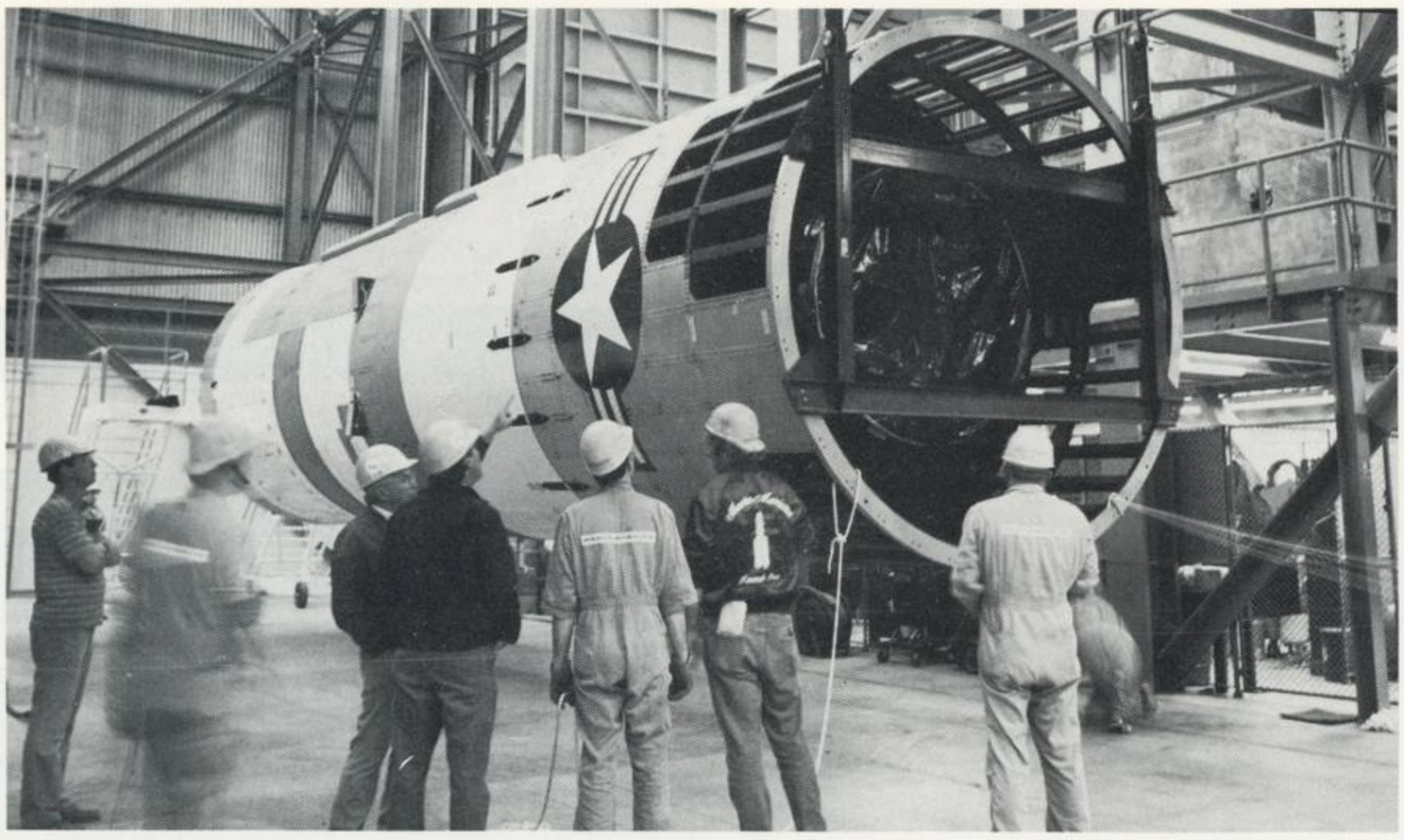
MARTIN MARIETTA
news
ASTRONAUTICS GROUP

August 12, 1988 Number 17

Shuttle readied for flight



Space Launch Systems employees at Cape Canaveral assisted with erection of the second stage of the first Titan IV earlier this year.

Titan IV program progresses

The Titan IV, the nation's newest and largest expendable launch vehicle, is rapidly progressing toward initial launch capability later this year.

The first vehicle, rolled out of the factory last January, was moved in late May from the Solid Motor Assembly Building to Pad 41 at Cape Canaveral Air Force Station and is now undergoing tests, including fit checks for the payload fairing, which has been installed.

Preparations for the second launch continue. The second core vehicle was shipped in mid-July from the factory in Denver to Florida. Liquid rocket engines have arrived in Florida and solid rocket motor segments are arriving there daily for tests.

Meanwhile, in Denver, three of four tanks for the third vehicle are in final assembly and the fourth tank is in hydro testing.

In a recent letter to Peter B. Teets, president of the Astronautics Group, Air Force Col. Sebastian F. Coglitore, Titan IV Deputy Commander for Launch Systems, remarked on the excellent efforts of the Space Launch Systems team:

"Martin Marietta's performance in bringing the Titan IV system on line to meet the nation's critical launch requirements has been commendable. We are approaching Initial Launch Capability and we are very close to the schedule originally laid out three and a half years ago." ■

35 and 40 years of service recognized

Employees with 35- and 40-year service anniversaries in 1988 were honored recently during a recognition dinner at the Deer Creek Facility. R.E. Weber, vice president of Personnel, officiated. Those pictured are standing, left to right: James Sterhardt (40 years), R.E. Weber, and Jim Nelson (35 years). Seated, left to right: Jim Webb, Fred Lecker, Phil Riley and Norm Sitter, all with 35 years' service. Not pictured is Jim Greichen (35 years).

Shuttle prepares to resume flight

For the Aug. 10 successful test of the Space Shuttle Discovery's main engines, the external fuel tank built by Martin Marietta supplied liquid oxygen and liquid hydrogen to the engines at a rate of 1,035 gallons per second.

The huge tank, 154 feet long and 27.6 feet in diameter, was designed by Denver Aerospace in the 1970s and is now produced by Martin Marietta Manned Space Systems in New Orleans. The test, called the Flight Readiness Firing, was one of the last major hurdles to qualify the shuttle before it is set to fly in October.

The test culminated in the simultaneous firing of the orbiter's three main engines for about 20 seconds. During an actual launch, the external tank will provide fuel and oxidizer to the main engines to burn for about eight and a half minutes.

Also flying on Discovery in October will be three shuttle subsystems built by Space Systems in Denver—the Reaction Control System (RCS) tanks, the Caution & Warning (C&W) System, and the Pyrotechnic Initiator Controllers (PIC). The RCS tanks provide fuel to the orbiter's 24 control thrusters and the C&W system alerts the crew in flight to any spacecraft malfunctions.

The PICs control the operation of shuttle pyrotechnic devices that separate the boosters and external tank from the shuttle in flight, as well as control the operation of shuttle safety backup systems. In July, Space Systems delivered the last of 2,600 PICs built under contract. ■

Corporate News

Company continues to pay quarterly dividend

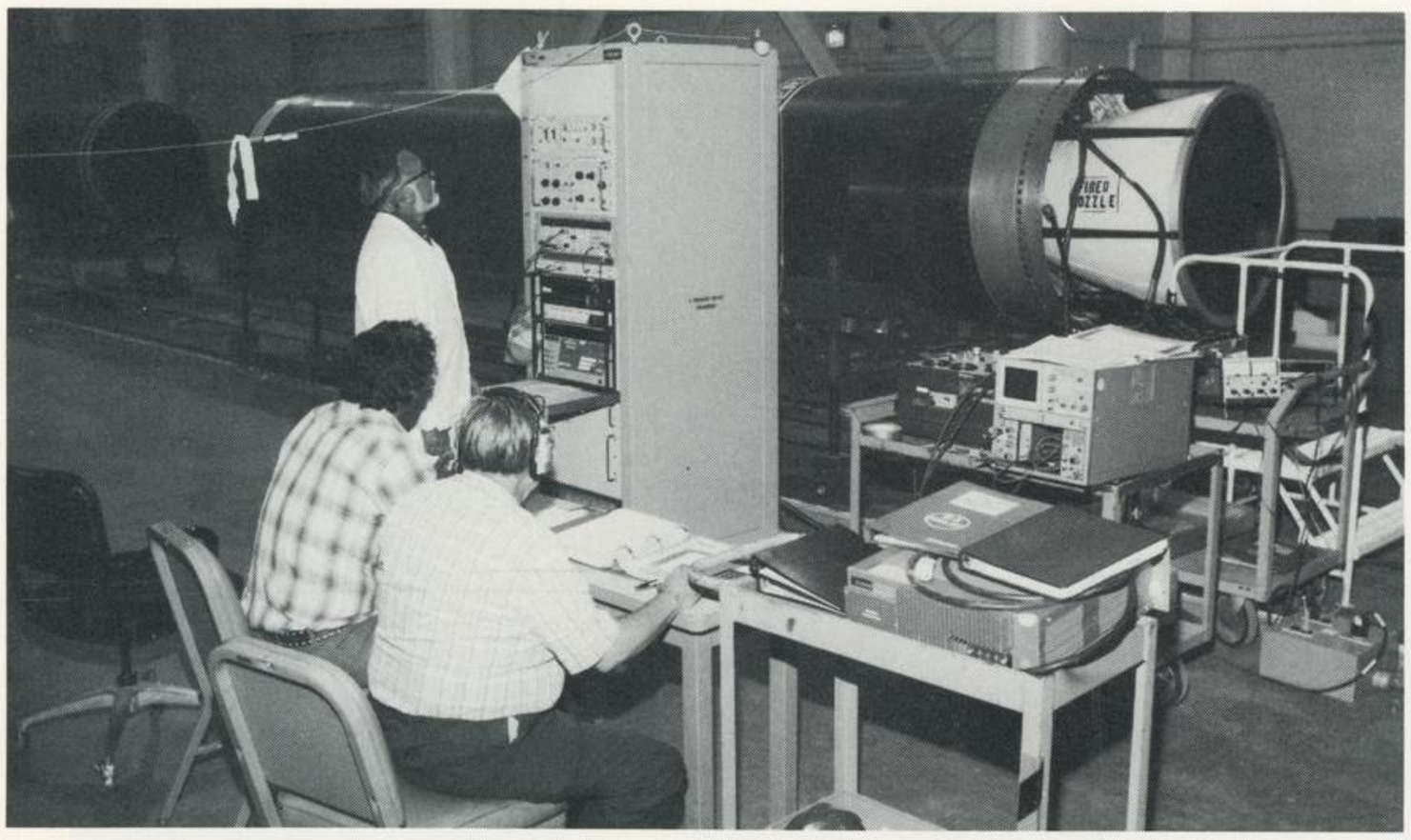
Directors of Martin Marietta Corporation have authorized a quarterly cash dividend of 27½ cents per share on the company's common stock, payable Sept. 30 to holders of record at the close of business on Sept. 6.

The action continues the rate on Martin Marietta common, effective in the third quarter of 1987, of $1.10 on an annualized basis.

Martin Marietta reports second quarter earnings

Martin Marietta Corporation reported second quarter earnings of $81.42 million, or $1.53 per common share, compared with $71.58 million, or $1.31 per share, in the second quarter of 1987. Sales for the second quarter increased to $1.44 billion from $1.38 billion a year ago.

Norman R. Augustine, chairman and chief executive officer, said the "improved earnings at mid-year are in line with our expectations and confirm our optimism for the full year." ■



At Vandenberg Air Force Base, Calif., Strategic Systems employees Harold Leonard (standing), Shelby Gantous, Jr., and John Forman (seated, left to right) monitor testing of the Small ICBM ground test missile.

Small ICBM stages tested

Stage testing of the Air Force's Small Intercontinental Ballistic Missile (Small ICBM) Ground Test Missile (GTM) is in progress at Vandenberg Air Force Base.

Inside the enormous Missile Assembly Building (MAB), processing of this inert missile mockup and intricate testing of each component will take place for several months.

"What these tests will tell us," said lead electrical engineer Carl Brashears, "is if each transducer is working properly to take measurements and readings when the system is launched." A total of 312 measurements will be transmitted and recorded from the time the missile is launched through its reentry phase in the Kwajalein Atoll Missile Test Range in the Pacific Ocean.

While the stages are connected to various pieces of test equipment, their performance signals are received through a series of cables that extend into the assembly building control room about 100 yards away.

Components of all sizes and shapes are tested and the information is recorded onto analog tapes in the control room before being printed out for review. Following engineering analysis, any necessary adjustments are made.

Stages I, II and III, plus the payload shroud reentry system, will be tested individually and again when completely assembled.

Similar to the information that was gathered during the cold-launch Canister Assembly Launch Test Program (CALTP), instrumentation on the missile will monitor temperatures, vibrations, strains, pressures, heat rate, acceleration, and a number of other flight-critical parameters.

About 125 Strategic Systems personnel are currently working on the Small ICBM program at Vandenberg.

Processing of the first flight missile, FTM-1, will begin this fall. First flight is scheduled for 1989.

Martin Marietta is under contract to the Air Force Systems Command's Ballistic Missile Office to assemble, test, and provide system support for development of the Small ICBM and to build its postboost vehicle. ■

In-house consultants trained

For two weeks in July, Martin Marietta Astronautics Group sponsored a Kepner-Tregoe "Leadership Development Institute" in Breckenridge, Colorado. Eleven employees were selected by their departments to attend the training course. The 10-day program of intensive class work, case practice, and in-class presentations prepared the participants to teach and be consultants in the Kepner-Tregoe problem solving and decisionmaking methods.

The organizations that sent students now have in-house consultants to assist them in problem prevention, decision analysis, and problem solving. The methods used in the system support current initiatives such as the annual performance improvement program, process simplification, and productivity enhancement teams.

Students participating were: Dominic Barry (Vandenberg), Glenn Briggs (Technology Training), Debi Floyd (Product Assurance), Tom Guzman (Planning), Mona McConkey (Vandenberg), Dave Minson (Strategic Systems), Don Ruscio (Strategic Systems), and Mark Vlcek (Production Operations). Joining the Denver Astronautics Group were: Tom Erickson (Air Traffic Control), Jason Scarlata (Orlando Data Systems), and Mary Shultz (Air Traffic Control). ■

Space Systems logo designed

Carl Preuss, manager for special programs in Space Systems, recently was named winner of a contest to design a new logo for the company.

For the contest, more than 150 entries were received with 14 finalists selected and Preuss named winner. He received a check for $500 and a framed copy of the logo from James McAnally, Space Systems president. Other finalists each received a $50 savings bond.

Preuss describes the symbol as follows: "The letter 'S' is used to depict the company mission, objectives and heritage. In the center is the Earth ringed by several orbits symbolic of the company's past, current, and future projects in Earth orbit. The lower branch of the 'S' represents the Viking mission to Mars and the tradition of excellence from which the company has grown. The upper branch of the 'S' represents the other space exploration missions past, present and future, including the Magellan mission to Venus. The future beyond is depicted by the trajectory continuing into space."

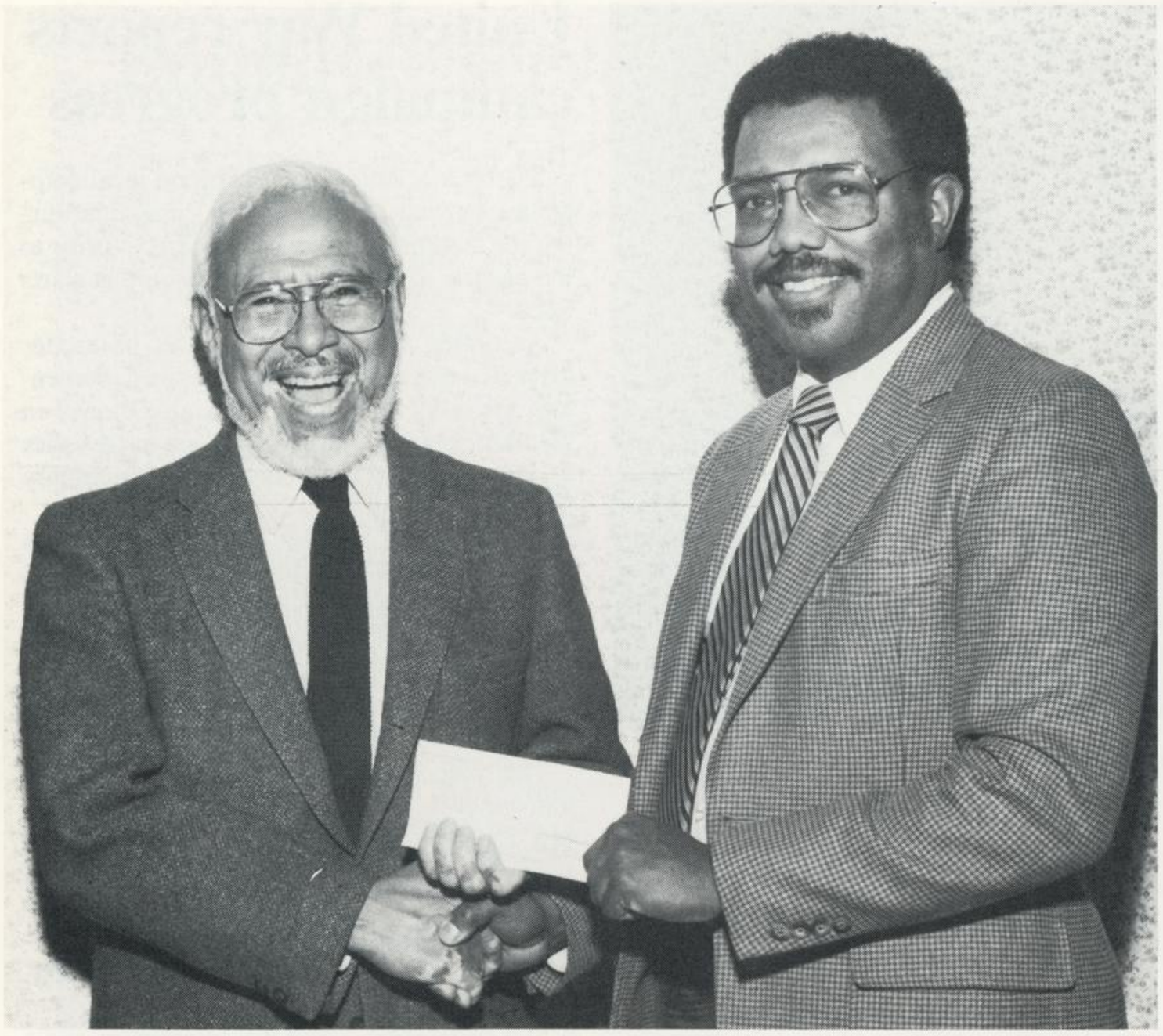
The new logo is intended for use on promotional and motivational items, and is prohibited by corporate policy from appearing on externally distributed reports, proposals, correspondence and similar items. Copies of the logo can be obtained from Chris Bosselman, Ext 7-5727.

SPACE SYSTEMS

Education briefing set

Sheila Bell, coordinator for the University of Denver Masters of Science in Systems Management degree program, will brief those interested in this program Aug. 18, 11:30 a.m., at TSB, conference room 501. New and continuing University of Denver students can register for the fall term following the briefing at noon.

Bell also is coordinator for the University of Southern California extension program and will be available to register those interested in pursuing a Masters of Science degree in Systems through USC. The briefing will be held Aug. 16, 11:30 a.m.-1 p.m., in TSB conference room 501.



Donation given to minority organization

Ralph Barr, Astronautics Group director of equal employment opportunity and affirmative action (right), presents a $5,000 check to Miguel A. Garcia, executive director of the Colorado Minority Engineering Association. The association is a nonprofit organization that develops programs for minorities to take college preparatory classes in high school to prepare for careers in engineering, science and business.

New Peacekeeper funding awarded

Strategic Systems has been awarded a $6.2 million change order by the U.S. Air Force Ballistic Missile Office to order materials for future production of new Peacekeeper Instrumentation and Flight System Safety (IFSS) equipment.

The funding will allow Strategic Systems to begin purchasing long-lead equipment for the production of 7 1/2 sets of IFSS flight systems and three sets of IFSS ground support equipment. These units will be used as part of the new plan to develop Peacekeeper missiles for use in a rail garrison basing mode. The full contract for production of the equipment is expected to be awarded in January 1989.

The IFSS, designed and assembled by Strategic Systems, transmits information on the performance of the missiles during flight tests and permits safe destruction of a missile should a serious malfunction occur. ■

People

• David R. Workman, a Metrology Engineering group leader for the Astronautics Group, has been selected national president of the Precision Measurements Association (PMA).

Workman, formerly executive vice president of PMA and a Martin Marietta employee for six years, said his duties as president will include promoting better practice and improved techniques of metrology science for the entire industry.

"In essence, I will be doing the same thing I do here (at Martin Marietta), only it will be on a nationwide basis," Workman said.

After serving as PMA president for a year, beginning in September, Workman will then become an executive director for a year.

PMA has almost 1,000 members and is the only recognized national association of professional metrologists. ■

Letter-writing contest announced

NASA Tech Briefs magazine is sponsoring a letter-writing contest to generate support for the U.S. space program.

The magazine is asking people to write to the national politician of their choice to support NASA and the U.S. space program, with a copy of the letter going to the magazine (see below). The deadline for submittal is Aug. 31.

First prize is a tuition-free stay at the U.S. Space Camp, an educational camp that simulates an astronaut's training program. The winner can attend a three-day adult camp in Huntsville, Ala., or send a child to a week-long camp in either Huntsville or Florida.

Second prize is a complete set of "NTB:BASE," NASA Tech Brief's PC-compatible data base covering 25 years of NASA technology. Five runners-up will each receive a single category of "NTB:BASE."

All entrants will receive a certificate of recognition and will have their names published in the October issue of the magazine. Winners will be announced in the same issue.

Send a copy of your letter to:

Bill Schnirring
NASA Tech Briefs
Letter Writing Contest
41 East 42nd St., Ste. 921
New York, NY 10017

Presidential Candidates:

Governor Michael Dukakis
105 Chauncey St.
Boston, MA 02111

Vice President George Bush
212 Capital Bldg.
Washington, D.C. 20510

U.S. Senate

William L. Armstrong (R)
Timothy E. Wirth (D)
United States Senate
Washington, DC 20510

U.S. Representatives

Hank Brown (R-4th Dist.)
Joel Hefley (R-5th Dist.)
Dan Schaefer (R-6th Dist.)
Patricia Schroeder (D-1st Dist.)
David Skaggs (D-2nd Dist.)
U.S. House of Representatives
Washington, D.C. 20510

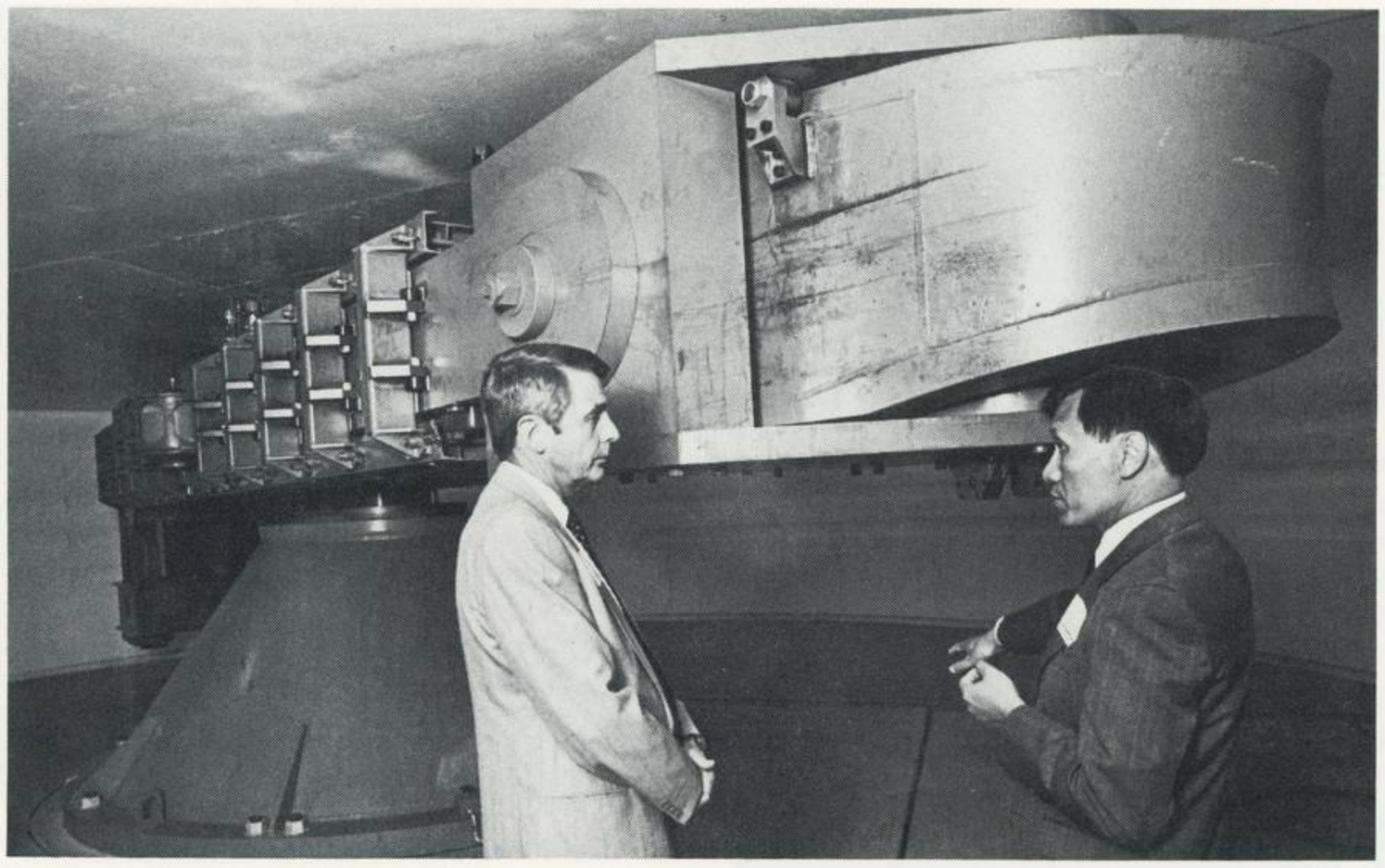
Walkers needed for diabetes walk-a-thon

The Juvenile Diabetes Foundation invites Martin Marietta employees to support its second walk-a-thon Sept. 18 at the Denver Zoo.

The foundation is gathering corporate teams of walkers to support the walk and to join a council of organizations and corporations to help encourage greater amounts of research dollars and to increase public awareness about diabetes.

Approximately 11 million Americans suffer from diabetes—the third leading cause of death by disease in America.

Employees interested in participating in the walk should contact Wendy Peterson, Dorislyn Silby or Debbie Smith at Ext 7-5364.



Martin Marietta contributes to new centrifuge facility

Hon-Yim Ko, chairman of the University of Colorado's department of Civil, Environmental and Architectural Engineering (right), discusses the capability of a new centrifuge facility to J. Richard Cook, vice president of Technical Operations for the Astronautics Group. Cook presented a check for $100,000 on behalf of Martin Marietta toward construction of the facility, which will be used to measure soil properties for future construction projects such as dams, bridges and tunnels.

United Way reports campaign progress

Martin Marietta is one of several local companies starting its United Way campaign during the summer "pacesetter" period—prior to the general metro Denver campaign that starts Sept. 7.

According to United Way, the pacesetter drive is important because it builds momentum for other companies that raise money in the fall, and the early campaign establishes Martin Marietta as a concerned community leader.

Currently, 82 percent of the Astronautics Group is participating in the 1988 drive, said Daniel Amerman, administrator of personnel. That equals $1.82 million, which is just shy of the $2 million goal set for the Astronautics Group, Information and Communications Systems, and Data Systems.

This year, your annual gift will provide the following:

- $ 2 per week — 24 nights of shelter and counseling for suicidal teenagers.
- $ 5 per week — 18 days of child care services for unemployed people looking for work.
- $ 6 per week — 49 rehabilitation sessions for teenage drug abusers.
- $12 per week — 25 nights of shelter and counseling for a battered woman and her children.

Astronautics parts get rated high by AFPRO

During surprise inspections in June and July, U.S. Air Force officials found only one minor defect among 189 randomly selected hardware parts in Astronautics Group stockrooms, rating a "satisfactory" grade (highest grade possible) from the officials.

The product integrity inspections were part of zone evaluations conducted by the Quality Assurance division of the local Air Force Plant Representative Office (AFPRO). Product integrity measures the actual condition of deliverable hardware compared to engineering and manufacturing requirements. The product integrity inspections can take place at any stage in a part's life, but are normally performed on completed hardware stored in the work in progress (WIP) stockrooms.

In June, AFPRO randomly selected 102 parts from all WIP stockrooms, including the second floor factory and the Space Systems Building, and no defects were found. During July, AFPRO inspected 87 parts and found one defect. With each part having an average of 10 measurable characteristics, the result was only one defect in a total of 1,890 characteristics.

"This is something all Astronautics Group employees can be proud of," said Nicholas J. Van Dewerker, director of Product Assurance for the Astronautics Group. "We've worked hard to improve the quality of our parts."

During a contractor operations review in November 1986, government inspectors found that 33 percent of parts selected from Astronautics Group WIP stockrooms had at least one unreported defect. ■

Action plan scheduled for employee survey

Astronautics Group management is in the midst of reviewing and acting on the results of the employee survey, said John Hallen, director of Organization Development/Management Development and Training.

Currently, managers and employees are conducting problem-solving sessions and reporting those results to directors. In mid-September, directors and managers will meet to resolve issues and report improvements to vice presidents.

Following that report, presidents, vice presidents, and directors will meet to resolve the remaining issues and concerns. Those results will then be summarized and reported to Peter B. Teets, Astronautics Group president.

In early November, Mr. Teets and his staff will meet to resolve all the issues and to evaluate the entire employee survey program. Results from that meeting will be published and available to employees in mid-November.

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INROADS program receives donation

Martin Marietta has donated $13,500 to INROADS/Denver, Inc., to support the college education of high-potential minority students.

As part of the program, the company provides continuous intern programs to five students for the duration of their college careers. The INROADS program supports selected students with seminars and workshops regarding business fundamentals.

Sponsored students for 1988 include Monica Arozarena (Massachusetts Institute of Technology), Shawn Gomez (CU, Boulder), Phillip Moreno (CU, Boulder), Christine Serna (University of New Mexico), and Juan Santos (CU, Boulder). All students have demonstrated high scholastic aptitude, and several have received meritorious citations.

Juan Vasquez, a participant in the 1987 INROADS program, was recently hired full-time by Martin Marietta as an associate engineer in the Guidance Control Lab. Vasquez, who majored in electronics engineering technology at Metropolitan State College, believes the INROADS program is of great benefit to minority students. "It was an excellent program," he said. "INROADS provided the insight and hands-on experience for me to successfully enter the business world." ■

Employee services/recreation

Mile Hi L5 Space Society Star Party and BBQ—7:30 p.m., Aug. 12, 1988, at Chamberlain Observatory and park, located on Warren between Fillmore and Milwaukee. Children welcome. Bring telescopes and friends. Food fee—$3.00 adults, $1.50 children. RSVP to president, Barry Tuell, 977-8137 or 973-7874, or Toni Little, 977-4930 or 278-4522.

Fathom Dive Club—General membership meeting, Friday, Aug. 26, 6 p.m. at A-1 Dive Shoppe, 1800 W. Oxford Avenue. All club members and prospective members are invited. For additional information, contact Bob Rowe, Ext 7-6589, or Peggy Miller, 361-4924.

Photography—Platte Canyon Photo Club will meet 7 p.m., Wednesday, Aug. 17, at DSC, Room 200C (MIC Room). Club member, Crystal Gardner, will give a slide presentation. All members attending are asked to bring photo samples for the cafeteria and credit union projects. For information, contact Bill Privratsky, Ext 7-4969.

Hunter Education Classes—Will be held Aug. 16, 17, 18, 19, 7-9:30 p.m. at DSC I and Aug. 20, 8 a.m.-1 p.m. at the Skyline Hunting and Fishing Club Range. Those enrolled must attend all classes. A minimum of 10 students is needed at the first class to continue classes. The cost is $7, and there is no need to preregister. For more information, contact instructor Dick Benson at his home, 985-3728, or Recreation, Ext 7-6605 or Ext 7-6750.

Smoking Cessation Facilitator Needed for Daytime Class—The Employee Services office is seeking a former smoker who works second shift and is interested in leading the American Cancer Society's "Fresh Start Program." The stop-smoking classes consist of four 90-minute sessions, held weekdays, over a two-week period and would take place prior to second shift. Classes will be established based on employee interest. Class coordinators must not have smoked for six months. Four to eight hours of training are provided. Facilitators will be paid an hourly rate. Interested individuals should contact Lori Sharp, Employee Services Coordinator, Ext 7-6605 or Ext 7-6750, by Aug. 30.

Mixed Bowling Leagues—Organizational meeting Tuesday, Aug. 16, 5 p.m. in DSC I, Brown Bag Room—2nd floor. The league bowls at Green Mountain Bowl, Kipling and Mississippi, Tuesdays at 6 p.m. League play starts Sept. 6. Obtain information flyer from the recreation racks.

Flag Football—Organizational meeting, Monday, Aug. 15, 5 p.m. in the SSB cafeteria. Discussion of league rules and nights of play. Mandatory attendance required for team captains. If interested in forming a team, contact the Recreation Office at Ext 7-6605 to obtain a roster.

Trap Shoot—Employees interested in the 7th Annual Colorado Industrial Trap Shoot Aug. 28 at Mile Hi Shooting Park should call Harry Russell by Aug. 19 for details at Ext 1-4974 or 979-1112.

Titan Toastmasters—The group meets 6 p.m. Mondays at Mission Trujillo Restaurant, 181 Ridge Road (Broadway and Ridge Road). Contact Mark Willey, Ext 1-6183.

Smoking Cessation Classes—This summer, quit for good! 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., Aug. 16, 18, 23, 25, Room 200C at DSC I, Wadsworth and Mansfield. To register, phone the Employee Services office at Ext 7-6605.

Mile High United way

Health Awareness Fair continues

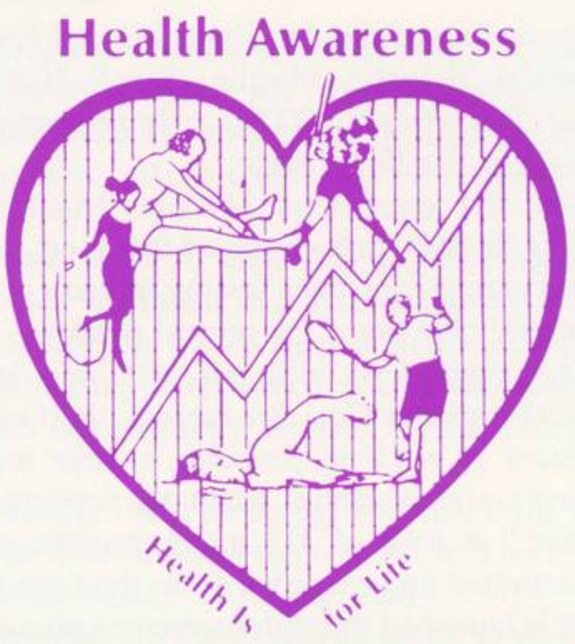
The Health Awareness Fair continues today at the Deer Creek Facility and next week on Monday and Tuesday at DSC and Wednesday and Thursday at LSC.

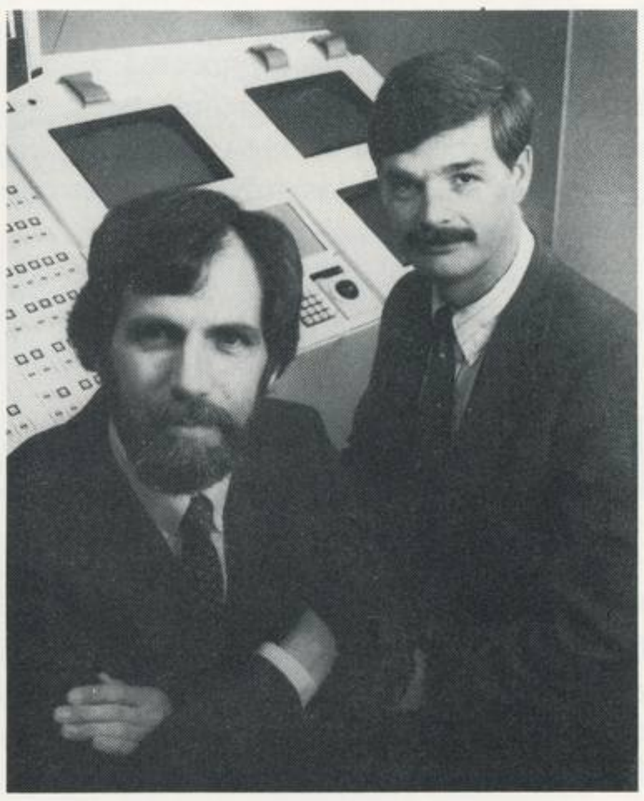
Health screenings include skin cancer, posture evaluation, lung function, blood pressure, cholesterol, percent body fat evaluation, and diabetes. Female employees, age 35 and over, can participate in onsite mammography screenings offered by Apollo MED Services, Inc.

Screenings will be performed by trained female technologists using state-of-the-art mammography equipment in a specially designed medical coach. Board-certified radiologists will interpret the results.

The corporate rate for the screening is $55, well below the average fee of $85. To schedule a mammography screening, call Apollo MED Services, Inc., 297-8902.

Schedules listing times and locations for all health screenings and seminars are located in the Employee Services racks.





Inventors recognized with cash awards

In photo at left, David Fester (right) and Tom Sawyer display a screen from Compu-Track, a computer tracking system they invented and for which they received a cash award. The system tracks all microcomputers for the company. In photo at right, Craig Hartley (left) and Jim Davidson are shown with a mockup/simulator of the Universal Payload Support Panel concept they developed for use in the Space Shuttle, and for which they received a cash award. The system was included in the Flight Telerobotic Servicer proposal that Space Systems won last September, and the work was performed in the Space Operations Simulator (SOS) Laboratory.