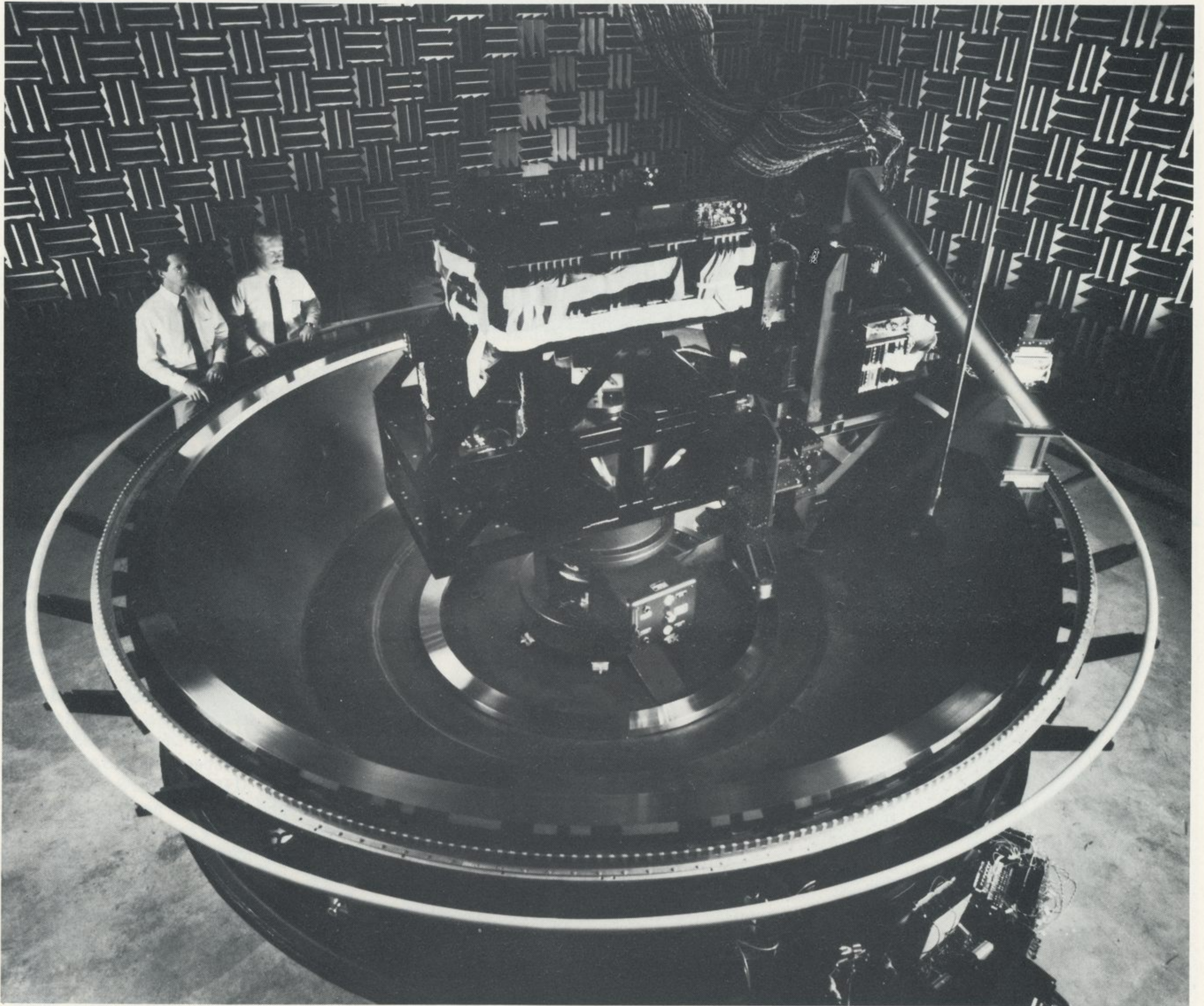


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Number 3



Paul L. Shattuck, right, RRL program manager, and Scott Dahl, a senior engineer, watch one of the first simulation tests.

Rapid Retargeting Lab is key element in SDI

The Rapid Retargeting Laboratory (RRL), a key element in Strategic Defense Initiative (SDI) research, is operational. (The facility previously was named R2P2 for rapid retargeting and precision pointing.)

Built by Denver Aerospace under a contract with the Strategic Defense Initiative Organization (SDIO), the RRL evaluates the performance of extremely sensitive space and ground systems that require the ability to point with precision from one target to another. SDIO

formally accepted the simulator on Dec. 18, 1986.

Denver Aerospace initially designed a rapid retargeting laboratory experiment under a contract sponsored by the Defense Advanced Research Projects Agency (DARPA). That program was transferred to the newly created SDIO, which awarded the company an additional contract to build and evaluate the RRL simulator. Constructing the laboratory began in April 1985, and the facility became opera-

tional in December 1986. The company built the structure that houses the simulator with its own funds.

The laboratory is a national test facility that enables SDI investigators nationwide to answer basic questions about rapid retargeting and precision pointing. SDI contractors will evaluate control strategies for retargetable systems.

The precision pointing required for SDI
Continued on page 5

News briefs

McCown assumes new post



James W. McCown has been named vice president of advanced programs, Space Launch Systems, reporting to Richard E. Brackeen, vice president, Space Launch Systems.

McCown

McCown's responsibilities include the heavy lift launch vehicle, adaptable space propulsion system, orbital transfer vehicle, space transportation architecture study, space transportation economic analysis model and national aerospace plane.

Previous to taking this assignment, McCown was assigned to the company's space station development efforts. Beginning in 1968, McCown managed Martin Marietta's space shuttle activities and directed the work that won the external tank program.

Leroy Nichalson will assume the new position of director, heavy lift launch vehicles.

Schallennmuller named TIS VP



Schallennmuller

Albert R. Schallennmuller has been named vice president of Tactical Information Systems (TIS) for Denver Information & Communications Systems (I&CS). He will report to Albert E. Hawkins, vice president of Denver I&CS.

TIS will encompass the ASAS/ENSCE, DTSS, PAWS, MTCC, ASMPs, SACDIN and STOF programs in one product area to enhance the company's expertise within the rapidly growing field of mobile data processing systems.

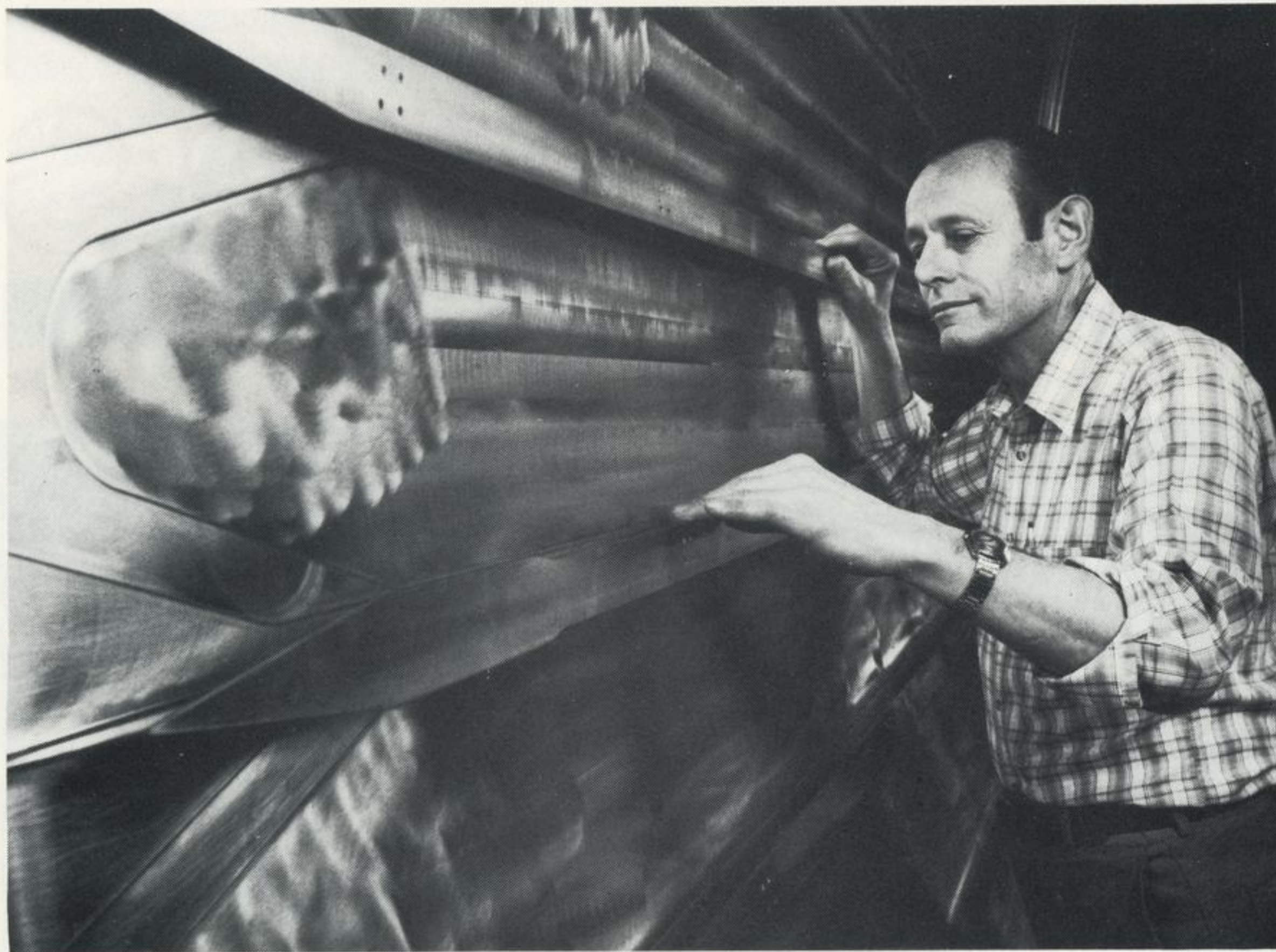
Schallennmuller previously was director of Tactical Information Systems. He served earlier as ASAS/ENSCE program director, and also served as technical director for the Command and Information System product area.

Radio/TV stations to carry company closure reports

The following radio and television stations will broadcast information concerning a possible closure of Denver Aerospace in bad weather:

KLZ (56 AM), KAZY (107 FM), KOA (85 AM), KOAQ (103 FM), KIMN (950 AM), KYGO (98 FM), KDEN (1300 AM), KHOW (630 AM), KRXY (1600 AM, 108 FM), and News Center 4 TV.

Employees should listen to one of the above stations for specific information about the company.



Steve Deak inspects a Titan IV oxidizer barrel panel.

Deak makes Titan IV tool

During the contour forming of a Titan IV oxidizer barrel panel, one of the panel's tee sections was bent. With an approximate cost of \$20,000 to replace the panel, Steve Deak came to the rescue.

Deak, a sheet metal developer A and Denver Aerospace employee for 16 years, made a spe-

cific tool required to correct the problem.

His delicate handwork brought the panel back into configuration compliance without causing any cracking. In appreciation for Deak's work, Raymond F. Schwindt, director of manufacturing, presented an on-the-spot award.



Tighten-up, Titan Up poster wins bond

Jim Brown, center, with quality assurance at Canaveral Operations, shows his award-winning motivation poster to W. E. Fields, left, director of Canaveral Operations, and Fred Marshall, quality assurance manager. Brown's motivational poster, submitted through the SPEAK (Share Personal Experience and Knowledge) program, earned him a U.S. savings bond.



Richard E. Weber, far left, vice president, Personnel and Facilities, and Peter B. Teets, far right, president, present Superbowl tickets to Coy and Dowe.

Two employees mark 50 years

While many were glued to the tube on Super Bowl Sunday, Vern Coy and Bill Dowe and their wives sat in the Rose Bowl in Pasadena—courtesy of Denver Aerospace.

Coy and Dowe received their all-expenses paid Super Bowl trips to recognize their 50th anniversaries with Martin Marietta—both which are celebrated this month. Both began their careers with the Glenn L. Martin Co. in Baltimore, and transferred to Denver in the 1950s.

They are only the third and fourth 50-year employees in the corporation's history. The first, H. W. (Bud) Guderjohn, died last year while still working for Denver Aerospace. The second, Harry George, an Orlando Aerospace employee, retired in 1986.

The Coys and the Doves flew first class to Los Angeles, and stayed five nights in Costa Mesa. They also visited Disneyland, the Queen Mary, and Howard Hughes' famous

wooden megaplane, the Spruce Goose.

Dowe is chief of program planning on the kinetic energy weapon program. He joined the corporation in 1937 at age 19. In 1938, he was made a supervisor in the Baltimore sheet metal operation. Looking back over his 50 years with the corporation, Dowe says his best assignment was going to England after World War II to study the English Canberra bomber in connection with the design of the U.S. B-57 bomber. His toughest job was establishing the configuration management system for the Titan I program.

Coy is a senior industrial engineer in manufacturing support and methods. He also began his career in the sheet metal operation, forming B-10 bomber parts. Coy said he has found each of his many assignments interesting. "They were all new at the time and each has been like a new adventure." ■

Denver begins intern program

Last fall, two high school students joined employees at Denver Aerospace as part of a special internship program. Their four months of work marked the beginning of Martin Marietta's participation in the Denver Public School's Executive High School Internship Program.

The program's aim is to enrich and supplement students' school curriculum and develop intellectual and communication skills. The internship offers students the chance to apply textbook learning and bridge the gap between classroom knowledge and the outside work.

John Jeffers, from J. F. Kennedy High School, and Richard Zimmerman, from Manual High School, say the internship does just that. Jeffers worked in the payloads, sensors and instruments department, and says the experience changed his future by helping him decide his college curriculum.

Zimmerman served his internship in the power systems department. He feels that his experience helped him understand engineering and decide what university to attend.

The response from Denver Aerospace employees has been enthusiastic. Lyle Bergquist, a senior staff engineer in the payloads, sensors and instruments department, speaks highly of the program. "We, as a business and a commercial activity, need to encourage and continue communication between schools and industry," Bergquist says.

Carl Pistole, an engineer in the power systems department, sponsored Richard Zimmerman, and is equally enthusiastic about the program. Pistole says his associates would welcome another intern.

Interns for the spring semester, which began Jan. 27, are Heidi Ciecior and Mary McDaniel, both students from Kennedy. Ciecior works in the computer sciences department at Littleton Systems Center, and McDaniel works for payloads, sensors and instruments.

For more information about the executive internship program, call the program's administrator, Bette L. Wooster, in the human resources development department, Ext. 7-6650. ■

Library opens

The research library has moved to the second floor of the new Technical Support Building (next to RDL), and opened its doors Feb. 10.

The library has more than 19,000 technical books, 70,000 technical reports from government agencies and aerospace contractors, and subscribes to 250 journals. Any Martin Marietta employee may check out material for four weeks.

Jay R. McKee has headed the library since 1969. The library is open 7:30 a.m. to 3:30 p.m. weekdays. Call Ext. 7-5512 for more information. ■



Credit Union Clips

Family members now welcome to join Red Rocks Federal Credit Union

The Red Rocks Federal Credit Union has moved and expanded to include employee's immediate family members.

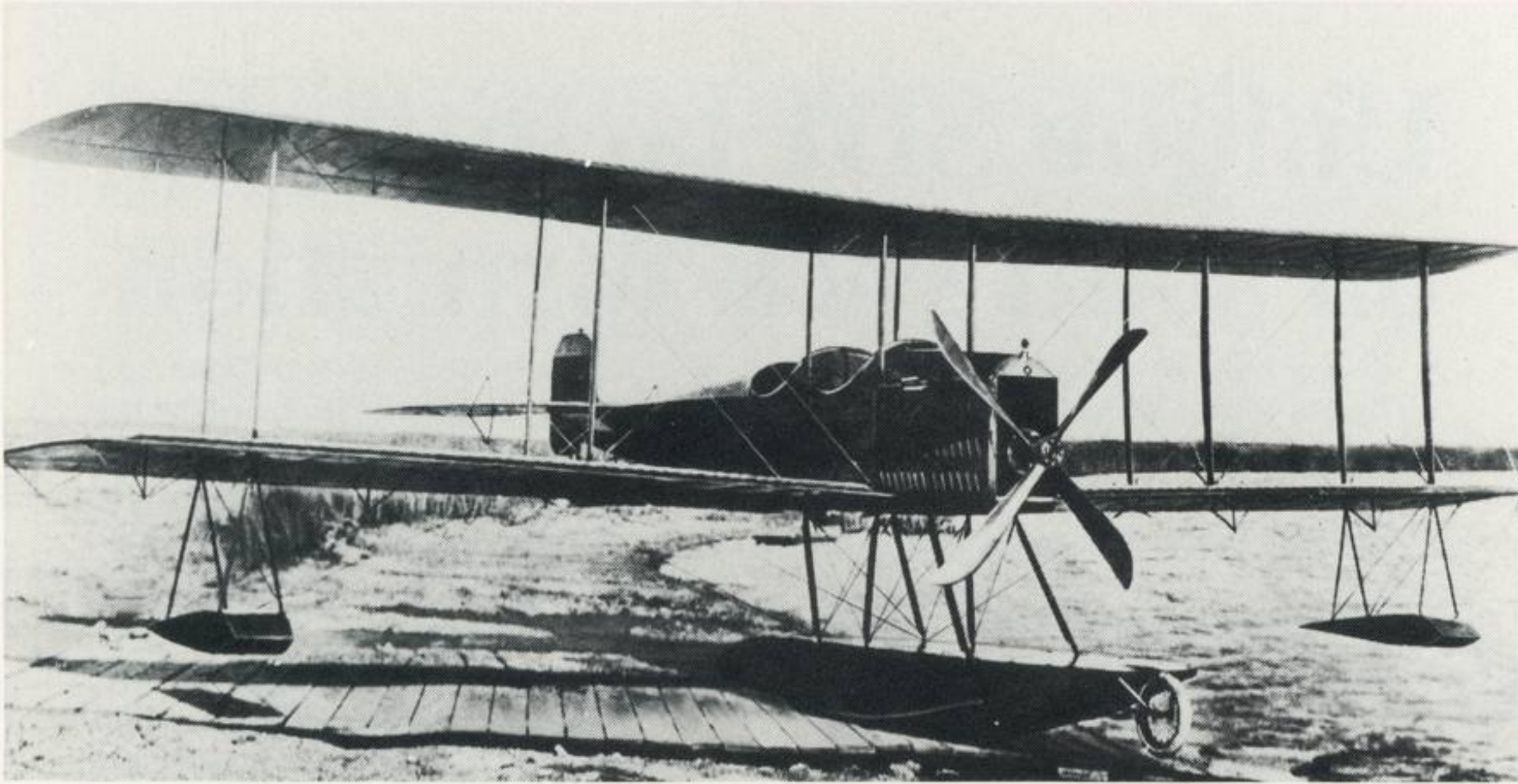
The credit union had limited membership to immediate household members. Now membership extends to an employee's spouse, father, mother, siblings, sons and daughters.

The main office is now located in Suite 105 at 7901 SouthPark Plaza. That's one block west of Broadway on Mineral Avenue, east of the Littleton Systems Center (LSC). The old office at Waterton will remain open as a branch office.

The credit union, a financial coopera-

tive, is owned by and operated for its members. As a full-service financial institution, it offers the following services: share accounts (savings), IRA share accounts, certificate investment programs, payroll deduction, direct deposit, share draft accounts (checking), 24-hour access to the Minibank-Cirrus Network with a MasterCard II Debit/Check Guarantee Card with overdraft protection available, Visa or MasterCard credit cards, and a full-service lending program.

For more information, call 797-2900, or Ext. 7-6000 at the Waterton branch office.



Water wings—Martin made his first transoceanic flight from Newport Beach, Calif., to the island resort of Avalon. The 37-minute flight took place May 10, 1912, in a Model 12 aeroplane modified with a single pontoon.

History . . . On a wing and a prayer

(Editor's note: This is the third in a series of articles about Glenn L. Martin, and the dream on which he built an aircraft empire and the company that became Martin Marietta. The series is courtesy of Orlando Aerospace.)

LOS ANGELES, September 1911—The Glenn L. Martin Co. has opened an aeroplane factory in the industrial building at 943 South Los Angeles Street. Martin, who began his operation in Santa Ana, has transported his entire staff of seven to the Los Angeles area.

Disappointed by his failure to get financial backing from either of Santa Ana's two banks, Martin decided to support his venture by performing in airshows and exhibitions. He polished his act, negotiated bookings, and once again headed for the clouds. His old friend Charlie Day, who after crashing at the Los Angeles air show swore he would give up flying forever, agreed to work for Martin designing and building aeroplanes.

Martin rented an abandoned cannery just outside Santa Ana with part of his \$1,350 life savings. His mother, Minta, painted the sign, and the Glenn L. Martin Company was open for business.

Employee ideas save \$1.5 million

Statistics for 1986 indicate a large return on investment for the Success Through Suggestions program.

During its first year, the program received 1,077 suggestions, and 150 were approved for implementation. Gross cost savings to the company were \$1,515,131 as a result of implementing the suggestions in 1986. Awards to employees amounted to \$33,859. The largest single award was \$3,340.

This year, the suggestion office will feature

Space and money were tight in that first factory, and it was not long before a bigger place was needed. In late 1911, the whole operation and the seven employees moved to Los Angeles.

Martin continued to support his factory with money from airshows and competitions. Convinced that commercial flight was coming of age, and always looking for ways to make news, he arranged to deliver a sack of mail postmarked "Los Angeles, Calif., Aviation Station," and a load of local newspapers by air.

Having successfully defied gravity, Martin's next conquest was water. For some time, Glenn Curtiss had been taking off and landing on water, and Martin was soon following his lead. He equipped his Model 12 with a large pontoon and, in May 1912, made his first overwater flight from Newport Beach to Avalon.

The trans-Pacific flight took 37 minutes. The roar of his engines over the island resort brought people pouring out of hotels, shops and houses.

The whole town went down to the beach to welcome him, including a delegation of Shriners from a convention. The flight was a success. Martin was once again a headline hit. ■

a program called Special, designed to guide employees toward ideas that relate to cost savings, safety and improved productivity. The Special will allow employees to earn awards still to be determined in addition to the traditional suggestion awards.

The suggestion office has moved to the new Technical Support Building (which was temporarily called the RDL Annex), on the fifth floor, Module 528E. The phone number, Ext. 7-IDEA, and MS 0092, remain the same. ■

Denver employees help complete trail

Three Denver Aerospace employees are helping to spearhead an all-volunteer effort to complete the Colorado Trail, and more volunteers are needed.

Celia Nobles has been volunteer personnel administrator for trail crew operations for two years. Barbara Pijanowski participated for the first time on a weekend trail crew at Twin Lakes Reservoir in late summer. Nobles and Pijanowski are both employees in the estimating department of Denver Aerospace.

Jeff June, a quality engineer, worked on the trail in late summer as a coleader on the West Jefferson Loop Trail. He has worked with several crews during the past five years.

The Colorado Trail is a hiking and horse-pack trail stretching 487 miles from Waterton Canyon to Durango in southwestern Colorado. The Friends of the Colorado Trail Foundation and the Colorado Mountain Club have recruited more than 450 volunteer workers to fill positions on 18 week-long work crews and five weekend crews during the summer.

Taking part in a trail crew is actually a working vacation for the participants, Nobles said.

"Crew members have the opportunity to do something constructive by building a hiking trail that can benefit present and future generations. There is also ample time to relax, hike, fish or sightsee," she said.

Information about joining a trail crew this year can be obtained by writing to the trail coordinator at the Colorado Mountain Club, 2530 W. Alameda Ave., Denver, 80219. ■



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MARTIN MARIETTA NEWS

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Editor Jan P. Timmons

MARTIN MARIETTA

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

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Continued from page 1

ground and space elements under development is unprecedented. A space-based laser, for example, must be able to pinpoint a target the size of a beachball over 3,000 miles. Retargeting strategies under development then require the capability to move and stabilize on another target, possibly hundreds of miles away, and do that within a second or two.

"Being able to test a precision pointing system on the ground can provide a significant cost savings," said Paul L. Shattuck, program manager. "The cost of testing a developmental system in space is so prohibitive that you would like some assurance first that it is likely to work. The RRL provides a vibration-free, space-like environment on which to perform these initial tests and evaluations."

More than 30 people are assigned to the RRL program. Under new experiment support contracts, the team will evaluate the facility's future use for programs, such as kinetic energy weapons, neutral particle beams, linking to the National Test Bed for SDI and other SDI systems. Work also is proceeding on advanced concepts for controlling a space-based laser.

Work on the experiment support contracts will continue full time until July 1987, when it is expected that the facility will be devoted part time to other SDI experiments assigned by the SDIO.

—Walt Cooper

(Editor's note: Beginning in this issue, we will credit employees who contribute major articles and features to the Martin Marietta News.)

Nalty chosen to head Business Management



Nalty

Raymond J. Nalty has been named to lead Business Management for Denver Aerospace, with responsibility for finance, contracts, planning, estimating, capital planning, information systems and business operations.

Nalty replaces Steven E. Story, who is leaving Martin Marietta to pursue other business interests.

Nalty, 49, has been director of business management for NASA Space Systems since the organization was created in August 1986.

Nalty has held a variety of positions since joining Denver Aerospace in 1967 as a contract specialist working on the Skylab program. In 1980 he was appointed business manager for Information & Communications Systems (I&CS) in Denver. In 1982 he was named business manager for Special Programs at Denver Aerospace, and he became director of business management for the Space and Electronics Systems division in 1984.

Unique SDI facility sits on solid rock formation

The Rapid Retargeting Laboratory (RRL) at Waterton not only is a unique research facility, but can claim a rather unique foundation.

The laboratory, which connects to the Inertial Guidance Laboratory, sits on an underground rock formation—28-miles long without a major fault, 8-miles deep and a 1/2-mile wide. This rock provides the most seismically stable base on the North American continent.

This stability—or freedom from vibration and noise—has attracted scientists from the National Bureau of Standards who have come to Denver Aerospace to calibrate and check the accuracy of their seismic detection instruments.

Earthquakes anywhere on the continent can be detected from atop this rock. Scientists have documented the fact that this location is 300 times quieter than any other on the continent. This means that a seismic detection instrument on this rock could detect a pin dropping nearby.

To take advantage of this formation, the RRL simulator is anchored to the underground rock. During construction, ground was excavated to expose the rock. Then, a concrete pier, 27-foot-square by 9-foot-deep, was poured over a matrix with steel reinforcing rods every square foot.

To prevent fractures or spaces in the concrete, it had to be poured in one continuous operation. That brought 30 large cement trucks to the site at the rate of six trucks per hour for 5 hours. What hardened was a 560-ton block of concrete anchored to the most stable base on the continent.

The base for the simulator presented an equally impressive challenge. It is a single, circular piece of cast iron—15-foot in diameter by 3.5-foot tall, weighing more than 21,000 pounds. It was so large and heavy after casting that the truck transporting it from the Pennsylvania foundry to Denver had to travel an erratic, circuitous route to comply with highway regulations in various states.

Performance Sharing Plan News

December	1986	Actual Annual Rate of Return for Period Ending
Fund A	3.8429598865	18.75
Fund B	2.5690687286	12.05
Fund C	4.0245445571	11.73
ESOP	1.5719807286	

1986 Performance Sharing Plan Matching Contribution

The company-matching contribution for last year is 49 percent of employees' 1986 basic contribution. The matching contribution is determined by the performance of the corporation in 1986, as measured by the return on shareholders' equity and compared to the three previous years. The return for 1986 was 26.1 percent. The return for the three previous years was 22.1 percent in 1983, 19.1 percent in 1984, and 37.4 percent in 1985, for an average of 26.2 percent.

If the corporation's actual return in 1986 had matched the average return for the three previous years (26.2 percent), the corporation's matching contribution would be 50.5 percent. For each 0.1 percent change in the return from the average, a 1.5 percent change in the matching contribution will be made, hence the 1986 matching contribution of 49 percent.

Fixed Income Fund Interest Rate—1987

In 1987, Fund B account balances will be invested in several guaranteed insurance contracts (GIC). The credited interest rate will reflect a blended rate of these GICs, and the expected interest rate for Fund B this year should average 10.7 percent.

Employee Stock Ownership Plan

Last year, the corporation made an additional contribution to its employee stock ownership plan, which was divided equally among all eligible employees. The contribution resulted in an allocation of \$162.35 to each eligible employee's account. To receive this allocation, an employee must have had a year of continuous service and have been on the payroll as of Dec. 31, 1985.

Employee services/recreation

Rocky Mountain Alpine Club—Telemark lessons at Ski Cooper for beginners/intermediates will be Saturday, Feb. 21. Contact Steve Ahmann, Ext. 1-6322. An avalanche seminar for all levels will be Friday or Saturday, Feb. 27-28, at a to-be-announced location. Contact Dan Hawkins, Ext. 7-0705.

Ski Discounts—Coupons for skiing at Breckenridge for \$15 on Saturday, Feb. 21, are available at the recreation office and from volunteer recreation representatives. The coupons are for employees and their family members. The \$15 fee is paid when the coupon is redeemed at either Peak 8, Peak 9 or at the D lift at Breckenridge.

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.

Commodore Users—The group will meet at 5 p.m., Tuesday, Feb. 17, in the clubhouse at the recreation area. Contact Joe Presta, Ext. 7-4220, or Chuck Barton, Ext. 7-7433.

Income tax forms—Internal Revenue Service and Colorado state income tax forms for 1986 are available at the following Denver Aerospace locations:

- Waterton facility, employee service/recreation office, Engineering Bldg., Room 124G;
- Denver Systems Center (DSC) II, Room 167;
- Littleton Systems Center (LSC), information rack in the main hallway;
- South Lincoln Facility, in the personnel representative's office;
- Greenwood Commons, Bldg. 8100, Room 102H;
- Terrace Towers and SouthPark West have tax form order sheets in the information racks. Employees can mail their request for forms to the employee service/recreation office, Mail Stop 1344, to receive IRS forms through company mail.
- Out-of-state tax forms may be obtained from Gary Osterhout, Linpro II, Room 94, Ext. 1-5452.

Volleyball—The Wednesday Night Open Volleyball League champions are Dick Foss, Tom Galambo (captain), Mike Cox, Kevin Johnson, Dean Lenz, Curt Sorenson, John Hass and Quinton Fitterer. The second-place team consisted of Chuck McLeod (captain),

Larry Redd, Stu Knapp, Linda Hazell, Paul McCoo and Dick Husted.

Corporate Games—Help us keep the Cup at the seventh annual Denver Corporate Games! Show your interest by trying out for the 1987 Martin Marietta Corporate Games team. This year's team will defend the first-place title that was recaptured from Public Service in 1986. Proceeds from the games go to the Colorado Special Olympics. Competition will take place June 5 and 6, and will include track, swimming, tennis, bicycle, racquetball and 5-k races.

(Bowling participants were selected in January during the Masters Qualifying Tournament; coed volleyball team members are selected from the current competitive league; and the two golf participants will be selected from the Partner Best Ball Tournament, on May 16.)

Forms are available in the recreation racks. Return them to the employee

services/recreation office by March 4.

Colorado Special Olympics, Winter Games—Volunteers are needed for a variety of jobs at the Colorado Special Olympics Winter Games March 6-8 at Keystone. Positions are available for alpine and nordic skiing events and in ice skating, including scorers, computer work, registration, starters, timers and awards. Some volunteer positions require intermediate or advanced skiing ability. A training session will be 6-8 p.m. Feb. 26 at Summit County High School in Frisco. Contact Don Fullerton, Ext. 1-6510, for complete job descriptions and volunteer applications.

Career Women's Association—The association will have its annual meeting at 5 p.m. on Wednesday, Feb. 25, at the Holiday Inn in Lakewood, 7390 W. Hampden Ave. Martha M. Ezzard, a state senator, and Mary Hess, a lobbyist, League of Women Voters, will discuss economic and political leadership. Reservations are required by 3 p.m. Feb. 20.



Titan associate contractors tour the Titan manufacturing area at the Waterton facility. The one-day conference highlighted current and future use of Titan launch vehicles in the country's space program.

SLS sponsors motivational event

More than 150 contractors, vendors and suppliers from all over the country attended a Titan Commitment and Opportunities session held by Space Launch Systems in Denver.

The session emphasized mission success and the important role played by all those involved with the Titan program. Peter B. Teets, Denver Aerospace president, addressed the group as the keynote speaker, and expressed the company's eagerness to reaffirm the Titans' success record in the future.

Richard Brackeen, vice president of Space Launch Systems, spoke of the necessity of 100 percent excellence by all involved to ensure the goal of perfect mission success. In addition, Alan L. Schaeffle, vice president, Titan IV program; Robert F. Johns, director, Titan III and common support; and James E. Greichen, director, Titan II program; addressed the group. Johns, leader of the Titan reassessment team, outlined the reassessment plan and the steps taken to begin the "second half" of assured access to space. ■