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Spaceport News

America's gateway to the universe. Leading the world in preparing and launching missions to Earth and beyond.

John F. Kennedy Space Center

Mission Update

STS-84

Atlantis (19th flight)
84th Shuttle flight
Target launch date: May 15
Mission: 6th Shuttle-Mir Docking
Duration: 10 days
Crew: Precourt, Collins, Foale, Noriega, Lu, Clervoy (ESA), Kondakova (Russia). Foale takes Linenger's place. Kondakova was on Mir when Collins and the crew of STS-63 performed the first approach/flyaround of Mir in 1995.

STS-83R

Columbia (23rd flight)
85th Shuttle flight
Target launch date: July 1*
Pad: 39A
Mission: International Microgravity Laboratory-1
Crew: Halsell; Still; Voss; Gernhardt; Thomas; Crouch; Linteris. Reflight of April 4-8 IML-1 mission cut short due to faulty fuel cell.

STS-85

Discovery (23rd flight)
86th Shuttle flight
Target launch date: Aug. 7*
Pad: 39A
Mission: CRISTA-SPAS II
* = Under Review

GOES-K final prelaunch preparations

AT PRESS TIME, GOES-K (Geostationary Operational Environmental Satellite-K) was ready for liftoff April 24 during a launch window opening at 1:50 a.m. EDT. Above left, the Atlas I rocket (AC-79) which was to carry the spacecraft into orbit undergoes buildup at Launch Complex 36 on Cape Canaveral Air Station. Above right, GOES-K is encapsulated in its payload fairing at the Astrotech plant. Once in orbit, it will be renamed GOES-10 to become the third in this series of advanced weather satellites. The satellites have the dual capability to provide pictures while also performing atmospheric soundings. AC-79 is the last of the Atlas I rockets.

Visitor Center plans new tour stops

Construction has begun on two major new tour sites for the visiting public at the Kennedy Space Center — a 60-foot observation gantry located in the heart of Launch Complex 39 and an International Space Station exhibit facility which will include a viewing gallery overlooking the actual Space Station processing high bay.

The two new stops represent the first projects of a $35-million improvement to KSC public tour and visitor facilities which follows on the heels of the recently completed Apollo/Saturn V Center. The funding for the new improvements is through private financing arranged by Delaware North Park Services of Spaceport, operators of the KSC Visitor Center, under the terms of its concession agreement with NASA.

Both projects are expected to be completed by year-end and are coming at a time when the KSC Visitor Center is experiencing substantial growth in attendance. Already far and away NASA's largest and best attended visitor facility, the KSC Visitor Center attracted nearly 2.5 million visitors in 1996.

The Launch Complex 39 observation gantry is being constructed alongside the crawlerway at the intersection of the turnoff to Launch Pad 39B. An enclosed, air-conditioned observation deck with a surrounding open-air walkway, providing a panoramic view of LC 39, will be located at the top level of the gantry. Elevators will take visitors to the observation deck at the 45-foot level. The tour site will also include a small theater, Space Shuttle processing exhibits, and concession services.

(See TOUR, Page 5)

Shuttle launch schedule shifts

The Shuttle launch schedule for the remainder of this year is in a state of transition as mission planners try to accommodate a variety of unexpected events.

The next mission — the flight of Atlantis on STS-84 for the sixth Shuttle-Mir docking — is still targeted for May 15 at 4:07 a.m. But delays in the Russian space program have prompted the slip of the first International Space Station element launch on Mission STS-88 into next year instead of this December.

Endeavour (OV-105), which had been scheduled to fly the first element launch, will take the place of Atlantis on STS-86, the seventh Shuttle-Mir docking flight. OV-105 recently returned from its first Orbiter Maintenance Down Period (OMDP), and the change allows the orbiter to get one flight under its belt before the first space station mission.

Atlantis will begin its scheduled OMDP several months earlier than originally scheduled. The orbiter is due to depart for California in late July.

Another factor contributing to the altered manifest is the desire by program managers to refly STS-83, the first International Microgravity Laboratory-1 flight which was cut short.

The reflight is now targeted for July 1, pushing STS-85 into early August. STS-86 in September and STS-87 in November will complete the 1997 launch schedule. At press time, these missions were still under review.

To expedite a fast turnaround, the Spacelab module

(See MANIFEST, Page 8)

KSC helps solve mystery of damage to north Merritt Island home

KSC helped solve the mystery of how a hole came to be in a Merritt Island homeowner's roof following the Jan. 17 Delta launch vehicle explosion on Cape Canaveral Air Station.

Air Force and NASA investigators found that the hole in the roof was caused by a bullet.

The investigation specifically focused on that aspect because of reports in the press of a claim by a North Merritt Island resident that debris from the accident caused a hole in his roof.

The hole was consistent with a bullet and the bullet was found lying nearby.

"It is imperative we take this opportunity to alleviate any concerns that may have been generated about this claim and publicly emphasize that we would not be launching if there was even a remote chance of debris turning up in a populated area outside Cape Canaveral Air Station," said 45th Wing Commander Col. Randall Starbuck.

KSC Director Roy Bridges pointed out that safety criteria are specifically designed to avoid hazards to populated areas. Range safety criteria call for the destruction of any rocket that poses a hazard to a populated area prior to the time it reaches that point. "Safety is our highest priority," Bridges affirmed.

Spaceport News *gets new editorial team*

Bruce Buckingham from the NASA Public Affairs Media Services Branch and Paula Shawa from Sherikon Space Systems are the managing editor and editor, respectively, of the *Spaceport News*.

Buckingham has served as the KSC spokeperson on issues relating to the Shuttle since 1990. He began working at KSC in 1985.

Shawa came to KSC in 1988 and formerly was a reporter with *Aerospace Daily* in Washington, D.C.

KSC makes prestigious CIO 100 list

KSC has made it to the Chief Information Officer 100 (CIO 100) list published by *CIO* magazine.

CIO surveyed 3,000 chief information officers and other high-level information executives, who rated KSC as a top performer in CIO innovation.

The 100 winners will be listed in the August 1997 issue of the magazine, which has a circulation of about 90,000 worldwide. Selected organizations will be profiled, giving readers insight into the practices that lead to that competitive edge.

The KSC CIO office is headed by Jimmy Akin. Past winners of the CIO-100 include Ford Motor Co., Nike, Wal-Mart, Amoco and Federal Express.

LC 46 takes shape as upgraded launch site to support Lunar Prospector mission

There's a new kid on the block in the world of Cape Canaveral Air Station commercial launch facilities. Launch Complex 46 is undergoing a major overhaul to support commercial and government customers, beginning with the launch of NASA's Lunar Prospector this fall.

As pad work in Florida wraps up, preparation of the Lunar Prospector at the Lockheed Martin plant in Sunnyvale also is progressing. Construction and assembly of the compact spacecraft is now complete.

The Spaceport Florida Authority, which operates LC 46, recently completed a pathfinder verification at the pad. Personnel and equipment from KSC helped support the activity, which validated operational procedures and design of the newly converted pad. LC 46 traditionally has been used to support land-based launches of the Trident missile.

"Our goal is 30 days to prepare for a launch," said Karen Ramos, director, commercial launch complex development for the Authority. "It's the rack, stack and shoot approach."

The mobile access structure features adjustable platforms to handle different-sized vehicles.

Prospector will be propelled into orbit by the Lockheed Martin Launch Vehicle-2 (LMLV-2), contingent upon the successful launch of NASA's Lewis spacecraft aboard an LMLV-1 from the West Coast next month.

Lunar Prospector is part of NASA's new Discovery program, aimed at frequent, low-cost solar system exploration missions. The spacecraft is a simple spin-stabilized design weighing just 640 pounds.

During its one-year mission, Prospector will investigate such mysteries as whether there is ice or water on the moon's poles.

Lunar Prospector also will look for other natural deposits such as minerals, that could be employed in building a lunar base or manufacturing fuel for launching spacecraft from the moon.

Some additional minor work will be done at LC 46 before it is turned over to Lockheed-Martin in early July to prepare for the launch.

The spacecraft is slated to arrive in late August in preparation for a Sept. 24 launch. Launch vehicle elements begin arriving in late July.

PATHFINDER operations at LC 46 were centered around a Thiokol Castor 120 rocket motor to validate crane operations, launch tower configuration procedures, launch mount fit checks and other work. The LMLV-2 vehicle will have two stacked Castor 120s. Orbital Sciences Corp. also will make use of the Castor 120 and worked with Lockheed-Martin, Thiokol and the Spaceport Florida Authority on the pathfinder operations. NASA-KSC helped, too, loaning the crane and other resources.

Lightweight external tank nears completion

The first new super-lightweight external tank for the Shuttle is ready for final assembly.

The tank recently completed proof testing, the final in a series of rigorous certification and structural verification tests performed at NASA's Michoud Assembly Facility in New Orleans, La.

The 154-foot-long external tank is the same size as the one currently used to carry propellant for the Shuttle's main engines, but it weighs about 7,500 pounds less.

"Each pound we remove from the external tank is a pound that can be added to the payload," said Parker Counts, manager of the External Tank Project at Marshall Space Flight Center.

"The lighter tank is essential for launching the International Space Station because the station components will be assembled in a more demanding orbit than previously planned."

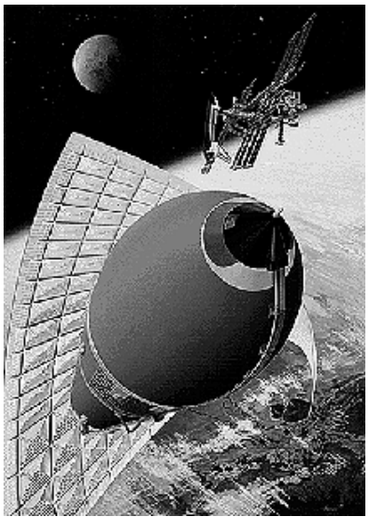
The liquid oxygen tank of the ET was pressure-tested with water, which has a similar density to liquid oxygen. The tests simulated conditions encountered during flight and validated design changes.

The liquid hydrogen tank was pressurized with gaseous nitrogen and subjected to conditions harsher than would be encountered in flight. After the tests, comprehensive X-ray and dye penetrant inspections were performed to further verify the tank's flight-worthiness.

Two major changes were made to reduce the tank's overall weight. Both the liquid hydrogen and liquid oxygen tank are constructed of aluminum lithium, a lighter, stronger material than the metal alloy now being used.

The tank's structural design was improved, with the walls manufactured in an orthogonal waffle-like pattern to provide greater strength and stability.

The tank is due at KSC in January 1998.



The new super-lightweight external tank, shown here in an artist's rendering that also depicts the International Space Station, is made with Weldalite®, an aluminum-lithium alloy developed by Lockheed-Martin that is weldable, 30 percent stronger and 5 percent less dense than the alloy currently being used. It also provides higher fracture toughness at cryogenic temperatures.

X-33 launch site survey completes first phase

Preparation for the Oct. 1 ground-breaking for the X-33 launch site drew one step nearer with the completion of the first survey phase in March.

Sverdrup Corp., the X-33 launch facility contractor, performed the survey at the site located at Haystack Butte at the Air Force's Phillips Laboratory Propulsion Directorate in California.

Sverdrup also helped build Vandenberg Air Force Base and KSC, as well as NASA's Stennis Space Center.

The Environmental Impact Statement for the launch site is scheduled for completion by Sept. 30.

Construction of the launch pad and facilities should be finished by Sept. 1998. Launch facility activation should be finished by Oct. 1, 1998.

The Haystack Butte site is different than the one originally selected. Gary Trippensee, X-33 project manager, said the new location is much safer because the launch azimuth is farther away from populated areas and the main base complex.

Deep Space Network gets new antennas to support bevy of deep space exploration missions

NASA's Deep Space Network (DSN), which plays a critical role in supporting interplanetary exploration, is getting an infusion of new antennas and other needed upgrades.

"We knew that the DSN would have to support an increasing number of upcoming missions, and we also had several older antennas which were nearing the end of their useful lives," said DSN Antenna Project Manager Jeff Osman from the Jet Propulsion Laboratory (JPL).

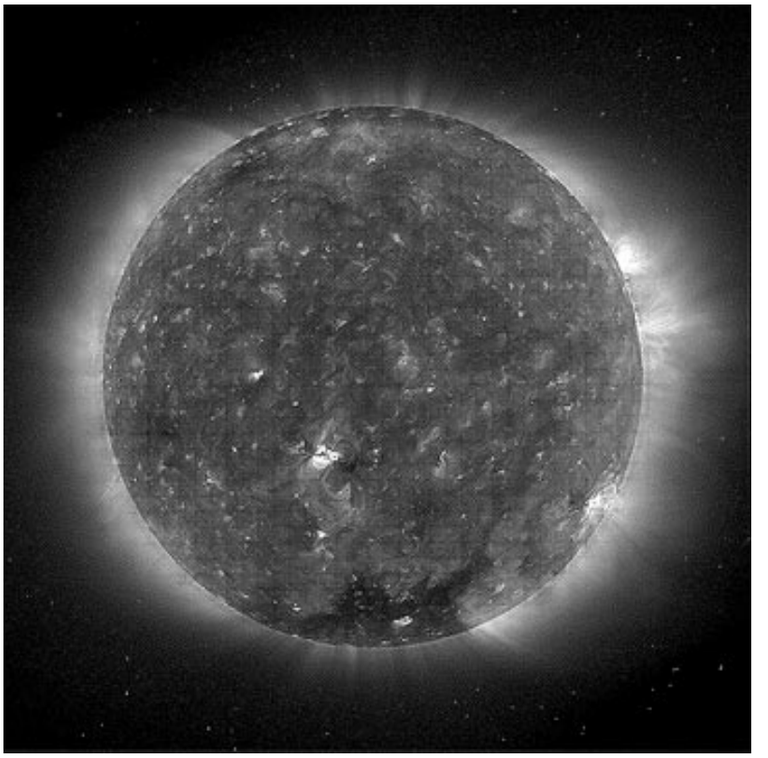
The DSN currently is supporting the Galileo misson, with Mars Pathfinder and Mars Global Surveyor now on their way to Mars and the Cassini Saturn mission slated for launch this fall. Smaller but more frequent deep space missions also are planned, which means assured communications capability will be critical.

The older antennas that are being retired were built in the 1960s and upgraded once in the 1970s, but they have become more difficult and expensive to maintain.

Three new antennas are already on station at DSN's Goldstone Deep Space Communications complex in California. A fourth is at Canberra, Australia, and a fifth is being built at Madrid, Spain.

One of the benefits from putting three antennas at the Goldstone site is improved performance through a process calling arraying. This allows more of a spaceraft's signal to be captured, enabling higher data rates.

"We will combine the signals of four 34-meter antennas at Goldstone, using the three new antennas and an older high-efficiency antenna to create a 70-meter equivalent by late 1999," Osman said.



THIS view of the sun was captured by the Solar Heliospheric Observatory (SOHO) on April 15 with the Extreme Ultraviolet Imaging Telescope (EIT), following a large eruption on the sun around 10 a.m. EDT, April 7. The ejected matter was expected to reach Earth the next day. Although large in size, it is moderate in strength compared to others that have reached Earth in the past. SOHO is stationed about 900,000 miles sunward of the Earth and has a continuous telescopic view of the sun. It also is equipped with sensors to sample solar particles as they sweep past.

Images of Power and Beauty

Discovery, Rear View, STS-56, 2 March 1993.

Vehicle Assembly Building, Interior, 1 March 1993.

Photographer John Sexton's black and white images of the Space Shuttle and KSC processing facilities are a revelation to even the most seasoned space program veteran.

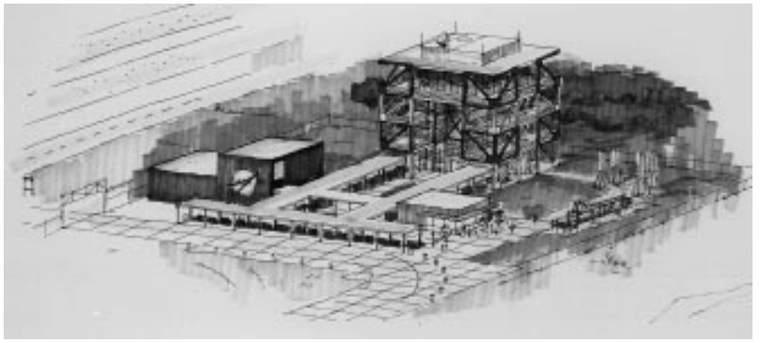
"The highest compliment came from a worker who told me, 'I see this every day, but I've never seen it this way before,'" Sexton said.

The California-based photographer recently visited KSC for the sixth time to take more photos for a project called *Places of Power*. Other subjects featured include the Golden Gate Bridge, Hoover Dam, and ancient Indian ruins in the Midwest.

"These structures, a millennium apart in design and construction, represent humankind's technological achievements at a particular point in history," Sexton said. For him, the Shuttle possesses beauty that is almost sculptural, its form dictated by its function.

Sexton likes the abstract quality of black and white photos, and relies on a Linhof camera and exposures that can take up to 10 minutes. The series will be published in the year 2000.

Solid Rocket Boosters, External Tank, Rain Bird, STS-59, 22 March 1994.



ARTIST's rendering of the new tour stop across from the crawler transporter midpoint park site. The facility will include a 45-foot high observation deck.

Tour. . .

(Continued from Page 1)

Delaware North has awarded a $4.65-million contract to Rush Construction Inc., Titusville, for construction of the Launch Complex 39 tour site.

In the KSC Industrial Area, a facility which once supported Apollo astronaut training and then housed Apollo exhibits is being made over into an International Space Station exhibit with high-fidelity mockups of the station elements that visitors will be able to wander through as they learn more about the Space Station. The high bay area of the old Flight Crew Training Facility, now designated the Engineering Development Lab, will resemble the high bay processing area of the Space Station Processing Facility across the street.

Visitors will be able to walk across an elevated link between the two facilities and enter a viewing gallery on the side of the Space Station Processing Facility. From there, visitors will be able to witness actual Space Station processing activity as it is under way in the high bay. The site will also include a small theater and limited concession services.

Delaware North has awarded a $3.06-million contract to Ivey Construction Inc., Merritt Island, for the Space Station exhibit facilities and viewing gallery.

BRPH Architects-Engineers Inc., designed both the LC 39 observation gantry and the remodeled exhibit area of the Engineering Development Lab. Reynolds, Smith & Hills, Merritt Island, designed the visitor viewing gallery and link.

Edwin Schlossberg Inc., New York, designed the visitor experiences and exhibit concepts for both tour sites. Delaware North will award separate contracts for exhibit and show production and installation.

The two new tour sites will greatly expand public visitor access to KSC operational areas, while also representing a new approach to the public tour in which visitors can choose which tour destinations they wish to visit and how long they wish to stay.

Vintage ET to join Shuttle exhibit at KSC's Visitor Center

One of three original Shuttle external tanks has found a permanent home as part of the full-scale Shuttle display at the KSC Visitor Center.

The ET arrived at the Launch Complex 39 turn basin on April 16 and was transferred to the visitor center April 19, joining a full-scale orbiter model and two solid rocket boosters.

The tank was built in 1977 as one of three test articles at the start of the Shuttle program. It was located first at Marshall Space Flight Center and then transferred to Stennis Space Center in 1993 for display there.

The tank is painted white, as the first Shuttle external tanks originally were. The painting was discontinued after STS-2.

New faces and old visit KSC

LEFT — Lynn Glenn, daughter of former astronaut John Glenn, toured KSC and Cape Canaveral Air Station for the first time recently. While she had been here before because of her father, Glenn had never had the opportunity to tour the many facilities. Here she stands next to a plaque at Launch Complex 14 commemorating her father's achievement as the first American to orbit the Earth on Feb. 20 1962.

BELOW — Two former spaceflight veterans saw their first Shuttle liftoff when the Space Shuttle Columbia soared skyward on STS-83 April 4. Apollo 7 Commander Wally Schirra (left) and Apollo 11 Commander Neil Armstrong also visited the Apollo/Saturn V Center, where this photo was taken.

April employees of the month

HONORED in April are (from left) Phillip Meade, Payload Processing; Christy Vanesse, Administration Office; Martha Vreeland, Biomedical Operations; Steve Altemus, Shuttle Processing; Vera Love, Safety and Mission Assurance; Raoul Caimi, Engineering Development; and Jane Hodges, Public Affairs. Not shown are Joyce Hedrick, Chief Financial Officer's Office; Martha Williams, Logistics Operations; Barbara Powell, Procurement Office; and Barbara Lowe, Space Station Hardware Integration Office.

RehabWorks gets KSC workers back on their feet and on the job

There's help close by for that aching shoulder or sore ankle. The KSC Fitness Centers have begun a new program, RehabWorks, to help workers heal faster and better while reducing medical costs.

The program's primary focus is to treat musculoskeletal injuries, such as low back pain, carpal tunnel syndrome, tendinitis, bursitis and the traditional sports-related sprains and strains. The injury does not need to be incurred on KSC to qualify for the program.

"More than 60 employees have been treated through the program since it began earlier this year," said Rehabilitation Coordinator Mary Kirkland.

Kirkland is a Certified/Licensed Athletic Trainer (ATC/L). An ATC has a college degree in athletic training or a related field, and must pass a special examination. Within the state of Florida, ATCs can become licensed by meeting additional qualifications.

MICHELLE Amos strengthens her rotator cuff muscles with theratubing exercises.

To take advantage of RehabWorks, an employee must be referred by a licensed physician, physical therapist or athletic trainer. To find out more, contact Mary Kirkland at 867-7829 or 861-3028. She also can be reached via e-mail: kirklanm@ben.ksc.nasa.gov

EG&G Florida Special Response Team Officer Tony Hunter undergoes ultrasound treatment to an injured knee by Rehabilitation Coordinator Mary Kirkland. Rehab Works gets the KSC "industrial athlete" back on his or her feet, Kirkland says.

KSC becomes lead for NASA's Occupational Health Program

KSC recently assumed agency-wide responsibility for NASA's Occupational Health program.

"KSC was selected as the optimal site as its activities encompass all aspects of occupational medicine and environmental health that exist at all the other NASA centers," said Dr. James Collier, director, Aerospace Medicine Division.

The focus of the program is to promote a healthy workforce and to prevent health hazards in the workplace at all NASA sites.

A transfer of at least two civil service positions to KSC is planned — one senior occupational health physician and one environmental health officer — and officials are considering the possibility of sending additional personnel.

EG&G Inc. Environmental Programs Director Bill Parker (left) was on hand for the WaRP awards ceremony, posing here with individual winner Glenn Reeves; EG&G Florida General Manager Dick Jolley; Propellants South Branch Manager Bob Clew and Operations Associate General Manager Jerry Jorgensen.

EG&G Florida workers receive corporate environmental awards

Three EG&G Florida teams and one individual worker recently were recognized for their efforts at reducing environmental pollution and waste.

The Waste Reduction Pays (WaRP) awards are given by parent organization EG&G Inc. in recognition of pollution-preventing policies and procedures.

The Cooling Tower Ozone team of Dan Tierney and Ellen Feeney was tasked with seeing if there was a way to meet environmental compliance for blowdown discharge from Base Operations Contractor (BOC) cooling towers. Operational changes identified by the team have produced water and chemical annual cost savings of $87,000 between both towers and led to pollution prevention of suspended solids and dissolved solids.

The Alternative Fuels Office team including Bill Caffee and former employees Mike Mann, Heather MacKinnon, and Bobbie Sirmons implemented a strategy for using alternative fuel sources at KSC. Switching some facilities to natural gas and bringing on-center some natural gas vehicles helped eliminate 140 tons of air pollution in 1995 by burning natural gas instead of fuel oil.

The Corrosion Control Facility Process Assessment Team included Ray Anderson, Robert Persson, Ronnie Sanders, Frank Washburn Jr., Rodger Sorey and Tim Tillotson, EG&G and Tim Yang and Larry Sloan, NASA. After review of Corrosion Control Facility processes a change in abrasive material, and system modifications, together with paint reformulation, has reduced the potential for discharges to air, water and soil. The changes have led to savings of more than $115,500 in the first year.

The individual winner was Glenn Reeves, who works in Operations and Maintenance, Propellants South. He devised an improved approach to oxidizer maintenance operations and was the driving force in pushing for its implementation.

Because a hypergol operation involves so many people, cutting the operating time required saved the goverment $33,000 per year along with the reduction of toxic emissions.

Useful emergency information provided in new phone books

The new BELLSOUTH telephone books contain three pages of information about preparing for a hurricane.

The tips are given on pages 24-26 of the phone book and cover the following:

- Evacuation routes;
- Public shelter requirements;
- Information for those with special needs;
- Instructions for people living in mobile or manufactured homes;
- Protecting exterior windows and doors;
- What to do about pets, livestock and horses;
- How to cope with post-hurricane hazardous material and wildlife incidents.

KSC workers earn Silver Snoopys and Space Flight Awareness team awards

Shuttle astronauts returned to KSC to visit with workers and present Silver Snoopys to four employees.

The STS-81 and STS-82 crews presented highlights of their spaceflights and toured individual facilities to thank workers for contributing to the success of their missions.

The four Silver Snoopy recipients were:

• Bill Higgins, NASA technical assistant for transition, with the Safety and Mission Assurance Directorate;

• Mark Sestile, United Space Alliance (USA), a site test conductor;

• John Sterrit, USA, a Space Shuttle main propulsion engineer since October 1979;

• Tera Stover, USA, formerly a lead engineer with the Hazardous Gas Detection System group who has recently transferred to the Orbiter Electrical Liaison group.

The Silver Snoopy was created by the astronauts to honor persons who contribute most to the safety and success of human spaceflight. It is presented to no more than 1 percent of the center's work force each year.

The three Space Flight Awareness (SFA) team recipients were the 30-member USA Thermal Protection System (TPS) Processing Enhancement team; the Emergency Preparedness Awareness team; and the Radio Frequency/Data Collection System team.

• **TPS Processing Enhancement team** turned an engineering attrition trend in the TPS world from a positive into a negative.

To help disposition paperwork more efficiently, the team brought on board shop, quality and operations personnel to support the engineers. While the engineer assumed responsibility for the document, the actual legwork was done by trained individuals. A training manual and metrics to measure the effort's success were included.

The project has proven highly successful. By freeing up the engineers, overtime was avoided. The trainees became so proficient that they are now able to train others to do the same work as well as indoctrinate new-hire engineers. The team effort also has generated cross-pollination of ideas and feedback between engineers and shop personnel.

• **Radio Frequency/Data Collection System (RF/DC) Activity team**. This team contributed an important capability to the Shop Floor Control project area of the joint NASA/USA Integrated Work Control System (IWCS) project.

The IWCS comprises four separate efforts aimed at managing the tasks necessary for Shuttle processing. The RC/DC effort focuses on tracking the location and quantity of flight ground support equipment.

It features small handheld computers for real-time, mobile online data collection — similar to the barcode inventory tools one might see being used in a supermarket. By implementing a mobile system rather than one requiring hardwiring, the RC/DC effort has already yielded an estimated savings of more than half a million dollars in the Vehicle Assembly Building alone.

• **Emergency Preparedness Awareness team**. This EG&G Florida team was formed in June 1995 to help educate employees about emergency preparedness.

The team accomplished their goal through a variety of communication tools, from brochures to lunchtime videos shown on NASA television, to information kiosks in building lobbies.

Thanks to the ongoing training, the procedures for safing facilities and securing systems are better delineated. As a result, the entire center was sandbagged and shuttered in less than 24 hours in preparation for Hurricane Fran.

MEMBERS of the TPS Processing Enhancement team show off their SFA awards.

RADIO Frequency/Data Collection System Activity team receives the SFA award from USA Vice President of Ground Operations Mike McCulley (left) and NASA Process Integration Director Larry Ellis (right).

EMERGENCY Prepardness Awareness team with Protective Services Office Chief Cal Burch (far left).

Astro-doll gets signed again

EG&G FLORIDA employee Babs Jones-White (center) gets STS-82 Commander Ken Bowersox to sign her astronaut doll, which is so covered with astronaut autographs there's hardly any room left for new ones. Jones-White said she's had the doll since before the first Shuttle flight in 1981 and every crew that's returned to KSC to visit has signed it. Behind Bowersox are Mission Specialist Joe Tanner; Pilot Scott Horowitz and Mission Specialist Greg Harbaugh.

Manifest. . .

(Continued from Page 1)

was not removed from Columbia's payload bay. The faulty fuel cell that caused the shortened mission was sent to the vendor for extensive testing.

The same crew will fly on STS-83R. There are no plans for a second Terminal Countdown Demonstration Test (TCDT) or Crew Equipment Interface Test (CEIT) prior to the reflight.

Meanwhile, rollover of Atlantis to the Vehicle Assembly Building in preparation for STS-84 next month didn't take place until April 19. Rollout is scheduled for April 25. The STS-84 astronauts will be at KSC the week of April 28 for TCDT.

One of the items that will be stowed in the SPACEHAB Double Module flying in Atlantis' payload bay is an oxygen generator for the Russian space station. The generator will be the first of two units replacing the pair currently on Mir which have experienced problems in recent months. It weighs about 300 pounds and is a little more than four feet in length.

The three crew members aboard Mir are completing a bevy of maintenance and repair tasks on the 11-year-old spacecraft following the arrival of a supply-laden Progress vehicle April 8.

Even U.S. astronaut Jerry Linenger put aside his science research to help with the servicing. Linenger also will participate in a spacewalk later this month to retrieve micrometeorite detection packages located on the Docking Module.

Linenger is now in his fourth month aboard Mir. While he will return to Earth in May, his two cosmonaut crewmates are to remain on-orbit until August.

May-December 1997 Shuttle manifest (targeted)

STS-84
Atlantis
May 15, 4:08 a.m.

STS-83R*
Columbia
July 1 (under review)
(*= change)

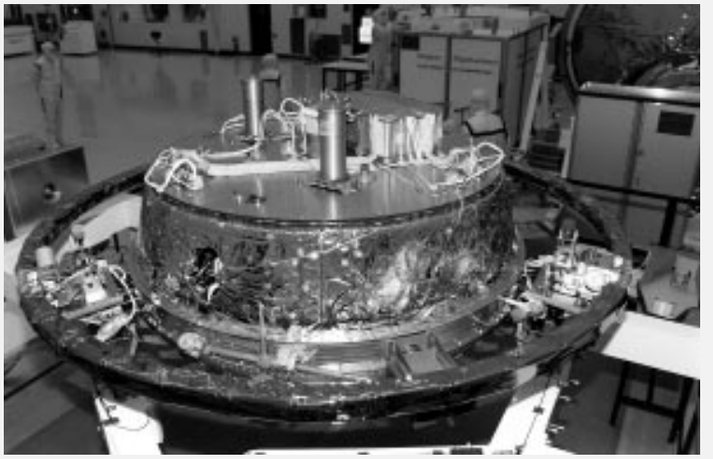
STS-85*
Discovery
Aug. 7 (under review)

STS-86*
Endeavour*
Sept. 25 (under review)

STS-87*
Columbia
Nov. 13 (under review)

IN the SPACEHAB processing facility at Port Canaveral, an oxygen generator headed for the Russian Space Station Mir is unpacked by employees of RSC Energia, the manufacturer of the equipment. The oxygen generator weighs nearly 300 pounds and is a little more than four feet in length. It functions by electrolysis, separating water into oxygen and hydrogen. The hydrogen is vented while the oxygen is used for breathing by the Mir crew. The crew of Shuttle Mission STS-84 will deliver the generator to Mir to replace one of two existing units that have been experiencing malfunctions recently.

Cassini spacecraft takes shape



IN the Payload Hazardous Servicing Facility, the Huygens probe undergoes preflight preparation. The probe and an orbiter together make up the Cassini spacecraft which will travel to Saturn. The European Space Agency is supplying Huygens, which will scrutinize the clouds, atmosphere and surface of Saturn's moon Titan. It is designed to enter and brake in Titan's atmosphere and parachute a fully-instrumented roboted laboratory (shown here) down to the surface. A suite of six scientific instruments are mounted on the probe. Encased in a protective front shield and aft cover, the probe will begin its harrowing journey through Titan's atmosphere on Nov. 27, 2004, entering at a velocity of 13,725 miles per hour. Its heat shield will encounter temperatures of around 21,632 degrees Fahrenheit, about twice the temperature on the surface of the Sun. The Cassini orbiter arrived at KSC April 21 and joined Huygens in the PHSF.

Space Congress starts April 29

The 34th Space Congress gets under way in Cocoa Beach April 29.

Headquarters for the event is at the Howard Johnson Plaza-Hotel, Skylab Room. Satellite registration desks are located in the Holiday Inn Dolphin Room in the afternoon and the lobby of the Howard Johnson motel in the morning.

Exhibits are open to the public in the Cocoa Beach Hilton and the Comfort Inn & Suite Resort.

Limited parking is available at the Howard Johnson. Attendees may also use the Cape Royal Building, Holiday Inn and Hilton Hotel parking lots. Buses will make regular runs to all Space Congress facilities.

John F. Kennedy Space Center
Spaceport News

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