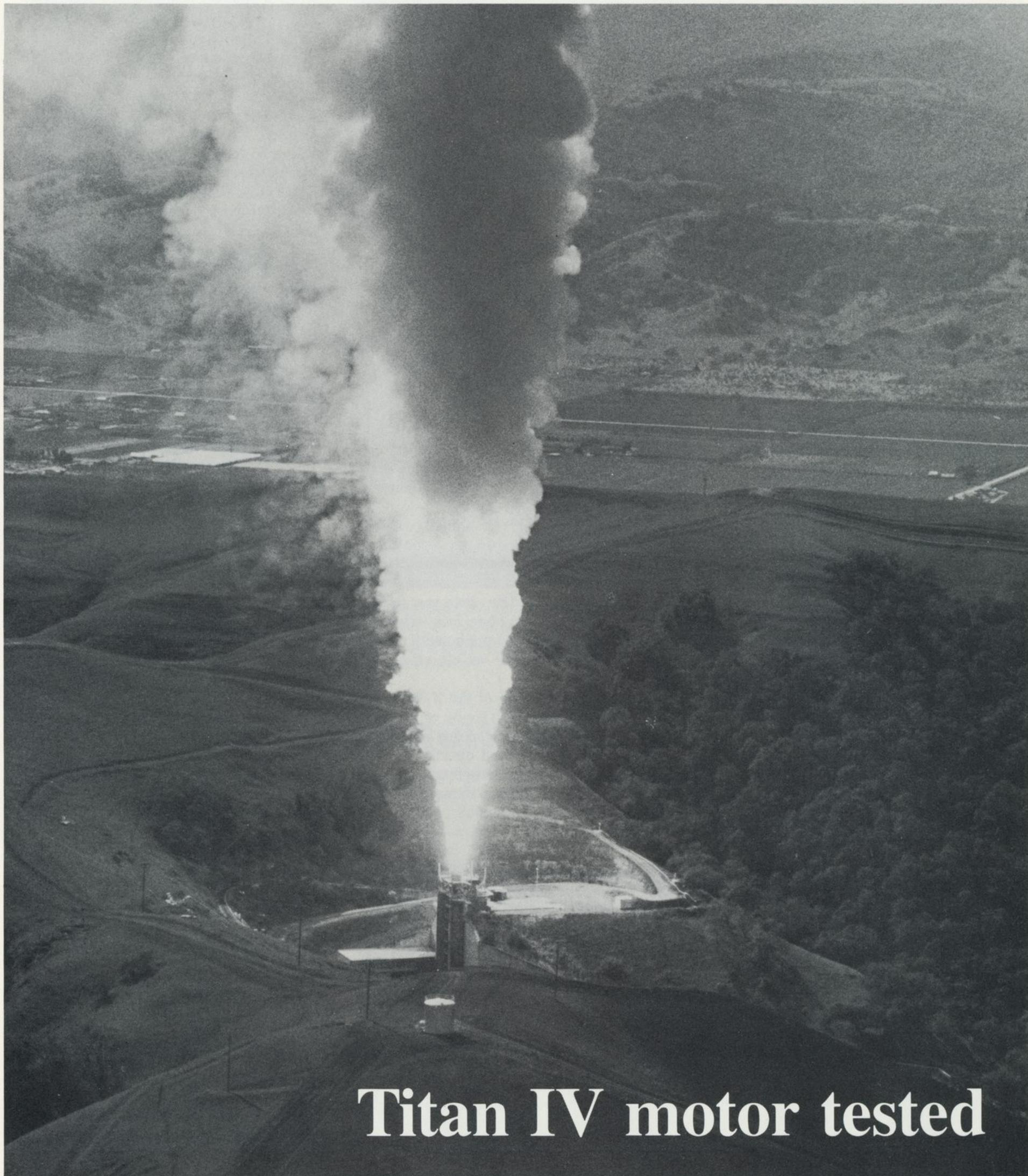


MARTIN MARIETTA

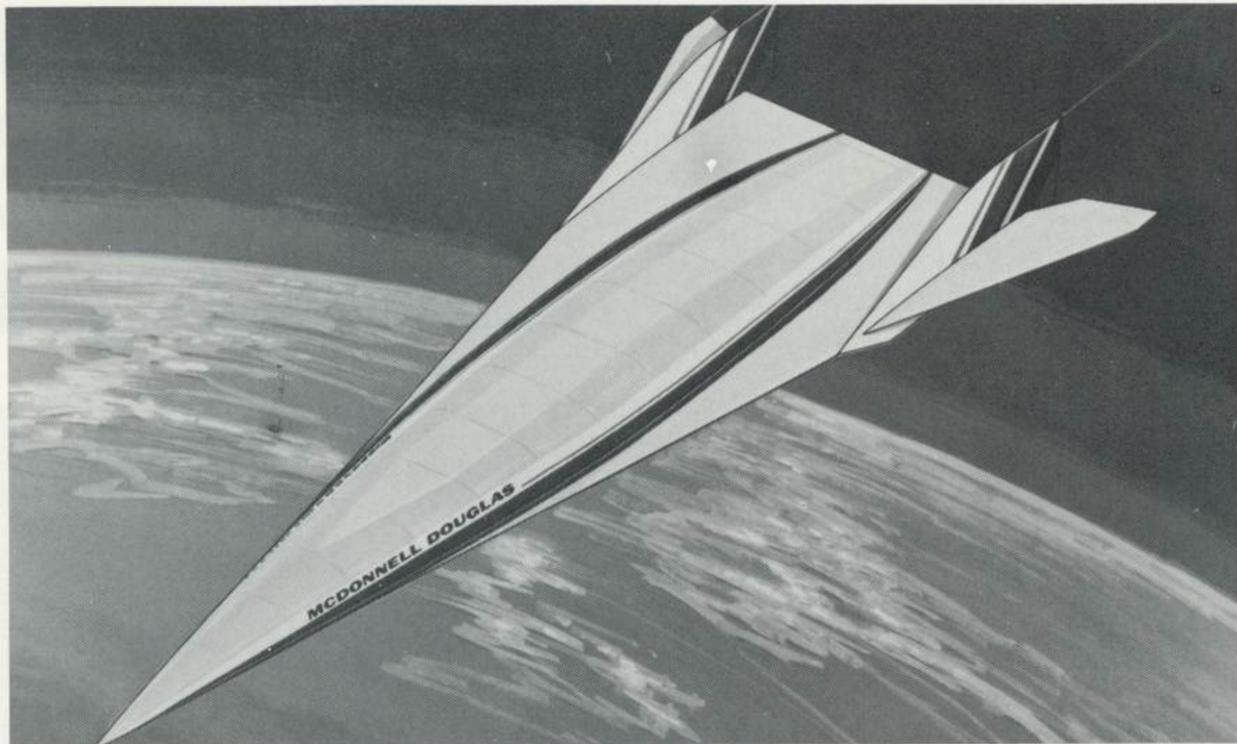
news

ASTRONAUTICS GROUP

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Titan IV motor tested



An artist's concept depicts the U.S. National AeroSpace Plane (NASP). Martin Marietta's Space Launch Systems company is part of the McDonnell Douglas Corp. team that is developing critical technologies to enable NASP operational flight by the year 2000.

SLS studies hypersonic craft

A vehicle that looks like and takes off like an airplane, accelerates to speeds of up to 20,000 mph, and then lands again like an airplane—that's the challenge of the U.S. National AeroSpace Plane (NASP) program.

Martin Marietta's Space Launch Systems (SLS) company is part of the McDonnell Douglas Corp. team that is developing critical technologies to enable NASP to be in operational flight by the turn of the century.

Last October, McDonnell Douglas was one of three airframe companies that won a three-year, \$25 million contract from the Department of Defense and NASA for NASP. The Advanced Programs area of Space Launch Systems, with a team of 18 headed by program manager Dick Rozycki, has begun a three-year, \$2.5 million study for McDonnell Douglas in a variety of areas, including ground support systems, reliability and maintainability, and cryogenic propellant systems. Under a separate company-funded effort, SLS also is investigating the use of lighter, stronger metal alloys for NASP fuel tanks.

According to Rozycki, SLS is studying two technologies linked closely to the feasibility of the NASP: the innovative use of cryogenic

fuels such as hydrogen for simultaneous propulsion and vehicle cooling, and development of new high-temperature materials able to withstand repeated flights without needing change-out or refurbishment. "In addition, our experience in the design and construction of the space shuttle launch facility at Vandenberg AFB gives our team the lead in developing cryogenic ground support facilities for NASP," he said.

McDonnell Douglas is one of three companies developing NASP airframe technology. Two other companies are developing new engines for NASP, which will use primarily air-breathing propulsion. The three-year effort will involve ground tests of engines, selection of aircraft components and preliminary design of an experimental NASP vehicle called the X-30.

Successful flight testing of the X-30 in the mid-1990s could lead to a family of vehicles able to cruise at hypersonic speeds within the upper atmosphere or ascend directly into orbit. It could also lead to passenger aircraft able to fly from the U.S. to Japan in two hours.

—Jeff Fister

INTELSAT reserves Commercial Titans

Commercial Titan, Inc., signed a launch reservation agreement (LRA) on Feb. 12 with the International Telecommunications Satellite Organization (INTELSAT) for the launch of two INTELSAT VII satellites on commercial Titan vehicles in 1992.

An LRA reserves positions for future commercial Titan launches. A contract award is anticipated later this year.

The initial requirement for INTELSAT VII will be to replace two communications satellites in operation that are expected to reach the end of their useful life about 1992. The INTELSAT VII communications system will permit radio frequency signals to be received from and transmitted to eight distinct Earth coverage areas simultaneously, providing telephone and television coverage to a wide range of users.

INTELSAT is an established customer of Commercial Titan, Inc., having been the first to sign a contract with the company in August 1987 for the launch of two INTELSAT VI communications satellites in 1989 and 1990.

INTELSAT, based in Washington, D.C., is an international commercial cooperative of 114 member nations that owns and operates the global communications satellites systems used worldwide by countries for their international and domestic communications. INTELSAT is the predominant provider of transoceanic telephone and television services.

New management training slated

An ambitious Management Training program has been initiated by Organization Development/Management Development/Training, reports John F. Hallen, director of the department.

The program includes about 20 formal courses designed to improve general management and professional performance of Astronautics Group organizations.

The program includes assessment centers for senior and middle managers, a renewed Kepner-Tregoe effort that teaches decision analysis and problem solving, skill courses designed for supervision of both technical and production operations employees, and courses designed for employee career development.

The courses, open to Astronautics Group, Information & Communications Systems, and Data Systems employees, will be conducted at the Deer Creek facility and at the Mountain Bell Training Center.

The department, formerly called Human Resources Development, will publish a catalog soon with specific course descriptions and objectives. Six courses were conducted in January, and 10 in February, and 10 are planned for March. ■

SIP Values

Unit values for the savings and investment plan (SIP) for employees represented by United Aerospace Workers (UAW) and United Plant Guard Workers of America (UPGWA) in January (December values in parentheses) are:

Fund A:	indexed equity
.9129038396	(.8771762115)
Fund B:	fixed income
1.0353514751	(1.0305358846)
Fund C:	company stock
.9538291325	(.8591531239)

PSP Values

Unit values for the performance share plan (PSP) for salaried employees in January (December values in parentheses) are:

Fund A:	Indexed equity
4.2170793200	(4.0483128719)
Fund B:	fixed income
2.8647909229	(2.8412118793)
Fund C:	company stock
4.9426089169	(4.4214248477)



William Haight, vice president of Technical Operations, Data Systems, shown on the screen from Bethesda, talks with Ned Stephenson, left, and Jim Kaygi, teleconferencing administrator. Haight guided the teleconferencing system's test and evaluation program as the corporate management information systems director.

Videoconferencing network cuts expenses

A corporate-wide videoconferencing system has cut travel time and expenses by using a satellite link between Bethesda, Orlando and Denver, said Ned Stephenson, head of the video conferencing system for the Astronautics Group. A fiber-optic link similar to a telephone line adds Michoud and Baltimore to the system.

The network, called the Martin Marietta Videoconferencing System (MVS), is the result of an effort that began in early 1985 with a program to evaluate various equipment, beginning with a relatively simple black-and-white, still-picture system.

Since then, the Astronautics Group, in cooperation with headquarters, has put into operation a full-motion, color-teleconferencing system that lets users see and talk to each other while conducting meetings or discussing graphs, charts or other written materials.

The full-motion system is affordable and easy to use, Stephenson said.

"There are two reasons to use a new technology," he added. "Either it accomplishes a

task more effectively for the same amount of dollars, or it accomplishes the task equally well but saves dollars. MVS does both." The system saves employee travel time and expense, and provides technical training, simulations and continuing education, Stephenson said. "People can meet today to solve problems and address issues, rather than waiting until tomorrow or the next week," he said.

The Astronautics Group video conference room is located on the first floor of the Engineering Building at Waterton. The room contains a conferencing table, audio system and three monitors—two, full-motion color monitors and one high-resolution black-and-white monitor for charts and other graphics.

"Try videoconferencing the next time you think you need to be there in person—you might discover a whole new way of doing business," Stephenson said. "It's a simple method of communication that's easy to control."

For more information or to set up a meeting, call A. C. (Jim) Kaygi at the videoconferencing center, Ext. 7-8408. ■

Help to prevent material damage

(Editor's note: The following article on the increase of material handling incidents that occurs each spring, and the need for employees to reduce the incidents, was written by Rick Malone, manager of the Astronautics Group Mission Success department.)

Spring will soon be here, and visions of warm weather and favorite activities fill our heads. May be that is the reason, company history shows, that every spring we forget steps, and pay less attention to our tasks than during other times of the year.

Damage caused by handling incidents is one of our most serious hardware problems—costly and highly visible. Although we expend an enormous effort controlling tasks to ensure that our products meet customer requirements, all too often these controls are wiped out in the blink of an eye.

At the Electronics Manufacturing Facility, for example, a dropped tote box that contains parts will negate time spent testing and assembling a printed circuit board. This results in considerable rework and retesting.

We have seen progress this past year as a result of the attention placed on reducing handling incidents, but with the advent of spring we must intensify our efforts.

Future articles will cover specific incidents that have occurred within Martin Marietta. We can learn from mistakes and avoid them in the future. ■

U.S. Treasury modifies savings bond program

Series EE \$50 and \$75 U.S. savings bonds are no longer available to new participants in the payroll savings plan, the U.S. Treasury Department announced recently. The minimum denomination for a payroll deduction will be a savings bond with a purchase price of \$50 and a \$100 value at maturity.

Employees already enrolled in the plan may continue their current payroll deductions for \$50 and \$75 savings bonds. The U.S. Treasury made the change effective Feb. 1, 1988.

For more information, contact the Payroll department, Ext. 1-5200. ■

Reminder: tax-help classes offered

A new company service provides employees a way to take some of the stress out of tax time this spring.

The Central Training and Certification department offers two-hour classes to assist employees in selecting and completing appropriate tax forms. Forms 1040EZ, 1040A and 1040, including Schedules A and B, will be discussed.

Classes are offered every Tuesday at 7 a.m., 12:30 p.m. and 3:30 p.m. at the Training and Certification classrooms in the General Purpose Laboratory at Waterton. Employees must attend class on their own time. Sign up for the class by calling Ext. 7-5546, 7-6166 or 7-6167. Direct questions about the program to Vicki Anderson, Ext. 7-6920, or Lee Fryberger, Ext. 7-3198.





Gareth D. Flora, president of Space Launch Systems (SLS), kneeling, second from the right, commends the nine employees who produced the zero-defect Titan IV skirt. Robert F. Johns, vice president of Production and Launch Operations for SLS, standing, far left, and Alan L. Schaeffle, vice president and program director for the Titan IV program, SLS, standing behind the group, joined Flora in congratulating the nine. Each employee received a \$200 U.S. savings bond and a Titan jacket and hat. Kneeling, left to right, are: Chris Duran, Wayne Heideman, Flora and Ray Ruiz. Standing, left to right, are: Johns, Steve Chapek, Gene Cozart, Jeff Johnson, Ernie Large and Mel MacCuish.

Employees honored for perfect manufacturing

Nine Production Operations employees from the Space Launch Systems company received awards recently for producing a zero-defect skirt for the first Titan IV core vehicle, now undergoing processing at Cape Canaveral, Fla.

"This complex airborne structure produced with no manufacturing errors is a tribute to the

team effort on the first Titan IV article," said Gareth D. Flora, president of Space Launch Systems, at the recent awards ceremony.

The new structural configuration provides the interface for the Titan IV 200-inch diameter payload fairing and upper stages or payloads.



Contribution to JA helps students gain business experience

Warren Dean, chairman of the board of the Denver Metro Chapter of Junior Achievement (JA), and president of CRSS Constructors, Inc., left, and Lynn Curtis, president of JA, accept a \$15,500 check presented by Arnold Roane, director of Administration, on behalf of Martin Marietta. JA is a national organization that provides economic education programs for elementary through high school students. Astronautics Group employees Denyse Avis, Bud Bernier, Don Joy and David Murphy are volunteers working with JA to offer hands-on business experience to students.

Cards-for-kids now available

Dependents 5 years or older who are listed on a 1987 federal tax return must have a Social Security number, the Employee Services department reports. If the child does not have a Social Security number, the person filing the tax return must be able to state that an application has been filed to obtain the child's Social Security number.

Martin Marietta and the Social Security Administration are working together to assist employees in the application process. Cards-for-Kids applications can be found in the recreation racks or at the Employee Services/Recreation office in the Engineering Building, Room 124G.

The application can be mailed to the Social Security office, along with proof of the dependent's date of birth, identity, and United States citizenship or lawful alien status. Original documents that are mailed will be returned. The mailing address is Social Security Administration, 940 Wadsworth Blvd., Lakewood, Colorado 80215-6088.

For those who prefer not to mail original documents, arrangements have been made for Social Security representatives to accept completed applications and verify original certified documents (birth certificate) and school identification or immunization records at the following times and locations: Monday, March 7, 10:30 a.m. to 1 p.m., Waterton, Engineering Building, first-floor cafeteria, west entrance, and Space Support Building, at the cafeteria exit; Tuesday, March 8, 11 a.m. to 1 p.m., Deer Creek cafeteria; Wednesday, March 9, 11 a.m. to 1 p.m., DSC lobby; Thursday, March 10, 11 a.m. to 1 p.m., LSC, main hallway, first floor; and Friday, March 11, 11 a.m. to 1 p.m., Terrace Towers cafeteria.

Mailroom requests correct envelopes

The mailroom urges employees to use proprietary envelopes only for proprietary material, as defined in Standard Procedure 6.1. Incorrect use of inter-company envelopes slows mail service.

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Ron Campbell, left, holds a model of the Magellan spacecraft, as Phil Beer displays a sample of the thermal protective coating the co-inventors developed for the Magellan program. The coating is used extensively on metallic and composite substrates. Campbell and Beer received invention and new technology awards for their development of the process.

Review board honors six

The Astronautics Group Intellectual Property Review Board granted awards to six employees for their inventions during the last quarter of 1987. Two of those inventors, Ron L. Campbell and Philip G. Beer, also received new technology awards from the Astronautics Group New Technology Evaluation Committee for their idea on the Magellan thermal control application process, which was developed under a NASA contract.

The Employee Proprietary Information and Invention Agreement requires the disclosure of improvements, innovations and discoveries, whether or not patentable.

The new technology clause of the agreement requires all employees working on NASA programs to report innovations conceived or developed under those contracts.

Ideas submitted are then eligible for awards under the Invention and New Technology programs.

The employees who received awards:

- Dr. Donald F. Shepard, Research and Technology, Space Systems, (co-inventor with Martin Marietta Laboratories employees), "Diffuse Black Plasma Spray Composite Coatings;"
- Dr. Donald F. Shepard, Sharon L. Van Loon, Research and Technology, Space Systems, and Robert J. Fenolia, Mechanical Materials Engineering, Space Launch Systems, "Pliable Black Surface;"
- Dr. Donald F. Shepard and Robert J. Fenolia, Mechanical Materials Engineering, Space Launch Systems company, "Optically Black Cobalt Surface;"
- Sam M. Dominick, NASA Advanced Programs, Space Systems company, "Space Station Water Resupply Concept;"
- R. L. Campbell and Philip G. Beer, Composites Laboratory, Technical Operations, "Magellan Thermal Control Application Process." ■

Titan IV motor undergoes test

A solid rocket motor for the Titan IV space launch vehicle underwent a second critical test Feb. 15 in San Jose, Calif.

The firing was the second in recent months for the nearly 700,000-pound, 105-foot long solid rocket motor (SRM). The first test occurred Dec. 21 in San Jose.

United Technologies Chemical Systems Division is producing the seven-segment SRMs under contract to the Space Launch Systems company.

"The first test appeared to be very successful upon disassembly of the SRM," said Alan L. Schaeffle, Martin Marietta vice president and Titan IV program director.

"Early performance indications from the second firing indicate it also was successful. Upon completion of the evaluation of the second firing, the SRM is qualified for flight on the Titan IV system, which will occur late this year," Schaeffle said.

The Titan IV will use two SRMs per launch to produce 70 percent of the impulse needed by the main vehicle to reach low-Earth orbit. Upper stages then will be able to put 10,000 pounds into geosynchronous orbit 22,300 miles above Earth.

The Titan IV core vehicle is being assembled at Cape Canaveral Air Force Station, Fla. SRM segments weighing 80,000 pounds each will be assembled into motors at the Cape. ■

On the cover

A second critical test of a solid rocket motor occurred Feb. 15 in San Jose, Calif., to qualify the propulsion system for flight as the lift-off stage for the Air Force's new Titan IV space launch vehicle. United Technologies Chemical Systems Division (CSD) is producing the seven-segment, 700,000-pound, 105-foot long solid rocket motor (SRM) under contract to the Space Launch Systems company.

Great performances slated for March

Buster Keaton stars in the "Great Performances" silent film special "Our Hospitality," Friday, March 4, on national public television (check local listings). Luciano Pavarotti will appear in "Pavarotti Returns to Naples," Friday, March 18. "Great Performances" is made possible by grants from the Martin Marietta Corporation and Exxon. ■

Employee Services/Recreation

Corporate Games—Martin Marietta employees will participate in the eighth annual Denver Corporate Games June 3 and 4, and hope to regain the first-place position from the Public Service Company. Proceeds from the games benefit the Colorado Special Olympics. Employees are encouraged to try out for Martin Marietta's corporate team that will compete in track, swimming, tennis, bicycle, racquetball, 5-k races and trap shooting.

Bowling participants were selected in January during the Masters Qualifying Tournament; coed volleyball team members are selected from the current competitive league; and two golf participants will be selected from a Partner Best Ball Tournament on May 21.

Forms are available in the recreation racks. Return them to the Employee Services/Recreation office by March 18.

Alpine Club—The following cross-country day trips have been scheduled: Sunday, Feb. 28—ski to a ghost town with Brian Gallagher, Ext. 1-8561; Saturday, March 5—ski into beautiful Mayflower Gulch with Steve Ahmann, 7-8693; Saturday, March 12—ski up Webster Pass Trail and enjoy a spectacular view of the Rockies with Frank Farrel, 1-1576. If possible, contact the trip leader by the Wednesday before trip date.

Archery—Red Rock Bowmen Archery Club will meet at 6:30 p.m., Tuesday, March 8, at Hinze Archery, 3690 S. Knox Court.

Clubhouse Renovation—The clubhouse in the recreation area is closed for renovation until June 1. All clubs that use the facility will need to make other arrangements for their club meeting location.

Softball—A softball organizational meeting will be at 5 p.m., Monday, March 14, in the Deer Creek Facility Auditorium. (Park on the roof of the building near the north elevator and take elevator to the R level. Follow signs to the auditorium.) All team captains and interested employees should attend. Rosters and season information are in the recreation racks. The first chance to submit rosters with full payment will be at the March 14 meeting. After that, rosters and fees should be submitted to the Recreation office in the Engineering Building, Room 124. The fee is \$10 per player, with a minimum of 10 persons per roster. Refer to the flyer for full payment details. The deadline to accept rosters is Tuesday, April 19; however, some leagues will fill up before the deadline.

Discount movie tickets—The Employee Services office and volunteer recreation representatives sell \$3 tickets to Mann, Commonwealth and AMC movie theaters. RTD bus tokens, discount cards for major attractions in California and Florida, Fun Plex coupons and Copper cards are also available. The contacts are: Jerre Chapman, Terrace Towers, fifth floor, west side, 1-3 p.m., Tuesday-Thursday, Ext. 1-1401; Tamara Evans, Greenwood Commons, Building 6020, 8 a.m.-4:30 p.m., Monday-Friday, Ext. 7-1335; Sue Lloyd, LSC, Room 201E, 1:30-4:30 p.m., Monday-Friday, Ext. 7-0484; Lucy Winka, S. Lincoln, Personnel office, open hours, Ext. 7-2818; Nadine Holder, DSC I, Room 200J, open hours, Ext. 7-8121; Mary Dengel, Linpro II, 1:15-2:15 p.m., Monday-Friday, Ext. 1-5235; Marge Losey, Waterton, SSB, Room 607, 1-3:30 p.m., Monday-Friday, Ext. 7-4726; Employee Services office, Waterton, Eng. Bldg., Room 124, 10:30 a.m.-12:30 p.m., and 1-3:30 p.m., Monday-Friday, Ext. 7-6605 or 7-6750.

Get a Fresh Start—Free smoking cessation classes are available to all Martin Marietta and Air Force personnel, their spouses and dependents. Classes consist of four meetings from 5-6:30 p.m. on March 14, 17, 21 and 24, in Room 208 at Goddard Junior High School, 3800 W. Berry Ave. To register, call the Employee Services office, Ext. 7-6750, or 7-6605. A session also will be offered in April.

Radio Club—The Waterton Amateur Radio Society will meet at 5 p.m., Tuesday, March 1, in the hamshack at the recreation area.

Silicon Graphics—The company will demonstrate the future of computer graphics technology at the Deer Creek Facility Auditorium Wednesday, March 2, at 9-10:45 a.m., 11 a.m. to 12:45 p.m., 1-2:45 p.m., and 3-4:45 p.m.

Volleyball Referees—Qualified employees interested in becoming volleyball referees for the Wednesday open league may call Recreation, Ext. 7-6605 or 7-6750.

Mountain Lodging Discount—The Silverado II in Winter Park and the Mountainside at Silver Creek offer a 50-percent discount on lodging with a minimum two-night stay. Reservations are taken within 30 days of arrival and are valid through Nov. 20, 1988, excluding holidays. Employees can pick up the discount card at the Recreation office or from one of the recreation representatives.

Cafeteria Highlights—Food Services will host a traditional New Orleans style celebration Friday, Feb. 26, with Cajun food and jazz bands. On Thursday, March 17, a special St. Patrick's Day meal will be offered. A menu featuring new items and old favorites will be coming soon to the cafeterias.

Mile High L5—The chapter of the National Space Society will meet at 7 p.m., Friday, March 11, in Presentation Room 103-A at SouthPark West. Major Alex Gimarc will speak on the Air Force's proposed Space Command, a new spacefaring branch of the service. Business items include survey results and votes on bylaws and a dues increase. For information, call Jeff Zerr, 790-3857.

Martin Marietta Barber/Styling Shops—Convenient, professional, low-cost hair cuts are available to all employees and Air Force personnel at the following locations: Waterton—basement, Engineering Building, barber/stylist Bill Baker, Tuesday through Friday, 6 a.m. to 3:30 p.m., Ext. 7-3029. LSC—barber/stylist Bill Baker, Monday and Friday, 6 a.m. to 3:30 p.m., Ext. 7-0560. Greenwood Commons—Bldg. 6050, barber/stylist Deb Baker, Monday and Tuesday, 6:30 a.m. to 3 p.m., Ext. 7-1321. DSC—basement, barber Doc Allison, Tuesday through Thursday, 6:30 a.m. to 5 p.m., Ext. 7-9157.

McKenna appointed VP of Business Management



McKenna

Frank X. McKenna Jr. has been named vice president of Business Management for the Astronautics Group, reporting to Peter B. Teets, Astronautics Group president.

McKenna previously was vice president of finance and controller for the Astronautics Group. He joined the company in 1975 in Orlando in estimating and cost management, and moved in 1978 to what was then Aerospace headquarters in Bethesda in financial planning. In 1981 McKenna became manager of accounting and treasury in Denver, and held various positions until his present appointment.

McKenna assumes the position held by Raymond J. Nalty, who is on special assignment. ■