



*"We bring people to space — We bring space to people"*

## Marshall partners with Army

# New policy tightens gate security at Redstone

Redstone Arsenal will implement increased security measures beginning June 1.

With the increased Redstone Arsenal gate security measures, Marshall's Protective Services Office also has implemented changes for foreign national and foreign representatives visiting the Center.

The measures to be implemented at the gates include:

- Permanently closing Gate 2 on Buxton Road at South Memorial Parkway;
- Assigning a security guard for each lane of traffic at gates 1, 3, 4, 7 and 9;
- Closing to traffic all unstaffed lanes;
- Checking all entering vehicles for current decals; and

- Strictly enforcing the 25-mph speed limit.

Hours for open gates are:

- **Gate 1 — Martin Road east** - 5:30 a.m.-8 p.m. Monday - Friday, 6 a.m.- 8 p.m. Saturday, Sunday and holidays;
- **Gate 3 — Redstone Road** - 5:30 a.m.-6 p.m. Monday - Friday;
- **Gate 4 — Patton Road north of Neal Road** - Staffed 24 hours per day;
- **Gate 7 — Martin Road west** - 6 a.m.-6 p.m. Monday - Friday;
- **Gate 8 — Goss Road east** - Open 24 hours, staffed 10 p.m.-5:30 a.m.;

*See Security on page 7*

# Griner says employee input vital to long-term success

*by Mike Wright*

Some call it a "major reorganization" at the Center, but Marshall Center Deputy Director Carolyn Griner sees it as even more than that.

"Moving to new offices and unpacking boxes won't complete the reorganization," Griner said. "That's only one part. The restructure involves people, organizational structure and process. We will continue to gather input from employees on how we should do business under the restructured organization.

"We want employees to put new, innovative ideas on the floor. That's what they did last fall when we held a series of town meetings before the reorganization. And that's what we'll ask them to do in an upcoming second series of town meetings," Griner said. "It was evident in the earlier town meetings that employees wanted, and were ready for, this kind of change."

Center Director Art Stephenson announced the reorganization on Jan. 29. It created three product-line directorates, the Engineering Directorate and the Systems Management Office.

"The restructure has been a process



Photo by Dennis Olive

*Marshall Deputy Director Griner*

from the beginning that has engaged a lot of the workforce in the discussion," Griner said, referring to last fall's town meeting. "Now we need even more input from employees. We'll post the schedule for the new town meetings on Inside Marshall in the next few days.

"This restructure is such an opportunity for this Center and its people to really break out and invent new ways of doing things. I believe the Center is energized by

this change that will posture us for the future. It is possibly the largest opportunity for employees in 20 or 25 years at the Center."

Following Stephenson's direction, a group of organizational development teams formulated the structure for the reorganization. Griner led a cross-cutting team formed to address Centerwide employee issues related to the reorganization. The team tackled logistics, personnel actions, payroll and other details. The team consisted of managers representing the new product-line directorates and the institutional directorates and drew input from employees.

"The team goes beyond defining the structure of the new organization. We need to ensure employees are taken care of during implementation of the reorganization," Griner said.

As part of the cross-cutting effort, five teams were formed to develop Center business processes like proposal develop-

*See Griner on page 4*

**"Safety is an Everyday Effort"**  
— Safety slogan submitted by  
**Ann Towry, SA34**

# Safety Office sets guidelines to prevent back injuries

by the Industrial Safety Office

In a few weeks there will be a massive move at Marshall.

Although there will be professional movers to relocate furniture and packed boxes, employees must be careful packing those boxes and moving personal items. There have been 16 back injuries reported to Marshall's Industrial Safety Office in the last two fiscal years. The most common of these were from lifting and twisting.

A question often asked is: "What is the maximum weight a person should be expected to lift safely?"

Lifting strength depends on many variables, like how tall a person is, how fit, how young, strength of abdominal muscles and what kind of lift it is.

All these factors influence maximum lifting potential. The nearest relationship is a limit of half an individual's body weight. If the lift approximates half the person's body weight, he or she must be extremely careful, because this is a hazardous zone. You should set an upper limit of 70 pounds for males and 35 pounds for females for an occasional lift; and 40 pounds for men and 22 pounds for

women for repetitive lifting. Employees packing boxes at the Center should not pack more than 50 pounds per box to make lifting safe for the movers, too.

Avoid working in a bent-over position for extended periods of time. Employees should inform their supervisor if they have a sore back, or have a history of previous back problems. If this is the case, remember to request assistance.

To lift an object, follow these instructions:

- Decide if the load can be lifted safely.
- Stand close to the object and keep a shoulder-width stance. Keep solid footing; point toes out.
- Tighten stomach muscles.
- Bend at the hips and knees to a squatting position.
- Pull the load close to the body to reduce pressure on the back. Grasp the



Photo by Dennis Olive

**Susan Ragland, a management support assistant in the External Tank Office prepares for the upcoming reorganization move.**

object firmly.

- Lift with the legs, not the back. Shift the load to waist level.

- Don't twist — move the feet to turn.

A back injury, once sustained, is often a recurrent problem an individual must live with throughout life. Practice the principles of good body mechanics, and think before you move. Whether on the job, or off, remember the safe handling of objects is up to each individual.

## Checklist for personnel being moved

Marshall employees are asked to use the following checklist before the move date arrives:

- 915 form should be filled out and sent to your organizational point-of-contact.
- Contents should be removed from lateral files, bookcases, desks, credenzas, etc.
- All items should be boxed and sealed.
- Move stickers should be placed on boxes to be relocated and masking tape used as labels on computers, telephones and filing cabinets.
- Labels should be placed on phones, boxes and furniture.
- If the furniture (desk/files) is lockable, tape the key to the piece of furniture.
- All plants and personal items should be removed from the office.
- Computers should be turned off.
- Trash items should be labeled as trash (trash must be labeled or will not be picked up by custodial).
- All excess items should be labeled as such.

## Three-day training conference to be held May 26-28

The Customer and Employee Relations Directorate will hold a three-day training conference May 26-28 at the Von Braun Center's North Hall.

The conference is designed to coincide with the mass move of people occurring as part of the Center reorganization.

Nearly 2,000 employees moving to new offices are expected to attend the training. The training is free and parking and lunch will be provided.

"There is a full agenda that includes a town hall meeting, project briefings, and stress management and computer classes," said Greg Walker, director, Employee and Organizational Development Office. "The conference is designed to provide productive training that will allow employees to come to work rather than take leave."

Short training modules will provide a variety of topics that civil service employees can choose from, Walker said.

A detailed agenda is posted on the "Inside Marshall" Website.

**Marshall Space Flight Awareness Honorees**

# Employees, contractors to be honored at STS-96 launch

These 28 Marshall employees and on-site contractors are being honored for their significant contributions to the space program.

As Space Flight Awareness honorees, they will be hosted by NASA at Kennedy Space Center in Florida for the launch of STS-96.



Lynn Baker  
Teledyne Brown



Joel Best  
EO66



DeAnne Blalock  
TA31



Mike Butler  
EE31



Jackie Gorzynski  
ASRI



Judy Green  
CO01



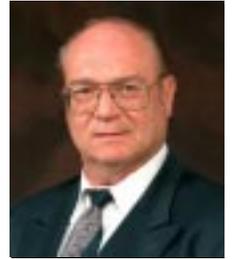
Michael Ise  
EP72



Mark Darden  
ED12



Leigh Fitzgerald  
BF20



Spencer Glasgow  
JA10



Keith Layne  
CR60



Steve Luna  
EB11



Tina Malone  
EH22



Angie Jackman  
MG21



Sarah Kent  
EL24



Larry Kos  
PD31



Jeff Rayburn  
Sverdrup



Brenda Rithmire  
AL21



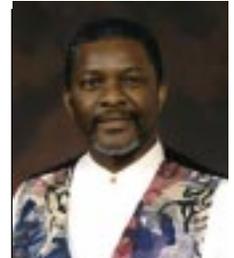
Scott Savage  
Cortez III



Mike McLain  
Lockheed Martin



James O'Neal  
SCSC



John Pea  
SA71



Camille Velvet  
CO10



Tom Whittle  
Hernandez  
Engineering



Jerry Williams  
GP31



Andy Wratchford  
CSC



Dexter Waldrep  
EL33



Mickey White  
ED62



# X-33 liquid oxygen tank successfully completes stress tests

by Ray Johnson

Tests conducted by Marshall show the experimental X-33 technology demonstrator's liquid oxygen tank is ready for sub-orbital trips at more than 13 times the speed of sound.

"The tests went very well," said Phil Best, propulsion chief engineer at Marshall. "All the collected data from the tests matched our predictions."

Gene Austin, NASA's X-33 program manager, said the completed test series "adds to our overall confidence in the vehicle as we keep pushing toward final assembly and its first flight next year."

The two-week test on the aluminum liquid oxygen tank at Marshall simulated conditions the X-33 will experience during pre-takeoff, takeoff, ascent, return and landing stages. NASA engineers applied internal pressure and external loads to the duplicate 6,000-pound aluminum tank, which is identical to the actual flight tank that was installed in X-33 and will eventually hold 181,000 pounds of liquid oxygen.

"With this tank, we not only validated a component, but we've also scored



**The X-33 advanced technology demonstrator is a reusable launch vehicle. The technology is expected to lower the cost of putting payloads into space.**

another success in this fast-paced technology development and demonstration program," said Cleon Lacefield, Lockheed Martin Skunk Works vice president for X-33/VentureStar.

The X-33 is being developed under a cooperative agreement between NASA and Lockheed Martin Skunk Works in Palmdale, Calif. Lockheed's Michoud Space Systems in New Orleans designed

and built both the test tank and the flight tank.

"Thanks to our combined knowledge on aluminum cryogenic tanks," Lacefield said, "we recognized we could install the flight tank while validating its exact duplicate at Marshall. This has allowed us to complete major tasks in a condensed period of time."

After being cleaned, X-rayed and insulated at Marshall, the test tank will be shipped to NASA's Glenn Research Center in Cleveland, where it will be used, because of its size, in subcooled liquid oxygen and liquid hydrogen

tests complementary to the X-33 program.

Designed as a key X-33 structural element, the liquid oxygen tank is the technology demonstrator's second major element declared fit for flight this year. In February, metallic thermal-protection system panels also passed an intensive test series.

*The writer, a contractor employed by ASRI, supports the Media Relations Office.*

## Griner

*Continued from page 1*

ment, export control, program and project management, dual career paths and resources planning. These teams focused on the improved ways the Center needs to do business.

"They have not finished yet," Griner said, "and employees will have an opportunity to evaluate the processes in the next several weeks.

"We want the right business processes in place to make sure our organization is as effective and efficient as it can be for our employees and our customers."

The second series of Marshall town meetings will collect additional input from employees and "will help determine how we should do business at Marshall," Griner said. She is looking for ideas from employees on how Marshall "can streamline its processes, become more efficient and break down organizational barriers. These processes are going to affect people more in the long run than the organizational structure."

Griner encouraged employees to attend the town meetings and ask questions. "I have heard some people say that we posted many job vacancies as part of the reorganization because management does not believe it has the right people here to do

the job," she said. "This is absolutely not true. The idea behind the vacancies is to give people the maximum opportunity to compete and to align themselves with the future of the Marshall Center."

During the town meetings, Griner will answer any questions about strategies employed in planning the reorganization. She illustrated the point by explaining why Marshall's Space Shuttle responsibilities were not included in the Space Transportation Directorate. "The support the Center gives to the Space Shuttle is absolutely critical to the continued safe and reliable flight of that vehicle, and therefore remains as a direct report to the Center director. We elected not to place those responsibilities under the Space Transportation Directorate, which is more focused on the technologies and advanced development."

Referring to the overall impact of the reorganization, Griner said, "To say that I am excited about the reorganization is an understatement. The people I talk to also are excited and focused on the future. The restructure of this Center is about the future for Marshall and this country."

*The writer works in the Internal Relations and Communications Office.*

*Lights, camera, action!*

## Marshall people, programs grab media spotlight

Marshall Center Director Art Stephenson is featured in the "Profile" section of the May 10 issue of Space News. The full-page story and photo appear on page 38.

Written in an interview format, the story gives Stephenson's thoughts on the Center's propulsion ideas, the role of the Space Shuttle and Reusable Launch Vehicles, our relationship with industry, Spaceliner 100 and more. The interview was arranged by the Media Relations Office.

Also in the May 10 Space News, John London, Pathfinder program manager; Gene Austin, X-33 program manager; Gary Payton, NASA deputy associate administrator for space transportation technology; and program managers from Boeing Phantom Works, Lockheed Martin Skunkworks and Orbital Sciences Corp. were interviewed for the article entitled "X Programs Pursue Low-Cost Launchers."

George Schmidt of the Space Transportation Directorate is quoted in another story in the publication.

In the same issue of Space News, there's a photo story spotlighting the 6<sup>th</sup> Annual Great Moonbuggy Race held in Huntsville in April.

Marshall's "Rocket Girls" were featured in a national media outreach campaign focusing on Marshall Center women with key roles in advanced space transportation programs. On April 29, TV stations — ranging from Austin, Texas, and Tallahassee, Fla., to Topeka, Kan., and San Francisco — interviewed Sherry Buschmann, Bantam project manager; Leslie Curtis, space transfer technologies project manager; and Susan Turner X-37, project manager. The interviews were conducted via satellite.

Reporters and photographers were on hand at the April 30 rollout of the Marshall-managed X-34 technology demonstrator in California which was broadcast live on NASA TV. CBS, CNN and Huntsville television stations covered the event.

Also running stories about the X-34 were television stations in Los Angeles; Las Vegas, Nev.; Nashville, Tenn.; Washington, D.C.; Chicago; Pittsburgh, Pa.; Seattle, Wash.; Huntsville; Wilkes Barre/Scranton, Pa.; Kansas City, Mo.; Memphis, Tenn.; Sacramento, Calif.; Miami, Fla.; Raleigh/Durham, N.C.; Tampa, Fla.; Albuquerque, N.M.; Rochester, N.Y.; and Minneapolis, Minn.

John London participated in an X-34 media briefing on NASA TV broadcast just before the rollout ceremony. NASA Administrator Dan Goldin and Marshall Director Stephenson spoke at the ceremony.

Other Marshall people and programs in the news recently were: Dr. Dale Quattrochi and Dr. Jeff Luvall of the Global Hydrology and Climate Center, interviewed by four broadcast



File photo

**News media representatives and a crowd of on-lookers watch the rollout of the X-34 vehicle at Dryden Flight Research Center in California May 1.**

outlets about the results of the Urban Heat Island study in Atlanta; Dr. Larry DeLucas of the University of Alabama in Birmingham, talking about protein crystal growth with the New York Times, Drug Discovery Today and Manufacturing Chemist at a conference and trade show in New York City; Discovery Channel onLine with X-34 Project Manager Mike Allen, about the demonstrator's rollout; CBS News with John Mankin from NASA Headquarters, about maglev propulsion; and the British Broadcasting Corporation talking with Dr. Harry Whelan from the Medical College of Wisconsin at Milwaukee, about the NASA-funded experimental use of light emitting diodes for treating cancer.

Additional print media coverage is on the way because a reporter from Aerospace Daily visited Marshall April 28 and interviewed these Marshall people about their respective programs: Fred Wojtalik, manager of NASA's Chandra X-ray Observatory Program; Martin Weisskopf, project scientist for the Chandra X-ray Observatory; Susan Turner, program manager for the X-37 advanced technology flight demonstrator; Axel Roth, acting manager of the Flight Projects Office; Scott Croomes, manager of the Space Station Life Support Projects Office; Paul Gilbert, pressurized payloads team lead; Dr. Joel Kearns, Microgravity Research Program manager; and Garry Lyles, director of the Advanced Space Transportation Programs.

If you have an important story to convey to the public, contact the Media Relations Office at 544-0034.

### Obituary

**Lahey, Donald W., 65**, Huntsville, Ala., died April 12. He retired from Marshall in 1988 where he worked as a technical publications writer/editor physical science with the Technical Information and Operations Services Office. He is survived by his wife Barbara A. Lahey.

# Stephenson visits Michoud Assembly Facility

by Parker Counts

Marshall Center Director Art Stephenson recently visited the Michoud Assembly Facility in New Orleans, to review the external tank assembly operations and other activities.

Stephenson was briefed on the facility's capabilities and infrastructure, external tank operations, ongoing reusable launch system assembly, the proposed National Center for Advanced Manufacturing and other technical developments being worked.

He toured the external tank operations, the cleaning, priming and thermal protection system application areas in the Vertical Assembly Building, and was given an end-to-end walkdown of an external tank being completed in final assembly.

While at Michoud, Stephenson



Courtesy photo

Marshall Center Director Art Stephenson, left, visits Lockheed Martin Michoud Space Systems in New Orleans, La.. He is accompanied by Reynold Abadie, second from left, director of Michoud's Facilities and Environmental Operations; Dennis Deel, president of Michoud Space Systems; John White, manager of the External Tank Resident Manager's Office at the Michoud Assembly Facility; and Parker Counts, manager of Marshall's External Tank Project.

participated in unveiling a plaque dedicating the establishment of the facility in 1962.

The facility has been used for assembly of Saturn IBs for the Skylab program and Saturn ICs for the Apollo program. Since

1973, its primary mission has been to assemble the external tank for the Space Shuttle program.

*The writer is the manager of the External Tanks Project.*

## NASA completes purchase of material for 60 Shuttle external tanks

by Martin Burkey

NASA and Lockheed Martin Michoud Space Systems of New Orleans, La., have completed negotiations on a contract worth \$625.6 million for the final purchase of materials needed to build 60 new Space Shuttle external fuel tanks.

"Together, with two earlier purchases of materials and equipment, we now have everything we need to build our sixth production order of external tanks for the Space Shuttle Program," said Parker Counts, manager of the External Tank Project Office at Marshall.

This sixth purchase of tanks will be the first comprised totally of super lightweight tanks. This newest version of the tank is the same size as the previous lightweight tank design, but weighs approximately 7,500 pounds less. Its liquid hydrogen tank and the liquid oxygen tank are made of a new aluminum lithium alloy, a lighter — but 30 percent stronger — material than the previous aerospace aluminum alloy used for the lightweight tank.

The lighter tank allows the Shuttle to deliver various elements of the International Space Station — such as the Unity module launched last December — into the proper orbit.

NASA has purchased a total of 119 external tanks. To date, 93 have been flown. The last of the fifth production order is scheduled to be delivered in August 2001.

Production of the new order of tanks will start in 2000 at NASA's Michoud Assembly Facility in New Orleans, with the first one scheduled for delivery to the agency's Kennedy Space Center, Fla., in 2002.

"It takes about 20 to 22 months to build a tank once the purchased materials are received at the factory," Counts said. "The first tank of this new order will fly probably in 2002. This buy should carry the Shuttle program well into the next century."

"The super lightweight tank has been a challenging tank to produce," Counts said. "But, as we expected, the initial cost to

produce it has come down as our government and industry team gains experience and makes improvements to our manufacturing equipment and processes."

Measuring 154 feet tall and 27.5 feet in diameter, the external tank is the largest single element of the Space Shuttle. During launch, the tank also acts as the structural backbone for the Shuttle orbiter and solid rocket boosters attached to it.

The external tank holds the liquid hydrogen fuel and liquid oxygen oxidizer for the Shuttle's three main engines. The tank is the only part of the Shuttle not reused. After its 526,000 gallons of propellants are consumed during the first eight and one-half minutes of flight, it is jettisoned from the orbiter and breaks up in the upper atmosphere, its pieces falling into remote ocean waters.

The super lightweight tank made its first flight in June 1998 on the STS-91 mission.

*The writer, a contractor employed by ASRI, supports the Media Relations Office.*

## Upcoming Events

**Associate Administrator Rothenberg to speak** — All civil service and contractor employees are invited to Morris Auditorium May 17, from 2-3 p.m. for an all-hands meeting. Joseph H. Rothenberg, associate administrator for Space Flight, will speak. His address will be broadcast via Marshall closed-circuit television for those unable to attend.

**TABES '99 set May 18-19** — The 15th annual Technical and Business Exhibition and Symposium (TABES) will be May 18-19 at the Von Braun Center in Huntsville. The two-day event is organized around four distinct symposium tracks covering aerospace, business, defense and technology. Visit [www.tabes.org](http://www.tabes.org) for details.

**Medical Center offering blood pressure screenings** — Marshall's Medical Center is offering blood pressure screenings to all employees. Employees may stop by the Medical Center in Bldg. 4249 any day between noon and 3 p.m. This special emphasis in May is to raise employees' awareness of the importance of monitoring their blood pressure.

## Security

*Continued from page 1*

• **Gate 9 — Rideout Road** - Although staffed 24 hours per day, the access gate from Interstate 565 and Rideout Road opens at 5:30 a.m. and closes at 10 p.m.;

• **Gate 10 — Patton Road** - 5:30 a.m.-10 p.m. seven days per week, not staffed.

When foreign visitors are expected, it is important that Marshall civil servants and contractors notify the Protective Services Office by completing MSFC Form 4336, Foreign National/Foreign Representative Visit Request. The form should be submitted at least 15 days before the visit to allow time for all necessary concurrence.

Security guards posted at the gates will have a list of expected foreign visitors. If the visitor's name is not on an access list, the visitor will be turned away by the security guard. For more information, call Charlene Emmons, Marshall's international visits coordinator at 544-4535.

Marshall Center employees and contractors who work on the arsenal are encouraged to ensure their vehicle decals are current. Vehicle decals may be renewed during regular business hours in the month of expiration at Bldg. 4312 or the lobby desk in Bldg. 4200.

Visitors needing a Redstone Arsenal pass should stay in the left lane and notify the gate guard that they need a visitor pass. Visitors must have a current driver's license, vehicle state registration and their destination on the arsenal readily available. Visitors without this documented information will not be allowed to enter the installation.

"These changes have been contemplated for some time and will give the installation a level of security commensurate with the missions performed here," said Redstone Arsenal Provost Marshal Maj. Janice Smith.

## Job Opportunities

The following announcements are competitive placement plan announcements open to Marshall employees and NASA employees stationed at Marshall. Full job announcements are located on "Inside Marshall."

**SES Vacancy Announcement: MSFC-ES-07-99, Manager, Flight Systems Directorate**, Flight Projects Dir., Marshall Center. Closes May 31.

**CPP 99-30-KP, AST, Technical Management, GS-801-15**, Science Dir., Microgravity Research Program Office, Space Product Development Team. Closes May 18.

**CPP 99-31-CV, Supv. AST, Ground Data Systems, GS-854-15**, Flight Projects Dir., Ground Systems Department. Closes May 18.

**CPP 99-32-CV, Supv. AST, Mission Support Requirements and Development, GS-801-15**, Flight Projects Dir., Ground Systems Department. Closes May 18.

**CPP 99-33-CP, Supv. AST, Optical Physics, GS-1310-15**, Science Dir., Optical Test Group. Closes May 18.

**CPP 99-34-KP, Supv. AST, Flight Structures, GS-861-14**, Engineering Dir., Structures, Mechanics & Thermal Department. Closes May 18.

**CPP 99-35-MB, Supv. AST, Navigation, Guidance & Control Systems, GS-861-15**, Engineering Dir., Avionics Department. Closes May 18.

**CPP 99-36-CV, Supv. AST, Mission Operations Integration, GS-801-15**, Flight Projects Dir., Payload Operations & Integration Department. Closes May 18.

**CPP 99-37-JB, Supv. AST, Space Vehicle Project Management, GS-861-15**, Space Shuttle Projects Office, KSC Resident Office. Closes May 18.

**CPP 99-38-CV, Supv. AST, Aerospace Vehicle Design & Mission Analysis, GS-861-15**, Flight Projects Dir., Payload Operations & Integration Dept. Closes May 18.

**CPP 99-39-KP, AST, Structural Materials, GS-806-15**, Engineering Dir., Materials, Processes & Manufacturing Department. Closes May 24.

**CPP 99-40-CL, Supv. AST, Aerospace Flight Systems, GS-861-15**, Engineering Dir., Engineering Systems Department. Closes May 18.

**CPP 99-42-CP, Supv. AST, Aerospace Flight Systems, GS-861-15**, Science Dir., Microgravity Science & Applications Dpt. Closes May 18.

**CPP 99-43-KP, Supv. AST, Heat Transfer, GS-861-15**, Engineering Dir., Structures, Mechanics, & Thermal Department. Closes May 18.

**CPP 99-44-RE, Supv. AST, Flight Systems Test, GS-861-15**, Space Transportation Dir., Technology Evaluation Department. Closes May 18.

**CPP 99-45-RE, Supv. AST, Flight Systems Test, GS-861-15**, Space Transportation Dir., Technology Evaluation Department. Closes May 18.

**CPP 99-46-MB, Supv. AST, Navigation, Guidance and Control Systems, GS-861-15**, Engineering Dir., Avionics Department. Closes May 18.

**CPP 99-47-RE, Supv. AST, Aerospace Vehicle Propulsion Systems, GS-861-15**, Space Transportation Dir., Vehicle & Systems Development Department. Closes May 18.

**CPP 99-49-RE, Supv. AST, Technical Resources Management, GS-801-15**, Space Transportation Dir., Business Mgmt. Office. Closes May 18.

**CPP 99-50-RE, Supv. AST, Fluid Mechanics, GS-861-15**, Space Transportation Dir., Subsystem & Component Dev. Department. Closes May 18.

**CPP 99-51-CL, Supv. AST, Aerospace Vehicle Propulsion Systems, GS-861-15**, Space Transportation Dir., Subsystem & Component Development Department. Closes May 18.

**CPP 99-52-RE, Supv. AST, Aerospace Vehicle Propulsion Systems, GS-861-15**, Space Transportation Dir., Vehicle & Systems Development Department. Closes May 18.

**CPP 99-53-RE, Supv. AST, Fluid Mechanics, GS-861-15**, Space Transportation Dir., Technology Evaluation Department, Experimental Fluid Dynamics Group. Closes May 18.

**CPP 99-54-RE, Supv. AST, Aerospace Flight Systems, GS-861-15**, Space Transportation Dir., Vehicle & Systems Development Department, Engine Systems Engineering Group. Closes May 18.

**CPP 99-55-RE, Supv. AST, Electronic Instrumentation Systems, GS-855-15**, Space Transportation Dir., Technology Evaluation Department, Control Group. Closes May 18.

**CPP 99-56-CP, AST, Technical Management, GS-801-14**, Science Dir., Office of the Director. Closes May 24.

**CPP 99-57-RE, Supv. AST, Aerospace Flight Systems, GS-861-15**, Space Transportation Dir., Advanced Concepts Department. Closes May 18.

**CPP 99-58-CP, AST, Technical Resources Management, GS-801-14**, Science Dir., Business Management Office. Closes May 18.

Employee Ads

Miscellaneous

- ★ Boy's mountain bike, like new, \$75. 721-5609
- ★ Camelback sofa, 72", new, soft floral stripe, neutral colors, cherry legs, \$375. 536-2683
- ★ Sears leaf mulcher/shredder, 8-1/2HP, \$375; seats for Chevy van, 20 plus rear a/c, \$400. 837-6776
- ★ Kenmore dishwasher, \$30; rear window louver for 1982 through 1991 Camaro, \$10. 837-8083
- ★ Oak/glass coffee table, 2 oak end tables and lamp, \$100. 859-6475
- ★ Two matching olive green chairs, \$200 for the pair. \$883-2924
- ★ Vinyl ski vest, Coast Guard approved, new, \$25. 883-8257
- ★ Purebred Australian Shepherd puppies, 2 males/2 females, 1st shots & wormed, \$65 each. 561-2287
- ★ DP exercise bike, \$50. 828-0060 after 6 p.m.
- ★ Whirlpool window air conditioner w/thermostat, 21,000 BTU, 220V. \$325. 880-6335
- ★ Two end tables & coffee table, \$100; white leather sofa & chair, \$95; queen water bed, \$75. 464-5911
- ★ Swing set, 6 leg, \$100; basketball goal w/pole, \$50; cat/dog cages, \$20 & \$25; doghouse, \$15. 881-6040
- ★ Utility trailer, 5' x9', used twice, \$450; fiberglass boat, 14', w/50HP motor, \$700. 858-3850
- ★ Weber grill, \$30; 36" 6-panel exterior door with lockset and door knocker, \$60. 881-6040
- ★ Scuba gear, woman's BCD and all other accessories, \$300 obo. 551-0467
- ★ Yamaha YPP-50 electric piano, 76 semi-weighted keys, MIDI in/out, built-in stand, \$500. 353-9514
- ★ 25HP Evinrude motor, \$700. 881-6143
- ★ Folding ladder, 12-ft. multi-position, \$20; Craftsman 22" rear bagger mower, runs, \$25. 880-8134
- ★ Sofa and matching chair, oak wood trim, Herculan fabric, \$300. 773-0194
- ★ Lazy Boy sectional sleeper sofa, blue, has recliner on end, \$650. 837-6838
- ★ Storage box for trailer, plywood, 4'x8'X3'H, separate compartments for dogs, decoys, sleeping, \$55. 881-0278

Vehicles

- ★ 1977 Porsche 924, 4-cyl., 4-speed, sunroof, 135K miles, \$2,400 obo. 828-6213

- ★ 1994 Ford Tempo, 44,163 actual miles, 4 door, light gray, all power, \$5,000. 233-4106
- ★ 1989 Toyota pickup, 4x4, high miles, new tires, \$3,100. 922-5727
- ★ 1989 Chevrolet van, 77K miles, dual air, one owner, \$4,100. 350-9398 after 5:30 p.m.
- ★ 1991 Toyota Camry DX, auto, PW/PL, cruise, AM/FM cassette, 118K miles, \$4,895. 882-1431
- ★ 1993 Toyota 4Runner, SR5-V6-4WD, 5-speed, 89K miles, AM/FM cassette, PW/PL/cruise, AC/rear heat, alloy wheels, \$13,750. 722-0440
- ★ 1992 Isuzu Trooper, 125K miles, A/C, 4-WD, 5-speed, gray, \$6,000. 881-0743

Wanted

- ★ 30-40-foot extension ladder. 882-6446
- ★ Transmitter for old Sears garage door opener. 852-0142

Lost

- ★ Jacket, charcoal gray, outdoor coat w/black liner, near east lot, Bldg. 4203, May 5, Reward. 544-8820

Free

- ★ Oak firewood, trees down, you cut. 922-5727
- ★ Healthy, happy, affectionate, German shepherd, 10 months, all shots, female, spayed. 971-2773
- ★ Fishing boat and trailer. 881-6143

Center Announcements

- ☛ **Relay for Life** — The Relay for Life, an opportunity to participate in the fight against cancer, will be held Friday at Milton Frank Stadium in Huntsville from 7 p.m.-7 a.m.
- ☛ **Government Accountants Meeting** — The North Alabama Chapter of the Association of Government Accountants will hold its monthly meeting May 20 at 5:30 p.m. at the Marriott at the U.S. Space & Rocket Center. Cost is \$12 per person. For reservations, call Sandra Seymour at 544-0099.
- ☛ **Shuttle Buddies** — The Shuttle Buddies will meet for breakfast at 9 a.m., Monday, May 24, at Shoney's on University Drive West. For more information, call Deemer Self at 881-7757.
- ☛ **Rumba and polka lessons** — The MARS Ballroom Dance Club will offer rumba and polka lessons May 17 and 24 from 7-8 p.m. in the Parish Hall of St. Stephen's Episcopal Church at 8020 Whitesburg Drive. These lessons are

available to MARS Ballroom Dance Club members and their partners or guests at \$6 per person biweekly.

- ☛ **Bahamas Vacation Special** — Special T Travel of Orlando, Fla., is offering a Bahamas vacation special for \$189 per person, based on double occupancy. The offer is open to Marshall employees, retirees and on-site contractors. This package includes a round-trip cruise from Ft. Lauderdale, Fla., to Freeport, Grand Bahamas, and four days, three nights deluxe accommodations at the Island Palm Resort. Hotel tax, U.S. departure tax and transportation to Florida are not included. A deposit of \$183 by May 28 is required for this exclusive offer, but travel dates are good for one full year. Call Special T Travel at 800-393-3191. The NASA Exchange account reference is MF9202. Flyers are available at the Marshall Activities Building, 4752.
- ☛ **LabVIEW Users Group Meeting** — A LabVIEW software users group will meet May 21 from noon-1 p.m. in the Wind Tunnel Conference Room, room 216, Bldg. 4732. The group is being established to exchange ideas, technical expertise and source code among members. All Marshall employees and on-site contractors interested in LabVIEW are encouraged to attend and bring a brown bag lunch. For more information, call Derek Mayer at 544-1694.
- ☛ **Mandatory OSHA Hearing Conservation Training** — Mandatory OSHA Hearing Conservation Training is scheduled May 18 in Bldg. 4200, Morris Auditorium. Three sessions will be offered — at 7:30 a.m., 9:30 a.m. and 1 p.m. Marshall employees and on-site contractors working in areas which may expose them to excessive noise levels, who require the use of hearing protection and who receive a mandatory hearing exam at the Medical Center are designated as being on the Hearing Conservation Program and are required to attend. If you have any questions, call Environmental Health at 544-2390.
- ☛ **MARS Fishing Tournament Results** — Results of the Guntersville Lake bream tournament May 1 are: first place — Ken Anthony and Alex Rawleigh with fish weighing 21.09 lbs.; second place — Deon and Shirley Smith with fish weighing 19.31 lbs.; and third place — Ross Evans and Charles Kilgore with fish weighing 9.26 lbs. Big fish honors went to Ross Evans and Charles Kilgore with a 0.85-pound Shellcracker. The next tournament, a bass/draw tournament, will be May 29 at Wheeler Lake, Elk River, LEE-Hi ramp. For more information, call Charles Kilgore at 544-9437, Don McQueen at 544-9073 or Charlie Nola at 544-6367.

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Director of Internal Relations  
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