown over the years and we now have a complete line of Nautilus weight equipment that is designed to work every major muscle in your body," Sartor said.

Employees must attend an hour and a half safety clearance program before having access to the weight room equipment. Other instructional courses include tennis, country and western dance, aerobics, defensive driving and ballroom dance.

"I've been active in sports since high school and the numbers of physical fitness conscious people in one place is mind boggling. If the weather is good we'll see 30,000 or more employees in and out of the center

in a month," he said.

Other sports enthusiasts step out of their grey flannel suits and don basketball shoes, trunks and jerseys for a popular lunch-hour "hoop" session—a quick game of four on four in the gym. "We also watch retirees come in regularly to challenge guys on the basketball court," he said.

"There's a retired guy that we call Pete and he has an awesome hook shoot. No one has been able to beat him and I've been around since the early seventies," said Morris Williams, a motion picture color timer and president of the NASA Bay Area Softball Umpire Association.

"During the early seventies the center basically consisted of three crude softball fields. There were certain days that you knew certain guys were going to be there. Since that time there has been a broad spectrum of people and participants become like family, he said.

"Although the sports are leisure activities the people involved are extremely professional because usually the people on site are highly competitive," he said.

"Officials have been able to fluctuate among the leagues so that we are able to maintain a good balance. League A and B are serious leagues and team members participate religiously. League C is a mixture of folk that may come once a week and really don't care if they win or not and league D is strictly fun.

Startling health statistics have prompted others to join the JSC clan of physical fitness activists. To help cut the risk of cardiovascular disease, the Health Related Fitness Program provides employees with a personalized program. A physical is a required before a program is prescribed. The 12 week course of instruction includes a lecture series.

The facility's multipurpose rooms provide space for entertainment, catered meetings, conferences and lectures. "We also work closely with the Employee Assistance Association who is responsible for selecting classic films for dinner movies and sponsoring plays," said MacDonald. "Employees may simply pick up the phone and make a request to schedule the ballroom or other classrooms that may be available. The only paper work really needed from the employee is when we enter a catering agreement and the menu may range from prime rib dinner carved on the serving line to a cold buffet where cold cuts are provided and people serve themselves.

Employees that may be thinking about joining a health spa for the fourth time this year or beginning a different diet, on-site recreational activities may be a common-sense alternative.

"We're here to cater to the fitness and well being of NASA employees. Recreation is the key and we do our best to see that people use our facility," said MacDonald.

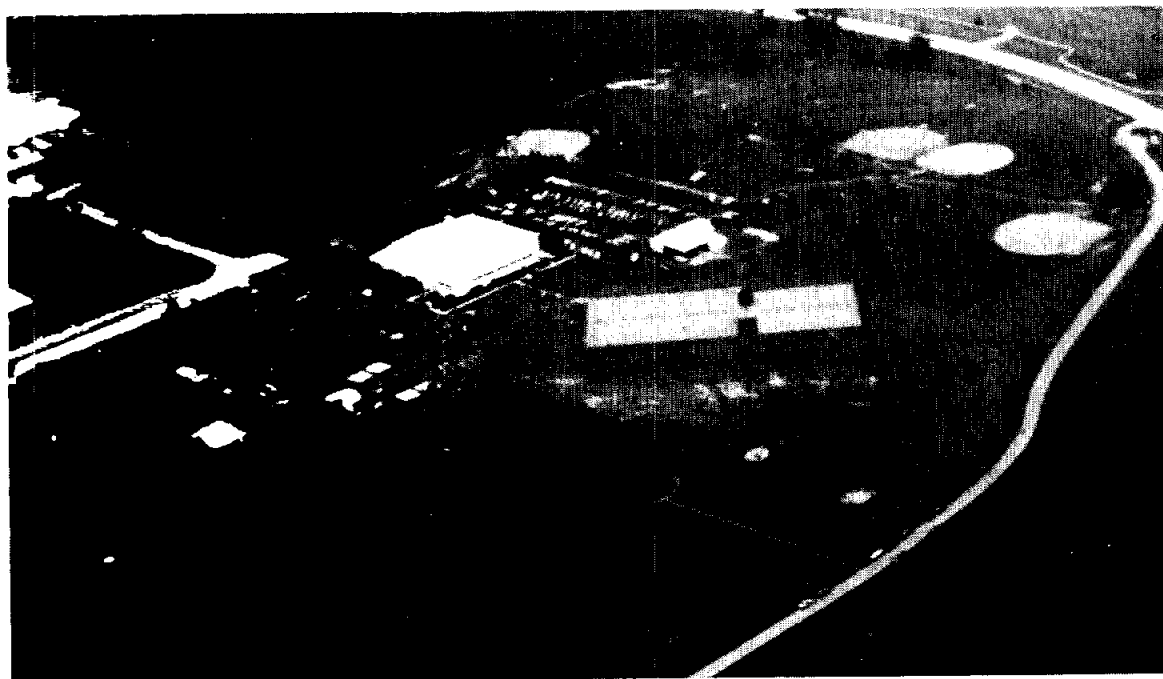


Photo by Dave Flanagan

Above: The Rec Center has a gymnasium and meeting room complex, tennis courts, four softball fields and a shaded jogging trail and picnic area. Right: The annual JSC Picnic is held at the Rec Center; this year's included a balloon toss.



Photo by Dale Martin

Launch will add third weather satellite for NOAA

NASA plans to launch the NOAA-H weather satellite aboard a U.S. Air Force Atlas-E expendable launch vehicle from Vandenberg Air Force Base, Calif., no earlier than Saturday.

NOAA-H will be launched from Vandenberg's Space Launch Complex 3. The launch vehicle, the Atlas E, is an Air Force ballistic missile, refurbished and modified to boost spacecraft into a variety of low-Earth orbits. After initial check-out by NASA, the satellite will be operated by the National Oceanic and Atmospheric Administration (NOAA).

The satellite will be designated

NOAA-11 when in orbit. It will join the orbiting NOAA-9 and NOAA-10 spacecraft in collecting meteorological and ocean data for transmission directly to users around the world. Environmental data also will be recorded on board for relay to central data processing centers.

In addition to assisting in global and local weather forecasting, data from the NOAA series of satellites are used for hurricane tracking and warning; global sea ice monitoring; atmospheric studies such as the global effort to provide more information on ozone depletion; and for

agricultural, commercial fishing, forestry, maritime and other industrial uses.

NOAA-11, from its 540-mile, sun-synchronous, near-polar orbit, will circle the Earth approximately every 102 minutes. The satellite will observe a different portion of the Earth's surface on each orbit and view the Earth's entire surface and cloud cover once every 12 hours.

The complete instrumentation for NOAA-H consists of:

- COSPAS/SARSAT—a satellite-aided search and rescue project of the U.S., Canada, France and the

Soviet Union. Its instrumentation, already operational on NOAA-9, -10 and two Soviet satellites, relays distress signals transmitted from downed aircraft or vessels at sea to ground-sea-air recovery forces. Goddard Space Flight Center manages the U.S. research effort.

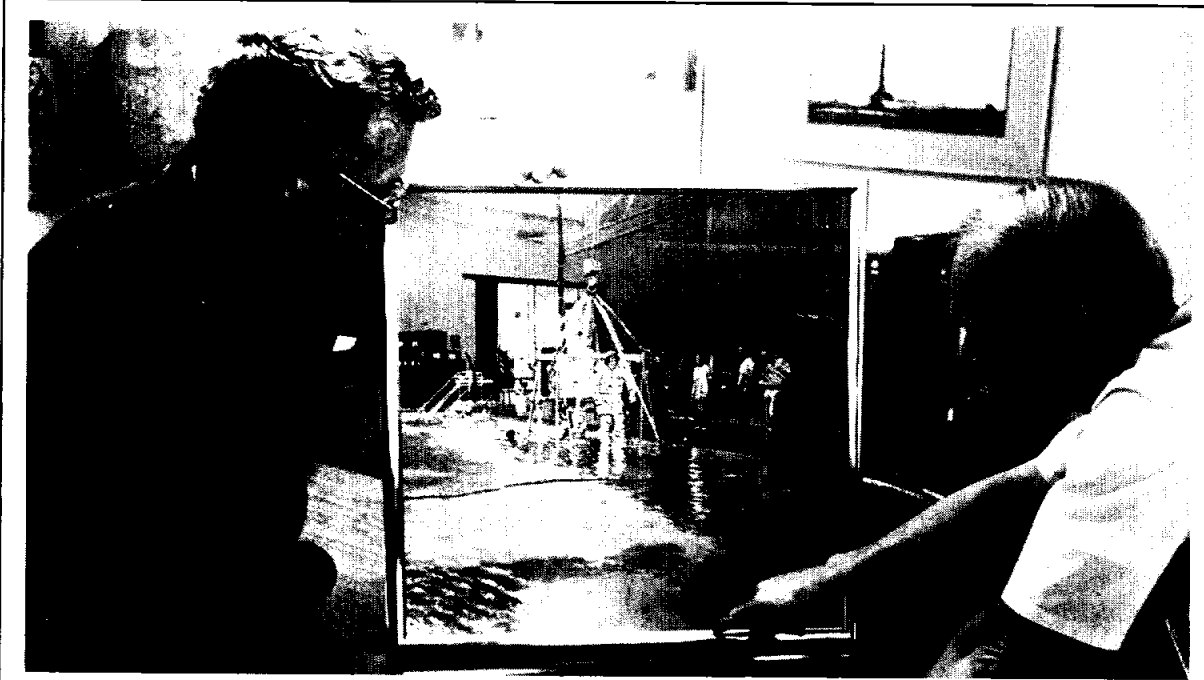
- Solar Backscatter Ultraviolet Spectral Radiometer, Mod 2(SBUV/2)—an improved instrument for mapping the Earth's ozone layer.

- Advanced Very High Resolution Radiometer (AVHRR)—an instrument providing multispectral imagery and radiation measurements used to

determine the Earth's cloud cover and surface temperature.

- TIROS Operational Vertical Sounder System (TOVS)—three instruments will provide data to determine temperatures within the atmosphere from the Earth's surface to its upper atmosphere.

- ARGOS/Data Collection System (DCS)—receives temperature, pressure and altitude data measured by approximately 2,000 platforms consisting of buoys, free-floating balloons and remote weather stations located around the world.



SPLASHDOWN—Artist Jack Kroehne, left, and Public Services Branch Chief Chuck Biggs check out Kroehne's painting, "Splashdown," before hanging it in the Bldg. 2 Visitor Center lobby. The work shows STS-26 Mission Specialist Dave Hilmers being lowered into the Weightless Environment Training Facility pool. The original will hang in the Visitor Center for six months.

Security to be tighter

Return to flight means center open overnight

Many stations at JSC will be manned 24 hours a day as the center goes back into the business of spaceflight next week, and operations at the center will change to accommodate the long hours.

JSC's main gate and the Space Center Blvd. gate will open at the usual time of 7 a.m. Wednesday, but they will remain open constantly until one day after Discovery lands, Security Specialist Don Ackerman said. To facilitate smooth operations during the flight, the security office also will increase traffic enforcement—both vehicular and pedestrian.

The number of security guards posted at Bldg. 30, the Mission Control

Center (MCC), will be increased during the mission. And there will be more roving patrols in Bldg. 30 to check badges, Ackerman said.

Access to Bldg. 30 will be limited to appropriate card-holders during the flight.

Operations of the two JSC cafeterias in Bldg. 3 and Bldg. 11 also will be altered to better accommodate employees. On Wednesday, Thursday, Friday and Monday, Bldg. 11 will open at 6 a.m., an hour and a half earlier than usual, and close at 2 p.m. On Saturday and Sunday, Bldg. 3 will open at 6 a.m., four hours earlier than normal, and close at 4:30 p.m.

Countdown is crescendo of clockwork effort

(Continued from Page 1)

Meanwhile, the crew compartment will be vacuumed at 4 p.m., T-minus 18 hours and counting; *Discovery's* 17-inch disconnect valve that allows liquid oxygen from the ET to flow to the main engines will be opened at 6 p.m., T-minus 16 hours; seats will be installed on the flight and middecks at 7 p.m., T-minus 15 hours; *Discovery's* onboard communications will be activated at 8 p.m., T-minus 14 hours; *Discovery's* flight deck and middeck switches will be put in the proper positions for launch at 8:30 p.m., while, simultaneously, still cameras are installed at the pad, T-minus 13 hours, 30 minutes; and the gaseous oxygen vent arm, sometimes called "the beanie," will extend atop the ET at 10 p.m., T-minus 12 hours.

At T-minus 11 hours, 11 p.m. Tuesday, the count will go into a 19-hour, 39-minute hold. During the early morning Wednesday, preparations for fueling the ET will continue, including a final, pre-loading inspection of the tank. At JSC, the Mission Evaluation Room (MER) will be manned starting at 8 a.m. The room is staffed by engineers who evaluate any problems that occur in their areas of expertise during the countdown.

Wednesday afternoon at Kennedy, the Inertial Upper Stage that will carry TDRS-C to its final, 22,300-mile high orbit will be prepared for launch. Later, final preparations will be made to roll back the RSS and to fill the ET with propellants.

At 6:39 p.m. Wednesday, T-minus 11 hours and counting, the RSS will swing away from *Discovery*, and the count will resume for the stretch run, with no more planned, long holds.

At 8:39 p.m., T-minus 9 hours, *Discovery's* electrical power cells, fueled by hydrogen and oxygen, will be activated. Also, microbe samples will be taken from the crew compartment and checked.

The Mission Control Center at JSC will be

configured for launch at 9:39 p.m., T-minus 8 hours, and final preparations for filling the ET will begin.

OASIS, the payload bay instrument package that will monitor the vibrations of launch within the bay, will be activated at 10:39 p.m., T-minus 7 hours.

At 11:39 p.m., T-minus 6 hours, the count will enter a planned, one-hour hold during which briefings on loading the ET will be held.

Liquid hydrogen and liquid oxygen for the ET will begin chill down prior to loading at 12:39 a.m. Thursday, T-minus 6 hours and counting. The ET will begin filling, slowly at first and progressively more rapidly, 30 minutes later. The filling process will take about four hours.

Discovery's onboard navigation aids will be calibrated for flight at 1:39 a.m. Thursday, T-minus 5 hours. The pad closeout crew and ice inspection team will

prepare for their duties at 2:39 a.m.

Four hours before launch at JSC, the full team reports to the MER, which will remain fully staffed through landing.

The count will go into a planned, two-hour hold at 3:39 a.m., T-minus 3 hours, and the closeout crew will report to the pad. *Discovery's* crew will be awakened shortly after 4 a.m., while the closeout crew will begin inspecting the White

Room and preparing *Discovery*.

At 4:30 a.m., the Ascent/Entry Flight Control Team will report on console in the Mission Control Center at JSC. Gary Coen will be the flight director, and JSC is responsible for verifying the operations of NASA's worldwide communications and tracking network. Shortly after reporting, the team will conduct the first of two voice checks with the crew.

Also, at briefings throughout the morning, the Spaceflight Meteorology Group at JSC and the flight control team must assess and evaluate weather conditions at abort landing sites, including Kennedy, for a

return to launch site abort; Ben Guerir, Morocco, for a trans-Atlantic abort landing; and Edwards Air Force Base for an abort once around landing.

At 5:39 a.m., the count will resume at Kennedy, and the flight crew will depart for the pad. The

STS-26 countdown milestones

Sunday

T-43:00 — Technicians power up *Discovery*

Monday

T-34:00 — *Discovery's* ground support closeouts begin

T-30:00 — Payload bay doors close

Tuesday

T-14:00 — Onboard communications activated

T-13:30 — *Discovery's* switches in launch positions

T-12:00 — Gaseous oxygen vent arm extends

Wednesday

T-11:00 — Rotating service structure swings back

T-09:00 — Electrical power cells activated

T-08:00 — MCC configured for launch

T-07:00 — OASIS activated

Thursday

T-06:00 — External tank loading begins

T-03:00 — Flight Control Team on console

T-02:30 — Crew begins boarding

T-01:00 — *Discovery's* hatch sealed

T-00:09 — Mission Management Team polled

T-00:07:30 — Orbiter access arm retracted

T-00:03:30 — *Discovery's* switches to internal power

T-00:00:31 — Onboard computers get go for liftoff

T-00:00:06 — Main engines start

T-00:00:03 — Main engines reach 90 percent thrust

T-00:00:00 — Solid rocket motors ignite

prepare for their duties at

return to launch site abort; Ben Guerir, Morocco,

for a trans-Atlantic abort landing; and Edwards

Air Force Base for an abort once around landing.

At 5:39 a.m., the count will resume at Kennedy,

and the flight crew will depart for the pad. The

Status of STS-26 good; crew gets last minute training

(Continued from Page 1)

exercise, practicing emergency escape procedures in case of a problem that would require ditching *Discovery*. The crew also had a payload debriefing in Flight Control Room 1 and began a preflight medical isolation.

Today, the crew will practice reentry procedures in the motion-base Shuttle Mission Simulator wearing the new partial pressure suits designed to allow

a high-altitude bailout.

They will have a much-needed break this weekend, with time to themselves on Saturday and Sunday. But on Monday, the schedule begins again with a bit more reentry practice in the simulator.

And on Monday afternoon, the crew will depart Ellington Field to fly to Kennedy for the mission. The final three days prior to launch will be spent

in a variety of briefings and simulations, honing skills and studying last-minute details.

At Kennedy, the crew will stay at quarters in the Operations and Checkout Building. Tuesday, Hauck and Covey will practice landings in the Shuttle Training Aircraft while the mission specialists check the fit of their equipment. That afternoon, all of the crewmen will keep their flying skills

fine-tuned with flights in T-38s. That night, they will undergo final medical exams.

The crew will have another equipment fit check the final day prior to launch, a vehicle and cargo status briefing, a weather briefing and some free time for individual studies. On launch day, they will awaken at 5 a.m. EDT for the traditional breakfast before boarding.

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