

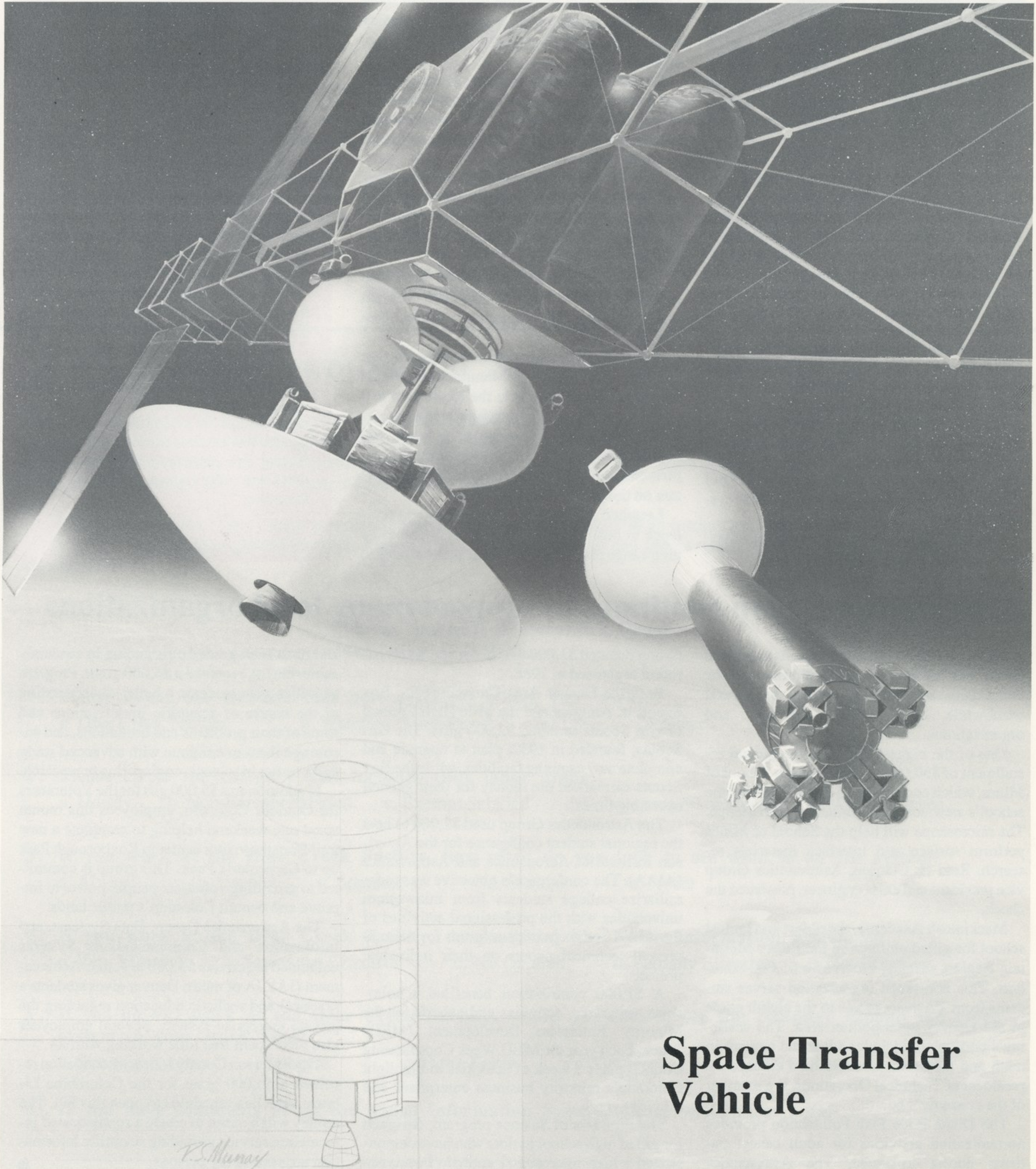
MARTIN MARIETTA

news

ASTRONAUTICS GROUP

July 14, 1989

Number 15



Space Transfer Vehicle

Jefferson Cup recipients honored in Washington

Ten Astronautics Group employees received the Jefferson Cup—Martin Marietta's highest employee award—at the corporation's 1989 Honors Night June 24 in Washington, D.C., and two were singled out for special honors.



Young



Stafford

Virgil F. Young, of Space Systems, earned special recognition as the corporation's "Engineer of the Year," and Parker S. Stafford, also from Space Systems, was singled out as Astronautics Group "Manager of the Year." Each received a \$3,000 check and a plaque, in addition to Jefferson Cups—which are sterling silver replicas of the one originally fashioned for Thomas Jefferson.

Young was named "Engineer of the Year" for outstanding leadership in defense systems engineering, leading to defect-free shipment of a major hardware and software system, and for creation of an engineering excellence program. Stafford was named "Manager of the Year" for exemplary management of multiple organizations and disciplines resulting in the successful delivery and operations of a major defense systems product.

The other Denver honorees awarded Jefferson Cups and checks for \$1,000 were:

Carolyn M. Aldorfer—For exceptional leadership of the benefits administration department, increasing the group's professionalism and improving service to employees.

Bobby R. Cooke—For skillful management and coordination of a record capital plan, redefinition of the deployment of Astronautics Group personnel involving relocation of more than 8,000 people, and construction including new buildings, environmental projects, and factory renovations.

David Frith Giere—For outstanding technical leadership in design, testing, operational requirements, and launch support contributing to successful launch of the first Titan II converted to a space launch vehicle.

Norman E. Greenwalt—For outstanding technical leadership in achieving a complex system integration and certification effort involving an associate contractor and company-supplied hardware and software.

James Edward Greichen—For leadership in establishing the Titan II conversion program and for leading that program to a perfect first launch.

James M. Ritz—For an outstanding effort as manager of the Electronic Manufacturing Facility and for contributions to the fabrication and testing of deliverable electronics hardware.

Carl A. Rizza—For outstanding leadership and contributions to the development and implementation of the integrated scheduling system on the Small ICBM program.

Leonard J. Taigman—For sustained excellence in business development in the areas of long-range planning and new business strategy.

Engineers and Astronautics Group honored by CABPES

Three Astronautics Group engineers were recently honored at the Colorado Association of Black Professional Engineers and Scientists (CABPES) Eighth Annual Awards Banquet for involvement in the Junior Engineering Technical Society (JETS) and Math Enrichment Program (MEP).

Irwin L. Barber and Leslie L. Cobert were honored for their work with JETS. Stephanie D. Wilson was recognized for her involvement in the math program.

JETS is a national organization developed in 1950 to stimulate interest and to advance youth in engineering and science. The MEP is an educational program that provides tutoring and homework assistance in all math subjects.

The Astronautics Group was also honored for contributions and continued CABPES support.

CABPES' goals include stimulating and developing interest among elementary, junior high, senior high, and college students from black and other minority communities to pursue engineering or applied science as a profession and promoting and protecting the interests of black and other minority engineers and scientists.

Astronautics Group continues to support many local organizations

During the first half of 1989 the Astronautics Group has maintained its commitment to the community by donating money to several worthwhile Denver-area charities and organizations.

One of the biggest gifts was the second installment of \$50,000 to the Colorado School of Mines, which completed a \$100,000 gift for the school's new scanning tunneling microscope. The microscope will help the School of Mines perform surface and interface materials research. Reid H. Clausen, Astronautics Group vice president and chief engineer, presented the check.

Mackintosh Academy, the oldest and largest school for gifted children in the Rocky Mountain Region, recently received a \$5,000 donation. This non-profit organization serves students from 2¹/₂ years of age to the eighth grade in the Denver metropolitan area. The academy's curriculum includes advanced courses in math and the sciences. J. Richard Cook, vice president of Technical Operations, is a member of the academy's board.

The Diana Price Fish Foundation provides normalization activities for adult cancer patients during treatment. The Astronautics

Group donated \$1,000 to this non-profit corporation organized in 1988.

Both the Denver Area Council of the Boy Scouts of America and the Mile High Council of Girl Scouts received \$2,000 gifts. The Girl Scouts, founded in 1932, plan to upgrade and complete new camping facilities, while the Boy Scouts earmarked the money for their general operating funds.

The Astronautics Group used \$2,000 to host the regional student conference for the American Institute of Aeronautics and Astronautics (AIAA). The conference's objective was to familiarize college students from midwestern universities with the professional activities of the AIAA and to provide a forum for them to present technical papers on their individual projects.

A \$1,000 contribution benefited scholarships, programs, activities and awards for the Minority Enterprise Development (MED) Week. Each year the MED Week Coordinating Council plans a week of activities to highlight Colorado's minority business enterprises and minority youth.

The Frontiers of Science program, designed for gifted high school juniors who have demonstrated a high interest and aptitude in science

and have been graded outstanding in academic achievement, received a \$4,000 grant. Program activities give students a better understanding of the nature of scientific investigations and some of their problems and limitations, and encourage them to continue with advanced study and a career in science, engineering or research.

In addition to a \$5,000 gift for the Volunteers for Outdoor Colorado, employees this month spent one weekend helping to complete a new trail from the visitor center in Roxborough Park up to Carpenter's Peak. This group is committed to providing volunteer people-power to improve and benefit Colorado's public lands.

The Astronautics Group, Data Systems, and Information and Communications Systems combined to provide \$5,000 to Junior Achievement (JA). JA of metro Denver gives students a practical and realistic education regarding the private enterprise system. Several employees also have spent free time working with JA.

The Jefferson County Library Foundation received a \$5,000 grant for the Columbine Library, which is scheduled to open this fall. The money will be used to create a sophisticated information service providing scientific information targeted to lay persons. ■

Air Force restarts Small ICBM program

The Air Force's Ballistic Systems Division has extended two key Small ICBM contracts with Strategic Systems company, effectively restarting the Small ICBM program. The contracts are valued at approximately \$37 million.

The contract change orders extend the period of performance of the Assembly, Test, and Systems Support; Post Boost Vehicle; Shroud; and Instrumentation and Range Safety System contract and the Systems Support contract through Sept. 30, 1990. Both contracts previously had been scheduled to be terminated on Sept. 30, 1989.

"We're evaluating the effect of the restart on Small ICBM program employment levels at both Vandenberg and in Denver," said Jim Sterhardt, president of Strategic Systems.

"While we are extremely pleased the restart will allow us to keep the program going until 1990, with significant post-1990 opportunities, the initial funding will not be sufficient to preclude a number of the previously announced layoffs," he said. "But the company is doing all it can to place people elsewhere within Martin Marietta, and to help those who need reemployment assistance." ■

1989 Family Open House scheduled for next month

Employees from the Astronautics Group and the Information Systems Group will have a chance to show their families where they work and take them on a guided tour of key areas at Waterton, Deer Creek, and Littleton Systems Center during the 1989 Family Open House on Saturday, Aug. 5.

Additionally, retirees and members of the Air Force Plant Representatives Office will join in the one-day festivities.

While all three facilities will be open, Waterton will be the focus for product exhibits, music and other entertainment, refreshments and food. In addition, two astronauts will make a series of presentations at Waterton.

Commemorative souvenirs and coupons redeemable for a special memento will also be available. The memento coupons will only be

available at the Engineering building in the lobby.

Tours of the Waterton facility will begin at 8 a.m. at the Engineering building, the Space Support Building/Electronic Manufacturing Facility, or the new Integrated Robotics Facility/Advanced Computer Lab complex.

The Open House is planned to help families better understand the work Martin Marietta is involved in, and to learn of the important contribution each employee makes to the success of the corporation.

Employee identification badges will admit employees and families to the facilities. Employees must wear their badges at all times. Because of security regulations, cameras and tape recorders will not be permitted on the premises.

For additional information call ext. 1-5000.

SIP

Unit values for the Savings and Investment Plan (SIP) for United Aerospace Workers (UAW) and United Plan Guard Workers of America (UPGWA) in May 1989 (April 1989 values in parentheses) are:

Fund A	1.1598335089
Indexed Equity	(1.1168887936)
Fund B	1.1314760683
Fixed Income	(1.1242869216)
Fund C	0.9284188833
Company Stock	(0.9188838663)

PSP

Unit values for the Performance Share Plan (PSP) for Salaried Employees in May 1989 (April 1989 values in parentheses) are:

Fund A	5.5659120052
Indexed Equity	(5.3482268093)
Fund B	3.2598576398
Fixed Income	(3.2249412491)
Fund C	4.9123998197
Company Stock	(4.8538886043)

"Wellness Fair" scheduled for August

Employees are encouraged to participate in the Fifth Annual Martin Marietta Wellness Fair August 16-18 and 21-25. The Wellness Fair will offer a variety of health tests and screenings, luncheon seminars, and evening fitness clinics.

The health checks will include cholesterol, blood pressure, percentage body fat, posture, lung function, skin cancer, diabetes, audiology and optometry.

Luncheon seminar topics will address workaholicism, stress management, snoring, teenage intervention, Alzheimer's, arthritis, osteoporosis and cancer of the reproductive organs. There also will be a variety of health-related literature available.

The Wellness Fair will be at the Deer Creek facility August 16-17; Waterton, Engineering building, August 18 and 21; Waterton, Space Support building, August 22-23; and Littleton Systems Center August 24-25.

Some of the local agencies participating in the fair include the American Red Cross, Arapahoe Community College Fitness Center, American Physical Therapy Association, National Jewish Center of Immunology, University of Colorado Health Sciences Center, Rose Medical Center, HealthMark, and others.

Employees may pick up a schedule from the Employee Services information racks after July 26 for additional information and complete details on screenings and seminars. ■



Summertime!

More than 20 junior and senior high school students in the Colorado Minority Engineering Program's Summer Enrichment Program recently gathered at the Astronautics Group's recreation area to launch model rockets. The company donated \$1,500 to the two-week program and provided a tour of the facilities, lunch, and a discussion about their possible futures in engineering and space.

Employees gear up for United Way campaign

More than 50 Astronautics Group employees, and several senior staff members, recently started planning for the upcoming 1989 Mile High United Way Pacesetter campaign by attending a one-day training session at the Mountain Bell Training Center.

In addition to discussions, training by United Way employees, and pep talks by both Peter B. Teets, Astronautics Group president and chairman of the 1989 Mile High United Way campaign, and James Sterhardt, president of Strategic Systems and the Astronautics Group campaign chairman, the employees toured a United Way agency.

"The United Way is an absolutely outstanding organization for our community," Teets said to the employees who will be key workers for the Astronautics Group's campaign. "And, the Mile High United Way has a long, proud tradition in Denver that started more than 100 years ago."

Teets went on to say that the United Way truly does contribute to those in need. "The United Way is continuously qualifying and monitoring agencies to make sure they are not funding an organization that's marginal or questionable about how they are spending their money."

Sterhardt addressed the fact that the Astronautics Group has an obligation to help those who are less fortunate. "We really have a need

to help people who don't have the things that we have and that our company provides," Sterhardt said.

"We really have to be leaders and show our concern for the community we live in."

Janice Weiss, a United Way employee, said that the new money raised from last year's campaign was largely dedicated to new and expanded services for their "Youth at Risk" program. "This program provides services and alternatives to help prevent youth problems before they become too widespread," Weiss said. "We are trying to provide things that will break the troubled childhood cycle."

The employee training also included a discussion of the upcoming management campaign, scheduled for July 25 through Aug. 4, and the employee Pacesetter campaign, slated to begin Aug. 7.

After lunch, the group split into two groups and boarded buses for a hands-on agency tour. One group went to the Volunteers of America homeless shelter, and the other group went to Servicios de La Raza, Inc., a full-service agency.

"The agency tour really gave me a sense of how important United Way really is," Janice Karns, from Business Operations, said. "It was a humbling experience that proved to me that I can make a difference." ■

Blood bank expands hours to attract donors

Because of a severe shortage in the blood supply, the Belle Bonfils Memorial Blood Center has extended the hours at donation sites.

New summer hours at the main site, 4200 E. Ninth Ave., are 8 a.m. to 6 p.m., Monday, Tuesday, Wednesday, and Friday; 8 a.m. to 8 p.m., Thursday; and 8:30 a.m. to 1:30 p.m., Saturday. Branches in Aurora, Lakewood and Boulder are open from 10 a.m.-6 p.m., Monday, Tuesday, Wednesday, and Friday, and noon to 8 p.m. Thursday.

Employees should call the main office at 355-7366 for more information.

The next Martin Marietta blood bank is scheduled for 9 a.m. to 2:30 p.m. Aug. 29 at Littleton Systems Center.

The addresses for the branch locations are: Aurora, 15075 E. Mississippi; Lakewood, 1050 S. Wadsworth; and Boulder, 1741 28th St.

New limits set for Performance Sharing Plan

For the first time ever, after-tax contributions to the Performance Sharing Plan (PSP) by employees who earn more than a specified amount, will be restricted to less than the plan limit of 15 percent, said Carolyn Aldorfer, chief of Benefits for the Astronautics Group.

Beginning with the first full pay period of this month (July 13 for non-exempt employees, and July 21 for exempt employees), those employees whose 1988 gross compensation was more than \$52,235 (\$54,585 in the past) will be limited to the following PSP contributions: maximum before-tax percentage is 9 percent up to a flat dollar amount of \$7,627 (10 percent in the past), and maximum total election percentage (before- and after-tax combined) is 13 percent (15 percent in the past).

The changes result from a new test provision of the Tax Reform Act. This test is similar to the test that is applied to before-tax contributions in that it is designed to balance the after-tax contributions and company matching contributions for those affected employees, Aldorfer said.

"The Tax Reform Act is complicated—and we have to use different rules for the year-end test than for the mid-year test," Aldorfer said. "This results in some employees being restricted now in before- and after-tax contributions, but not for the year-end test."

She also said the corporation has worked with two consultants to interpret the rules, and has applied the Internal Revenue Service regulations that govern this plan as liberally as possible.

"The corporation will have to run this test again in September to assure continued compliance with the new regulations," Aldorfer said. The new test could require additional contribution adjustments later this year. ■



Education with Industry

Capt. Larry A. Stoltenberg, left, and Capt. Richard A. Buschelman, right, meet with Astronautics Group President Peter B. Teets to commemorate their successful completion of a 10-month Education with Industry (EWI) stint at the Astronautics Group. EWI emphasizes an onsite industrial education experience that allows students to pursue a specialization. EWI is a management internship program administered by the United States Air Force Institute of Technology at Wright-Patterson Air Force Base, Dayton, Ohio, and by the Astronautics Group's Training and Development department.



Retirees gather at Deer Creek

"A tremendous event for Martin Marietta retirees," is how Fletcher Dicus, president of Astronautics Group retirement association (MARS) described the June 28 retiree reception.

More than 1,000 past employees and their spouses gathered for the yearly event at the Deer Creek facility. Former co-workers from the four Denver-based operations visited with friends and listened to a short presentation from Peter B. Teets, Astronautics Group president.

Gene Darrow, chairman of the board of directors for MARS, said that nearly 2,000, of the 3,500, Astronautics Group retirees live in Colorado. He said MARS, which has involvement in various clubs and special interest organizations, has 800 members.

"I'm proud of what's happening to the corporation," Darrow said. "They're doing well by all of us, both retirees and current employees."

Corporate news

Corporation and GAMA Endustri establish joint venture in Turkey for technology-based services

Martin Marietta Overseas Corp. and GAMA Endustri A.S. have agreed to establish a joint venture company in Turkey to provide a variety of technology-based services, initially in the information management field.

The new Martin Marietta-GAMA electronics, information technology and trading company will be based in Ankara and will be 60 percent owned by Martin Marietta. The joint venture will be staffed predominantly by Turkish management and technical personnel.

Martin Marietta Overseas Corp., based in Bethesda, is a wholly owned subsidiary of

Martin Marietta Corp. GAMA Endustri A.S., of Ankara, is a privately owned Turkish electronics, engineering and construction corporation.

William Benso, president of Martin Marietta Overseas Corp. and chairman of the joint venture, said, "We are delighted to be entering this exciting new venture with GAMA, and we believe, in the years to come, Turkey will be a growth market for information management services as well as other advanced technologies."

Martin Marietta increases quarterly stock dividend

The directors of Martin Marietta Corp. raised the quarterly dividend on Martin Marietta common stock from 27½ cents to 33½ cents per share, an increase of 6¼ cents per share.

"This dividend reflects the continuing vigor of Martin Marietta's space, defense, information systems, and materials businesses," said

Norman R. Augustine, chairman and chief executive officer. "It is consistent with the corporation's positive outlook based on a strong and diverse backlog of orders."

Payment at the new annualized rate of \$1.35 per share will be made on Sept. 29, to holders of record at the close of business on Sept. 5. ■

Martin Marietta sponsors NASA programs on KWBI

"Apollo 13: We've Got a Problem" is one of several National Aeronautics and Space Administration programs that KWBI-Channel 41 is airing, thanks to Martin Marietta sponsorship.

The Apollo 13 mission show will be aired at 7 p.m. July 27 on TV-41. It depicts the events that changed the mission from a lunar landing to a desperate fight for crew survival. The program ends with worldwide relief when Apollo 13 splashed down on target in the Pacific Ocean.

Other shows featuring the solar system and stars include "Galileo Mission to Mars," "19 Minutes to Earth," and "Planet Mars." They are scheduled for airing in the upcoming months.

In late August, TV-41 will provide live coverage of the Voyager 2 spacecraft as it encounters Neptune, and on Aug. 23 a half-hour special highlighting that mission will be shown.

The spacecraft, which has already photographed and transmitted pictures of Jupiter and Saturn, was launched Aug. 20, 1977, by a Martin Marietta-built Titan IIIE space launch vehicle.

The Galileo show will feature computer animation of the 20-month mission.

"19 Minutes to Earth" examines the scientific findings of Viking missions to Mars, including soil and atmospheric analyses and biological and geological data. ■

Baldwin receives achievement award

Ron Baldwin, a Space Systems program planner, received the first Controller's Achievement Award for implementing a cost-reduction program that will save the Astronautics Group more than \$23,000, said Donald Chasteen, vice president of Finance and controller.

Baldwin's innovation was in developing and implementing an automated cost account planning sheet on the Tethered Satellite System project. The planning sheet reduces possible errors by eliminating duplication of schedules. He is now working on an enhancement that incorporates cost into the planning system.

To qualify for the new Controller's Achievement Award, employees in Finance and Planning must develop and implement a productivity enhancement that has significant impact on financial return. Employees must also meet criteria for innovation and performance beyond assigned duties, as defined by the program's guidelines.

As a recipient of the award, Baldwin received two round-trip airline tickets to anywhere in North America, including the Caribbean and Hawaii, a \$250 cash award, an engraved crystal disk and breakfast with his work group.

Baldwin said he and his family will be flying to Disney World this winter.

The Prophets of Quality

"The Prophets of Quality," by Robert Chapman Wood, is continued here with the permission of The Quality Review. It appeared in the Winter 1988 issue. Copyright © 1988 by the American Society for Quality Control. This is the second section of "The Prophets of Quality" that will be serialized over several issues of the Martin Marietta News.

The Project Approach to Quality

Juran (Joseph M.) stresses what he calls the "project approach" to quality improvement. Problems should be identified and "scheduled for solution." He introduced the technique of ranking problems in order of importance to show that the solution of the "vital few"—the most important problems—would dramatically improve a process.

Juran was born in 1904 in a small town in Rumania, the son of a shoemaker who brought him to Minnesota in 1912. But life was just as hard in America as in Rumania, and the family never

held a top managerial job outside quality. He joined General Electric in the 1930s as an apprentice toolmaker fresh out of high school, and he continued to work there during summer vacations while an undergraduate studying engineering at Union College in Schenectady, N.Y. He joined GE full time in 1942, just in time to play a key role in World War II manufacturing.

His first jobs involved analyzing why the performance of some transformers varied and why some processes produced scrap. In 1942 the quality engineering group at GE worked with the world's first jet engines, which were being designed in Lynn, Mass., and produced in Syracuse, N.Y. The engine designs sometimes worked, sometimes failed. Maj. Richard Bong, a fighter ace who had 40 kills in the Pacific theater, died when he was test-piloting a jet and the engine exploded. Feigenbaum used statistical and other techniques to determine exactly which parts were causing trouble and why they

Feigenbaum also originated the concept of the "cost of quality." He taught that managers should track the total costs of product and process failures (including both rework in the shop

"I realized that making stuff with high quality would fix a lot of other things that were going wrong."

—Armand V. Feigenbaum

and in customer service); quality appraisal measures (such as inspection systems); and quality prevention measures (such as training). The sum of these costs consistently represents 10 to 40 percent of companies' annual sales, Feigenbaum says. The cost of quality concept both motivates managers to improve quality and enables them to track their success or failure.

"I realized that making stuff with high quality would fix a lot of other things that were going wrong," says Feigenbaum. "Also, this was something you could get people to rally around." Feigenbaum also believes strongly in a key role for quality engineers using specialized techniques.

Feigenbaum does not rely on seminars for the dissemination of his management ideas. Instead, he and the staff of General Systems provide hands-on advice and leadership to a loyal flock of major corporations such as John Deere, Cummins Engine, Union Pacific, and Pirelli, the tire manufacturer.

Crosby Reaches the American Public

Juran, Deming, and Feigenbaum are the accepted experts on quality as it is taught by academically oriented thinkers. But Philip B. Crosby, although less widely read in academe, achieved celebrity among the general public sooner than the other three and has by far the largest United States-based quality organization, with some 250 employees worldwide. His book *Quality Is Free* became a best seller in 1979.

Crosby, born in Wheeling, W.Va., in 1926, the son of a Tennessee podiatrist, is himself a graduate of Western Reserve University's Higher College of Podiatric Medicine. But he didn't like podiatry. So after a brief stint as a newspaper reporter at the *Wheeling News-Register*, he took a job in 1952 as a junior technician making radar antennas at a Crosley Corp. plant in Richmond, Ind. "When I got to work in the factory I realized, 'This is where I want to be,'" Crosby says. He became a "reliability engineer." But he soon realized that he disagreed with the approach of the quality profession as it then existed.

He agreed with the leading consultants that the fundamental problem was a lack of management attention to the issue of quality. But Crosby believed that existing management structures could address quality problems; what

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Feigenbaum was the first author to use the term "total quality control." His management approach aims at enlisting all parts of corporations in a systematic effort for quality . . .

became prosperous. (Both Juran and Deming have said they spent much of their childhood living in tarpaper shacks.) Juran excelled in the Minneapolis public schools and was soon four years ahead of his class. Being small, he "got beat up quite a bit," he once said, adding, "I had a pretty sharp tongue, and that didn't help matters." As a result, he says, he became a loner. "I often think I would have done better in law or something like that rather than manufacturing," Juran says.

Juran earned an engineering degree at the University of Minnesota and then joined the inspection department of Bell Telephone's Hawthorne Works in 1924. At the time, the Hawthorne plant employed 40,000 people, and 5,000 worked in inspection. Juran was a trouble-shooter. In 1926 he worked with a team from Bell Laboratories that set up the first statistical quality control in the factory. But Juran disagrees with the suggestion that the discipline of quality management can be traced to the statisticians at Bell Laboratories. He believes other techniques are as important as the use of statistics and asks, "How in the world did the railroads run when Shewhart wasn't around?"

Today the Juran Institute, based in Wilton, Conn., seeks to become a leading world center for quality education. Juran has become chairman emeritus, and Blanton Godfrey, 47, whose own books include *Modern Methods for Quality Control and Improvement*, is chairman.

Feigenbaum Offers Hands-On Leadership

While Juran and Deming teach and preach, Armand V. Feigenbaum claims to run the most implementation-based quality control consultancy. Feigenbaum, now president of General Systems Company, based in Pittsfield, Mass., is the only one of the key quality leaders who has

might be undependable—and, he says, "We had to do it in months." Statistical techniques produced the necessary answers. "I realized that here was a body of knowledge that needed to be developed. It was as important as electronics."

The Introduction of Total Quality Control

Feigenbaum soon found himself installing quality procedures in design, purchasing, services, and production throughout GE. In 1944, at age 24, he was named top quality expert for General Electric in Schenectady. But after the war ended, Feigenbaum, like other quality experts, found limited interest in his knowledge. He took a Ph.D. from the Massachusetts Institute of Technology in 1951, but few of his professors cared about quality management. "The attitude was, 'Here's a likely fellow; why is he fooling around with that third-string activity?'" Feigenbaum recalls. Nonetheless, he completed a textbook in quality management while at MIT; now in its third edition under the title *Total Quality Control*. In 1958 Feigenbaum was made an executive of manufacturing operations for General Electric worldwide, a position he held for 10 years. He left GE in 1968 along with his brother Donald, who had served as a manager in commercial jet engines at GE, to found General Systems.

Feigenbaum was the first author to use the term "total quality control." His management approach aims at enlisting all parts of corporations in a systematic effort for quality, with willingness to pay for quality, engineering departments designing products accordingly, and manufacturing departments assuring that specifications were met. When the new product reaches the consumer, the cycle starts again.

Prophets (continued from page 6)

managers mainly needed to do was recognize that their organizations could produce products that would not fail, include quality as a key goal in their existing management systems, and then make sure that their staffs received training in how to achieve it.

The Campaign for Zero Defects

"The problem with statisticians is that there's no zero in statistics," Crosby says. "The whole concept of reliability engineering (in the military programs of the 1950s, where Crosby got his start) was that errors were inevitable. You were supposed to predict how bad it was going to be and adjust accordingly." Seven years later Crosby became director of quality for the Pershing missile project at Martin Marietta Corp. He launched a program seeking "zero defects" in the Pershings. Management provided some support and the company was able to discover and eliminate the causes of most Pershing failures. Crosby became a celebrity in the defense procurement business, and the "zero defects" campaign became official government policy.

But Crosby says that almost every corporation that adopted the "zero defects" slogan failed to give it management commitment.

But Crosby says that almost every corporation that adopted the "zero defects" slogan failed to give it management commitment. "People took it as employee motivation. They nearly killed the whole concept because they said, 'it's the worker's fault.'" All over America managers brought workers to meetings where they were expected to sign "zero defects" pledge cards. Quality professionals schooled in the teachings of Juran, Deming, and Feigenbaum were appalled. Crosby admits that part of the failure was that he had not yet learned how to teach the ways to "do things right." But he insists he was as dismayed as anyone at the way his concept was used.

There was one exception. Crosby's most sincere pupil was Koji Kobayashi, president of a then-struggling oriental electronics manufacturer named Nippon Electric Corp. "American company presidents would come down, have lunch with me, and then fly back home. Kobayashi would come down and spend a couple of days," Crosby recalls. But Crosby says he never understood the extent of his influence in Japan until he visited the country on a business trip more than a decade later, and Japanese engineers asked for his autograph. Numerous Crosby articles had already been translated into Japanese. His teachings are now offered in Japan by the Japan Management Association.

Crosby moved on to ITT Corp., where he served 14 years as corporate vice president for quality. Crosby set up a Quality College within ITT to teach employees to "do things right." In 1979 he left to found Philip Crosby Associates, which is today a \$50 million-a-year publicly held company whose president, Larry McFadin, started in the company as a Quality College instructor.

Video Information System Questionnaire

The Astronautics Group installed five television monitors in the Deer Creek Facility several months ago. These monitors are part of a new Video Information System that is being studied as one way to help the company communicate better with employees. Your opinion will help determine whether to expand the Video Information System to all major locations. We will publish survey results in a future issue of the *Martin Marietta News*.

If you work in the Denver area, you do not need to put this questionnaire in an Interoffice Mail envelope. Just drop it in the nearest Company Mail pickup location. August 2 will be the last day we can accept questionnaires. Please send this questionnaire to:

**Public Relations
Martin Marietta Astronautics Group
Mail Stop DC 1020**

- 1. Please circle the location that best describes where you work:**
a. Deer Creek Facility b. Waterton (Main Plant) c. LSC d. Other
- 2. Please circle the category that includes your labor grade:**
a. Hourly b. Non-Exempt Salaried c. Exempt Salaried d. Labor grade 50 or above e. Non-Employee
- 3. If you work at the Deer Creek Facility, how often do you look to see what is on the system?**
a. Always b. Usually c. Sometimes d. Seldom e. Never
- 4. If you work at the Deer Creek Facility, do you think the Video Information System is:**
a. Very Effective b. Somewhat Effective c. No Opinion d. Partially Effective e. Not Effective
- 5. If you do not work at the Deer Creek Facility, would you like to see the company expand the video system to your work area?**
a. Strongly Agree b. Agree c. Don't Know d. Disagree e. Strongly Disagree
- 6. If you have comments about the Video Information System, please write them here:** _____

On the cover

Strategic Systems has won a \$5 million, three-year NASA contract to study the Space Transfer Vehicle (STV), a future reusable space vehicle able to ferry spacecraft and equipment to a variety of orbits. This concept, drawn by graphic artist Bob Murray, shows the STV as an upper stage for the Titan IV (lower left), docked to the U.S. Space Station (center), and an advanced STV for use with interplanetary missions. The vehicle could be ready for operation beginning in 1999.

How's your level?

To assist employees in reducing and keeping their cholesterol levels low, a selection of HealthMark-approved food items is now available in Astronautics Group cafeterias. A variety of items low in fat, cholesterol, sodium and calories is offered for designated entrees, the fruit and salad bar, and soft-serve desserts.

HealthMark provides medical services and educational programs aimed at reducing risk for eight of the leading causes of death in the United States: heart disease, stroke, high blood pressure, diabetes, and certain cancers. ■

Several events planned to honor Apollo 11 landing

Space Launch System's Systems Design and Requirements team is sponsoring the showing of a 50-minute video, "The Greatest Adventure." Featuring the Apollo Program, it will be shown at noon on July 17, 19, and 21 at the Southpark West I Marketing Information Center (MIC).

This event, commemorating the 20th anniversary of the Apollo 11 mission, will be limited to a seating capacity of approximately 100 employees each day.

The Denver chapters of the National Space Society also plan free events that are open to the public.

Tomorrow at Arapahoe Community College, 5900 S. Sante Fe Drive, Littleton, the society will sponsor model rocket launch altitude and accuracy contests from 1-3:30 p.m. (registration from 9-9:45 a.m. and 11:30 a.m. to 12:45 p.m.), and a presentation by astronaut William Thornton.

And at 7 p.m. Wednesday July 19 at Boettcher Auditorium, 2050 E. Iliff Ave., Denver, James Martin, state director for Senator Tim Wirth, and Dr. David Webb, resident scholar on the Florida Space Foundation, will discuss current and potential policies to resolve the global warming threat, from remote sensing satellites to solar power satellites. ■

Family Event with Denver Zephyrs tomorrow

The first company-sponsored family event for 1989 is tomorrow night at Mile High Stadium when the Denver Zephyrs meet the Pawtucket Red Sox.

Gates open at 5 p.m., and Martin Marietta employees selected for all-star teams will compete at 5:30 p.m. The Lowry Air Force Base Drum and Bugle Corp. and Drill Team will perform at 6:45 p.m. The game begins at 7:05 p.m.

Employees with reserved tickets are reminded that tickets are reserved by section, with open seating within the specified section.

Employee services/recreation

Fitness Classes Starting—Openings exist in the morning and afternoon low-impact aerobics and body shapers classes that begin July 17 and 18 at the Deer Creek Wellness Center. Fees are \$22 for classes that meet Monday, Wednesday and Friday; and \$15 for Tuesday and Thursday classes. Employees must register at the Employee Services office, Room 3B314 at the Deer Creek Facility, before class times. For information, call Ext. 7-6605 or 7-6750.

Commodore Users Group—The club will meet at 5 p.m., Tuesday, July 18 in the clubhouse at the recreation area. Amiga users are welcome. Contact Dan Whittemore, Ext. 7-6324, or Chuck Barton, Ext. 7-9950.

Hunter Education Classes—Class dates are set for 7-9:30 p.m., July 18, 19, 20 and 24 at the VFW Hall, 3860 S. Jason St., in Englewood. The range date is from 8 a.m. to 1 p.m., July 22, at the club's shooting range. Students must attend all class sessions. Registration is at the first class, and a minimum of 10 students is required to continue meetings. The cost is \$7. Employees, family members and friends are welcome to attend.

Golf Tournament—Entry forms are in the information racks for the Martin Marietta Open, Saturday, August 19 at Raccoon Creek. The \$45 fee includes green fees, 1/2 cart, lunch and a chance to win door prizes. The tournament will accommodate the first 144 players, so early registration is advised. The entry deadline is July 21.

Photography Club—Platte Canyon Photography Club members will meet at 7 p.m., Monday, July 24 at the Public Service building, 10001 W. Hampden Ave. Contact Bill Privratsky, Ext. 7-4969, for details.

Wellness Center—The Deer Creek Wellness Center is adding services and equipment to meet employees' needs. Call to make an appointment for free weight loss or fitness consultations, free body composition analysis testing, and cholesterol screens (\$3). Free blood pressure checks are done on a drop-in basis. HealthMark exercise physiologists are available 11 a.m.-5:30 p.m. weekdays. Call 7-7575 or 7-7576 to schedule appointments.

Running Club—The Martin Marietta shepherders running team won first place in the Corporate division of the 11th annual Bolder Boulder 10K race on Memorial Day. There were approximately 24,000 finishers. Participants were Keith Golding, Doug Haas, Tim Williams, Kalani Scott, Eric Linblad, Sally Cuffin and Joyce Satchell.

Corporate Cup Relays—Martin Marietta employees in June competed in Corporate Cup Relays in Boulder. High jump/long jump team members Greg Haynie and Max Atwood captured first place. Men's 5K running team members, Doug Haas, Keith Golding and Mark Gwillim, took second place.

Elitch's Amusement Park—Discount coupons for unlimited ride tickets at Elitch's are

available at the recreation offices at Deer Creek and Waterton and from recreation representatives at Littleton Systems Center, Viewpoint I, South Park III, Space Support Building and Greenwood Commons. The coupons are good 7 days a week through August 27. With the coupon, the unlimited ride ticket is \$8.75, (regular price \$10.95).

Barber/Styling Shop Hours—Convenient, professional, low-cost haircuts are available to all employees and Air Force personnel at the following locations: Deer Creek facility, A-level, by south elevators, Monday and Friday, 6:30 a.m. to 3 p.m., and Tuesday through Thursday from 6:30 a.m. to 5 p.m., Ext. 7-9157; Waterton Engineering building, basement, Monday through Friday 6:30 a.m. to 3 p.m., Ext. 7-3029; and Littleton Systems Center, west and south of cashier, Tuesday through Thursday, 6:30 a.m. to 3 p.m., Ext. 7-0560.

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