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MARTIN MARIETTA

news

ASTRONAUTICS GROUP

September 11, 1987

Number 18

## Space-based interceptor







*Congratulating Tyler are, seated, far left, Jack Macy, manager of Central Materiel and Procurement; and Ken Shipe, director of process simplification for Project Challenge. Standing, left to right, are Nicholas J. Van Dewerker, director of Product Assurance for the Astronautics Group; Stanley F. Albrecht, vice president of Plant Operations; and Peter B. Teets, president of the Astronautics Group.*

## Air Force gives excellent award

The Peacekeeper Assembly, Test, and System Support program received a 96.6 percent award fee and was rated as excellent by the Air Force Ballistic Missile Office (BMO) for the third award fee period.

The award from Brigadier General Edward P. Barry Jr., BMO commander, reads, "Your continued excellent performance in maintaining program schedule has contributed to a highly successful flight test program which continues to set standards of success. I congratulate you on your excellent performance and look forward to your continued success and support."

"I am extremely pleased and proud of the excellent work done by our personnel in Denver, Vandenberg, and the San Bernardino office to win this award," said John P. Murphy, vice president and director of the Peacekeeper program. "It is just this kind of teamwork that has made Peacekeeper such an outstanding program, and it will continue as the most successful ICBM program." ■

## Company cosponsors Constitution event

The Littleton Celebrates the Constitution event, set for Sept. 16, will be cosponsored by the Astronautics Group.

Scheduled to begin at 7 p.m. at the Riverfront Festival Center, the major event will be a celebration of the signing of the U.S. Constitution, on Sept. 17, 1787, in Philadelphia. ■

## PROJECT CHALLENGE

Jenny L. Tyler was commended by top Astronautics Group executives last week for simplifying the "return to vendor" process. Tyler's suggestion reduces the process from an average 45 days to an estimated eight hours.

Tyler, a materiel support administrator, joined the company nine months ago. She said that when she read about Project Challenge, she wanted to get involved. With the full support of her management—Dick Field, her chief, and Jim Brecht, manager of Materiel Support Operations—Tyler wrote a memo to management.

Almost immediately, Ken Shipe, director of process simplification for Project Challenge, assigned a pilot program to Tyler, the "return to vendor" flowchart. "I didn't even know what it was at that point," Tyler said. "I'd only been with the company for six months."

Tyler found people to contact who could walk her through the system in order to draw a flow chart. At the same time, Tyler attended training classes on process simplification given by Hewlett Packard, one of the consultant firms on Project Challenge.

After her training, Tyler, as team lead, put together a team consisting of Steve Davies, team lead backup, Quality; Larry Cattell, Ray Chea, Doug Cook, Al Firmin, and Tom Noble, all from Procurement; Joe Cook, Production Control; Lee Ann Pace, Manufacturing; Duane Tinnes, Quality; and Bruce Wild, Finance.

The team determined their objective: to reduce the number of days to return nonconforming parts back to vendors. They developed a diagram that included everything

needed to process the "return to vendor" forms effectively, and identified process performance measures—how to track the steps and the number of people involved.

The team recommended two different systems, one based on a fully automated, integrated data base, that the company is developing under the Project Challenge Manufacturing Resource Planning II (MRP II) system, and one using resources currently in place. The 53 steps of the "return to vendor" process, the team showed, can be reduced to 30, and then to 15 when the company becomes fully automated.

Management said the recommendations will be implemented immediately. "What Jenny's done is truly exemplary," said Peter B. Teets, president of the Astronautics Group. "This is the kind of result we are looking for to come out of Project Challenge. If we can get more employees to demonstrate the kind of initiative and drive to simplify processes that Jenny demonstrated, then Project Challenge will easily attain our goal of an overall productivity improvement of 40 percent."

Tyler will travel to Canaveral Operations to speak to employees on process simplification and the steps involved.

"People want to know how I could do this after six months at Martin Marietta," Tyler said. "I think anyone can do it. I'm not special or unique, but I am willing to take a risk and volunteer."

"I hope this is just the start of many, many success stories to come out of this."

Call Ken Shipe, Ext. 1-9522, to offer suggestions. ■

## United Way drive begins

The Mile High United Way campaign for the Astronautics Group begins this month.

Sept. 14 marks the kickoff date for the management campaign. The overall employee campaign will begin Sept. 28. Richard E. Weber, vice president of Personnel, is the campaign chairman for the Astronautics Group.

James W. McAnally, president of Space Systems, is in charge of the Mile High United Way's drive for major firms in the Denver metro area.



Mile High  
United  
way





Attending the award presentation are, seated, left to right, Frank L. Van Rensselaer, NASA Space Systems director; Huang, Reddy, and O.J. Moore, deputy program and technical director for Zenith Star. Standing, left to right, are Magellan program personnel Charles J. Gay, AACS senior analyst; David J. Cwynar, AACS analysis lead; Donald W. Marquet, program new technology representative; and George A. Tefft, deputy program manager.

## NASA recognizes two employees for their Tech Brief publications

Drs. Whittak H. Huang and Narotham S. Reddy, Astronautics Group employees, were honored recently for reporting technical innovations that were selected for NASA Tech Brief publications. The two employees received certificates of recognition and U.S. Treasury checks from the NASA Inventions and Contributions Board.

Tech Briefs are published by NASA as a result of the company's contractual requirement to submit new technology disclosures under NASA programs. Huang, former work unit manager for Magellan on attitude and articulation control subsystem (AACS) analysis, and now lead on Zenith Star spacecraft control system, reported on "Computational Drift Minimizing Technique for Spacecraft Onboard

Attitude Quaternion Propagation." Huang collaborated with Reddy, an AACS analyst on Magellan, to report on "In-Flight Attitude Knowledge Accuracy Maintenance Scheme for Magellan Spacecraft." Their award-winning new technology has been implemented into the Magellan onboard AACS to maintain precise attitude orientation in space.

The Magellan spacecraft, formerly called the Venus Radar Mapper, is NASA's next step in the exploration of the origin, evolution, and present state of Venus.

For more information on reporting ideas conceived or developed under NASA programs, call Anella Knoke, Astronautics Group New Technology representative, Ext. 7-6500.

## Space Systems wins contract

Martin Marietta Space Systems has been awarded an Air Force contract to study concepts for a space-based radar system for wide-area surveillance.

The contract, awarded on Aug. 31, calls for the company to conduct engineering studies, analyses, and technology assessments. The work ultimately could lead to full-scale development and production contracts.

Martin Marietta has been involved in space-based radar work for the past 18 years, and has conducted various studies under contract, as well as independent research and development work.

Members of the Martin Marietta team for the space-based radar effort include Westinghouse for sensor/radar systems, and Stanford Telecommunications, Inc., for communication and tracking architecture.

The \$1-million, 12-month contract was one of five awarded by the Air Force's Space Division, Los Angeles, Calif.

Henry C. Von Struve is program manager.



### NASA's director tours Waterton

James R. Thomspson, director of NASA's Marshall Space Flight Center, left, examines tether system hardware held by Bill Bollendonk, program director of the Tethered Satellite System (TSS), during a recent tour of the Waterton facility. Thompson attended program reviews on the TSS and Transfer Orbit Stage.

### SIP values

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

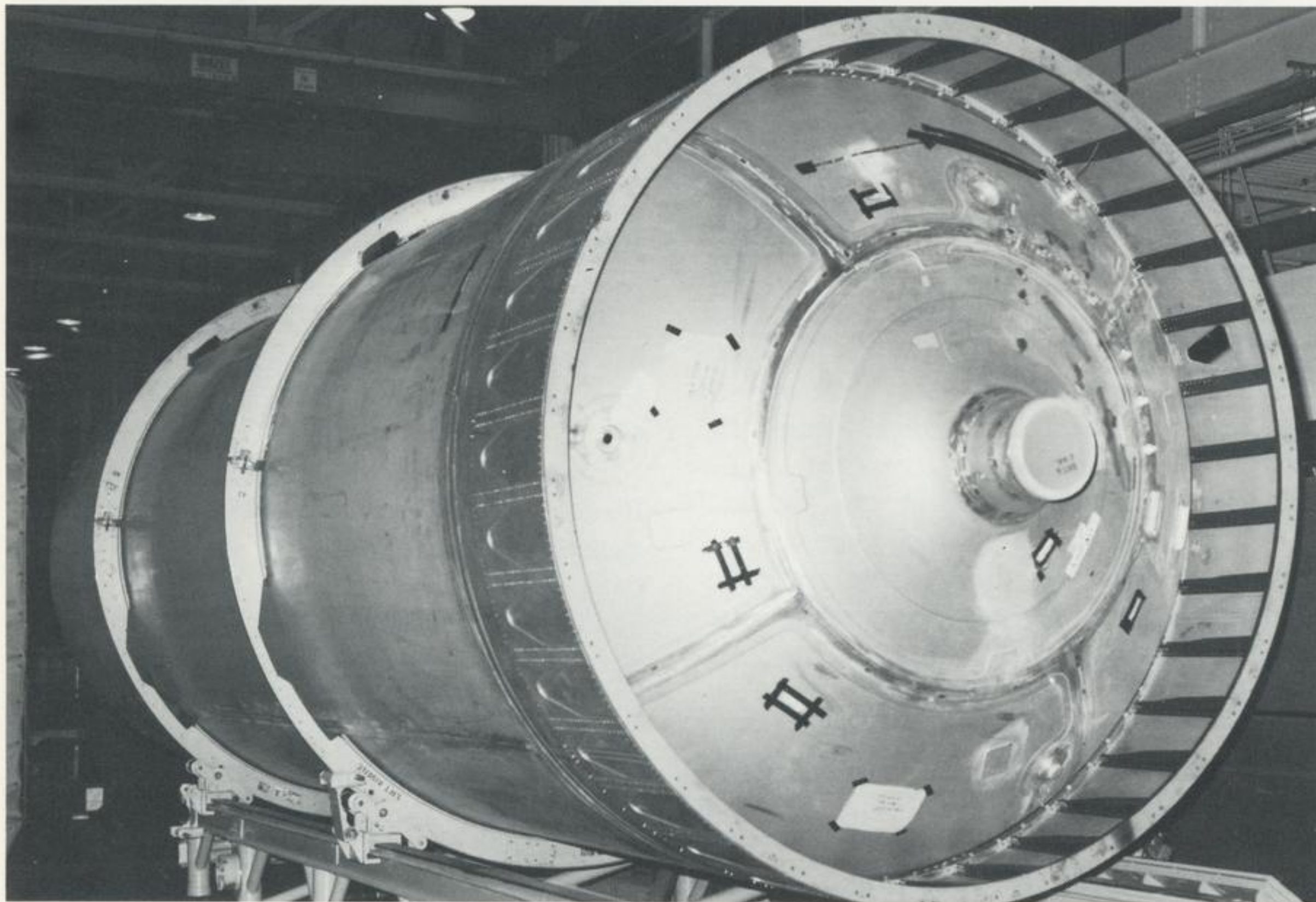
Fund A	(indexed equity)
5.1535580898	(4.9026069451)
Fund B	(fixed income)
2.7264191739	(2.7037231834)
Fund C	(company stock)
5.2367336563	(4.8404096104)

### PSP values

Unit values for the performance sharing plan (PSP) for salaried employees in July (June values in parentheses) are:

Fund A	(indexed equity)
1.1442107916	(1.1226653758)
Fund B	(fixed income)
1.0152477136	(1.0411326052)
Fund C	(company stock)
1.0428818905	(.9958117373)





This Titan IV Stage I oxidizer tank has just received the first skirt/dome combination.

## Titan tradition lives on with Titan IV

(Editor's note: This article by George Lawrence, manager, Titan programs manufacturing, is the sixth in a series of articles following a Titan IV through production.)

With each delivery of large structural parts by Martin Marietta Aero & Naval Systems, subcontractors supplying a variety of components from across the United States, and our Denver operations furnishing Titan details, the assembly process for the Titan IV begins.

Gene Horak, manager of Manufacturing Operations, must ensure that the tooling, documentation, and hardware are combined with the personnel, skills, and talent to build the complex launch vehicle.

The first step in the assembly line process is the area known as major weld. This area receives much attention because of the large blue tool located at the south end of the second floor factory.

There, semiautomatic arc welding systems,

controlled by skilled weld technicians, fuse dome segments, dome caps, barrel panels, chords, and skirt assemblies to manufacture Titan tanks. In addition to arc welding, these multiskilled technicians perform hand welding, spot welding, and automated tubular welding operations in building the launch vehicle's subassemblies.

For each weld operation, a Manufacturing Process Plan (MPP) provides step-by-step weld instructions to the weld technician. Nothing is left to chance. To be repeated reliably, and for purposes of recordkeeping, all weld information is collected in MPPs and filed for several years after the vehicle has flown.

The first tank completed for Titan IV is the Stage I oxidizer tank. The vessel is ten feet in diameter, 31 feet long, and holds 19,000 gallons of fluid.

As the first Stage I oxidizer tank moves down the major weld assembly line, our Titan IV is underway. ■

## Education-with-Industry program marks 25th year

U.S. Air Force Captains Jeffrey M. Banes and Joseph A. Krawtz began their ten-month Education-with-Industry (EWI) tour at Martin Marietta Sept. 8, marking the 25th year that Martin Marietta has participated in the program.

EWI is a management internship program that emphasizes onsite industrial education experience. The program is administered by the U.S. Air Force Institute of Technology (AFIT) at Wright-Patterson Air Force Base. The program promotes professional development to improve managerial qualities and technical competence of participating officers.

The program provides the student officer with a greater understanding of production, procurement, and management concerns shared by industry and its customers. It allows students to pursue a specialization consistent with their planned careers by actively participating in work assignments at Martin Marietta. Historically, upon completing the program, EWI graduates have been assigned primarily to the Air Force Systems or Logistics Commands, where contact with the aerospace industry occurs frequently.

Banes' most recent assignment was program manager at Tinker Air Force Base. He provided engineering and installation support for the world-wide multimillion dollar Landing Control Central program. Banes also managed four additional programs worth more than \$200 million.

A six-year veteran, Banes received a bachelor of science degree in aviation management, and a master's degree in business administration in management from Oklahoma City University.

Krawtz, a nine-year veteran, comes to the program from Wright-Patterson Air Force Base, where he managed approximately 250 officers in academic programs at more than 80 universities, which included approving student thesis and dissertation

research and visiting university officials to evaluate current programs and discuss future programs. Krawtz has a bachelor of science degree in aerospace engineering from Penn State and a master's degree in aeronautical engineering from the Air Force Institute of Technology. ■



Banes



Krawtz



## Credit Union Clips

### Credit union to sponsor new car sale

The Red Rocks Federal Credit Union and Automotive Financial Services (AFS), the credit union's lease specialist, are cosponsoring an October Auto Festive New Car Sale.

The sale is set for 9 a.m. to 3 p.m. Saturday, Oct. 3, in the parking lot of the credit union main office. More than 100 domestic and foreign cars will be available.

"We offer low loan rates and low car pricing," said Susan Webb, credit union officer. "You may choose the terms on 100 percent financing if you qualify. And you can drive the new car home the same day."

Special loan rates begin at 6 percent for a lease and 9 percent for a purchase. Trade-ins will be considered, Webb said, and extended warranties will be available.

Submit a preapproval loan application by Thursday, Oct. 1, to qualify for the grand prize drawing for a weekend in Steamboat Springs. For more information, call the loan department, 797-2900.

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# Engineering Excellence Initiative program underway

A new effort to increase the productivity of engineering operations has begun under the direction of Warren G. Beery, vice president of Technical Operations. The program is the responsibility of H. C. (Hatch) Wroton, director of engineering productivity, who is assisted by Vincent J. Moravek.

The Engineering Excellence Initiative is designed to increase new business potential and profits, and to give employees greater personal satisfaction in work well done.

The objective is to make it easier for engineers to release products that are correct. Initial emphasis is on design drawings, which are released to our factory or to suppliers for production.

"Our drawings and the extent of liaison call sheets and design change notices (DCN) that occur are continuously evaluated by our Air Force Plant Representative's Office (AFPRO), and form a part of the Air Force contractor rating system," Wroton said. "Our manufacturing operations are also measured and, because they are affected by problems in engineering drawings, improvements in the engineering yield double benefits."

Many engineering tasks, such as new product design, are most efficiently performed by teams, including engineering, manufacturing, quality, materiel and other personnel. The teams and the individual members need feedback to measure the results of their improvements. Rewards, critiques and training will be important tools in building up skill levels. Individuals, accountable for their responsibilities, need to get the credit for good work just as much as the blame if something is not right,

Wroton said.

Elements of the initiative are already yielding results. "The design excellence teams on the Titan and Small ICBM projects have produced substantial cost avoidance savings by team reviews of design drawings, finding and correcting errors that would have caused delays and additional paperwork in the factory," Wroton said. Design excellence teams are assigned to a project to apply the necessary resources to assure that every design is producible, inspectable, testable, maintainable and free of errors.

"What we see happening is very exciting," said Beery. "We all want to do excellent work. Now, with a few well-focused goals, we can turn our attention to eliminating those barriers that have inhibited us from achieving our potential. The measurement and feedback of our efforts provide insight on where we need more training, better communication, modern tools, and simplified processes.

"We have only started. Through the Engineering Excellence Initiative, we are soliciting suggestions and ideas from everyone on what we may do next to make our work more productive and more rewarding," Beery said.

The Engineering Excellence program is in its earliest stage. Document M-87-3, published in August, describes the first set of initiatives. The long-term objective is an order of magnitude improvement in the quality of engineering products as they are initially released. Additional initiatives are being reviewed, and the many comments that are being received are adding new ideas. ■

## Scouting recruit meetings scheduled

The Denver Area Council, Boy Scouts of America, invites the community's boys and their parents to the annual "School Night for Scouting" new member recruiting program Thursday, Sept. 17.

Every elementary school in the Denver metropolitan area will conduct a School Night program from 7-8:30 p.m. Interested parents and boys can visit the school nearest their home to learn about scouting from trained volunteers.

Scouting's programs are designed to teach citizenship, develop character, and provide for

personal fitness through personal and group activities. The Tiger Cub program, with home-centered family activities for boys and adults, is open to first-grade boys. Second through fifth-grade boys join Cub Scouting, which emphasizes games, crafts, and achievement in both family and group settings. Boy Scouts, for sixth-grade boys and up, is an outdoor adventure-oriented program with opportunities for personal growth, leadership, and individual responsibility.

For more information, call the scouting office at 455-5522. ■

## On the cover

Martin Marietta Space Systems has an Air Force contract to define concepts for an experimental space-based interceptor system, including development of critical technologies for the system. This Martin Marietta artist's concept shows the small, rocket-propelled missile accelerating toward a collision in outer space with its target, a nuclear-tipped intercontinental ballistic missile (ICBM). The interceptor, which would maneuver in flight to collide physically with the ICBM, would need no explosive warhead, but would use the tremendous energy of the hypervelocity collision to destroy the ICBM. Richard W. VandeKoppel is program director.

## News briefs

### Hispanic Chamber sets conference

The Hispanic Chamber of Commerce, Inc., has scheduled the 1987 State Conference and Employment and Career Planning Fair Sept. 18-19.

The conference will feature Dr. Kenneth Blanchard, author of *The One Minute Manager*. Contact the Chamber at 894-0487 for more details.

The Astronautics Group is a member of the Hispanic Chamber of Commerce. Carol Romero, Suggestion Program administrator, is the company representative. ■

### Phone directory update scheduled

Distribution of the next Astronautics Group telephone directory is planned in November.

All changes, additions, or deletions must be submitted to the Telecommunications office by Sept. 18. Changes must be made on personnel locator cards and sent to Mail Stop 1555.

For more information, call Ext. 7-3525 or Ext. 1-7179. ■

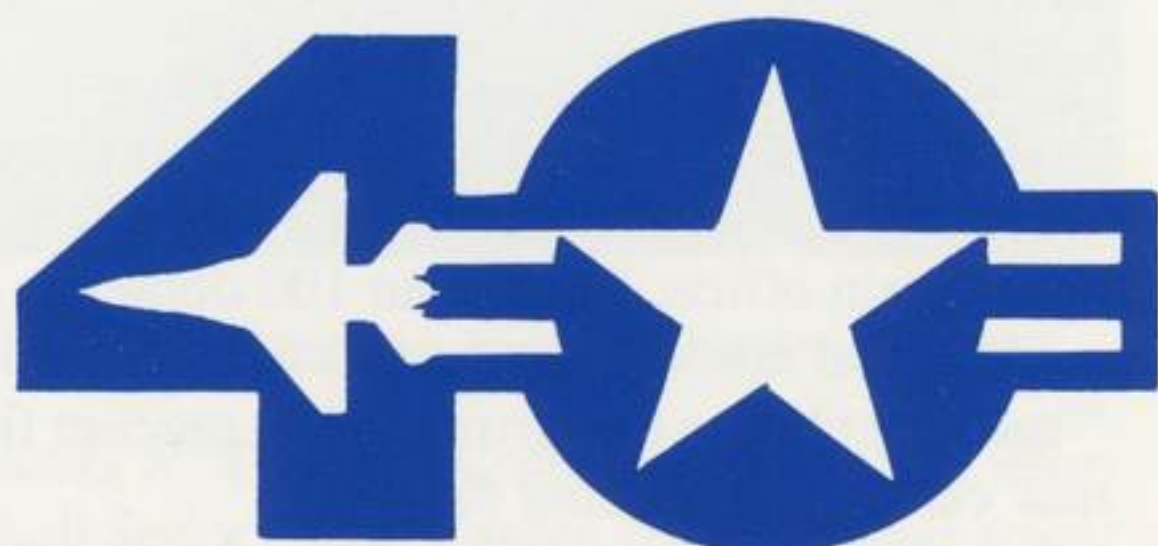
### Air traffic control holds open house

The Denver Air Route Traffic Control Center invites Martin Marietta employees to the center's open house in Longmont on Sept. 12-13.

The traffic control center is celebrating its 25th year in Longmont, as well as dedicating a new computer system. The open house runs from 10 a.m. until 5 p.m. on Sept. 12, and from 10 a.m. until 3 p.m. on Sept. 13 at 2211 17th Avenue in Longmont. ■

### Air Force marks 40th anniversary

UNITED STATES AIR FORCE



SEPTEMBER 18, 1947

September 1987 marks the 40th anniversary of the U.S. Air Force as a separate service.



# Employee Services/Recreation

**LSC Toastmasters**—The group meets at 4:30 p.m. on Wednesdays in the Training Room Mezzanine of the Software Center of Excellence at LSC. Contact Kathy DeWitt, Ext. 7-0397.

**Weight Watchers**—The Weight Watchers at Work Program will be offered at the Waterton facility, Engineering Building, Executive Dining Room No. 2, on Tuesdays, 4:30-5:30 p.m., starting Sept. 22, and at Goddard Junior High School, 3800 W. Berry Avenue, Wednesdays, 4:45-5:45 p.m., starting Sept. 23. To register, obtain a form from the recreation racks or from the Education Catalog and return with payment (payable to Weight Watchers) to: Employee Services, M.S. No. 1344, by Sept. 14.

**Get a Fresh Start**—Free smoking cessation classes are offered to all Martin Marietta and Air Force personnel, spouses, and dependents at Goddard Junior High School, 3800 W. Berry Avenue, from 5-6:30 p.m. Each class consists of four meetings: Sept. 21, 24, 28, and Oct. 1; Oct. 12, 15, 19, and 22; Nov. 9, 12, 16, and 19. To register, obtain a form from the recreation racks or from the Education Catalog, and mail to Employee Services/Recreation, M.S. 1344, one week before the class.

**Mile High L5 Space Society**—The group will meet Friday, Sept. 11, at 7 p.m. in the South Park West Presentation Room, #103A. Dr. Ben Clark will speak about human issues for a mission to Mars. For more information, or to register guests, contact Jeff Zerr at 790-3857 (work) or 322-8159 (home).

**Martin Marietta Singles Together**—A potluck dinner will be held at the Southpark clubhouse on Thursday, Sept. 17, and is open to all Martin Marietta singles. The get-together will also be used to plan and prepare the Oct. 3 Car Road Rally. There will be a meeting on Saturday, Sept. 26, to attend the Martin Marietta family function featuring Gladys Knight and the Pips. For more club information, contact Mary Gain, Ext. 7-4791.

**Scuba Diving and Travel**—The next Dive Club meeting will take place Sept. 23 at 7 p.m. in Room 200 at DSC. Elections of officers, new dive plans for 1988, and dive training are the planned topics. Also, a special guest speaker/presentation, combined with door prizes to include a scuba certification giveaway, should lure all to attend. Signup now for the five-day Cozumel trip, Jan. 28-Feb. 1 (tentative date). For information, call Marty Chrastil, Ext. 1-9614, or 979-4244.

**Satellite Ski Club**—The club plans a fall picnic on Friday, Sept. 18 from 4:30-9:30 p.m. at the Martin Marietta recreation area near Waterton. Hot dogs, hamburgers, refreshments, and music will be available. Gold C books and Gold ASA cards will be sold, with a ski-free coupon given to those who purchase a card at the picnic. Ski trips are planned to Aspen, Steamboat Springs, Utah, Crested Butte, Telluride, Jackson Hole, and Banff in Canada. Admission is free to the picnic if you join the club, \$2 for nonmembers.

**Funplex Discount**—Coupons offering one free activity (bowling, skating, or miniature golf) with the purchase of the same activity at full price, are available from the Recreation office located in Eng. Bldg. Room 124, 10:30 a.m. to 12:30 and 1 p.m. to 3:30 p.m. daily, and from volunteer recreation representatives.

Current representatives are: Marge Losey, SSB, Room 607, Mon.-Fri., 1-3:30 p.m.; Mary Dengel, Linpro II, Mon.-Fri., 1:15-2:15 p.m.; Jerre Chapman, Terrace Towers, fifth floor, Tues., Wed., Thurs., only, 1-3 p.m.; Melinda Pastore, Greenwood Commons, Bldg. 6020, Mon.-Fri., 2-4 p.m.; Sue Lloyd, LSC, Room 201E, Mon.-Fri., 1:30-4:30 p.m.; Jan Mason, SPW, Mon., Wed., Fri., only, 2-4 p.m.; Lucy Winka, So. Lincoln, Personnel office, open hours; Nadine Holder, DSC II, second floor, Room 284, Mon.-Thurs., 7:30 a.m.-4 p.m.

**Career Women's Association**—Nancy Lewis, executive director of the Womanschool Network, an adult education program, will be the featured speaker on networking at the Oct. 8 CWA meeting at the Holiday Inn South. Reservations must be made with a CWA booster by Oct. 1. For more information, contact Eileen Tucker, 798-8286.

**Lodging Discount**—Enjoy autumn in the Rockies at the Silvertree Hotel in Snowmass. The hotel is offering a \$39/ per night room rate for up to four persons through the month of September. Call 1-800-323-6494 for reservations and request the special Denver Area Employee Services Recreation Association rate.

**Skyline Hunting & Fishing Club**—The club will hold hunter education classes from 7-9:30 p.m., Sept. 15-19, in the second floor vending/lunchroom at DSC I, and 8 a.m. to 1 p.m. on Saturday at the Skyline Hunting Club Range. The cost is \$7. For information, call Dick Benson, 985-3728 (home). Employees do not need to preregister. There must be a minimum of ten students at the first class to continue the classes; students must attend all five classes. Classes will also be held in October and November.

**24th Annual Rocky Mountain Ski Swap**—The ski swap has a new date and location this year: Saturday, Sept. 26, 8 a.m.-8 p.m., Arena Stadium, Stock Show Complex, 1325 E. 46th Avenue (I-70 & Brighton Blvd.). Proceeds will benefit volunteer patrollers at designated Rocky Mountain ski areas. There will be free admission and free parking. Ski boots will run \$5 and up, and a large selection of new and used ski equipment and clothing will be offered. Cash or checks, with two identification cards, will be accepted. No credit cards will be accepted. Employees may bring their own equipment to sell on Friday, Sept. 25, 5:30 p.m.-9 p.m., or Saturday, Sept. 26, 8 a.m.-12 noon.

**Parapsychology Club**—The group meets at 5 p.m. on the third Thursday of each month at the LSC cafeteria. The Sept. 17 meeting will feature Kenneth Lesser, Impact Communications, Inc., who will discuss neuro-linguistic programming. Call Jan Winkel, Ext. 7-7814, or Helen Hussander, Ext. 1-6887, for more information.

## Spouse abuse exceeds car accidents as a cause of injuries to women.

United Way funds 16 programs for alleviating domestic violence.



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