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Spaceport News

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http://www-pao.ksc.nasa.gov/kscpao/snews/snewstoc.htm John F. Kennedy Space Center

40th Anniversary Americans in orbit

February 20, 1962, the first American in orbit got his start aboard a Mercury vehicle launched from the Cape Canaveral Spaceport.

John Glenn Jr. was tasked with the feat of being the first, and performed it admirably.

Three other Mercury astronaut heros – Scott Carpenter, Wally Schirra Jr. and Gordon Cooper – followed, pushing the orbital envelope with ever more daring missions.

Spaceport News is spotlighting those astronauts and anniversary events with a special section, pages 3-6.

Live coverage of a commemorative banquet Feb. 24 at KSC will be shown on NASA Select TV. Coverage is tentatively set to begin at 6:30 p.m.

Inside

Haz Gas System set for STS-109

NASA, USA, Dynacs team on safety upgrade

The prime and back-up Hazardous Gas Detection Systems on the mobile launcher platforms (MLP) are being replaced with a more automated and reliable system for detecting dangerous hydrogen and oxygen leaks on and around the Space Shuttle.

Because such leaks could contribute to a deadly fire or explosion on the pad, the system is considered a critical piece of ground support equipment.

The new Hazardous Gas Detection System (HGDS) on MLP-2 has been certified and will go solo for the first time during the launch of STS-109, currently scheduled for Feb. 28.

The new HGDS was successfully used in tandem with the heritage systems during four previous launches.

This new system, which makes use of improved technologies and custom-written software, is expected to provide many benefits, including greatly reducing the chance of a false reading. Such a reading can lead to a costly launch scrub.

A "burp" in the old system's pump caused a false reading and abort during the final seconds of the first launch attempt for STS-93, the Chandra X-ray Telescope mission, on July 20, 1999, said J. Edelmann, NASA project manager.

A Dynacs team installs and tests the latest version of HGDS software on mobile launcher platform 3. From left are David Floyd, Tim Griffin and Charles Curley.

"The old system was a marvel for its time, but it was 20-something years old and prone to break down. It was difficult for the average user to operate and had to be frequently tuned," Edelmann said. "The new system doesn't have those problems and uses a different kind of pump that doesn't occasionally produce false readings."

The new system was built primarily with easily

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New planning, service center opens

A ribbon-cutting ceremony was held Jan. 25 at the new Cape Canaveral Spaceport Planning and Customer Service Center at Cape Canaveral Air Force Station.

The new center is a joint partnership between NASA, the Air Force and the State of Florida, and offers a complete one-stop shop for new launch and program customers' needs.

"Customer Service was moved to the Cape because Spaceport managers needed to be where both the launches and customers are," said Rick Blucker, director of the office.

The joint partnership helps streamline the process and reduce the bureaucracy that prospective launch and program customers encounter.

"There is nothing like this facility in the country. It is unique in that no other state has this kind of a relationship in place," said Ed Gormel, executive director of the Cape Canaveral Spaceport Management Office.

"This facility provides an excellent one-stop shop for customers. Bringing everything together under one roof is a concept that has proven to be very successful for our customers."

ROY BRIDGES
KENNEDY SPACE CENTER DIRECTOR

(See SERVICE, Page 7)

Recognizing Our People

Awards

Catch an Environmentalist

Effective Program Implementation and Management
Ruth Ann Strunk-SGS
Irene LaTurno-SGS
David Koval-SGS
Doug Johnson-GHG
Henry Healey-SGS
Ray Coffman-USA
Doug Thom-Boeing
Kevin Riley-SGS
Donna Rafferty-NASA
Chris Iannello-NASA
John Wortham-USA

Environmental Initiative
David Bethard-USA
Loren Olson-USA
Richard Rennie-HM2
Chuck Floyd-SGS
Edward Coyle-CHS

Energy Savings Perfomance Contracts
Mark Monaghan-USA
Tim Tychan-USA
Mike Laub-USA
Don Shrum-USA
Dennis Amos-USA
Bill Warren-USA
Robert Mann-USA
Thomas Cook-USA
Lenny Corack-USA
Scott DeWitt-USA

Natural Resources/ Habitat Conservation
Mario Mota-DYN
Becky Smith-DYN
Eric Stolen-DYN
Doug Scheidt-DYN
Russ Lowers-DYN
Vickie Larson-DYN
Melissa Hensley-DYN

Hazardous Waste
Catherine Houle

Excellence in Technology Transfer Award

Kennedy Space Center team members attended the presentation of the South East Federal Laboratory Consortium's 2001 Excellence in Technology Transfer Award at the Sheraton World Resort in Orlando Jan. 15. The winning KSC invention was the "Process and Equipment for Nitrogen Oxide Waste Conversion to Fertilizer." Pictured (from left) are Dr. David Bartine, chief technologist, NASA; Kenneth Payne, deputy director, Spaceport Engineering and Technology, NASA; William Larson, chief, Systems and Process Engineering Branch; NASA; Kelly McGuire, regional coordinator, Southeast Federal Laboratory Consortium; Melanie Chan, research and development liaison, NASA; Dr. Dale Lueck, senior chemist, NASA (inventor); Paul Gamble, project lead, Dynacs (inventor); Edward Linsenmeyer, Southeast Federal Laboratory Consortium. Not pictured: Dr. Clyde Parrish, senior chemist, NASA (inventor); and Andrew Kelly, systems engineer, NASA (inventor).

Employees of the Month

February Employees of the Month are (seated, from left) John Brand, ISS/Payloads Processing; Darcy Miller, Shuttle Processing; Julie Shally, Spaceport Engineering and Technology; (standing) Dennis Armstrong, External Relations and Business Development; William Haase, Spaceport Services; and Carol Davis, Chief Financial Office. Not shown are Greg Katnik, Shuttle Integration; and Julie Schneringer, ELV and Payload Carriers Programs.

FEW offering scholarships

The Space Coast Chapter of Federally Employed Women (FEW) is awarding scholarships for high school and/or college students who are currently attending college or enrolling for Fall 2002.

Students must have a GPA of 3.0 or higher to be considered. Applications should be received by March 15. For additional information or an application, please contact Jane Eitel at (321) 867-8340; Christy Vanasse, (321) 867-4886; or Karin Biega, (321) 867-6382.

FEW is sponsoring a one-time special scholarship for the 2002 National Training Program to be held at the Rosen Center Hotel in Orlando July 23 -26.

The scholarship will consist of free hotel room for three nights and registration fees for the training program. The scholarship is open to all NASA and contractor personnel. Please contact Jane Eitel at (321) 867-8340.

Spaceport News
John F. Kennedy Space Center
Vol. 41, No. 3 Feb. 8, 2002

40th Anniversary

AMERICANS IN ORBIT

Special section

Mercury astronauts pushed the envelope, proved manned spaceflight possible

John Glenn aboard Friendship 7.

First in orbit

Glenn recalls Mercury, Shuttle missions

By Linda Herridge

When John Glenn Jr. made his historic orbital flight around Earth aboard Friendship 7, Feb. 20, 1962, little did he know that 36 years later he'd make his return to space aboard the Space Shuttle, at the age of 77.

Glenn's involvement in the U.S. space program began when he was selected as one of the seven Mercury astronauts in 1958.

Looking back to that time, Glenn reflected, "It was a team effort. We were a team of seven and were all working together on the beginnings of our space program.

"My experience as a Marine fighter pilot in World War II and the Korean War and a test pilot after that were factors that I believed helped in my selection," said Glenn.

During this time the United States was in a cold war with the USSR, and Communist leader Nikita Kruschev was in power.

The Russians had sent a surveillance satellite and a man to orbit the Earth and gloated over their achievements.

The pressure was now on the United States to keep up and even

(See GLENN, Page 4)

Astronaut Scott Carpenter is pictured at the Mercury Control Center at Cape Canaveral. He became the second man to orbit the Earth when his mission flew aboard Aurora 7 on May 24, 1962.

Remembering Our Heritage

Mercury astronaut Gordon Cooper, surrounded by five technicians, is assisted into the Faith 7 capsule about two and a half hours before his launch May 15, 1963.

Event set to honor space heros, teamwork

By Jennifer Wolfinger

Take a journey through the beginning of the space program as Kennedy Space Center commemorates the 40th anniversary of Americans in orbital spaceflight on Feb. 24 at the KSC Visitor Complex.

On Feb. 20, 1962, aboard the Friendship 7 spacecraft, John Glenn Jr. became the first American to orbit the Earth.

The Mercury-Atlas 6 mission lasted nearly five hours.

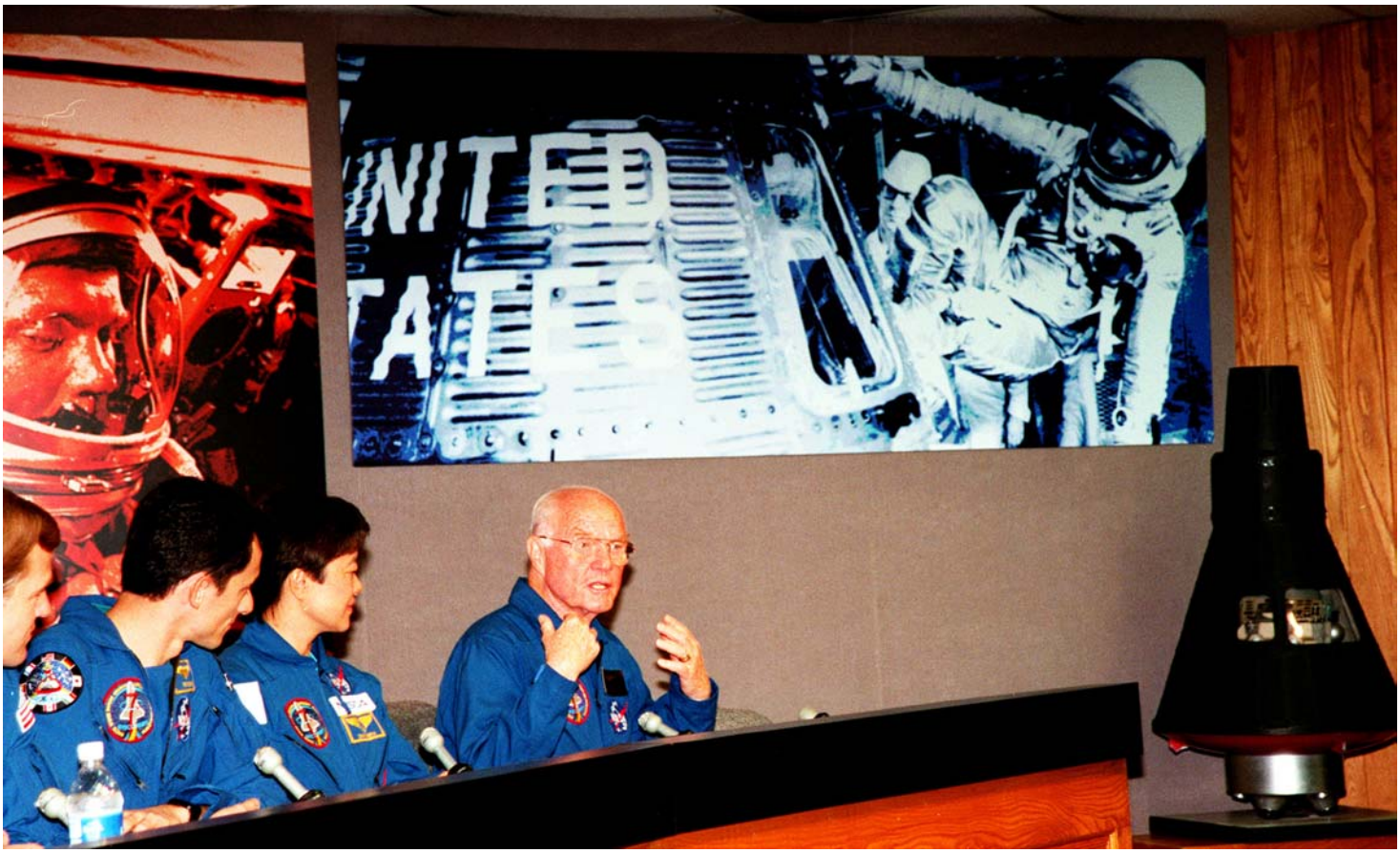
During the famous flight, Glenn not only paved the way for upcoming space pioneers, but also set the stage for his own future.

While serving as a U.S. Senator for the state of Ohio (1974-1999), he returned to space aboard Space Shuttle Discovery on Oct. 29, 1998.

Shuttle Mission STS-95 launched 36 years after his first mission and marked 218 hours in space for Glenn.

(See EVENT, Page 6)

Astronaut Walter Schirra Jr.'s orbital mission aboard Sigma 7 launched Oct. 5, 1962.



STS-95 Payload Specialist John Glenn gestures during a media briefing at the Kennedy Space Center Press Site Auditorium. Glenn and the other STS-95 crew members held the briefing after the completion of their mission.

GLENN ...

(Continued from Page 3)

surpass these accomplishments.

Thus was born the Space race.

"We were limited in what we could do in manned space flight at that time because of our technical achievements, as odd as that sounds," said Glenn. "The Atlas rocket was very powerful but it could only launch 4,000 pounds. So we had to design a vehicle with that in mind."

The seven Mercury astronauts had active roles in the development of the vehicle that carried them into sub-orbital and orbital flights.

Glenn's expertise in cockpit layout and control functioning helped in the design and system specifications of the nine- by seven-foot capsule, Friendship 7.

Following Alan Shepard's and Gus Grissom's sub-orbital flights, the U.S. manned space program entered the next phase – launching a man into orbit around the Earth.

Glenn's launch atop an Atlas rocket from Cape Canaveral Launch Complex 14 was heralded as a cornerstone on which other successful orbital space flights were based. It proved we could send a man into space and bring him back safely.

As a U.S. Senator, John Glenn worked diligently to push for NASA's scientific missions.

After Glenn's single Mercury flight, he continued to make public appearances for NASA, the Boy Scouts and other public service organizations.

He served on the board of directors and was vice president for corporate development for Royal Crown Cola, the third leading cola maker at the time.

His interests turned to public service and the political arena.

"Actually my interest in politics had always been there," Glenn commented. "My high school civics teacher made it come alive for me."

He decided to run for office and won the U.S. Senate race in his home state of Ohio in 1974. He was re-elected for three subsequent terms, retiring in 1998.

During his tenure, Senator Glenn served on various committees, including the Special Committee on Aging, which ultimately led to his return to space.

Glenn worked diligently in the Senate to push for NASA's scientific missions.

This work led him to find research that showed the effects of aging on the elderly were similar to those of space flight on astronauts.

Glenn proposed a scientific mission dedicated to the study of the effects of space flight on the elderly to NASA and in 1998 he was assigned to Mission STS-95.

When asked recently about the differences in the Mission STS-95 flight aboard Discovery as compared to his Friendship 7 flight, Glenn said, "It was different in many ways from my first flight. I was one of seven astronauts aboard and I was able to leave my seat and participate in the experiments and mission objectives. My first flight was purely to see if we could do it – send a man into orbit and bring him back safely."

Continuing his interest in space exploration, the former astronaut will serve as co-chair of this year's international Space Day, May 2.

Whatever the future holds in store for Senator Glenn, history still records that he was the first U.S. astronaut to orbit the Earth, the first to eat food in space, and, for the time, the oldest astronaut ever to fly in space.

Senior astronaut proved himself adaptable

Mission Specialist Scott Parazynski prepares to withdraw a blood sample from the arm of John Glenn during Mission STS-95.

Science experiments showed Glenn still had the right stuff

By Kathy Hagood

John Glenn's successful return to space during STS-95 when he was 77 years old – after having first orbited the Earth when he was 40 – was a confidence builder for our nation's aging population.

It also produced scientific evidence that the healthy senior citizen responded similarly to a short-duration spaceflight as astronauts half his age.

Because Glenn is the only astronaut of such advanced age to have flown in space, researchers say his experience has opened the door to further questions about aging and the effects of spaceflight.

"Some researchers thought Glenn might be less adaptive to the stresses of spaceflight because of his age, but he responded in very much the same way as his younger crewmates," said Dr. John Charles of Johnson Space Flight Center. Dr. Charles helped to organize the biomedical experiments on STS-95.

Ten of those biomedical experiments were performed using Glenn as a subject before, during and after his flight. Data was also collected from some of his crewmates.

The experiments were designed to study how spaceflight affected Glenn's balance, body temperature, heart rate, muscle strength, mental awareness and immune response as compared to the younger astronauts. Glenn's results paralleled his crewmates, except for his immune response.

Glenn experienced a slightly greater suppression of his immune system.

"As people age, even if they are healthy and active, their immune system tends to become somewhat more vulnerable, so his response to the stress of spaceflight makes sense," Dr. Charles said. "All astronauts see some immune system suppression. His was just a bit more, meaning that he was a bit more vulnerable to infection and other illnesses for a few days after he returned."

Dr. Charles cautions that Glenn's experience isn't scientific proof of how the average senior would respond to spaceflight. Glenn was only a sample of one, and he is much more active and healthy than many people.

Glenn very much agrees that other seniors should travel to space.

"Since I am the first to do this, we need to send others to increase the database of information. We should send men and women," Glenn said.

The biomedical tests for STS-95 Glenn volunteered for were much more complicated than those he participated in during his first spaceflight aboard Friendship 7, Glenn said.

For that flight, Glenn was tested to see whether his vision and balance would be affected, which they weren't. Doctors wondered if it would be possible to eat in space. Glenn ate applesauce from a squeeze tube with no problem.

"During the Mercury program we were doing certain things just to see if we could go into space. Now the focus is very different," Glenn said. "It's very much research-based, and I'm happy to have been part of it."

John Glenn pictured in his official Shuttle astronaut portrait for STS-95.

"Since I am the first to do this (flying in space at an advanced age), we need to send others to increase the database of information. We should send men and women."

JOHN GLENN
ASTRONAUT

EVENT ...

(Continued from Page 3)

Although Glenn was the first American to orbit Earth, everyone involved with the Mercury flights contributed to the space program we know today.

Alan Shepard Jr., the first man in space, and Gus Grissom made suborbital flights in 1961. After Glenn flew, Mercury astronauts Scott Carpenter, Wally Schirra Jr. and Gordon Cooper followed.

"I think we should look at the event not just as a celebration of my Mercury flight but as a celebration of the entire Mercury team," Glenn said. "We all worked together, we were a team. Each flight built on the previous one."

Honoring all those that made the historic flights possible is the focus of the occasion. Glenn, Carpenter, Schirra and Cooper, along with others that contributed to the program, will take part in the various events.

Apollo 13 Commander Jim Lovell will host the grand opening of the new Rocket Garden. The Mercury astronauts will also participate.

This event, included as part of regular Visitor Complex admission, will feature the Mercury-Atlas, the rocket that Glenn, Carpenter, Schirra and Cooper rode into space.

Also as part of regular admission Gordon Cooper, Guenter Wendt and Bill Dana will make appearances at the Astronaut Encounter Stage.

Cooper and famed pad leader Wendt will sign their newly published books. Dana will sign copies of his CD.

Dana is famous for his character "José Jiménez" and became known as the eighth Mercury astronaut.

Visit **www.KennedySpaceCenter.com**, or call (321) 449-4400, for transportation information and to purchase tickets ($75) for "An Evening with the Mercury Astronauts" hosted by Lovell.

During the event, Glenn, Carpenter, Schirra and Cooper will share their memories about their flights.

TV journalist Walter Cronkite and Dana will also make appearances.

Corporate tables of ten are available through the Astronaut Scholarship Foundation. Call Linn Burnaw at (321) 269-6100, ext. 6176.

Glenn's Mercury, Shuttle missions compared

By Anita Barrett

Most voyagers and pioneers of the first millennium were able to repeat their adventures. Think of Christopher Columbus, Fernando Magellan and Henry Hudson.

After John Glenn Jr.'s first flight into space Feb. 20, 1962, this pioneer did not get his chance to return to space until 36 years after his maiden trip. And what a difference.

The second time found Glenn not as solo commander but as a payload specialist, one of seven in the crew.

The vehicle he traveled in was 20 times as big, went one and a half times higher, and landed on terra firma rather than the ocean.

The trip also lasted about 50 times longer.

And instead of the voyage being the experiment, Glenn helped conduct experiments on aging during the trip.

The MA6 mission, Friendship 7, was a milestone in the early steps of the space program. The mission objectives were to place a man into Earth orbit, observe his reactions to the space environment and safely return him to earth to a point where he could be readily found. The flight plan during the first orbit was to maintain optimum spacecraft attitude for radar tracking and communication checks.

The mission included a number of "firsts." It was the first American-manned orbital space flight, and the first time frogmen were dropped into water during recovery to attach flotation devices and assist in recovery.

Glenn's second space voyage, STS-95, also had a number of firsts, even as the 92nd Shuttle mission.

John Glenn was the first Mercury astronaut to fly in a Shuttle; it was the first flight for the Space Shuttle Main Engine-Block II, an improved version of earlier engines; and it was the first Shuttle launch which a U.S. President attended.

The primary objectives of the STS-95 mission included a variety of science and medical experiments in the pressurized SPACEHAB module. Biomedical research involved tests on Payload Specialist John Glenn and several other members of the crew.

Friendship 7 vs. Discovery

Friendship 7

Type of vehicle: Mercury capsule/Atlas 6 rocket
Size: 9- by 7-foot capsule
Height of orbit: 162 statute miles
No. of orbits: 3
Miles traveled: 75,679
Time in space: 4 hours, 55 minutes
Launch site: Launch Complex 14, Cape Canaveral
Landing site: Atlantic Ocean, 800 miles SE of Bermuda

Discovery

Type of vehicle: Space Shuttle
Size: 184-foot long orbiter
Height of orbit: 340-349 statute miles
No. of orbits: 135
Miles traveled: 3.6 million
Time in space: 8 days, 212 hours, 44 minutes
Launch site: Launch Complex 39B, Kennedy Space Center
Landing site: Shuttle Landing Facility, KSC

SERVICE ...

(Continued from Page 1)

Each customer is assigned a Spaceport manager to offer guidance through requirements and associated agencies, public safety issues, real estate agreements and environmental concerns.

The manager supports the customer from the start of the launch or program to the finish, eliminating the need to deal with multiple government offices.

Roy Bridges, Kennedy Space Center director; Brig. Gen. Donald Pettit, 45th Space Wing Commander; and Gormel were present for the ribbon cutting.

During the ceremony, Bridges described the new center: "This facility provides an excellent one-stop shop for customers. Bringing everything together under one roof is a concept that has proven to be very successful for our customers."

He added, "It's important for our national security and our national economy."

General Pettit voiced his support: "This is a time of great satisfaction to watch this grow from a concept to a smooth-running facility for any customer interested in operating, launching, or submitting a proposal at the Cape Canaveral Spaceport."

ELV Countdown

Kennedy Space Center employees and other passersby driving on Center on State Road 3 and the NASA Causeway now will be able to learn how many days left until the next Expendable Launch Vehicle (ELV) launch. A NASA, Boeing and SGS team worked to develop and install the signs to increase interest in and awareness of ELV launches. The signs are available for multiple use by NASA, commercial, and Air Force missions. HESSI is the first mission to use the sign.

SYSTEM ...

(Continued from Page 1)

replaced off-the-shelf parts, which will reduce maintenance costs.

The new HGDS was designed and certified by a joint team of NASA, United Space Alliance, and Dynacs Inc. personnel. Dynacs is Kennedy Space Center's Engineering and Development contractor.

The Dynacs team fabricated, assembled and tested the new systems, which were then integrated into Shuttle Processing by the USA team members.

The USA and NASA integrated data systems team integrated the new system and its sophisticated data stream into the Launch Processing System (LPS). The LPS provides data to the entire launch team and personnel at other NASA centers who also use the data.

NASA and USA's Hazardous Gas engineering group worked with Dynacs to help create a system that best met the Shuttle Program's requirements.

"We are pleased with the system's performance and have high confidence in the new systems," said Ken Kroll, USA lead for the project. "These systems will be easier to maintain, validate and operate. Of course there will be a new learning curve associated with new hardware."

Bill Haskell, Dynacs lead electrical technician, terminates wires in the Hazardous Gas Detection System in preparation for delivery to USA.

Teamwork was crucial to the success of the project, said Dr. Tim Griffin, Dynacs project lead.

"It's difficult, if not impossible to design a good system without working directly with the users and getting their input," Dr. Griffin said. "We were able to work as a team to create an efficient, economical system."

The HGDS, able to detect a variety of gases, is also used to detect leaks during prelaunch tests using helium to identify hydrogen and oxygen leaks in the main propulsion systems.

Several hours before launch, cryogenic fuel (liquid hydrogen) and oxidizer (liquid oxygen) are loaded in the External Tank (ET) to be used by the Shuttle main engines during launch. The HGDS is used throughout the countdown, but it's mainly used during and after ET cryo-loading to identify and quantify leaks.

The old system operated with a separate backup system, but the new system is designed with redundant components, consolidating the equipment space required from five electronic racks to three.

Both systems use a mass spectrometer to identify and quantify leaks, but the new system has a 50 percent faster update rate for gas concentration readings. The speed will facilitate the launch team's ability to analyze leaks in the dynamic environment of launch operations, Edelmann said.

Two other new HGDS's for the other MLPs are in various stages of installation and verification.

"The entire team worked very hard on this project, and to get this system ready to support the launch of STS-109," Edelmann said. "I couldn't be more proud of their tremendous efforts."

Childcare center playground dedicated

The Child Development Center's (CDC) newly renovated playground at Kennedy Space Center was officially open with a ribbon cutting Jan. 18.

The KSC-CDC Parents Getting Involved group coordinated a number of activities for the celebration, including ponies, a magic show, and special treats for the children.

"This just shows that through teamwork and dedication much can be accomplished," said Maria Wilson, NASA Exchange operations manager. "We are proud to be a part of this team and look forward to many future successes."

The NASA Exchange Council sponsors the CDC. The center was established in 1990 and taken over by the Exchange Council in 1996.

The center serves children ages six weeks through five years of age, providing educational activities that actively engage children in the learning process.

The new playground was planned to facilitate the children's education, said Noelle Bee, CDC administrator. It is broken up into three components that correspond with the ages of the children who use the equipment. The playground includes infant, toddler and preschool play areas.

"The new playground is a prime example of the developmentally appropriate activities provided for the children," Bee said.

In addition to the new equipment, the Exchange added one hundred square feet of grass area that will serve as picnic space, creative expression areas and enough room for a game of good old fashioned kick ball.

The Child Development Center serves children ages six weeks through five years of age, providing educational activities that actively engage children in the learning process.

The equipment will help the children's large muscles develop and encourages socialization among children and teachers, Bee said. At the same time, the surfacing helps alleviate serious injuries by providing cushion.

Continuing improvements at the center are made possible by support from the parents of the children at the center, the teachers, NASA Exchange employees and the NASA Exchange Council.

"These enthusiastic individuals create the warm and loving environment that helps mold the leaders of tomorrow," Wilson said. "These things are evident in the aesthetic look of the center, the work of the children displayed throughout the building and the many upgrades the teachers make on a daily basis."

Above, Noelle Bee, administrator of the Child Development Center, cuts the ribbon for the center's upgraded playground while (from left) Maria Wilson, NASA Exchange operations manager; Connie Phillips, - infant lead; and Krista Shaffer, Exchange facilities manager, look on. The children are Joey DeLaPascua (left) and Jacob Ream. In the photograph at left, Christopher Harter (left) and Morgan Carter play on the new equipment.

FEW training seminar set

The Space Coast Chapter of Federally Employed Women Inc. (FEW) will present their 23rd annual one-day training seminar, at 9 a.m., March 6 and March 7.

The seminar is titled "Prelude to 2002 – Magic and Space – Dreams in Progress" and will be held at the Holiday Inn, Cocoa Beach. Nancy Lewis, the keynote speaker, is a leading motivational/ inspirational speaker, trainer, and consultant.

Registration and a continental breakfast begin at 8:00 a.m. and workshops begin at 10:15 a.m.

Continental breakfast and lunch are included in the cost of the seminar, which is $70. Registration must be completed by Feb. 27.

For further information, contact Becky Fasulo. Call (321) 867-4436, fax 867-8599, e-mail Rebecca Fasulo-1@ksc.nasa.gov.

John F. Kennedy Space Center

Spaceport News

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Managing editor. . . . . Bruce Buckingham
Editor. . . . . Kathy Hagood

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