



MARSHALL STAR

Serving the Marshall Space Flight Center Community

Dec. 18, 2003



NASA helps Wright Flyer take to the skies again

Flyer reproduction to recreate history after wind tunnel tests

Headquarters release

A replica Wright Flyer, scheduled to take to the skies near Kitty Hawk, N.C., this week, has passion, modern engineering science and NASA wind tunnel test results to help it recreate history.

The historically accurate reproduction of the Wright Brothers'

See Wright on page 2

Alternative fuel vehicles added to Marshall transportation fleet

by Jonathan Baggs

Two electric cars have been purchased by the Marshall Center and added to the government vehicle fleet as part of a pilot program to phase in alternative fuel vehicles, as mandated by federal law.

The four-passenger GEM cars, manufactured in Fargo, N.D.,

by Global Electric Motorcars L.L.C., a DaimlerChrysler Co., cost \$11,000 each and can reach a top speed of 25 mph. They are designed to meet federal safety requirements for street-legal operation on public roads with low speed limits where the use of "neighborhood electric vehicles" has been approved.

See Alternative on page 3

Space telescope's first images to be unveiled

Headquarters release

The first colorful and revealing cosmic images from NASA's Space Infrared Telescope Facility (SIRTF) will be unveiled at a news conference Thursday. NASA Administrator Sean O'Keefe will also announce a new name for the observatory.

The event begins at noon CST in NASA's James Webb Auditorium, 300 E St. S.W., Washington. At 12:30 p.m. CST, new images from the orbiting observatory will be released at a press briefing featuring a panel whose members will discuss the telescope's early observations. Both events will be carried live on NASA Television,

with two-way question-and-answer capability from participating NASA centers.

SIRTF, launched Aug. 25 from Cape Canaveral, Fla., uses state-of-the-art infrared detectors to pierce the dusty darkness enshrouding such celestial objects as galaxies, stars and planet-forming discs around stars. It is the fourth of NASA's Great Observatories, which include the Hubble Space Telescope, Chandra X-ray Observatory and Compton Gamma Ray Observatory.

The new name for the mission was selected after a naming contest that drew 7,000 entries from around the world.

Marshall Star, Daily Planet on holiday break

The Marshall Star, which is published 50 times per year, will not publish for two weeks during the holiday season.

The last issue of the year will be Dec. 18. Publication will resume Jan. 8. The Star office will close Dec. 17 and reopen Jan. 5. Classified ads may still be submitted during this time for future publication.

The Daily Planet will cease publication Dec. 22 and resume Jan. 5.

Wright

Continued from page 1

1903 biplane was to make its attempt at flight at the First Flight Centennial Celebration Wednesday — the 100th anniversary of the first powered flight. Ken Hyde, founder of the Wright Experience in Warrenton, Va., has passionately worked for years to uncover the secrets of Orville and Wilbur Wright, the two Ohio bicycle maker brothers credited with making the first successful flight.

Hyde and his team painstakingly recreated propellers, gliders and aircraft in an attempt to figure out just how the Wright brothers flew for 12 seconds in 27 mile an hour winds over the sand dunes of North Carolina's Outer Banks on Dec. 17, 1903.

"We have been working almost 10 years on the research aspect of this," Hyde said. "The machine we plan to fly is three years in the building. I have often been asked why we are doing it. The answer is because nobody has done it and it needs to be done."

Four years ago, Hyde turned to NASA's Langley Research Center in Hampton, Va., and Old Dominion University in nearby Norfolk to better understand the engineering science behind the Wrights' efforts.

Hyde started by bringing wooden propellers, handcrafted to Wright specifications, to the NASA Langley Full Scale Tunnel, owned by NASA Langley and operated by the university. Then he progressed to authentic reproductions of two Wright gliders and, earlier this year, the Wright Flyer. Old Dominion University engineering professors and students tested all of the Wright gliders and the Flyer.

"The Wright propellers were 20 years ahead of their time," said Professor Robert Ash, Wright test program manager for the university. "They were able to convert engine power into thrust with the efficiency required to enable a small and heavy gasoline engine to propel the Wright Flyer. The Dec. 17, 1903, flight was not possible without the Wright propeller designs and this contribution has been largely overlooked."

What the Wrights didn't do was design a stable aircraft, according to Ash and others who studied hours of wind tunnel data not only of the Wright Flyer reproduction, but also two Wright gliders.

"Just like their bicycle heritage, the Wrights deliberately exploited instabilities to effect dynamic flight control," Ash said. "Flying the Wright Flyer is like trying to keep a bicycle upright in three dimensions."

The nature of the aircraft affected the way the four Wright Experience pilots

trained. They've gotten expert guidance from a simulator, created using the Langley Full Scale Tunnel data, and a former NASA test pilot, Scott Crossfield. Crossfield was the first American to fly at twice the speed of sound 50 years ago.

"They're all very capable aviators," Crossfield said. "But they've had to unlearn most of what they know about flying stable airplanes. Very few people have flown unstable airplanes. They've been lucky to survive them."

One of those aviators is Kevin Kochersberger, an associate professor from the Rochester Institute of Technology in Rochester, N.Y., who helped oversee most of the wind tunnel tests. During training in North Carolina last month, he successfully got the Flyer reproduction off the ground.

"Being a scientist and engineer are important qualifications for flying this aircraft," Kochersberger said. "I've been looking at the characteristics of the Wright Flyer for four years. Being in the wind tunnel with it really made a difference."

All the experts agreed that plenty of wind is needed to help the Wright Flyer aloft.

The First Flight Centennial Celebration was at the Wright Brothers National Memorial in Kill Devil Hills, N.C. It was to feature not only the Wright Flyer recreation, but also appearances by NASA astronauts and Agency exhibits.

Guidance on leave during emergency situations

For guidance and information on leave during emergency situations, go to: <http://inside.msfc.nasa.gov/index.html/info/iwg.html>.



Photo by David Higginbotham, NASA/Marshall Center

STS-114 Flight Certification Status Review at Marshall

Maj. Gen. Michael Kostelnik, center, NASA's deputy associate administrator for the Office of Space Flight, joins Bill Parsons, right, manager of the Space Shuttle Program, for the first STS-114 Space Shuttle Flight Certification Status Review at the Marshall Center. More than 200 civil servants and contractors attended the two-day event last week, including participants from Johnson Space Center in Houston, Kennedy Space Center in Florida, and Stennis Space Center in Mississippi, to provide status on activities related to returning the Space Shuttle to flight.

Alternative

Continued from page 1

Joyce Meier, the Marshall Center transportation officer, said the two cars would be assigned to the vehicle pool for use by the Facilities Engineering Department and the Procurement Office. More alternative fuel vehicles will be added to the Marshall fleet in the future.

“By 2005, we are required to replace 75 percent of our pool vehicles with alternative fuel vehicles, according to the 1992 Energy Policy Act,” Meier said.

The law’s regulatory requirement to increase the use of alternative fuel vehicles and reduce petroleum usage applies to all NASA centers and other federal agencies.

The GEM cars already have been used on a limited basis at the Johnson Space Center in Houston and at Dryden Flight Research Center in Edwards, Calif.

Because the electric cars are low-speed vehicles, they will have “limited application” at Marshall for the time being, Meier said. For example, the cars do not go fast enough to travel major traffic arteries at the Center such as Rideout Road. As traffic patterns change, however, and future construction projects give the Center more of a “campus” atmosphere, Meier said Marshall team members would see more alternative fuel vehicles replacing petroleum-based vehicles.

“We have about 60 vehicles on-site in our present vehicle pool,” Meier said. “We’ll never completely replace all of those because we do have off-site requirements.”

The two electric vehicles will replace two of Marshall’s petroleum-based pool vehicles.

NASA astronaut Michael Foale breaks U.S. space endurance record

Headquarters release

NASA astronaut Michael Foale, International Space Station Expedition Eight commander and science officer, is the new U.S. space endurance record holder, and he’s not finished yet.

Last week, Foale surpassed the previous U.S. record of 230 days, 13 hours, three minutes and 37 seconds. NASA astronaut Carl Walz set the old record in June 2002. By the time Foale returns to Earth in April, he will have accrued 375 cumulative days in space.

Walz is still co-holder of the U.S. record for the longest single U.S. spaceflight during Expedition Four, when he and NASA astronaut Daniel Bursch spent nearly 196 days aboard the Space Station.

Foale has been a member of six Space Shuttle crews and two space station crews. He flew aboard Shuttle missions in 1992, 1993, 1995 and 1999. He flew as a flight engineer aboard the Russian Mir Space Station in 1997, also traveling to and from the station aboard the Shuttle. For Expedition Eight, Foale traveled to the Station on board a Russian Soyuz

spacecraft.

Foale’s Expedition Eight crewmate, Russian cosmonaut and flight engineer Alexander Kaleri, is also among the most experienced space travelers. By the end of their mission, Kaleri will have logged 610 days in orbit on four flights, placing him fifth on the all-time space endurance list. Another Russian cosmonaut, Sergei Avdeyev, holds the all-time record for time spent in space, with 748 days accumulated on three flights. Cosmonaut Valery Polyakov set the world single-flight endurance record in 1995, when he completed a 438-day mission.



One of Marshall's new Gem cars outside Bldg. 4200.

Photo by David Higginbotham, NASA Marshall Center

“In addition to this being an alternative fuel vehicle, it has zero emissions,” Meier said. “Other alternative fuel vehicles do have some emission.”

Meier said other types of alternative fuel vehicles include those that use ethanol, propane, bio-diesel engines and natural gas. There also is work being done on vehicles powered by hydrogen fuel cells — but, Meier said, “The technology is just not there yet. In the future, that may be a viable alternative.”

The GEM cars use a 72-volt General Electric motor powered by six, deep-cycle, 12-volt batteries. For recharging, the batteries use an adapter that fits into a standard 110-volt electrical outlet. A full recharge takes about eight hours. The cars, depending on terrain, weather, weight and other factors, can go about 30 miles before a recharge is needed.

Meier said other types of alternative fuel vehicles may be considered in the future for use at Marshall, depending on how well the GEM cars meet low-speed transportation needs at the Center.

“We’re going to see how it goes before we get more of them,” she said. “But we can definitely expect to see more alternative fuel vehicles in use at the Marshall Center.”

The writer, an employee of ASRI, is the Marshall Star editor.

From a family of 13 in Yazoo City, Miss., to NASA's solar observatory in Alabama

James Smith catches one of solar system's biggest shows

By Sherrie Super

For nearly 20 years, James E. Smith has been waiting for one of the biggest shows in our suburb of the Milky Way Galaxy — a huge display of violent, erratic explosions on the Sun.

In November, his patience paid off. As chief observer at the Solar Vector Magnetograph, a solar observatory at the Marshall Center, Smith had a front-row seat to the most intense solar activity tracked since the observatory began operating in the 1970s.

Although he has witnessed and tracked numerous solar storms during his two decades at the observatory, recent activity has been far from ordinary. In late October and early November, the Sun exhibited one of its most active phases in recent history.

Over 10 days, two active solar regions emitted eight major solar flares in the most intense category known as X-class, capable of producing the energy of a billion megatons of TNT.

Accompanying the flares were coronal mass ejections — massive explosions that blast through the Sun's outer atmosphere and send charged particles toward Earth at speeds of thousands of miles per second.

"It's what I've been trying to observe my whole career — one of the major flares in action," Smith says. A self-described jack-of-all-trades, he fulfills many roles to glean data from the Sun.

Whether acting as an engineer or mechanic keeping the observatory operating, as a photographer capturing images of the Sun, or as a scientist analyzing the data, Smith enjoys the variety. "I do it all," he said. "I look forward to coming to work every day."

One of 11 brothers and sisters growing up in Yazoo City, Miss., Smith said the odds were against him pursuing a career in science. His parents each had a 10th-grade education. His father was a meat cutter in a grocery store, and his mother — now 78 and still getting up at 7 a.m. daily to style hair at a local beauty parlor — graduated from beauty school only after raising her 11 children.

"I grew up one of the poorest children in Mississippi," Smith said. "Who'd have ever thought I'd get to college, much less get to NASA?"

After graduating in 1969 from N.D. Taylor High School,

Smith spent two years helping support his family by working alongside his father as a meat cutter. One day, a high school teacher saw him and questioned why Smith — who had shown such an interest in math and science — wasn't in college. The teacher responded to Smith's tuition concerns by directing him to a financial aid counselor at Mississippi Valley State University in Itta Bena. Armed only with the counselor's name, a few clothes, and \$30, Smith began the path that would lead him to a career in space science. With financial aid and money earned working summers as a meat cutter, Smith pursued the college education that had seemed so unattainable.

In 1973, he joined NASA as a co-op student supporting Skylab, NASA's original space station, and in 1975, he graduated from Mississippi Valley State with a bachelor's degree in mathematics. He joined NASA full-time upon graduation and has

worked with the Marshall Center's Solar Physics group ever since.

Smith, whose office is located at the National Space Science and Technology Center in Huntsville, spends most of his time at the solar observatory. "I have loved every minute of it," he said. "Every day is different. It all depends on the weather. If it's a sunny day, typically I'm upstairs in the tower running the telescope and taking observations. Somewhere between taking observations, I analyze and post the data set."

Always fascinated with celestial objects, Smith — now the now father of three adult children — said his career path has given him a different perspective than he had as a child. "Who would have thought that a boy who experienced such poverty would grow up to be a member of the team at a NASA observatory," he said.

The NSSTC is a cooperative venture of the Marshall Center, Alabama A & M University, Auburn University, Tuskegee University, The University of Alabama, The University of Alabama at Birmingham, The University of Alabama in Huntsville, and The University of South Alabama.

The writer, an employee of ASRI, supports the Media Relations Department.



James E. Smith gets ready to study the sky with the Solar Vector Magnetograph.

Photo by Dennis Olive, NASA/Marshall Center

NASA reaches major milestone in autonomous flight safety system development

Wallops Flight Facility/Kennedy Space Center release

NASA has recently completed the design phase of a flight safety system to potentially lower range operations cost for the launch of expendable launch vehicles.

The Autonomous Flight Safety System (AFSS) is being developed in three phases by a NASA team of flight systems, operations and range safety personnel.

Design comments have been received from NASA and Department of Defense range safety experts for the single, on-board processor system to be developed in the current phase — Phase III. The core of the flight-qualified system is the design structure comprised of the processor, algorithms and sensors.

“The successful development of the AFSS will demonstrate revolutionary capabilities through new technologies and enable space transportation systems to achieve yet another major goal in affordability,” said Steven Kremer, NASA Wallops Flight Facility, Test Range Technology Program manager.

The AFSS will be an independent subsystem that would be mounted on expendable launch vehicles that require flight safety systems. If successfully demonstrated and adopted for flight by the ELV community, this on-board system for flight termination or destruct should reduce the need for safety specific ground based telemetry and radar tracking.

If required, flight processors will initiate the flight termination function automatically. Redundant on board sensors will gather

vehicle navigation data and flight termination will be based upon that data and software-based rules.

In addition, the AFSS will allow for launches from remote locations that do not have extensive ground-based range safety equipment such as tracking radars.

Prototype system flight-testing will take place through lab simulations and on suborbital sounding rockets. Flight-testing of the prototype system is scheduled for September 2004, and flight tests on the redundant system are scheduled for September 2005.

This phase is a three-year effort to produce a flight qualified system that will be tested by existing launch ranges such as the NASA’s Wallops Flight Facility at Wallops Island, Va., the Eastern Range at Cape Canaveral, Fla., and the Western Range at Vandenberg Air Force Base, Calif.

NASA Headquarters, the Office of Space Flight and the Office of Safety and Mission Assurance are providing funding.

The project is an example of “One NASA” providing Agency resources from multiple locations to develop new technologies in space flight. The Wallops Flight Facility is providing project management, systems engineering, sensors, flight algorithms, software support and simulation testing. Kennedy Space Center in Florida is providing flight computer and sensor interface, software development and process management, flight algorithm support and systems engineering support. Earlier phases of the project were supported by the Marshall Center.

Junior Girl Scout Troop 434 members honor Columbia astronauts

by Jonathan Baggs

After members of Huntsville Junior Girl Scout Troop 434 heard of the loss of the Space Shuttle Columbia and its crew of seven astronauts, they wanted to do something in remembrance.

Many of the troop members had attended Space Camp and a lot of their parents worked in the aerospace field.

Beth Paulett, the adult leader of Troop 434, said one of the girls suggested making a remembrance quilt. Six of the girls then began the project, first learning how to quilt. They worked 20 straight Sundays, hours at a time, to complete the project.

The quilt, which has images of the astronauts and the words “In memory of the Columbia Crew, with love, Troop



Photo by Emmett Given, NASA/Marshall Center

Presenting the Columbia remembrance quilt to the U.S. Space & Rocket Center are, from left, Kelsey White, Sarah Paulett, Beth Paulette, Allison Wright, Brandy Miller, Kimberly Kell and Lauren Lambert, with Larry Capps, right, the center’s chief executive officer.

434,” was presented to the U.S. Space & Rocket Center in November and will become part of its permanent archives.

Paulett said some local libraries also may display the quilt.

For their efforts, the girls received the Bronze Star -- the highest badge a Junior Girl Scout can earn.

The writer, an employee of ASRI, is the Marshall Star editor.

Obituaries

Jesse Edward "J.E." Sadler, 84, of Big Cove, died Nov. 22. Burial was in Twickenham Memory Gardens with the Rev. Oakley Drake and the Rev. Dennis McAnally officiating.

Sadler was born Feb. 3, 1919. He retired from the Marshall Center in 1974 where he worked as an aerospace engineering technician.

He is survived by his wife, Nell Sadler; two sons, Jerry Sadler and Darrell Sadler, both of Big Cove; one daughter, Gaynell Walls of Valparasio, Ind.; three sisters, Lorene Sadler, Alma Finch and Ernestine Walls; and nine grandchildren.

Thank yous

I would like to thank by co-workers and friends at the Marshall Center for their many expressions of love and kindness shown during the passing of my brother, Bruce D. Fletcher.

—*Janice M. Stewart, PS32*

I would like to express my sincere thanks and appreciation to my friends and co-workers at NASA, especially those in Bldg. 4203, for the cards, prayers and monetary donations during my recent surgery and recovery. I am deeply thankful to be a part of this wonderful NASA family. May God bless each of you.

—*Candy Kelley, NASA/Exchange-MSFC*



Photo by Dennis Olive, NASA/Marshall Center

Thinking safe because ...

Debbie Bowerman, left, has an "I Think Safe Because ..." badge made last week in Bldg. 4203. Helping her is Trish Motts, seated, and Peggy Jefferson. The Marshall Safety and Health Action Team sponsored the event, in which Marshall team members brought in a small photo of a loved one to be laminated to help remember why safety should be their No. 1 priority. The badges must be worn behind official NASA badges.

Job Announcements

MS04C0059, Education Program Specialist. GS-1720-13, Customer & Employee Relations Directorate, Education Programs Department. Closes Dec. 22. Contact: Edwina Bressette at 544-8115.



Photos by David Higginbotham, NASA/Marshall Center

Marshall team members compete in 'Turkey Toss'

Popular syndicated radio personalities "Rick & Bubba" hosted a "Turkey Toss" recently at the U.S. Space & Rocket Center. The event was to see who could toss a frozen turkey the farthest distance. In the photo at left, Marshall's Craig Bryson gives a frozen turkey a fling. Above, "Speedy," left, from the radio show, interviews Marshall's Greg Freeman, who was presented a cash award for winning the "Rocket Science Division" of the contest. Several major news organizations, including CNN and Fox News Channel, showed clips of the event.

Announcements

Tactical Interceptor Design Symposium set for Jan. 16

A Tactical Interceptor Design Symposium will be from 8 a.m.-4:30 p.m. Jan. 16 in the Tom Beville Center at the University of Alabama in Huntsville. The event is sponsored by the university and the American Institute of Aeronautics and Astronautics. For more information go to <http://www.eb.uah.edu/ipt/>.

NASA Ski Week set for January

The 13th annual NASA Ski Week will be in Steamboat, Colo., Jan. 24-31. Skiers from nine NASA centers will participate in winter sports and camaraderie at the 3,000-acre resort. All Marshall team members, retirees and family members, are eligible to participate. For more information, call 233-0705 or e-mail tom.dollman@nasa.gov.

CAIB report volumes available

Volumes II-VI of the Columbia Accident Investigation Board report are available on the NASA Web site at www.nasa.gov. These volumes contain appendices and additional information, which provides supporting documentation for the main text of Vol. I of the report. Hard copies of the Volumes I-VI are available through the Government Printing Office and can be ordered at www.gpo.gov.

SHARP mentors needed for 2004 summer session

The Marshall Center's Education Programs Department is seeking volunteers to work with students during the 2004 session of the NASA Summer High School Apprenticeship Program. The program offers high school students an opportunity to participate in an eight-week science and engineering apprenticeship. Marshall volunteers, including researchers, scientists and other engineering professionals, serve as mentors to the students. For more information, call Jennifer Simmons at 961-7544.

Mentors needed for Equal Opportunity summer internships

Mentors from all technical directorates at the Marshall Center are needed for the Equal Opportunity Office 2004 Summer Internship Program. Mentors will work with undergraduate students for 10 weeks. For more information, call Madeline Hereford at 544-7420.

Employee Preferences Survey due by Jan. 5

NASA employees have received information on taking the computer-based Employee Preferences Survey. This is an Agency-wide research initiative to help shape improvements in NASA's recruitment and retention programs. All surveys are completely confidential and will be administered by an outside organization. The survey is not mandatory, but Vicki Novak, NASA assistant administrator for Human Resources, urges all employees to participate by Jan. 5. For more information, see "Inside Marshall."

U.S. Savings Bond program automated with Web site

The U.S. Department of the Treasury has automated the U.S. Savings Bonds program. There will no longer be yearly savings bonds campaigns. Marshall team members can sign up and manage their own personal bond account by going to "Treasury Direct" at <http://www.tgasurydirect.gov>.

Marshall barbershop hours changed for holidays

Chatterbox Barber and Styling in Bldg. 4203 will close Dec. 24 at noon and reopen Dec. 27. The barbershop also will close at noon Dec. 31 and reopen Jan. 3. For more information, call 881-7932.

IFMP Web site updated

The Integrated Financial Management Program Web site has been updated with new content and features. Changes include the addition of reporting and BW pages; Frequently Asked Questions; Tips and Tricks; Project news and bulletins;

and an up-to-date project calendar. For more information, call Lee Harp at 544-7271 or Scott Black at 544-4839.

National Space Club Leadership Luncheon set Jan. 28

The National Space Club will host its annual Leadership Luncheon at noon Jan. 28 in the North Hall of the Von Braun Center in Huntsville. Speakers will include Marshall Center Director David King. Tickets cost \$25 per person. Checks should be made payable to The National Space Club and be received by Jan. 16 in Marshall's Government and Community Relations Department. For more information, call Rosa Kilpatrick at 544-0042.

National Engineers Week Award Banquet is Feb. 26

The annual National Engineers Week Award Banquet will be at 6 p.m. Feb. 26 in the North Hall of the Von Braun Center in Huntsville. Tickets are \$25 per person for advance reservations and \$38 per person for reservations made after Feb. 18. For more information, see "Inside Marshall."

SHE Committee nominations open for chairperson, deputy

The Safety, Health & Environmental Committee is seeking nominations in January and February for chairperson and deputy chairperson. The term of office is one year, beginning in April. Chairperson nominees must be on-site civil servants. Deputy chairperson nominees can be on-site civil servants or contractors. The vote will take place at the Feb. 25 SHE Committee meeting. Nominations should be submitted to Cynthia Behel at 544-2794 or Cynthia.A.Behel@msfc.nasa.gov

Redstone Arsenal speed limits strictly enforced.

Driver's on Redstone Arsenal property are reminded that speed limits, whether posted or those on unmarked roads, are strictly enforced. Speed limits on unmarked roads are 25 mph and 10 mph in parking lots.

Classified Ads

Miscellaneous

- ★ Bachmann MONOPOLY HO scale electric train set, in box, unused, contents sealed. \$80. 306-0700 Decatur
- ★ R/L Viper, 1/10 scale, gas powered w/ radio, needs minor work, \$200. 883-8492
- ★ Ladies cowboy boots, made by Justin, brown, size 6B, genuine Lizard, \$45. 880-7490
- ★ Baccarat hand-blown crystal champagne glasses, others, 15 pieces, \$40. 881-7182
- ★ Dual polished cold air induction system from 1996 Camaro Z28 w/two K&N air filters. 883-8492
- ★ Yamaha grand piano, 5'7", black lacquer, \$8,000 firm. 683-7532
- ★ 2000 Honda ATV TRX90cc 4-wheeler for 12-15 year olds, 4-speed automatic clutch, \$1,750. 882-0461
- ★ 2001 Yamaha Raptor 660 high-performance 4-wheeler, \$3,500. 325-6000
- ★ Matthews FX bow, fully rigged, \$500. 259-5140
- ★ Natural gas direct-vent stand-alone cast iron heater, approx. 4-yrs. old, 45K BTU output, \$500. 256-656-2965
- ★ Floral tapestry carry-on bag, faux leather trim, new, \$25; four suitcases, reasonable. 837-6776
- ★ 1977 Avion travel trailer, 27', for hunting, camping or lake lot, \$4,500. 931-427-2059
- ★ Yellow Jacket go-cart, two seats, 5 hrs. Briggs & Stratton engine, \$500. 837-3158
- ★ Booster seat, w/drink holder, toy caddy, \$15. 890-0755
- ★ Computer desk w/hutch, planked Cherry, Sauder Woodberry Collection, \$275. 772-0810
- ★ Murray go-cart, two person, 6.5 Tecumseh engine w/kill switch and roll cage, \$450. 256-883-4570
- ★ Kimball upright piano, \$1,250 firm. 881-6869
- ★ Two This-End-Up solid pine desks, keyboard tray, hutch, \$60 each. 881-6016
- ★ Palm V accessories kit, modem, charger, wireless web, GSM upgrade,

- carrying cases, \$20. 772-8489
- ★ Whirlpool washer, under warranty until 8/7/05, \$250; GE dryer, \$70. 774-5457
- ★ PROTECTV filter, new, screens out offensive words for TV/video programs, \$38. 489-0136
- ★ Kenwood component A/V stereo system w/speakers and 48" black cabinet, \$250. 325-7542
- ★ Limited chrome wheels, 4-lug, new, style 341 w/tires, 225/40, used one month, \$1,800. 251-769-0813

Vehicles

- ★ 1993 940 turbo Volvo, gold, sunroof, leather, tires recently purchased, \$3,500. 931-937-6148
- ★ 2000 Mazda 626, 4-door, 41K miles, silver w/gray interior, ps/pb/pb/pl, AM/FM/CD cassette, a/c, \$9,950. 256-230-0806
- ★ 1994 Nissan Altima, 4-cyl., 4-door, auto, sunroof, new tires, ps/pb/pw, 184K miles, \$2,200. 256-498-5911
- ★ 1998 Ford Ranger XLT, 2.5L/4-cyl., standard cab, step-side, toolbox, 23-28 MPG, 107K miles, \$4,500. 682-1415
- ★ 1994 Nissan Maxima GLE, Bose, leather, sunroof, 90K miles, \$5,500. 256-864-8173
- ★ 1996 Honda Accord EX, leather, power, 95K miles, \$6,500. 489-4081
- ★ 1995 Camaro, V6, auto, hunter green, T-top, leather, 167K miles, \$3,800. 256-653-5204
- ★ 1995 Nissan truck, extra cab, 172K miles, \$3,000 firm. 883-7851
- ★ 2002 Chevrolet Silverado Z71 LS, extended cab, leather, CD, ps/pl, toolbox, 50K miles, \$10,500. 256-214-0110
- ★ 1994 Pontiac transport van, 3.8L, 7-passenger, a/c, power locks/mirrors/windows. 694-8741
- ★ 1984 Jeep CJ7 hard-top, full doors, new 33" tires, one-piece rear axles, auto, I-6, \$5,500. 217-0313
- ★ 2000 Ford Winstar, white, 41K miles, AM/FM, CD/Cassette, auto/V6, garage kept, \$7,800. 837-4057

- ★ 1996 Plymouth Grand Voyager SE, white, all-power, auto/V6, AM/FM cassette, one-owner, 113K miles. 895-9414
- ★ 1956 Chevrolet Belair, 6-cylinder, straight shift, new parts, \$4,000. 881-3353
- ★ 1997 Chrysler Town & Country van, silver/beige, TV/VCR console, \$7,000. 881-7000
- ★ 2000 Hyundai Sonata, 4-door, 29K miles, side airbags, moon roof, AM/FM/CD, warranty, \$8,200. 721-3506
- ★ 1993 Explorer, plum, all-power, new air/blower, brakes, new tires, 151K miles, \$3,100. 256-772-0430
- ★ 2003 Ford Escape XLT sport utility, 4,800 miles, \$19,500. 883-1537
- ★ 1977 Corvette, red, 93K miles, 350/automatic, T-tops, \$7,500. 256-652-4445
- ★ 1997 Ford Explorer XLT, maroon, leather, one-owner, 84K miles, \$6,800. 721-7799
- ★ 1999 Toyota Avalon XL, moonroof leather, alloy wheels, side airbags, champagne, 78K miles, \$10,200. 880-9025
- ★ 2000 Toyota Tundra, 4-door, V8, 53K miles, maintenance records available, two-tone, black/gold, \$15,500. 233-3407
- ★ 2002 Dodge Ram 1500 SLT Quad cab, 23K miles, step bars, bedliner, maintenance records. 880-5182

Wanted

- ★ Sections for a 16' wood garage door. 881-6040
- ★ CID 305 engine for 1992 RS Camaro Chevrolet. 233-2456
- ★ Gas wall-mount heater, 3-brick. 233-4580 after 5 p.m.
- ★ Carpool to Bldg. 4200 area from Hazel Green. 829-9642 after 5 p.m./A1

Found

- ★ Charm, Bldg. 4200, Ladies Room. Call 544-7686 to claim/identify
- ★ Ladies earring. Call 544-3623 to claim/identify

MARSHALL STAR

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