



'We bring people to space — We bring space to people'

Space Station's airlock — crew's gateway — departs Marshall Wednesday, bound for Florida

by Rick Smith

Engineers at the Marshall Center on Wednesday opened massive hangar doors to roll out — another door.

And in about a year, this unique portal will open onto the infinite void of space itself.

On Wednesday, the Joint Airlock Module — the gateway from which crewmembers aboard the International Space Station will enter and exit the 470-ton orbiting research facility — left the Marshall Center, bound for Kennedy Space Center, Fla.

The airlock was transported before dawn from Marshall facilities to Redstone Army Airfield in Huntsville, where it was loaded aboard NASA's Super Guppy aircraft for its flight to Cape Kennedy.

The massive, spindle-shaped airlock is 20 feet (6.09 meters) long, has a diameter of 13 feet (3.96 meters) at its widest point and weighs 6-1/2 tons (5.8 metric tons). Manufactured at the Marshall Center by the Huntsville division of The Boeing Co., the

airlock includes two compartments: the crew lock, from which astronauts will enter and exit the Space Station; and the equipment lock, where spacewalkers will change into and out of their suits and stow all necessary gear.

The airlock is a critical Station element because of design differences between American and Russian spacesuits. Currently, American suits will not fit through Russian-designed airlocks. The Joint Airlock Module is specially designed to accommodate both suits, providing a chamber where astronauts from every nation can suit up for spacewalks to conduct science experiments outside the Station.

The Space Shuttle will carry the airlock to orbit for deployment and installation on the Space Station in May 2001. The Shuttle



Photo by Dennis Olive, NASA/Marshall Space Flight Center
Boeing engineers test the Joint Airlock Module prior to shipment to Florida.

crew will secure the airlock to the right side of "Unity," the American-built connecting node that currently comprises one third of the completed Space Station, along with the Russian modules "Zarya" and "Zvezda."

The writer, employed by ASRI, supports the Media Relations Department.

Marshall Center marks 40th anniversary Sept. 21

by Marianne Higgins

The year 1960 was an exciting yet turbulent time in history. John F. Kennedy became the 35th president of the United States; protests raged against segregation in the South and the Vietnam War; the American Football League was formed to rival the National Football League; FORTRAN was the standard computer programming language; and Chubby Checker introduced "The Twist."

It was also the year NASA — a new federal agency dedicated to civilian space exploration — created the George C. Marshall Space Flight Center in Huntsville.

The key date in the Center's founding occurred Sept. 8,

1960, when President Dwight D. Eisenhower formally dedicated the Center that had been activated by NASA on July 1, 1960.

Over the course of 40 years, the Marshall Center has helped shape history through its key contributions in areas from landing humans on the Moon, to lifting Space Shuttles into orbit, to inventing new technologies and engineering processes for future space travel and space benefits.

"This 40th anniversary is a reminder — from the Wernher von Braun early days of rocketry all the way up to the Chandra X-ray Observatory's launch last summer — of the great adventures we've had over the years at Marshall," said Marshall Center Director Art Stephenson.

See *Anniversary* on page 5



Safety Bowl update

Sweet 16 competition complete; eight teams advance

Sweet 16 competition had winners from across the Center, including those who will not continue on in the competition.

All participants read numerous questions, and were prepared to demonstrate their knowledge in a wide variety of Safety, Health and Environmental areas. Some were quicker to respond with correct answers, and those teams were victorious in this round.

Teams that will progress to the Elite 8 and compete Sept. 27 are Procurement's "Terminators;" Chief Counsel's "Marshall Law;" the "Safety Cops" of Center Ops; Flight Projects Directorate's "Health Nuts;" Engineering Directorate's "Elite;" Engineering Directorate's "Hazard Busters;" Chief Financial Office's "Allocators;" and Transportation Directorate's "Safety Dogs."

In preparation for the next round of Safety Bowl competitions, here are more questions. See "Inside Marshall" for additional questions.

1. Alabama law concerning operating a boat under the influence of alcohol:

- A) Is the same for operating vehicles on Alabama roads or highways
- B) Allows more latitude because boating is not as dangerous as driving
- C) Does not apply to sailboats
- D) Allows you to keep your boat operators privilege after a DUI conviction on a boat

Answer: 1 A) Is the same for operating vehicles on Alabama

roads or highways

2. When working with liquid nitrogen, what hazards should you be concerned with?

- A) Explosions and fire
- B) Chemical reactions with air
- C) Contact with other hypergolic materials
- D) Freezing and oxygen deficiency

Answer: D) Freezing and oxygen deficiency

3. What does ozone in the Earth's upper atmosphere provide us some protection from?

- A) Cosmic rays
- B) Cancer-causing sunlight
- C) Meteorites
- D) Acid rain

Answer: B) Cancer-causing sunlight

4. Name the food-borne illness which results in approximately 73,000 cases of infection and 61 deaths each year and is associated with eating undercooked contaminated ground beef.

Answer: E. Coli (Escherichia Coli) It is the most common cause of acute kidney failure in children.

5. According to Alabama boating laws, all persons under what age must wear a U.S.C.G. approved personal floatation device when on any vessel on the Alabama waterways (except when below deck or in a cabin)?

Answer: 8 years old



Photo by Dennis Olive, NASA/Marshall Space Flight Center

Marshall's 2000 Combined Federal Campaign committee.

CFC kicks off Oct. 5

The 2000 Combined Federal Campaign (CFC) kickoff will be from 9-10 a.m. Oct. 5 in Morris Auditorium. Liz Hurley of WAFF 48 News is back as this year's keynote speaker. Lee Marshall, also of WAFF 48, will speak and sing the National Anthem. Entertainment will be provided by Sparkman High School cheerleaders and dance team.

The CFC Agency Fair will be from 10:30-11 a.m. at the Sparkman Center on Redstone Arsenal.

This year's theme is "Care Enough To Share Enough." The goal is to raise \$435,000.

The campaign runs from Oct. 5-Nov. 17.

NASA helps cops catch criminals on Earth with video technology invented by Marshall space scientists

by Tracy McMahan

FBI and other law enforcement officers — whose investigations are normally down-to-Earth — recently have been seeking the help of two NASA scientists who study the Sun and storms like hurricanes.

Why are specialists from such different worlds working together?

The NASA researchers — using their expertise and equipment for analyzing satellite video — created technology that can dramatically improve TV images including crime scene videos. With law enforcement officers looking over their shoulders, the scientists use their computer software to turn dark, jittery images captured by home video, security systems and video cameras in police cars into clearer, stable images that reveal clues about crimes.

Criminal cases

In the last year, Dr. David Hathaway and Paul Meyer at the Marshall Center have worked on about a dozen criminal cases with the police and FBI. Hathaway, a solar physicist, is usually busy studying images of violent explosions on the Sun, and Meyer, an atmospheric scientist, examines hazardous weather conditions on Earth.

The scientists' foray into the world of forensics began when they helped the FBI analyze video of the bombing that killed two people and injured hundreds more at the 1996 Olympic Summer Games in Atlanta. Hathaway and Meyer successfully clarified nighttime videotapes made with handheld camcorders, revealing important details about the bomb and the explosion.

Since their first case with the FBI, Hathaway and Meyer have worked over the years to refine the VISAR technology, improving it so that it is now ready to be transferred to companies that produce video enhancement systems for law enforcement, the military and even home computers.

By the end of this year, the FBI and other criminal investigators will be able to use the NASA technology at their own stations. The NASA scientists' invention — called Video Image Stabilization and Registration, or VISAR — will be available in a video tracking and enhancement system developed by Intergraph Government Solutions, a subsidiary of Intergraph Corp. of Huntsville. The company has signed a licensing agreement with NASA to use VISAR in its Video Analyst System, which offers broadcast-quality analysis features on Intel-based hardware.

"After analyzing crime video for detectives and seeing the horrible details of some of these crimes, it gives me great satisfaction that police can use NASA technology to put murderers behind bars," said Hathaway.

Hathaway, for example, helped enhance security camera videotape made during the kidnapping of a Minnesota teenager. In an intensive effort, the FBI and police worked with Hathaway to identify the abductor and try to find the teen-ager before she was harmed. Police now believe she was killed. This summer, the tape was used as evidence in the trial of a man convicted of the murder.

The VISAR system has proved so useful because it is able to correct the effects of jitter, rotation and zoom from frame to frame in videos. Once corrected, the registered video images may then be combined to produce clearer images.

"At NASA, we routinely take satellite



Photo by Emmett Given, NASA/Marshall Space Flight Center

Meyer, left, and Hathaway review images enhanced by VISAR.

images of storm clouds and enhance them to see what is going on in the atmosphere," said Meyer. "Looking for clues about what is happening in a storm is similar to being a detective and finding out what took place at a crime scene."

Commercial interest

Commercial interest in licensing the Marshall invention is based on its ability to do more than just remove noise or "snow" from videos. The software also corrects for horizontal and vertical camera motion, as well as rotation and zoom effects. It produces clearer images of moving objects, smoothes jagged edges and enhances still images.

"By adding VISAR to our Video Analyst Workstation, we can now offer the law enforcement, military, intelligence and security communities these powerful capabilities in a comprehensive video analysis system," said Trey McKay, executive manager of Federal Hardware Solutions at Intergraph Government Solutions. "We look forward to working with NASA to integrate this innovative technology to extend our system capabilities and anticipate a significant impact on

See **VISAR** on page 7



Marshall's

Paving a highway to space for ordinary people to 'live the adventure'

by Deana Nunley

Astronauts journeying to the Moon stands as the pinnacle of the first 40 years of excellence at the Marshall Center. As "the adventure continues," the legacy of the next 40 years is likely to be ordinary people venturing into space.

The Marshall Center's first director, Dr. Wernher von Braun, and his team of rocket scientists masterminded the mammoth Saturn V rocket that launched humans to the Moon. Today, as the Marshall Center marks its 40th Anniversary, a new rocket team at Marshall is developing revolutionary technologies that will make space transportation as safe, reliable and affordable as today's airline travel.

"Within the next 40 years, I think traveling around in near-Earth orbit and to nearby planets will be a lot like air travel is now," says Garry Lyles, manager of Marshall's Advanced Space Transportation Program. "It won't be unusual to catch a ride on a spaceliner to your job on Mars or even to a monthlong asteroid-mining mission."

Hospitals, business parks and solar electric power stations that beam clean, inexpensive energy back to Earth are likely to dot the "space-scape" 40 years from

now. Space adventure tourism and travel, orbiting movie studios, and worldwide, two-hour express package delivery also appear just over the horizon.

By 2040, it's expected to cost only tens of dollars per pound to launch humans or cargo to space; today, it costs as much as \$10,000 per pound. Bridging that gap requires intense research and technology development focused on accelerating breakthroughs that will serve as keys to open the space frontier for business and pleasure. Space transportation technology breakthroughs will launch a new age of space exploration, just as the silicon chip revolutionized the computer industry and made desktop computers commonplace.

The Marshall Center is working today to pave a highway to space by developing a wide variety of propulsion and vehicle technologies that could enable a true spaceliner, capable of making daily commutes to space. Rocket engines that breathe oxygen from the air, spaceliners that get a running start on a magnetic levitation track, propulsion tethers that require no fuel, and smart, self-healing spacecraft are among the technologies already being developed by NASA and its industry and academic partners.

Lyles expects a lot of people will be working and playing in space in 40 years. Human journeys to the outer planets and robotic probes to other star systems are also part of his vision for the 2040 time frame. "Propulsion systems for deep space missions of the future probably haven't even been thought of yet," he said, "or if somebody's thought of them, they may be considered science fiction now."

Space sails, high-power electric propulsion, antimatter drives and laser propulsion belonged to science fiction when the Marshall Center was created 40 years ago. Today, Marshall engineers are conducting hands-on experiments to prepare those technologies for use in space flight. And fundamental research is under way to gain credible knowledge that could transfer faster-than-light travel from the pages of science fiction to the journals of new millennium space travelers.

Marshall is NASA's Lead Center for Space Transportation Systems Development. Marshall's Advanced Space Transportation Program is NASA's "Technology Central" for future space transportation systems.

The writer, employed by ASRI, supports the Media Relations Department.

Buses to run for 40th anniversary celebration

Centerwide bus service will be provided every 15 minutes Sept. 21 to Marshall's 40th anniversary celebration in the Bldg. 4200 complex.

Buses will drop off and pick up passengers at the main entrance to Bldg.

4200.

For special assistance, call 544-8294.

Stop 1 — 4705 South side; 4708 North-west; 4707 North side

Stop 2 — 4487 Main

Stop 3 — 4612 West side; 4610 North side

Stop 4 — 4663 Main

Stop 5 — 4650 East side; 4666 Main

Stop 6 — 4493 Main; 4481 West end; 4471 East end

Stop 7 — 4718 South side; 4755 Main; 4752 Main

Stop 8 — 4250 East end; 4207 Northeast

40th anniversary

Anniversary

Continued from page 1

“We’re taking a great tradition started by Dr. von Braun and carrying it into the future.”

George C. Marshall

U.S. Army Gen. George C. Marshall was a leader and strategist whose patriotism and human compassion earned him admiration around the world. He perhaps is best known for receiving the Nobel Peace Prize in 1953 for his “Marshall Plan” — the 1948 European Recovery Program drafted to help rebuild war-torn Europe after World War II.

Marshall served as U.S. Army chief of staff during World War II, and, after retiring became special ambassador to China, secretary of state, president of the American Red Cross and secretary of defense.

Marshall leadership

Dr. Wernher von Braun, leader of the original German rocket team, became the Marshall Center’s first director in 1960 — leading the team that landed humans on the Moon.

Nine more directors have followed in his footsteps, managing successful projects such as the Skylab orbital workshop, and the Space Shuttle propulsion system — which unleashes about 6.4 million pounds (28.5 million newtons) of thrust each time America’s first reusable launch vehicle blasts off.

Under current Director Art Stephenson, Marshall successes include last year’s launch of the Chandra X-ray Observatory — now celebrating its first year of ground-breaking X-ray astronomy.

‘The Adventure Continues’

Today, Marshall is NASA’s lead Center for development of space transportation and propulsion systems. New technologies are being explored to make space more accessible by reducing the cost of launching space vehicles.

Currently it costs roughly \$10,000 to put a pound (over \$20 per kilogram) of payload into space, and NASA’s goal is to reduce that cost to \$1,000 per pound — or less — while improving flight safety.

Marshall is also NASA’s leader in microgravity research — conducting unique scientific studies in the near-weightlessness of space. New technologies derived from space science and research help industry create new medicines, manufacturing processes, electronics and more — improving life on Earth.

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40th anniversary video starring Marshall employees, retirees premieres 10 a.m. Wednesday in Morris Auditorium

Anniversary events kick off Sept. 21

On Sept. 21, current and retired employees of the Marshall Center will mark the Center’s activation on July 1, 1960, and its dedication by President Dwight D. Eisenhower on Sept. 8, 1960.

Events planned for the Sept. 21 employee celebration include a forum focusing on the history as well as the future of the Marshall Center; a presentation and book signing by Apollo astronaut Gene Cernan; the placement of a time capsule; an anniversary cake with each of four tiers representing each of four decades; and a tribute to U.S. Army Gen. George C. Marshall for whom the Marshall Center is named.

The Marshall Association will host the forum — “Four Decades in Perspectives; the Future in Focus” — from 10:40 a.m.-11:40 a.m. in Morris Auditorium. Panelists include Bob Schwinghamer, who recently retired as Marshall’s associate director, Technical; retired Center directors Dr. William R. Lucas and Jack Lee; Marshall Deputy Director Carolyn Griner; and Center Director Art Stephenson. Each of the first four panelists will respond to questions about the first four decades of the Marshall Center. Stephenson will address the future of the Marshall Center.

Jim Frees, the association’s vice president for programs will moderate the forum.

“The Marshall Association is pleased to offer this forum,” said Association President Charles Scales. “We’ve got a great panel lined up.”

Other scheduled events include:

Tuesday, Sept. 19:

Gen. George C. Marshall video presentation will be shown on Center-wide television

Wednesday, Sept. 20:

10 a.m. — Marshall 40th Anniversary video presentation in Morris Auditorium

Thursday, Sept. 21:

9 a.m. — Gen. Marshall tribute; 283rd U.S. Army Band and former Apollo astronaut Gene Cernan will speak in Morris Auditorium

10:40 a.m. — Perspectives Forum in Morris Auditorium

11:40 a.m. — Employee lunch; performance by 283rd U.S. Army Band; and Gene Cernan book signing in Bldg. 4200 Courtyard

1 p.m. — Time capsule ceremony with Center Director Art Stephenson in Bldg. 4200 Courtyard

2 p.m. — 40th Anniversary cake, performance by Latin Rhythms band in Bldg. 4200 Courtyard

Thanks to NASA, Decatur mom takes home school beyond basics with 'high-tech' know-how

by *Lynette Madison*

This fall Marcia Guyse and her sons plan to build a scale model of the solar system and design a spacesuit for walking on Mars — not science projects, but science and math activities for their home school.

Where did this Decatur mom get the know-how for such "high-tech" projects?

Guyse found her lesson plans and materials at Marshall's Educator Resource Center. The Resource Center offers a wealth of information to teachers, those studying to teach and home-schooling parents in a six-state area.

In 1997, parents chose to home school nearly 1.23 million children rather than send them to a public or private school, according to the National Home Education Research Institute.

For Guyse, the Educator Resource Center offered more than just great projects for her children. She earned professional development credits to keep her Alabama Teacher's Certification.

"The workshops were wonderful. The presenters were knowledgeable, made the subjects easy to understand and were good about focusing on skill-age levels. Plus, the workshops and materials were free. I brought home lots of posters, CDs and lesson plans," Guyse said.

Guyse took such workshops as "Aeronautics for Elementary Teachers," studied the International Space Station, Hubble Space Telescope and Solar System and learned how to access NASA online resources. She plans to use the workshop information in other subjects.

"Flexibility is one of the benefits of home schooling," Guyse

said. "Because children learn in their own way and on their own schedule, our approach to science will work for both my 11- and 8-year-old. I can use the material to generate essays, reading assignments, math and hands-on group activities, as well."

Marshall's Educator Resource Center is part of NASA's educational service that provides instructional products in science, mathematics and technology nationwide. The Educator Resource Center Network maintains more than 50 resource centers at NASA sites and universities across the United States.

Workshops

Marshall's center offers three-hour workshops, each Tuesday and Thursday, in everything from Earth science to the history of rockets. Often NASA scientists, who volunteer their time, are presenters at the workshops. In 1999, the center held 123 workshops — including monthly Saturday sessions — and reached 1,932 teachers.

The center receives hundreds of phone and mail requests for materials: The most requested are instructions on how to build a rocket — with film canister and Alka-Seltzer™.

The resource center provides supplemental classroom material that is not a substitute, but an enhancement, for a state's curricula, according to Alicia Beam, the pre-college officer at Marshall. Beam, who oversees Marshall's resource center, said all materials and curricula are aligned with national standards for math, science and technology.

"We believe it's one thing to talk about the history of rockets and another to actually build and launch one," said Beam. "Our speakers try to include hands-on activities in every program."

Marshall's resource center provides an activities and workshop calendar to the state departments of education in Alabama, Tennessee, Arkansas, Missouri, Louisiana and Iowa.

All educators may access the workshop schedule and resources through NASA's Spacelink — an electronic library with information on NASA's aeronautics and space research.

The Web site provides teacher's guides with activities, images, computer software and status reports on projects, plus news releases and television broadcast schedules. Spacelink can be found at: <http://spacelink.msfc.nasa.gov>

The writer, employed by ASRI, supports the Media Relations Department.



Photo by Doug Stoffer, NASA Marshall Space Flight Center

Steve Culivan, right, an aerospace education specialist who works with Marshall's Education Programs Department, teaches a class to Guyse, left, who will receive 27 hours credit of professional development to renew her Alabama Teacher's Certification.

"Have a Great Safe Day"

— Safety slogan submitted by
Richard Smith, HEI

Upcoming Events

AMPET Conference — The 4th annual AMPET Conference will be Monday-Wednesday at the Von Braun Center. For more information, call 544-7553.

Travel Service Training — A new travel service provider — CI Travel — begins providing service at Marshall on Oct. 1. From 10-11 a.m. and 1-2 p.m. Monday in Morris Auditorium, CI Travel representatives will brief changes in travel services and distribute information packages. See "Inside Marshall" for times specific organizations should attend briefings. For more information, call Mary McClendon at 544-4555.

New Employee Orientation — A New Employee Orientation will be Monday-Wednesday at Sci-Quest on Wynn Drive for all new Marshall employees hired during the summer months. All employees scheduled to attend will receive an official letter requesting their attendance prior to the orientation.

Sports

Tennis Results — Winners of the MARS Tennis Club Women's Open Doubles Tournament Aug. 12 were: first place — Donna Sellers and Melissa Jose; second place — Margaret Craig and Joanie Bell; third place — Bernice Bowling and Carol Wright; and fourth place — Ronda Moyers and Deborah Kromis

Winners of the Men's Open Doubles Tournament Aug. 19 were: first place — George Noel and Neil Todd; second place — Bill Boglio and Barry Dawson; third place — Joe Cremin and Larry Newman; and fourth place — Jack Beasley and Larry Balentine.

The next tournament is an OPEN Hi-Lo Tournament from 8:30 a.m.-noon, Saturday at the NASA Tennis Courts on Gemini Road. Bring your racket, don't worry about a partner. We'll pair up there. Entry fee is \$3 for non-members. To sign up, call Ronda Moyers at 544-6809.

Job Opportunities

Reassignment Bulletin 00-34-CL, AST, Aerospace Flight Systems, GS-861-13, Space Transportation Directorate, Second Generation Reusable Launch Vehicle Program Office. Closes Sept. 18.

CPP 00-113-DS, AST, Technical Management Systems, GS-801-14, Engineering Directorate, Business Management Office. Closes Sept. 18.

Reassignment Bulletin 00-31-CP, AST, Aerospace Flight Systems, GS-861-13 (2 vacancies), Science Directorate, Science systems Department, Space flight Experiments Group. Closes Sept. 18.

CPP 00-130-RE, Program Analyst, GS-343-13 (2 vacancies), Space Shuttle Projects Office and Space Transportation Directorate. Closes Sept. 19.

VISAR

Continued from page 3

our customers and the industry as a whole."

Video imagery for defense applications also will be improved through another licensing agreement between NASA and BARCO Inc. Display Systems, of Duluth, Ga. The company is incorporating VISAR into its new computer hardware, designed for real-time video image enhancement, stabilization and tracking.

"The reconnaissance video imagery made by military vehicles, aircraft and ships traveling in harsh, rugged environments is often shaky and unstable," said Michael Garner, a BARCO new business analyst. "Our defense industry customers will be pleased with the improvements NASA's software makes to reconnaissance and surveillance video."

These two licenses are for exclusive use in Intergraph's and BARCO's existing or new real-time hardware products. Now, NASA is seeking consumer software companies to license VISAR for home computers, said Sammy Nabors of NASA's Technology Transfer Department at the Marshall Center.

For instance, to evaluate the use of the video enhancement software for medical purposes, Meyer and Hathaway are working with the Casey Eye Institute at the Oregon Health Sciences University in Portland through a NASA Space Act Agreement. Officials at the institute have called the initial video evaluations "awesome." Through partnerships with the National Eye Institute of the National Institutes of Health, scientists at the Portland institute use an innovative technique to study video of cell movements in the eye associated with immune system diseases.

"Working with the NASA software, we can answer questions that advance our understanding of processes unique to the eye and our understanding of how the immune system works," said Dr. Stephen R. Planck, associate professor for the Casey Institute. "After NASA enhanced the video, we could see cell movements inside the eye that were undetectable before."

The two Marshall Center scientists have completed test video analyses that show their patent-pending technology can improve home video — an area that may have the biggest market potential. To encourage companies to manufacture and distribute VISAR software for home computers, NASA recently asked companies to submit license applications and commercialization plans to the Marshall Technology Transfer Department.

"It's amazing to me that software we invented has the potential to be used everyday in home computers across America," said Meyer.

The writer, employed by ASRI, supports the Media Relations Department.

Employee Ads

Miscellaneous

- ★ Packard-Bell 75MH computer, 14" screen, keyboard, printer, speakers, \$1,000; wood lathe, 40" turn space, heavy duty w/base, \$150. 772-3400
- ★ Golf clubs, Tour Model, 2 irons, 3-pw, stiff metal shafts, \$75. 757-0320/517-0657 pager
- ★ Pfaltzgraff stoneware, Folkart pattern, various pieces. 233-5607
- ★ 1989 Yamaha, YZ 125, motor ported & polished, DG pipe and silencer, spare chasis & charts, kept indoors. 355-7459
- ★ Plexiglass panels for Kenmore refrigerator doors, black, 63.25"x17.75", 13"x28.375", 13"x20.125", \$20. 895-6722
- ★ White changing table/dresser, \$95; blue loveseat, \$75; blue bunk bed w/bedding, \$185. 922-9387
- ★ Motorguide, 24/36V trolling motor, hand control, 42" shaft, new in box, \$450. 233-5032
- ★ Oak kitchen table and 4 chairs; \$200; exercise bike, \$60; coffee table, \$60. 539-0507
- ★ Propane Blue Flame heater, 30,000 btu, auto-thermostat, vent-free, \$200 obo. 828-6213
- ★ 1978 Yamaha XT, 500 cc twin street bike; black, \$250; Bieffe full-face helmet, small, black, \$85; \$300/both. 922-0866
- ★ Two Super Single waterbeds, double pedestals, mirrored headboards, padded rails, liners, heaters, sheets, \$50 each. 880-6267
- ★ Dining room set; w/china, hutch, table, 8 chairs, credenza, \$375. 882-1382
- ★ Alabama football tickets; (2) Southern Miss, (2) Central Florida, \$40 each. 830-4304
- ★ Ladies clothes, sizes 12, 14, 16; dresses, slacks, casual wear. 858-3850/leave message
- ★ DirectPC satellite, USB system, everything you need for Internet connection, \$80. 232-2313
- ★ Talladega Tower race ticket for Oct. 15, \$100. 895-8385
- ★ Labrador puppies, AKC field champion

- line, 8 weeks old, \$200 ea. 882-2579 after 6 p.m.
- ★ Heavy duty moving/storage blankets, 15, \$4 each. 726-0243
- ★ Wooden cradle, white, \$40; Exersaucer, \$18; Bouncy seat w/toy bar and head support, \$10. 723-2779
- ★ Cross country skis, ski exercise machine, wet suit, scuba gear, 24 Beanie Babies, \$70. 883-1055
- ★ Mercury vapor sec. Light, new, \$16; circular saw, 6-1/2, heavy duty, new blade, \$20. 931-427-8205
- ★ Troybilt chipper/shredder/vac, \$300; child's pine dresser, desk w/shelves, \$50. 880-3263

Vehicles

- ★ 1927 Phaeton T-Model, new battery, fanbelt, exhaust pipe and muffler, \$7,900. 764-2492 after 7 p.m.
- ★ 1989 Pontiac Grand Prix coupe, auto, air, PW, new tires, 111K miles. 650-5128
- ★ 1997 Mustang, 6 cyl., auto, black/tan, a/c, pdl/pw, anti-lock brakes, new tires, \$8,500 firm. 256-753-2278
- ★ 1986 Mazda RX7, 5-speed, sun roof, some new parts, \$750 obo. 858-5552
- ★ 1994 Prism, 91K miles, 5-speed, radio w/ cassette, one-owner. 895-0955 after 6 p.m.
- ★ 1986 Taurus, 4-cyl., 5-speed, sport rims, all power, \$1,500 obo. 881-8220
- ★ 1979 VW convertible, Super Beetle, 1835 engine, 4-speed manual, \$5,700 negotiable. 881-2355
- ★ 1998 Ford Windstar, integrated child seats, 56K miles, priced to sell. 883-9339
- ★ 1989 Blazer S-10, 166K miles, white, 2-door, V-6, air, CD player, automatic, moon roof, \$2,450. 883-8947
- ★ 1995 Corolla DX, one-owner, power windows/doors, CD, keyless entry, standard, \$6,200. 722-2190
- ★ 1991 Ford Ranger XLT, supercab, 3.0L/V-6, 5-speed, 123K miles, air, new battery, \$3,900. 729-8089

Found

- ★ Necklace near Bldg. 4200. Call 544-4758 to identify/claim

- ★ Men's tie clip, Bldg. 4200, 2nd floor. Call 544-4758 to identify/claim

Free

- ★ Black Lab mix, great watch dog, must find home, dog house included. 883-9339

Wanted

- ★ Ride to work, 7 a.m. to 3:30 p.m., Governors Drive/Huntsville Hospital area, will pay \$6 per day. 534-5398
- ★ Ride from Hampton Cove through December, flexible hours, will pay. 544-1950/533-2935
- ★ Large dog house, reasonable price. 233-1143
- ★ Stationary exercise bike. 536-8925
- ★ Treadmill. 830-8411

Center Announcements

- ☛ **NCMA Luncheon** — The Huntsville Chapter of the National Contract Management Association will meet for lunch at 11:30 a.m. Sept. 21 at the Redstone Officer's and Civilian's Club. Cost for the luncheon is \$10. Elizabeth Moulder will speak on AMCOM's Omnibus Program. For reservations, send an e-mail to: dpelham@hiwaay.net or call 533-3954 by Sept. 18.
- ☛ **Big Spring Jam** — The Marshall Space Shop in Bldg. 4752 has reduced rate tickets on weekend passes to the Sept. 22-24 Big Spring Jam in Huntsville. Price for the three-day event is \$25. Children 11 and under are admitted free when accompanied by an adult. The last day to purchase tickets is Sept. 21.
- ☛ **Foxtrot, Samba Lessons** — The MARS Dance Club is offering foxtrot and samba lessons Sept. 18, 25 and Oct. 2 at St. Stephens Episcopal Church on Whitesburg Drive. For more information, call Woody Bombara at 650-0200.
- ☛ **Shuttle Buddies** — Shuttle Buddies will meet for breakfast at 9 a.m. Sept. 25 at Mullins Restaurant on Andrew Jackson Way. For more information, call Deemer Self at 881-7757 or Gail Wynn at 852-8189.

MARSHALL STAR

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