



# MARSHALL STAR

Serving the Marshall Space Flight Center Community

Feb. 23, 2006

## Booster separation motor test stand provides new Marshall capability

By Sanda Martel

Through an arrangement with an industry partner, the Marshall Center is the new home for a space shuttle booster separation motor test stand.

A static — or stationary — test stand was relocated to Marshall from San Jose, Calif., where Pratt & Whitney Rocketdyne, a United Technologies Company of Canoga Park, Calif., previously manufactured and tested shuttle motors.

The test stand will serve as an alternative platform for motor tests. The new supplier of booster separation motors, ATK Thiokol of Promontory, Utah, will begin qualification testing of shuttle booster separation motors to verify flight readiness. Testing at ATK Thiokol is expected to begin later this year.

*See Test stand on page 3*



An exhaust plume is produced during a space shuttle booster separation motor test at the Marshall Center Feb. 17. The 1.2-second motor test achieved the expected maximum thrust, 23,000 pounds force, and met the test objective of proper test stand installation.



## Space shuttle solid rocket motor tested at Marshall

A space shuttle solid rocket test motor was fired Thursday, Feb. 16, at the Marshall Center. Initial indications are that the subscale test motor performed successfully in the 19-second test and that all data acquisition systems were fully functional.

Engineers will continue evaluating the test data and final test results will be available in several weeks. The 252-inch-long, 24-inch-diameter motor is a low-cost test bed that can help validate new insulation materials to be used in full-scale space shuttle reusable solid rocket motors.

NASA/MSEFC

## A great time to be a part of the space program

When I first began my career at NASA, over 20 years ago, I never fully imagined all the opportunities and milestones I would experience. The events over the past three years have created an unexpected excitement: the return of human exploration beyond low-Earth orbit, and leading the NASA field center responsible for systems development and integration for exploration and science missions.

As I'm sure you do, I feel blessed to work for the most unique agency in the federal government, but I feel even more blessed to be a part of the



**David King**

Marshall team, a team known for its stamina during challenging times, and for the ability to learn from those challenges.

Everyone who attended the town hall meeting with Mike Griffin on Jan. 6, and/or the recent NASA budget rollout on Feb. 6 knows that Marshall Space Flight Center has a great future. We are continuing to work very hard preparing for STS-121, the second flight of the Return to Flight test missions, and we are ramping up our work on the new Crew Launch Vehicle, with system requirement reviews expected to take place this year.

Additionally, we are working very hard on our role in the Robotic Lunar Exploration Program. The Pre-Phase A team is currently seeking determinations on capability, navigation, and launch/transit approach. By spring, the agency will have a Concept Decision Review.

Many amazing things are taking place at Marshall, and we are fortunate to have such a strong Marshall team, and strong agency and community advocacy. Likewise, we are fortunate to have a strong budget to support our work.

As our work moves forward, changes will take place — changes and transitions that are positive for the center and America's space program. Your commitment to excellence and quality is vital to our success, and I want to encourage you to be fully engaged in your respective disciplines. This is a great time to be a part of the space program, and I believe our team should experience enjoyment in the challenges of turning the Vision for Space Exploration into reality.

We are writing the next chapter in exploration history. We are ordinary people doing extraordinary things. Let's enjoy the journey together!

*David King*  
**Director, Marshall Space Flight Center**

## NASA Headquarters approves Marshall's realignment

NASA Headquarters has approved Marshall's new organization structure. The realignment was officially effective Feb. 5.

The Employee Services and Operations Office has completed the processing of personnel actions on all employees affected by the realignment. Copies of the official personnel actions will be sent to administrative officers for distribution.

For questions, contact Jim Bramblett at 544-3398.

## Meet Mark Kelly, pilot of the next shuttle mission

Mark Kelly became interested in the space program as a child, when he watched the first Apollo missions to the moon.

Kelly was watching footage of astronaut Alan Shepard landing on an aircraft carrier when he first began to realize how his dreams could become a reality.

"I remember thinking, 'Well, that looks like a great combination. You go fly airplanes in the Navy off a ship first, and then later you become an astronaut,'" he said. "I never thought it would really happen, but that was my goal."

Now he's set to pilot Discovery into space on the next shuttle mission, STS-121.



**Kelly walks near the flight line of T-38s at Ellington Field near NASA's Johnson Space Center.**

NASA

## Continuous Risk Management workshop opened to Marshall employees

A Continuous Risk Management workshop is scheduled for Feb. 28, from 8:30 a.m. to 4 p.m., at the Marshall Institute Education Training Facility at the U.S. Space & Rocket Center. The workshop is being conducted by the Safety Reliability and Quality Assurance, Policy and Assessment Continuous Risk Management team.

Continuous Risk Management is a project management tool for managing risks within a program and project. It provides an organized, systematic decision-making process to efficiently identify, analyze, plan, track, control, communicate and document risk to increase the likelihood of achieving program and project success.

In support of the agency's Vision for

Space Exploration, the Marshall team will continue to incorporate Continuous Risk Management to improve program and project performance. The tool helps identify potential risks before they become problems, enables better use of resources, requires managers and engineers to include risk considerations in their processes and promotes teamwork. Reduced costs and schedule slippage as well as a focused product vision shared by team members are a few benefits Continuous Risk Management contributes to the center's mission.

Marshall employees should attend the training because it provides a disciplined environment for early identification of risks to allow proactive decision making

for risk mitigation. The program and project manager can assess what could go wrong, determine which risks are important to address and implement strategies to handle them. Also, NASA documents NPR 7120.5, "NASA Program and Project Management Processes and Requirements," and NPR 8000.4, "Risk Management Procedural Requirements," mandate the performance of Continuous Risk Management on all programs and projects.

To schedule future classes or learn more about Continuous Risk Management, go to <https://msfcsma3.msfc.nasa.gov/dbwebs/apps/vsma/srqa/crm/>, or contact Keith Layne at 544-4801 or Bill Powell at 544-2124.

## Test stand

### Continued from page 1

The test stand also will be available for future testing of NASA's next generation spacecraft, the crew launch vehicle, which builds on shuttle technology.

"The addition of this testing capability is a real asset for the Space Shuttle Program and for the Marshall Center," said David Martin, manager of the Solid Rocket Booster Project Office. "We want to thank all the folks who worked so hard to get this test platform moved to Marshall."

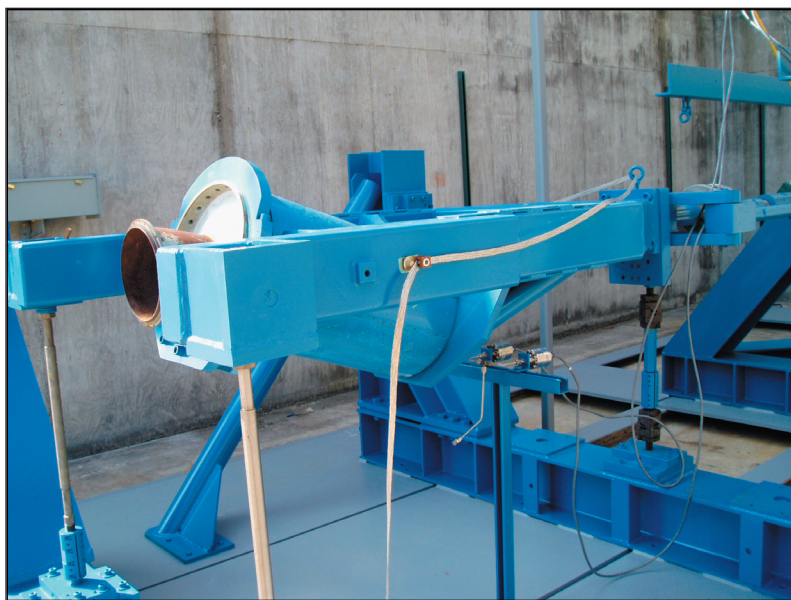
The first test, to verify proper test stand installation, was conducted Feb. 17 at East Test Stand 19. The test also demonstrated data collection capability, said Jay Nichols, an engineer in the Shuttle Propulsion Solid Rocket Booster Project Office. The motor was tested at existing, or air temperature, and produced the expected maximum thrust of 23,000 pounds force, which met the test objective.

A second test of a motor thermally conditioned at 120 degrees Fahrenheit will be in March.

The 1.2 second tests last the same amount of time as a booster separation motor ignition during an actual shuttle launch. Motors for the tests were obtained from the NASA inventory at the Kennedy Space Center in Florida.

The tests are expected to demonstrate the booster separation motor test facility's capability by providing motor case pressure data and thrust measurement data. The motor performance data will be evaluated by comparing it to results from previous static tests.

Booster separation motors weigh 177 pounds when loaded with propellant. Each is approximately 31 inches long and 12.8 inches in diameter. About two minutes into a space shuttle flight, 16 of these small but powerful motors are fired simultaneously for 1.2 seconds.



This test stand, used for static testing of space shuttle booster separation motors, is now located at the Marshall Center. It is an alternative platform for motor tests in the Space Shuttle Program, and also will be available for testing of NASA's next generation spacecraft, the Crew Exploration Vehicle.

This provides the precise thrust required to safely separate the spent boosters from the space shuttle's external tank and orbiter.

Eight booster separation motors are attached to each of the shuttle's two reusable solid rocket boosters, four on the forward skirt and four on the aft skirt. The booster separation motors in each cluster of four are ignited when motors are traveling through the atmosphere at more than 3,000 mph and an altitude of approximately 24 nautical miles.

*The writer, an ASRI employee, supports the Public and Employee Communications Office.*

# NASA Shared Services Center to open March 1 at Stennis



David Higginbotham/MSFC

From left, Janie Moyers, NSSC Change Management lead; Jim Ellis, NSSC Change Transition lead; Mack Blackman, Human Resources Transition lead; John Alexander, Financial Management Transition lead; Sheila Fogle, Information Technology Transition lead; Elaine Hamner, Procurement Transition lead; and Kenny King, Financial Management Payroll Office.

The Marshall Transition team met recently to go over plans to transition selected activities that are being consolidated in financial management, procurement, information technology and human resources into the new NASA Shared Services Center at Stennis Space Center.

The Shared Services Center opens March 1. The vision is to provide unparalleled service, which will be measured and reported to all customers. The NSSC will work with NASA field centers to meet all service needs through the Customer Contact Center and the center liaisons.

Some of the first activities to be transitioned to the Shared Services Center will be the NASA Drugfree Workplace Program, Foreign Travel/PCS Processing, Health Fairs, Rank Awards, Special HR Studies, Classification Appeals, Employee Notices, Domestic Travel, Payroll Processing, Training Purchases and Grants/Coop.

Because the NSSC will provide a unified process for obtaining transactional, administrative and support functions, there will not be any duplication between centers. It supports the president's management agenda for improved government performance and the OneNASA vision.

## 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

- Haviland "Rosalinde" china, eight 5-piece place settings, soup bowls w/saucers, 9 serving pieces, \$800. 881-0278
- Rescue Heroes: vehicles w/figures, animals, videos, games, e.g. Command Center, robot, \$100. 882-3753
- Berkley Lightning fishing rod w/Abu Garcia 704 Cardinal spinning reel, new, \$40. 883-1003
- Craftsman workbench, lights/power, new in box, \$300; computer desk w/storage, \$100. 776-9165
- Pugs, AKC, fawn w/black mask, 4F/3M, ready March 4, \$450. 256-882-2037/David
- GE TV, 31", shelf for 150 lb. TV, Sony Progressive Scan DVD player. 461-6337
- Dell computer, \$500, or trade for Dell laptop. 536-5132
- Stanley Bostitch industrial floor stapler, Model MIII, 2-1/2" staples, used once. 859-1188
- Aquarium, 150 gallon, stand, lights, filters and heater, \$600. 256-931-6954
- 2003 Epiphone Casino, sunburst finish w/hardshell case, rarely played, \$570. 746-9080
- Strapless ivory wedding gown w/train, size 18, beadwork, empire waist, Italian lace. 509-9018
- Whirlpool gold refrigerator, side-by-side, black, ice/water in door, one-owner, water filtration system, \$750. 461-9404

- Swing set, 8 legs w/slide, airplane swing, and glider, \$20. 256-232-8311
- Oak executive desk and credenza, \$350. 464-0994
- Flatbed scanner, Paperport 3100B, never used, \$15. 256-852-7662
- Boy's furniture, captain's bed w/4-drawer storage, mattress and 5-drawer dresser, \$450. 464-5425
- Bassett solid Cherry entertainment center, fits TVs up to 27", \$450. 256-776-4889
- Rifle, Enfield 2A1, .308 Winchester, \$250. 656-4211
- Bombay Dreams ticket, 3/12/06, 2 p.m., front row, middle, \$49. 256-498-2028
- Tanning bed, Professional Sun Series 424SL, 24-bulbs, bulbs new, \$900. 625-3002
- Oak entertainment center, holds 36" TV, matching side pier, both w/recessed lights, \$1,100 pair. 829-0285
- Hitachi Ultravision big screen TV, 60". 882-3326
- Trundle bed w/mattress, \$40; Graco baby stroller, \$30. 603-3558
- Two side-by-side crypts, Valhalla Memory Gardens, all fees included, \$5,200. 860-558-3063

### Vehicles

- 2005 Toyota Camry LE, V6, 5.8K miles, 5-speed AT, 4-wheel disk brakes w/ABS, all-power, \$18,400. 881-3612
- 1996 Chevrolet Corsica, 4-door, automatic, red, \$1,725. 603-3558
- 1978 Pontiac Trans Am, white, 403, auto, loaded, CD, garaged, 87 octane, \$7,990 firm. 772-7367
- 2004 Chrysler Sebring touring convertible, gold, 29K miles, under warranty, \$15,900. 652-5177
- 2002 Shamrock expandable travel trailer, 23', slide, sleeps 8, loaded, anti-sway hitch, \$10,900. 874-7874
- 1999 Chevrolet Suburban, 4x4, leather, towing package, new Michelin tires, \$9,800. 683-9364
- 2001 Infinity I30T, white, auto, new computer w/warranty, loaded, garaged, 69.6K miles, \$14,500. 256-679-7472
- Tractor, H Farmall, w/Bush Hog, 12-volt system, \$2,800. 256-232-5809
- 2000 Honda Accord LX coupe, 57K miles, \$10,000; 2001

- Chevy Tahoe LS, 51K miles, \$18,000. 256-655-6293
- 2000 Nissan Frontier, 4-door crew cab, automatic, power, CD/cassette, 101K miles, silver, \$9,900. 880-9025
- 2005 Nissan Frontier, V6, automatic, bed liner, garaged, \$16,500. 837-1774
- 2002 Lincoln LS, V8, automatic, black, leather, 39K miles, Alpine stereo/CD, factory warranty, \$17,900. 931-703-0581
- 2001 Jayco travel trailer, 30', queen, 2 bunks, a/c, fridge, heater, stove/microwave, awning, sleeps 8, \$11,000. 859-0729
- 1998 Honda Accord LX, 4-cyl., 4-door, black, second owner, all maintenance records, 144K miles, \$6,200. 325-8958
- 2004 Lincoln Aviator, RWD, 25K miles, white, factory DVD entertainment system, \$27,500. 694-1112
- 1994 Dodge Dakota SLT, extended cab, automatic, a/c, power, stereo, hitch, 109K miles, \$2,900. 656-8409
- 1999 Ford Explorer XLS, 4x4, 82.5K miles, Goodyear tires, towing package, privacy package, \$7,400. 353-3229

### Free

- Dog needs good home, 1-1/2 yrs. old, spayed. 656-8723

## Shuttle Buddies to meet Feb. 27

The Shuttle Buddies will meet at 9 a.m. Feb. 27 at Mullins Restaurant on Andrew Jackson Way. For more information, call Deemer Self at 881-7757.

# Regional Small Business Conferences create growth opportunity

NASA continues to help small local businesses grow by showing them the best ways to work with government agencies on the local, state and federal levels.

In January, Regional Small Business Conferences were hosted at the Mercedes Benz U.S. International Institute in Vance, Ala., and the National Museum of Naval Aviation in Pensacola, Fla. The conferences, themed "Making the Connection," attracted 170 businesses and about 200 people, including a representative from the office of U.S. Sen. Richard Shelby of Alabama.

Marshall Center's Technology Transfer Program, in conjunction with the Office of Procurement and the Government and Community Relations Office, sponsored and facilitated the events. The goal was to identify technology-based small and disadvantaged businesses as potential partners or suppliers for programs such as the Crew Launch Vehicle or partners for

technology infusion and licensing collaborations.

Informative presentations covered how to market to and partner with both NASA and its prime contractors, as well as how to license NASA technology and apply for Small Business Innovation Research and Small Business Technology Transfer contracts.

Several Marshall team members supported the conferences, including Vernotto McMillan, Helen Stinson, Sammy Nabors, Carolyn McMillan, Byron Butler, David Brock, Rosa Kilpatrick, John Vickers, Ruthie Cutlip and Barbara

Jenkins. Conference arrangements and logistical support were provided by the NASA Southeast Regional Technology Transfer Center at the Georgia Institute of Technology and KAE Corporation, in Marietta, Ga.



Doug Staffer/MSFC

Attending the NASA Regional Small Business Conference at the Mercedes Benz Institute in Vance are from left, Helen Stinson, small business manager, Marshall Technology Transfer Program; Tim Pickens, president, Orion Propulsion; Vernotto McMillan, manager, Marshall Technology Transfer Program; and Angie Fulmer, business manager, Orion Propulsion.

## NASA helps weed our national garden

NASA Headquarters release

NASA and other federal agencies are using satellites that circle the Earth to help weed out a plant that's affecting water supplies in the western United States.

NASA has been using its satellite and computer resources to help other organizations control invasive plant species. An "invasive species" is a non-native or alien to the ecosystem in which it's found. Often, invasive species cause economic or environmental harm or harm to human health. Invasive species can be plants, animals, and other organisms (e.g., microbes). Human actions are the primary means of invasive species introductions.

Invasive plant species traditionally are located, identified and monitored by manual ground surveys. Such surveys are effective, but expensive, time consuming and difficult to manage over large areas. Now, a new tool developed by the U.S. Geological Survey is taking advantage of observations from NASA satellites and NASA engineering to provide a service for land managers that predicts quickly and inexpensively the location and spread of invasive plants over regional areas. The tool, called the Invasive Species Forecasting System was recently used to make the first predictive map of tamarisk habitat in the United States.

Tamarisk is a large shrub to small tree native to Africa and Eurasia. It was introduced in the western U.S. in the early 1800s as "ornamental vegetation" and for wind and erosion control. Tamarisk

has since spread and can be found from Minnesota to California and from Mexico to Canada. The U.S. Department of Agriculture recently identified tamarisk as one of the most harmful invasive species in the nation, because the plant's long roots tap into underground aquifers. Its groundwater-absorbing qualities may be adding to the severity of the drought in the western United States. Tamarisk also increases the salt concentration of the soil and degrades habitats for native species along river systems.

"The ISFS combines NASA satellite data with tens of thousands of field sampling measurements," said Tom Stohlgren, director of the USGS NISS. All of that data are then used to look at where non-native (or plants that normally don't grow in a place) existed in the past, or where they exist today. Then, the ISFS tool can help predict where the invasive plants may grow or spread. People that manage lands, especially water supplies in the U.S. west, can use the color-coded maps that the ISFS produces to help predict and manage the spread of troublesome invasive species.

ISFS uses data from NASA's Terra, Aqua, and Earth Observing-1 satellites, and the USGS Landsat satellites, together with field data from government and non-government contributors. All of these satellites observe and measure sunlight reflected by plants and the environments in which they are growing. The satellites are able to "lock in" on some of the reflected light to determine tamarisk's current locations as well as places where it may spread.

# Marshall conducts 66 wind tunnel tests

By Sheri Bechtel

Testing is under way by engineers at the Marshall Center to lay the foundation for developing the Crew Launch Vehicle, the agency's future launch vehicle system.

Sixty-six wind tunnel tests were conducted on a 16.5-inch scale model of the vehicle. The tunnel is 48 inches long with a 14-inch by 14-inch cross section. Wind tunnel "flights" are used to assess new geometric configurations before designs are incorporated into space vehicles.

In the tube-like, tunnel structure, giant fans or high-pressure air generate artificial wind to flow over vehicles, engines, rockets or scale-model hardware, helping scientists determine flight performance characteristics of new concepts.

The first, two-week entry in the test series began in December and was performed at Marshall's Aerodynamic Research Facility. The facility is used for concept validation of space launch vehicles. Additional testing continues this month.

The initial test data are the foundation for more detailed testing this spring and summer. Bigger vehicle models will be used



David Higginbotham/MSFC

**Test engineer Alonzo Frost with a Crew Launch Vehicle model being tested in the Marshall Aerodynamics Research Facility.**

in larger wind tunnel facilities at NASA's Langley Research Center, Hampton, Va., and Ames Research Center, Moffett Field, Calif.

The scale model for the Marshall tests included the crew capsule, service module and escape tower. The model simulated the full Crew Launch Vehicle take off load. NASA's Constellation Program is developing both crew and launch vehicles as it follows NASA's Vision for Space Exploration by returning humans to the moon and preparing for voyages to Mars and beyond.

Engineers also conducted flow visualization tests. The imaging is used to identify shock waves and component expansions similar to those experienced during supersonic flight. The test series was intended to provide the first actual Crew Launch Vehicle configuration data for guidance, navigation and control systems analysis. Testing was performed over a Mach .5 to 4.96 range.

*The writer, an ASRI employee, supports the Public and Employee Communications Office.*

## Volunteers needed for 13th annual Great Moonbuggy Race on April 7-8

Volunteers for the 13th annual Great Moonbuggy Race are needed for Friday, April 7, and Saturday, April 8. The race will be at the U.S. Space & Rocket Center. To sign up, go to [http://](http://oscar.msfc.nasa.gov/hs/tgmr2006.nsf/reg)

[oscar.msfc.nasa.gov/hs/tgmr2006.nsf/reg](http://oscar.msfc.nasa.gov/hs/tgmr2006.nsf/reg).

For more information, contact Julie Clift at [julie.d.clift@msfc.nasa.gov](mailto:julie.d.clift@msfc.nasa.gov).

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