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MARSHALL STAR

Serving the Marshall Space Flight Center Community

July 26, 2007

Space station breathes easy thanks to new oxygen generator

NASA

Astronaut Suni Williams configures the oxygen generation system rack in the U.S. laboratory prior to activation.

By Jennifer Morcone and combined reports

Thanks to a new Marshall designed oxygen generator, the International Space Station now will have enough oxygen to support a larger crew. The hardware is part of the station's environmental control and life support system and will be used to augment the Russian Elektron oxygen generator.

The oxygen generation system was activated last week and generated approximately 10 pounds of oxygen during its first dry run. Once fully operational, the new system will generate about 12 pounds of oxygen per day, enough for six people. However, it can provide as much as 20 pounds of oxygen per day, enough for as many as 11 people. It is designed to replace oxygen consumed through breathing or lost during experiment use and airlock depressurization.

"The activation of this system is the end result of a

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An interview with Pam Cucarola, Marshall's Chief Financial Officer

Seeking ways to assist customers in achieving Marshall's objectives

How is the Office of the Chief Financial Officer organized, and how does it operate at the Marshall Center?

The Office of the CFO is organized to complement our main functions and responsibilities.

The Accounting Operations Office provides accounting services for the center including: funds control and certification, travel authorizations, non-travel related payments, billing and collections, cost and property accounting, and accuracy and compliance of information reflected in the center's financial records. The Budget Integration & Analysis Office provides the integration, analysis and oversight of the center's programmatic and institutional resources, including all financial aspects of the planning, programming, budgeting and execution process.

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David Higginbotham/MSFC

Pam Cucarola discusses the role of the Office of the Chief Financial Officer in support of NASA's exploration missions.

NASA awards upper stage engine contract for Ares rockets

From NASA Headquarters

NASA has signed a $1.2 billion contract with Pratt and Whitney Rocketdyne Inc., of Canoga Park, Calif., for design, development, testing and evaluation of the J-2X engine that will power the upper stages of the Ares I and Ares V launch vehicles. The J-2X upper stage engine is managed by the Marshall Center for NASA's Constellation Program.

The contract includes ground and test flight engines. It continues work that began on June 2, 2006, under a preliminary letter contract with Pratt and Whitney Rocketdyne.

NASA awarded the cost-plus-award-fee contract to Pratt and Whitney Rocketdyne on a sole-source basis. NASA determined that no other existing capability meets its architecture requirements and is able to be extended to future exploration missions to the moon and beyond.

The contract performance period extends through Dec. 31, 2012. Engines for operational missions will be purchased through a separate contract.

NASA

The J-2X engine will power the upper stages of the Ares I and Ares V launch vehicles.

The J-2X is an evolved version of two historic predecessors: the powerful J-2 engine that propelled the Apollo-era Saturn IB and Saturn V rockets, and the J-2S, a simplified version of the J-2 that was developed and tested in the early 1970s. Pratt and Whitney Rocketdyne designed and developed both the J-2 and the J-2S and has been responsible for producing, refurbishing and improving them. The J-2X engine will incorporate significant upgrades to meet higher performance and reliability requirements for the Ares vehicles.

Ares I is an in-line, two-stage rocket that will transport the Orion crew exploration vehicle to low-Earth orbit. Orion will accommodate as many as six astronauts. The first stage will consist of a single reusable solid propellant rocket booster similar to those used on the space shuttle, with an additional fifth segment. The second, or upper, stage will consist of a J-2X liquid-oxygen- and liquid-hydrogen-fueled main engine and a new upper stage fuel tank.

Ares V will enable NASA to launch a variety of science and exploration payloads, as well as key components needed to go to the moon and later to Mars. Ares V, a heavy-lift launch vehicle, will use five RS-68 liquid-oxygen- and liquid-hydrogen-fueled engines mounted below a larger version of the space shuttle's external tank and two five-segment solid propellant rocket boosters for the first stage. The upper stage will use the same J-2X engine as the Ares I.

NASA managers meeting to discuss status of next shuttle launch

From a NASA news release

NASA managers will conclude two days of meetings Thursday, July 26, at the Kennedy Space Center, Fla., to assess preparations for space shuttle Endeavour's mission, designated STS-118, to the International Space Station.

The Flight Readiness review is a thorough assessment of preparations for shuttle Endeavour's mission. The review addresses a number of key decisions about the flight, including selection of an official launch date. The current target launch date is Aug. 7 at 6:02 p.m. CDT.

A news conference will be held at the conclusion of the Flight Readiness Review, no earlier than 2 p.m. CDT on July 26. Participating in the news conference will be Associate Administrator for Space Operations Bill Gerstenmaier, Space Shuttle Program Manager Wayne Hale and Space Shuttle Launch Director Mike Leinbach.

The briefing will air live on NASA Television and the agency's Web site. For NASA TV streaming video, downlink and scheduling information, visit: http://www.nasa.gov/ntv.

For STS-118 crew and mission information, visit http://www.nasa.gov/shuttle.

Marshall hosts NASA Advisory Council

Emmett Given/MSFC

The Marshall Center hosted the NASA Advisory Council on July 17-19. The advisory council provides the NASA administrator with counsel and advice on programs and issues of importance to the agency. It consists of six committees: Aeronautics, Audit and Finance, Exploration, Human Capital, Science and Space Operations. Each committee conducts fact-finding sessions throughout the year to gain a broad understanding of current NASA issues and future mission implementation plans. From left, Kirby Lawless of Marshall's Engineering Directorate explains the friction stir welding process to a few members of the NASA Advisory Council. To the right of Lawless are council members Paul Robinson, former director of Sandia National Laboratories, a Lockheed Martin Corporation company; Harrison Schmitt, chairman of the NASA Advisory Council, former U.S. senator and Apollo 17 astronaut; Pat Condon, chairman of the Air Force Association board; John Sullivan, professor of aeronautics and astronautics, and director of the Center for Advanced Manufacturing at Purdue University in West Lafayette, Ind.; and Eileen Collins, retired astronaut and first female shuttle pilot (STS-63), first female shuttle commander (STS-93), and commander of the Return to Flight mission (STS-114).

Oxygen generator

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long process of hard work and collaboration from a very dedicated team of NASA employees from across the agency and contractors and suppliers from around the country," said Bob Bagdigian, project manager at Marshall for the Regenerative Environmental Control and Life Support System. "This system now allows us to expand our space station crew capacity and achieve its full potential for preparing our nation to engage in far-ranging space exploration missions such as to a moon base or even on to Mars."

The 1,800-pound, refrigerator-sized system was delivered on space shuttle Discovery's STS-121 mission in July 2006. Since then, several elements of hardware and software have been added to the station to support the new system's operation. The last required part, a hydrogen vent valve, was installed during a spacewalk on space shuttle Atlantis' STS-117 mission in June.

Work performed by space station Expedition 15 Flight Engineer Clayton Anderson and software updates to U.S. computers earlier in July completed preparations for the system's activation and operation.

The new system produces oxygen from the station's water supply. Through the process of electrolysis, it splits the water into hydrogen and oxygen molecules. The oxygen is delivered into the crew cabin, while the hydrogen is vented overboard through the hydrogen vent valve. In the future, NASA will add equipment that combines hydrogen with excess carbon dioxide from breathing air in a chemical reaction that produces water. The water would help replace the water used to make oxygen.

Currently, oxygen on the station comes from four sources: the Russian-built Elektron system, Russian supply vehicles, storage tanks in the U.S. Quest airlock and solid fuel oxygen generators called candles.

The new oxygen generation system in the U.S. Destiny laboratory is one of two primary components in the station's regenerative environmental control and life support system. The other component, the water recovery system, is planned to be installed on the space station in 2008. Periodically, NASA will activate and operate the new oxygen generator to ensure the system remains ready for its integration with the water recovery system.

The two new systems were to be included in the space station's Node 3 module, targeted for launch in 2010. However, mission managers decided to launch them earlier as part of a strategy to enhance redundancy on the station today while preparing to increase the station's crew to six people in 2009. The advances made in the environmental control and life support system will help cut station operating costs. Less money will be needed to launch fresh supplies of air, water and expendable life support equipment to the station and return used equipment to Earth.

The oxygen generation system was designed and tested at the Marshall Center and Hamilton Sundstrand Space Systems International in Windsor Locks, Conn. The Boeing Co. of Chicago provided laboratory integration, including the development of mechanical equipment, electrical equipment and computer software that facilitates the operation of the system in the Destiny module.

The writer is a Public Affairs Officer in the Office of Strategic Analysis and Communications.

Cucarola

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The Business Systems & Customer Support Office provides co-located resource management support to the center's institutional organizations, oversight of the implementation and ongoing support for agency and center financial systems and processes, and centralized procurement requisition quality control and support. The final office, the Policy & Management Controls Office, provides internal review of center financial and business-related activities for compliance with agency and center policies, regulations, procedures and directives; development and execution of the center's financial management internal control plan in support of the agency's Office of the CFO; and audit liaison support for the center. We are assessing our current organizational structure for opportunities to strengthen alignment of our functions with the center's needs.

What are your responsibilities as the chief financial officer?

As Marshall's CFO, I am charged with statutory responsibility for the financial management activities of the center and the management responsibility for the oversight and integration of all of Marshall's programmatic and institutional financial operations. There are really two dimensions to this job. The first is to provide effective customer service to the center organizations and employees to ensure that they have the resources, support and information that they need to execute their missions. The second is to ensure that we have adequate controls and processes in place to produce the factual and legal basis for financial accountability and to effectively manage, control, safeguard and account for the center's assets. As you can imagine, these two dimensions often appear to be at odds with each other. As the CFO, my goal is to help our team achieve the appropriate balance between customer service and financial accountability and control.

What role does the Office of the Chief Financial Officer have in supporting NASA's exploration missions?

Our office has a key role in support of NASA's exploration missions. Simply stated, we are responsible for ensuring that the implementers of these missions receive the financial resources, tools and information they need to accomplish their assigned tasks. Toward that end, we work with center organizations performing and supporting space exploration work to incorporate the results of their budgetary planning into an integrated center budget reflecting programmatic and institutional requirements.

During execution, we ensure timely distribution of funding to organizations for expenditure. Our office processes cost transactions, reflecting reports of work accomplished and reimbursing our contractor partners for the work they have performed in support of NASA missions. We provide input to Marshall's Center Management Council's monthly status reviews and monitor financial status on a monthly basis to identify areas where organizations require assistance. And finally, we continually look for opportunities to improve cost efficiency of supporting center management and operations activities.

David Higginbotham/MSFC

Cucarola explains how improving customer service is a continual focus for her organization.

The financial office has three quality objectives: provide timely, accurate and meaningful business information; support the implementation and adoption of agency standard processes and systems that improve agency and center business processes and practices; and improve customer service. How is the office working to achieve these objectives?

These quality objectives are embedded in everything we do. Translating financial data into meaningful information is a major challenge, and, consequently, we are committing significant energy toward this goal. We use a variety of forums to gather information needs, including Marshall's governing councils, Resources Status Group forum and monthly financial status reviews. Our office is working closely with the Office of Strategic Analysis & Communications to compile the financial portion of a "Smartbook" — which is an Integrated Monthly Summary — for use by the Integrated Management Systems Board to monitor the institutional health of the center. We work closely with the agency's Office of the CFO and the Integrated Enterprise Management Program to facilitate the definition and implementation of standard agency processes and tools.

Locally, we will be reconstituting the Business Management Committee to serve as a forum for vetting process and system changes to improve communication and coordination across the center. Most recently, we participated in the business integration value-stream mapping efforts, which resulted in significant improvements in the approach for integrating center programmatic, institutional and workforce requirements for the annual Planning, Programming, Budgeting and Execution cycle.

Improving customer service is a continual focus for the organization. We constantly reinforce the need to listen to and understand our customers' needs and to seek ways to assist them in achieving their objectives within the bounds of the regulations we must follow. We provide numerous forums to hear the perspectives of our customers,

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Cucarola

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including the Resources Status Group and open houses, which are conducted by our Business Systems & Customer Support Office.

What is the greatest strength of the financial office?

We are fortunate to have an outstanding team of highly experienced, dedicated individuals. Our workforce has an average of 21 years of federal service and is well balanced between financial and budget management competencies. Over the past few years, the Office of the Chief Financial Officer has experienced many changes in terms of roles, responsibilities, organization and leadership. Change of this magnitude can be very unsettling and, at times, disruptive. Fortunately, we have a great civil service and contractor team that has held together and remained focused on delivering consistent products and services during these dynamic times.

What is the greatest challenge in directing the development, implementation and monitoring of the center's financial activities?

One of the significant challenges that we face is how to provide effective customer service while dealing with continual change in roles and responsibilities and adhering to the abundance of laws and regulations that govern financial and budgetary management functions. With the implementation of the NASA Shared Services Center, many customer service functions have been consolidated. On-site financial offices at NASA field centers no longer provide services to our customers in the areas of travel reimbursement and payroll processing. Our ability to ensure that our travelers and employees are taken care of is now dependent on a third-party provider, the NSSC. Our team has worked closely with the NSSC to define processes that keep the customer perspective in mind.

With the governing financial regulations that Marshall must follow, it is not always possible to satisfy every customer's desires. My team has been asked to continually seek to understand their customer's perspective and end objectives. Armed with that understanding, we look for ways to assist customers in accomplishing those objectives within the bounds of the applicable laws and regulations. We must remember that the intent of those laws and regulations is to ensure that we do the right thing, not to cause us to do things that, in the end, aren't cost effective.

Classified Ads

To submit a classified ad to the Marshall Star, go to Inside Marshall, to "Employee Resources," and click on "Employee Ads — Submit Ad." Ads are limited to 15 words, including contact numbers. No sales pitches. Deadline for the next issue is 4:30 p.m. Thursday.

Miscellaneous

8 ft. aluminum step ladder, $25; king-size wicker headboard from Bragg's, $150. 883-2237

Mid 70s Raleigh Grand Prix, very good condition, 21-inch frame, $75. 881-6909

Oak china cabinet, glass door accents, $225. 837-3562

Sherwood receiver, $35; Teac CD player, $10; Panasonic speakers, $10. 682-8692

6-foot oak curio cabinet, lighted, $80. 337-1868

Jeff Zimmerman designer sofa, large, colorful, $1,000. 536-5132

Two Willie Nelson concert tickets, Aug. 20, Chastain Park Ampitheater, Atlanta, $150. 233-8505

Oak barrel table, four matching chairs, $125; weight bench, barbell set, $50. 882-1067

Changing table, cherry. 337-4297

China cabinet, Holland, late 1800s, beveled glass, $995; server, Victorian, 1860s, $595. 852-1726

Book case, desk, antique buffet, Ethan Allen dining room set, sofa, love seat. 348-2670

Three-way bed (crib, day, twin), armoire, chest, two nightstands, toy box. $1,300 obo. 280-8258

Bally "Mata Hari" full-size pinball machine, $990. 316-1713

Buffet E11 Bb wood clarinet, $600; Susuki violin, 1/4 size, 1966, $150. 881-4148

Dell 8300 computer, CD burner, sub woofer, speakers, printer, $1,000. (931) 308-1238

Ashley Barstow entertainment center, piers, bridge, shelf, $650; Sony KP-51WS510 51-inch TV, $500. 683-7128

Sapphire graphics card, 256 M ram, 128 bit, 8x APG, CD, drivers, $35. 961-2285

Nike carrying golf bag, $50. 683-7014 or 682-0994

Reclining love seat, suede cloth, delivery available, $350. 776-5645

Sofa, loveseat, $400; two solid wood twin headboards, $60; queen-size headboard, $80. 721-8524

Two Murray riding lawnmowers, 17.5 HP, 42-inch cut, 46-inch cut, $125 each. 318-3403

Antique display cabinet, three drawers, mirror attached, $200. 503-6773

Two ball-and-claw end tables, bevel glass, $40; two crystal lamps, $15. 682-5418

DuoSport three-wheel child push-cart, bicycle attachment, net, clear cover, $75. 851-7406

Wooden recurve bow, unstrung, 60-inch, $150. 479-4345

Crowley heavy duty dryer, $100. 656-8748

GE dishwasher, garage refrigerator, wood-burning insert, couch, recliner, $450 obo. 652-2787

Solid wood futon, $100; wood dresser, $75; Sears car top carrier $100. 655-2548

GE refrigerator, side by side, white, 25 cubic feet, 4 years old, $750. 348-3109

Country French writing desk, glass top cover, $350; country French chair, light blue, $75. 233-5819

Seasoned horse manure (free), U-haul, Heart's Desire Evening Farm, Taft, Tenn. (931) 425-0163

Executive desk, two pedestals, five drawers, wood laminate, $50. (931) 425-0163

2003 Epiphone Casino guitar, sunburst finish, hard shell case, $500. 684-0910

Four cemetery plots, Tri-Cities Memorial Gardens, $4,000. 436-1106

HDTV, Samsung 32-inch CRT with remote, $365; 512Mb RAM, 667MHz, $30. 655-1986

26-inch boy's 21-speed bicycle, $200. 24-inch girl's 18-speed bicycle, $50. 536-8951

Platinum wedding rings, over one carat, .75 marquise center, appraised, $6,000 obo. 205-382-7270

Vehicles

2006 Chevy Trailblazer EXT LT, V8, black, leather, six-disc changer, DVD, sunroof, On-Star, $25,875. 565-9918

2004 Mitsubishi Endeavor LS, silver, less than 40k miles, $16,000 neg. 651-3626

2002 Kia Sedona LX, 112k miles. 233-6197

2002 Nissan Frontier XE pickup truck, green, king cab, bed liner, 42k miles, $10,500. 883-6894

2002 PT Cruiser, new tires, 32k miles, $8,500. 883-1096

2002 Snapper 14.5 HP lawn tractor, 38-inch deck, $1,800. 880-1838

2001 Chevy Suburban LT, 2WD, leather heated seats, towing package, 90k miles, $12,500. 714-1941

2001 PT Cruiser LE, silver, 79k miles. 797-8895

2001 Windstar LX, dual a/c, CD, cruise, quad chairs, power group, 125k miles, $4,350. 880-9754

2000 Cadillac DeVille, white, tan leather interior, moonroof, cassette, six-disc CD stereo, $6,300. 975-2101

2000 Ford Explorer Sport, V6 motor, five-speed transmission, 98k miles, $3900. 851-7767

2000 GMC Sonoma truck, 4x4, 87k miles, off-road, fully loaded, green, beige interior, $8,000. 931-967-7307

1997 Ford F150 Truck XLT, extended cab, new tires, 99k miles. 520-0291

1993 Jeep Cherokee Sport, white, 4.0 liter, $1,500. 316-1713

1987 3/4 ton LWB truck, 350 engine, runs, needs repairs, $500. 753-2583

1982 Corvette, blue, all power, T-tops, cloth interior, 69k miles, $13,500. 777-0177

Honda four-wheeler, model TRX250TM6, $3,200. 353-4922

Minibike, Harley Fatboy style, solo springer seat, saddlebags, 5HP, $225 obo. 325-2919

Wanted

Chain link gate, 5x4. 655-6348

Old Marshall Stars, 1960s. 797-7829

Small dorm refrigerator. 883-2757

Suspended ceiling parts, 24-inch cross-tees, older style for 25- to 40-year-old grid system. 233-0705

Found

Postage stamps, 4200 south parking lot; pink bracelet; silver earring. 544-4680

U.S. currency, between Bldgs. 4200 and 4201. 544-1887

Atlantis' STS-117 astronauts visit Marshall Center

By Sanda Martel

Space shuttle Atlantis crew members visited the Marshall Center July 17 to thank employees for helping to make the STS-117 mission a success. The crew was welcomed to the Morris Auditorium by Robin Henderson, Marshall associate director.

"It couldn't have been done without you, and we wanted to pay special thanks to the men and women here who helped us complete such as successful mission," said STS-117 commander Rick Sturckow.

Other visiting crew members included pilot Lee Archambault, along with mission specialists Patrick Forrester, James Reilly, Steven Swanson and Danny Olivas.

The astronauts showed a video highlighting their 14-day mission that comprised four spacewalks, including one to install the Marshall-developed oxygen generation system and external hydrogen vent assembly. The 1,800-pound oxygen generator will use water to generate breathable oxygen for crew members — about 12 pounds of oxygen each day during normal station operations — and also will help replace oxygen lost during experiments and airlock depressurization.

Following their presentation, the astronauts took questions from the audience, many from students attending Space Camp at the U.S. Space & Rocket Center. The astronauts also signed autographs at the end of the program.

David Higginbotham/MSFC

STS-117 crew members sign autographs in Morris Auditorium following their mission highlights presentation in the Morris Auditorium on July 17. In the foreground is mission specialist Jim Reilly.

Atlantis' STS-117 mission successfully increased the power capability of the International Space Station, preparing for the future delivery of European and Japanese laboratories.

Atlantis was launched from the Kennedy Space Center June 8 and landed at Edwards Air Force Base, Calif., on June 22.

The writer, an ASRI employee, supports the Office of Strategic Analysis and Communications.

Obituaries

Harold D. Goetz, 86, of Colorado died Jan. 17. He retired from the Marshall Center in 1974 as a quality assurance specialist. He is survived by his wife, Shirlee Goetz.

Edker McKenzie, 86, of Madison died June 28. He retired from the Marshall Center in 1973 as a program analyst. He is survived by his wife, Katheryn McKenzie.

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