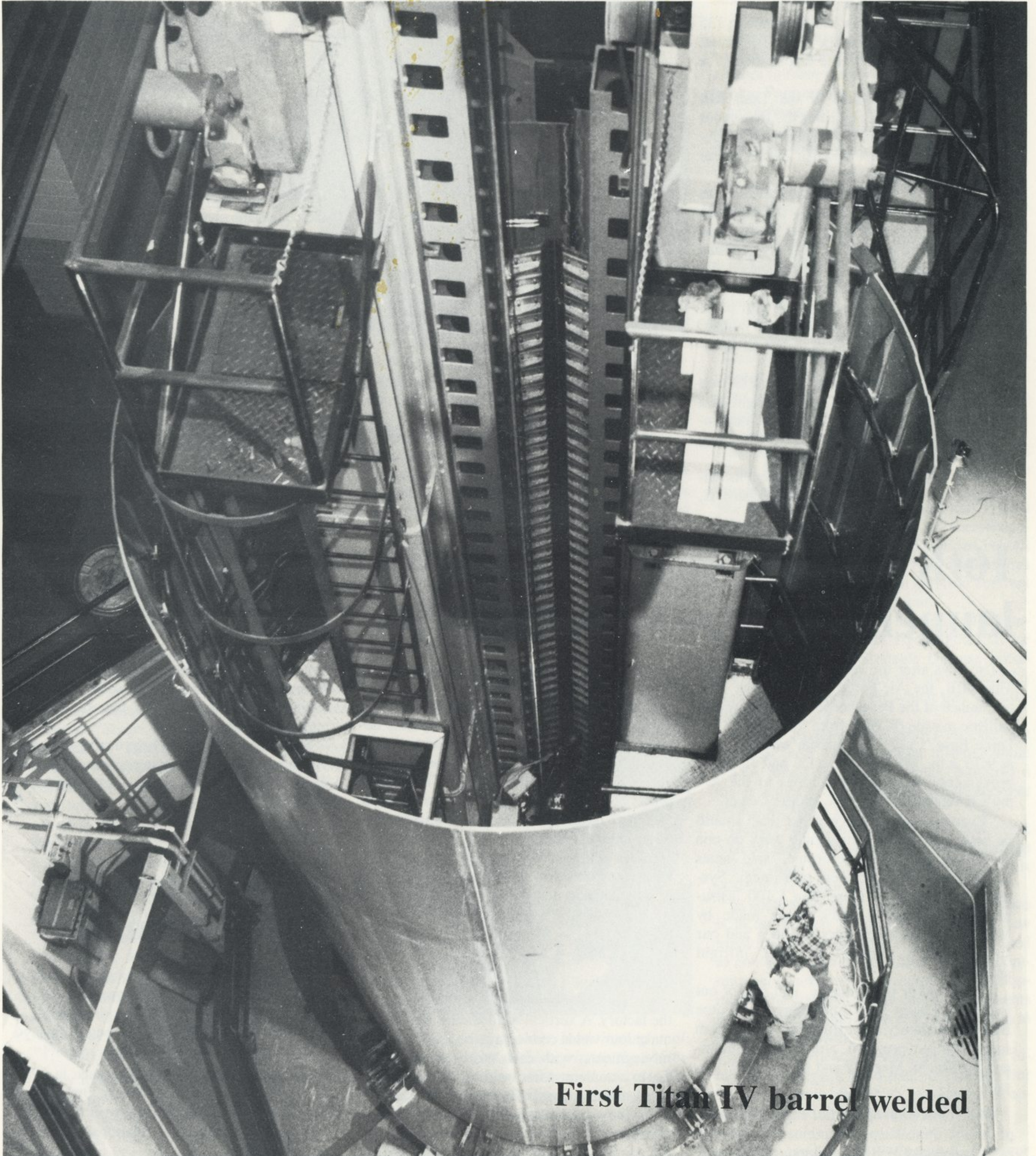


MARTIN MARIETTA

news

DENVER AEROSPACE

February 27, 1987 Number 4



First Titan IV barrel welded

Titan launch marks major step in space recovery effort

The Department of Defense space program is back on track with the successful launch of a Titan IIIB. The Titan III soared into space from Vandenberg Air Force Base, Calif., at 11:40 p.m. MST on Feb. 11.

The launch marked the 130th success in 135 operational launches for the Titan III series, and the end of an era—the last launch of a Titan IIIB.

“The successful launch of the Titan IIIB from Vandenberg last night was the first major step in the recovery of the Department of Defense space program,” said Air Force Secretary Edward Aldridge, Jr.

“It gives the country confidence that we have regained assured access to the critically important space environment to support our national security interests. I offer my personal congratulations, and those of the entire Air Force, to the Air Force/contractor team who worked long and hard to overcome past problems and to accomplish this successful launch. Our entire nation owes them a debt of gratitude,” he said.

The basic contract for the Titan IIIB was issued March 23, 1965. The first flight of a Titan IIIB occurred in July 1966 from Vandenberg. The IIIB had a 98 percent success rate, with 67 of 68 launches successful.

“With this launch, Titan continued its unparalleled success record,” said Richard E.

Brackeen, vice president of Space Launch Systems. “The Titan expendable launch vehicles have proved their reliability in more than 20 years as the backbone of the Air Force’s space program, as well as in many of the important planetary missions conducted by NASA.”

This booster was manufactured in the late 1970s by Denver Aerospace and delivered to the Air Force on July 30, 1980. The Titan IIIB differed from the Titan 34D in that while both are liquid rocket boosters, the Titan IIIB did not have strap-on solid rocket motors.

Although this is the last of the Titan IIIBs in the Air Force’s inventory, the Titan II, Titan III (34D and Commercial) and Titan IV will continue the Titan heritage well into the 1990s. Martin Marietta has contracts to develop, produce and launch three Titan launch systems. In addition to the Titan III, which the company is offering for commercial launches, they include the Titan IV, the powerful Titan vehicle that will launch space shuttle equivalent or heavier payloads; and the Titan II, a low-cost vehicle that is being converted from decommissioned Titan intercontinental ballistic missiles (ICBM).

The Titan III has been one of the Air Force’s principal launch vehicles since 1964, and also has launched NASA payloads into Earth orbits or on missions to study the sun and planets. ■

16th Peacekeeper test missile launched from Vandenberg

Two days after the successful launch of the Titan IIIB, the Air Force completed the 16th test launch of the Peacekeeper intercontinental ballistic missile (ICBM) from Vandenberg Air Force Base, Calif. The missile was launched at 9:15 a.m. MST on Feb. 13, and flew approximately 4,100 nautical miles to the Army’s Kwajalein Atoll in the Pacific Ocean.

“Everyone on the Peacekeeper team should be congratulated for outstanding work on one of the best flights we’ve ever had,” said James A. Sterhardt, vice president of Strategic Systems. “We’ve flown more than 1,100 instrumentation electronic black boxes made by Martin Marietta electronics facilities and our subcontractors, without a single inflight anomaly.

“This kind of performance, and that of our test launch team and Vandenberg Air Force Base is mandatory and critical for the mission success of our program, and must be continued for Martin Marietta and the country,” he said.

With completion of this test flight, the state-of-the-art Peacekeeper continues to be the most successful ICBM development program

in Air Force history, the Air Force said in a prepared statement.

The Peacekeeper carried seven unarmed MK21 re-entry vehicles into two separate target areas within the test range. The test verified the adequacy and military usefulness of the Peacekeeper weapon system. The mission is part of a 20-flight test program that incorporates both development test and evaluation and operational test and evaluation requirements.

Initial operational capability of the new ICBM was achieved in December 1986, ahead of schedule and within cost. ■

On the cover

The first Stage 1 oxidizer barrel for a Titan IV space launch vehicle was welded recently in the factory. A vertical weld fixture was used to make four welds connecting the 27-ft long barrel segments, with each weld taking about a day to complete. After welding, the barrel is x-rayed, trimmed, and a dome and skirt added to each end to form an oxidizer tank. Denver Aerospace is manufacturing 23 Titan IVs for the Air Force. ■



Fight spring fever

Spring approaches, and, in addition to nature’s pleasant changes, a less desirable phenomenon can be expected. Denver Aerospace, and the aerospace community in general, must brace itself for an expected increase in the number of material handling incidents that occur each spring.

Industry experts have studied this annual increase of incidents and can only attribute them to spring fever.

Production Operations, using the mascot “Max, the Move Safe Dog,” are determined to disprove the spring fever theory. They have designed an aggressive campaign to increase employee awareness of the potential for material handling incidents and the severe impact incidents can have. Material handling incidents are costly, can cause major schedule impact and, more importantly, injure employees.

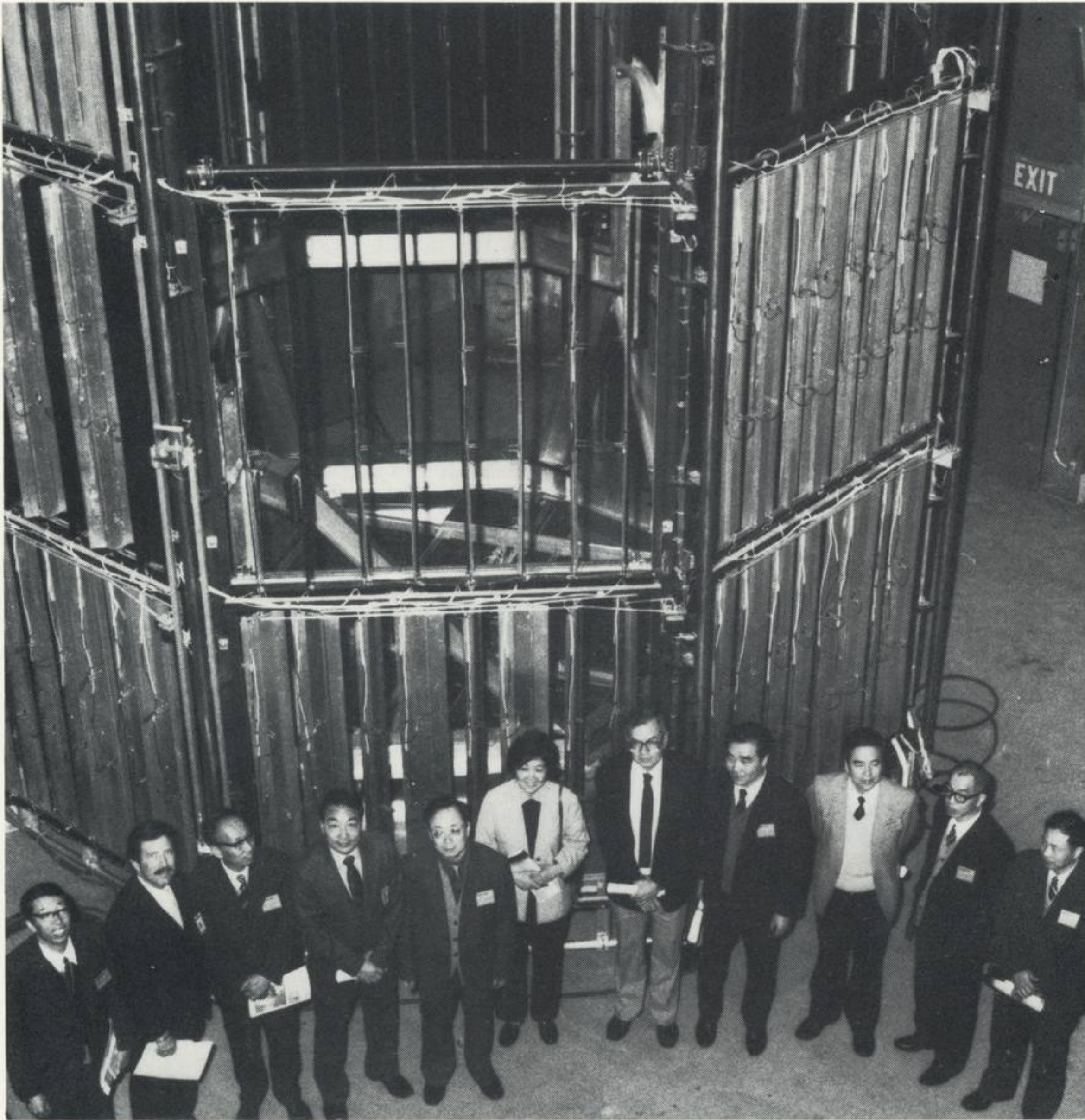
Seeing “Max, the Move Safe Dog” on posters throughout the company should remind employees of the need for care. All employees are asked to use extra caution to avoid incidents during the critical spring months. Attentiveness to established procedures, an awareness of safe material handling practices, following the practices and using extra care during the coming months can reduce and eliminate incidents.

Max needs everyone’s help during the coming months to reduce material handling incidents. Eradicate spring fever—help Max Move Safe. ■

McEwen to head Cape personnel

Timothy J. McEwen has been named head of personnel at Canaveral Operations, Fla., effective Feb. 9. McEwen replaces Dick Freeman, who retired in December 1986, after 29 years of service with Martin Marietta.

McEwen joined Denver Aerospace in 1984 as chief of staffing at Vandenberg Operations, Calif. He was transferred to Denver in 1986 as manager of professional relations for Space Launch Systems. ■



Chinese astronautics delegation visits Denver

Liu Jayuan, fifth from the left, vice minister of the Ministry of Astronautics of China, recently visited Denver Aerospace. Members of his delegation accompanied him. Thomas L. Mayfield, second from the left, manager of Denver International Business Development, guides the group at the solar simulator that will be lowered into the vacuum chamber at the Space Simulation Laboratory. The ministry includes 340,000 employees in China.

Need-to-know requests must comply with AFPRO policy

The Air Force Plant Representative's Office (AFPRO) has reiterated that employee requests for need-to-know certifications not in compliance with AFPRO policy will be returned to the requestor.

AFPRO processes need-to-know certifications on outgoing classified visit requests to user agencies, symposiums or other locations where Denver Aerospace, Information & Communications Systems and subcontractors do not have a contractual relationship.

To avoid returning need-to-know certifications, the security office has reissued the following AFPRO policy and procedures:

1. Classified visit requests that require AFPRO certification must be accompanied by a memorandum of visit justification from program management. This memorandum must include the specific employee effort under a related contract and the related contract number. To ease processing, AFPRO will accept

the visit justification form, Form 47, found on page A-49 of the Denver Aerospace Security Manual, August 1986.

2. Certification for attendance at classified symposiums, such as IEEE and AIAA, will be processed by AFPRO at one time. Requests for classified symposium attendance not received by the government security department 10 working days before to the application due date at the host organization will not be processed.

3. Emergency requests, those that are forwarded to security too late to meet the 10-day advance notification, also will require a statement of urgency endorsed by a member of the staff of Peter B. Teets, Denver Aerospace president, or Albert E. Hawkins, Denver I&CS president.

4. These procedures also apply to subcontractors whose visits require need-to-know certification from AFPRO. ■

Company gives \$100,000 to CU

Martin Marietta Corporation has become the first business to respond to a fundraising effort by a group of Colorado businesses by making a \$100,000 contribution to the University of Colorado.

The effort is spearheaded by the Colorado Business Challenge Endowment Group, which includes 12 companies. The group announced earlier this week that it would donate \$500,000 to CU and an equal amount to Colorado State University. The universities must match the pledges by December 1988.

Martin Marietta, which has approximately 1,000 employees in the Denver area who are CU graduates, announced Friday that it has stepped up to the challenge with the \$100,000 grant.

"Besides having so many CU alumni who work for us, Martin Marietta appreciates the multiple initiatives in aerospace and the space sciences that CU has undertaken," said Peter B. Teets, president of Denver Aerospace.

"This grant will be used to help establish distinguished professorships in technological fields, a goal which we heartily endorse."

Martin Marietta has supported the state's universities in a number of ways in recent years, having contributed \$200,000 for a centrifuge at CU and \$250,000 for the CSU Center for Computer Aided Engineering. ■

Supplier forum set for March 26

Denver Aerospace is sponsoring its second Minority Supplier High Technology Business Exposition from 9 a.m. to 3:30 p.m. March 26 at the Holiday Inn at Academy Park, West Hampden Avenue and Wadsworth Boulevard.

The exposition provides a forum for Martin Marietta engineers, buyers, subcontract administrators and other interested parties to meet with and discuss potential business opportunities with representatives of high-technology minority business firms, said Herbert L. Watkins, manager of materiel operations.

The firms that have been invited are capable of providing some of Denver Aerospace's current and future material and subcontracting requirements.

"It is also an opportunity to demonstrate our corporate and business commitment to maximize opportunities for the minority business community, Watkins said."

Attendance at the exposition also is open to the business community. The forum will provide an opportunity to foster long-term and successful business partnerships.

Approximately 50 firms from Colorado and throughout the country will participate in the exposition. ■



Seven employees commended for cost-saving ideas

Stanley F. Albrecht, standing left, vice president, Production Operations, and Raymond F. Schwindt, director of manufacturing, standing second from left, congratulate suggestors. Seated, from the left, are R. E. Vigil, Richard W. Morgan, Alex Esparza, Richard Starkey and Carol Baber. Standing are Steve Majors and Bert J. Baines, Jr.

Employees encouraged to use new Direct Deposit paycheck program

The Direct Deposit program for employee paychecks, which began in January, not only is convenient for employees, but eliminates problems associated with early release of paychecks during vacation and holiday periods, said a spokesman for the payroll department.

The payroll department encourages all employees to participate in the program.

Since its implementation, the Direct Deposit program has been very successful. The payroll department reports additional participation of approximately 8 percent since January, for a total employee enrollment now of 35 percent.

Employees interested in enrolling in the program need to obtain authorization form DEN 500738 (09-86), which is available from the forms control department or from the various cashier cages. It is the employee's responsibility to confirm the bank or credit union Bank Transit Routing Number and the individual account number. Doing this in advance eliminates problems later.

For more information about the Direct Deposit program, contact the payroll department, Ext. 1-5200. ■



Credit Union Clips

Ten percent home equity loans now offered with no points

The Red Rocks Credit Union has lowered the home equity loan rate to a 10 percent fixed rate with no points—a competitive borrowing rate.

That means you can use the equity in your home to acquire a second mortgage and still have a tax deduction benefit. Use the equity in your home for a much-desired vacation, pay off high interest charge cards, medical bills, or make a college education available for a family member.

The credit union offers an open-end line of credit with a maximum loan amount of \$35,000 for each member account. The maximum loan amount cannot exceed 80 percent of the appraised

value of the primary residence, less the current mortgage balance. The minimum equity loan is \$6,000 and the minimum advance on an equity loan is \$3,000. If you already have a home equity loan with the credit union, you can refinance to the lower interest rate for a fee of \$50. This fee can be added on to the existing loan balance.

First-time home equity loans will be assessed collective charges of only \$300 to \$400. No other charges are required, and any loan may be amortized for up to 15 years.

Call the main office of the credit union, 797-2900, and ask to speak with a loan officer for more details.

Public updated on Superfund

Denver Aerospace is on schedule with its investigation of ground water contamination at the Waterton site, and expects to complete the first phase of the investigation by June.

Willard R. Haas, manager, environmental management, made his comments at a February 24 public meeting—the fourth held under the U.S. Environmental Protection Agency's (EPA) Superfund community relations program. The purpose of the meetings is to keep the community informed of environmental activities at Superfund sites, and to hear their comments and concerns.

Haas presented an update on work at Waterton to identify the extent and nature of contamination at an inactive waste disposal site and an old landfill near the rifle range.

“The purpose of the remedial investigation is to locate the sources of contamination on our property and describe the type and extent of contamination,” Haas said. “There are three phases of the investigation, and we are nearly finished with Phase I.”

Haas said that, as part of Phase I, the company has completed a hydrogeologic study that shows the direction of ground water flow over the entire 5,200 acres at Waterton. In addition, it will have installed 26 new monitoring wells and eight surface water sampling stations by April.

To date, Denver Aerospace has taken 29,000 chemical concentration measurements, which indicate concentrations of various pollutants in ground water. Haas said the 29,000 measurements found 99 positive results, or instances in which concentrations of a particular contaminant were elevated.

Trichloroethylene (TCE), a degreaser widely used in the past, was the chief contaminant found in high levels. However, Haas said the pathway through which TCE-contaminated ground water is migrating appears to be confined, and the ground water is headed toward a withdrawal system currently under construction. ■

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Call Ext. 5364 with information or suggestions for articles, or call one of the following coordinators.

Business Management	Daphne R. Gillison	7-3155
Business Development	E. W. Andrews	7-4619
Defense Systems	Norma I. Emerson	1-8089
Military Space Systems	Mary Lou Motsinger	7-6461
NASA Space Systems	Austin E. Fehr	7-5775
Personnel/Recreation	Leroy Hollins	7-6750
	Lori A. Sharp	7-6605
Production Operations	Guy R. Coombes	7-6911
Space Launch Systems	John H. LePenske	1-1400
Space Station	David J. Hughes	1-5946
Strategic Systems	Richard L. Kline	7-7475
Technical Operations	Floyd R. Teiffel Jr.	7-6872
Canaveral Operations	Robert V. Gordon	7-9108
Vandenberg Operations	Robert L. Ruck	7-2202

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Spencer sees bright future

(Editor's note: Joseph C. Spencer, vice president for Business Development, addresses the current and future Denver Aerospace business base in the following article.)

Denver Aerospace ended 1986 with a record backlog of more than \$3.8 billion, which equates to more than two years of work on the books. Furthermore, our five-year long range plan reflects firm and follow-on business which will keep Denver Aerospace at essentially the same business level we currently enjoy.

In addition, we are pursuing new opportunities in all of our product areas in an effort to sustain the very healthy growth rate we have experienced over the past ten years.

In Space Launch Systems, new Titan IV orders, refurbishment of Titan II ICBMs to space launch vehicles, and our entry into the commercial launch vehicle business with Titan IIIs, promise an exciting future. The backlog in this product area alone is projected to rise to more than \$3 billion by the end of 1987. In other new business activities, Space Launch Systems is actively working on advanced upper stages and a new heavy lift launch vehicle.

Strategic Systems continues work in support of the Peacekeeper program as it makes the transition from development to production. The Small ICBM assembly, test and system support contract is essentially another Peacekeeper program for us with the added benefit of more hardware content. This division has targeted the Peacekeeper rail garrison contract as its major new business focus.

Military Space Systems has an excellent ongoing business base with a good potential for new business in the Strategic Defense Initiative area, which includes the space-based kinetic energy weapon, for which they are currently competing.

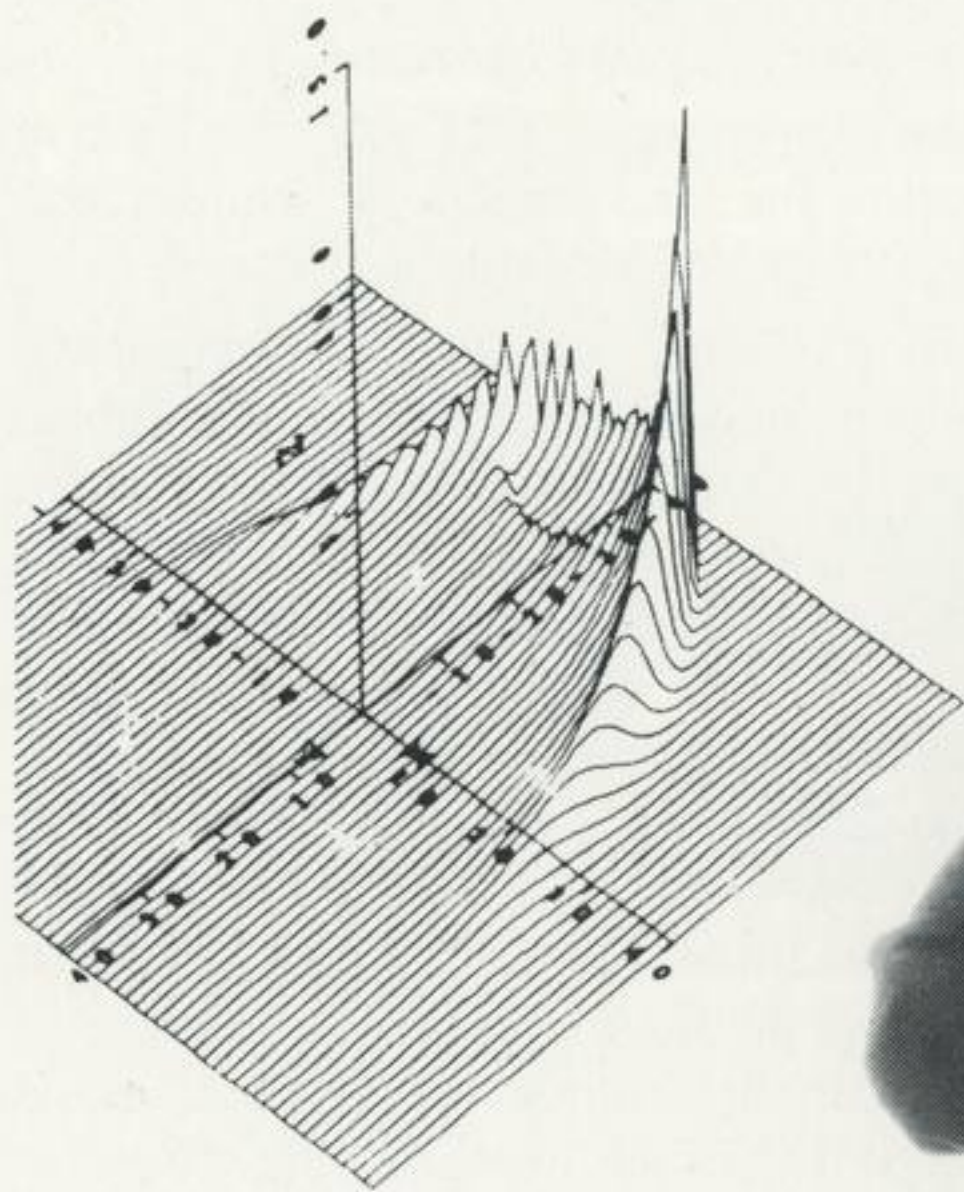
Defense Systems, too, enjoys an excellent business base with a bright future, while NASA Space Systems is actively pursuing a major activity entitled the telerobotic servicer system for space station.

Denver Aerospace is leading a joint effort with Michoud Aerospace to win Work Package I of the space station. We will submit a bid this year for this major program.

In addition to all of this, Denver Aerospace is in the process of identifying a major new mission area for the future. We are dedicated to continued growth, and have a strong commitment to technology, research and development. The company plans capital investments in excess of \$78 million in 1987 for facilities to support our growth.

In my judgment, we have an excellent future, and are on a good path to continue our excellent growth rate which provides more opportunities for all our people.

—Joseph C. Spencer



Deborah Strange and John Bradstreet are shown with a spatial intensity plot of a high-altitude rock plume. The geometric features and shapes of the data are the basis of the idea report.

Inventions, technology noted

Denver Aerospace employees were recognized recently for their creativity in documenting significant ideas that support new business endeavors, contribute to the company's technology base and fulfill contractual obligations.

The following Denver Aerospace employees received cash awards for their inventions as a result of decisions of the Denver Intellectual Property Review Board:

David R. Workman, product assurance, "Remote Site Calibration Support for Transducers by Function Separation"; Bernardo Higuera and Dale C. Rudolph, engineering mechanics, "Shape Memory Composite Tool"; William W. Putney, electronics, "Latching Propellant Valve with Power Failure Drop-Out Feature"; John Bradstreet, computer sciences, and Deborah A. Strange, electronics, "Methods of Determining Hardbody Locations from Digitized Images of Rocket Plumes"; Brent A. Cullimore, engineering mechanics, "EM Pump Assist and Control of Liquid Metal Heat Pipes"; John G. McAllister, Robert N. Rossier and Lawrence J. Rose, engineering mechanics, "Space Station Propulsion Utilizing ECLSS Waste Water and Electrolyzer"; William H. Tobey, systems engineering, and Dr. Robert A. Thomas, special projects, Defense Systems, "Deployable Device for Advanced Spacecraft"; and Lyle E. Bergquist, electronics, "Helium Leak Detector Calibrator."

The following employees were granted cash awards by the Denver Aerospace New Technology Evaluation Committee for their new technology disclosures submitted as a result of work on NASA contracts:

G. L. Adams, systems engineering, "A Method for Reducing Angle of Attack Errors of a Spinning Axisymmetric Projectile Acted Upon by a Constant but Misaligned Thrust Vector"; Carl L. Jensen, Steven G. Ring and Richard G. Goble, engineering mechanics, "Advanced SINDA Thermal Analyzer Computer Program—SINDA 85"; and Gregory N. Prosser, electronics, "Flatpack (I.C.) Lead Solder Dipping Tool."



Greg Prosser shows his lead tinning tool, which adds speed and integrity to the solder-dipping process on integrated circuit flatpacks. It reduces cost and provides a more reliable product. The tool was developed under a NASA contract, the Pyrotechnic Initiator Controller (PIC) program.

Employee services/Recreation

Symphony Discount—The Denver Symphony offers Martin Marietta employees a 50 percent discount to all classical, pops and kids concerts. (Great artist recitals are not included.) You must present a coupon to be eligible for discount. The offer expires June 6, 1987. Discount order forms are in the recreation racks and tickets may be ordered by mail or by presenting the discount coupon at the box office. Seating is based on ticket availability.

Motorcyclists—The Aeroriders Motorcycle Club will meet at 5 p.m. Thursday, March 5, at the recreation field clubhouse. Contact Walt Cooper, Ext. 7-5364, for more information.

Picnic Area—Departments planning summer picnics are advised to reserve the picnic pavilions as early as possible. Because of the demand, the recreation/picnic area is for the exclusive use of Martin Marietta department/employee functions and is not available for use by community groups. Make reservations by calling the recreation office, Ext. 7-6605, or 7-6750.

Rocky Mountain Alpine club—A one-day cross-country ski trip for beginners is set for Saturday, March 7, at Vail Pass. Contact Frank Farrell, Ext. 7-6458. A one-day cross-country ski trip for intermediate skiers is set for Sunday, March 15, at Mayflower Gulch. Contact Dan Hawkins, Ext. 7-0705.

Amateur radio—The Waterton Amateur Radio Society will meet at 5 p.m. Tuesday, March 3, in the Hamshack, west side of the recreation area.

Riding—The Ridge Riders Saddle Club will meet at 7 p.m. Tuesday, March 3, in the club meeting room at the recreation area.

Chess—The Chess Club will meet at 6:30 p.m. Wednesday, March 4, at DSC I, second-floor snack room.

Hunting—The Skyline Hunting and Fishing Club will meet at 5 p.m. Monday, March 9, at the club meeting room in the recreation area.

Archery—The Red Rock Bowmen Club will meet at 4:45 p.m. Tuesday, March 10, at the clubhouse in the recreation area.

Velo Club—The Mile High Rollers Velo Club will hold its monthly meeting at 5 p.m. on Wednesday, March 4, in Conference Room 136A, Software Center of Excellence, Littleton Systems Center.

LSC Toastmasters—The group meets at 4:30 p.m. Wednesdays in Room 103 at LSC. All interested employees are welcome. Contact Henry Evans, Ext. 7-0575.

Scuba Divers—The Fathom Divers Club is reorganizing. All divers and prospective members are urged to complete an interest questionnaire that can be found in the recreation racks or at the recreation office, Engineering Building, 124G. The questionnaires should be returned to the recreation office before March 13. A kickoff meeting will be in late March; details and the date will be in the next **Martin Marietta News**. Contact Marty Chrastil for more information, Ext. 1-7075.

Jitterbug—This popular class is a fun social night, with nostalgic music from Glen Miller and Chubbie Checker's dances of the 50s and 60s and the latest boogie rhythms. While the regular price is \$24, employees, spouses and dependents pay only \$15 per person. The class is Saturday, Feb. 28 and March 7, at 4360 E. Evans Ave. For reservations and class time, call Marilyn Olen, 799-4915.

Singles—Single employees are invited to attend the Singles Club kickoff meeting 5-7:30 p.m. on Thursday, March 12, at the Holiday Inn, South Wadsworth Boulevard and Hampden Avenue. Interested employees must return the form to the recreation office by Friday, March 6. The meeting announcement, with form attached, will be available in recreation racks next week.

30-35 years' service commended



Employees with 30 and 35 years of service in the fourth quarter of 1986 were honored at a service recognition luncheon on Dec. 4. Bruce Pherson, manager, employee relations, services and safety, officiated.

Standing, left to right, are Harold Strader, David Brouillet, Robert Repair, Gerald Hobbs, Thomas Glahn, Roger Hardwick, Paul Flaherty, Solomon Bankhead, Trudy Dion, Guy Wismann, John Gerecht (35 years) and Bruce Pherson. Seated, left to right, are Grant Williams, John Koshak, Paul DeWitt, John Lasharr, Garland Wright, George Kardaseski, Paul Johnson and Francis Berns.



Standing, left to right, are Joseph Miller, Martin Bowland, Robert Swope, Gerald Mason, Rex Reed, James Peiffer, Paul Ritz, Phillip Fertitta and Bruce Pherson. Seated, left to right, are James Gracey, Oliver McGonigle, Carl Stevens, Mary Cook, Bud White (35 years), Rudy Zwegardt, Roger Kessinger and James Ritz.

Other 30-year honorees, not pictured, are Tom Weems, Ron Cridlebaugh, Mel Repstine, John McDonnell, Jerry Decarlo, Al Schaeffe, Ted Coston, Dewey Johnson, Robert Williams, Edgar Fox, Rick Domier, Marilyn Brebner and Jerry Schlesselman.