

MARTIN MARIETTA

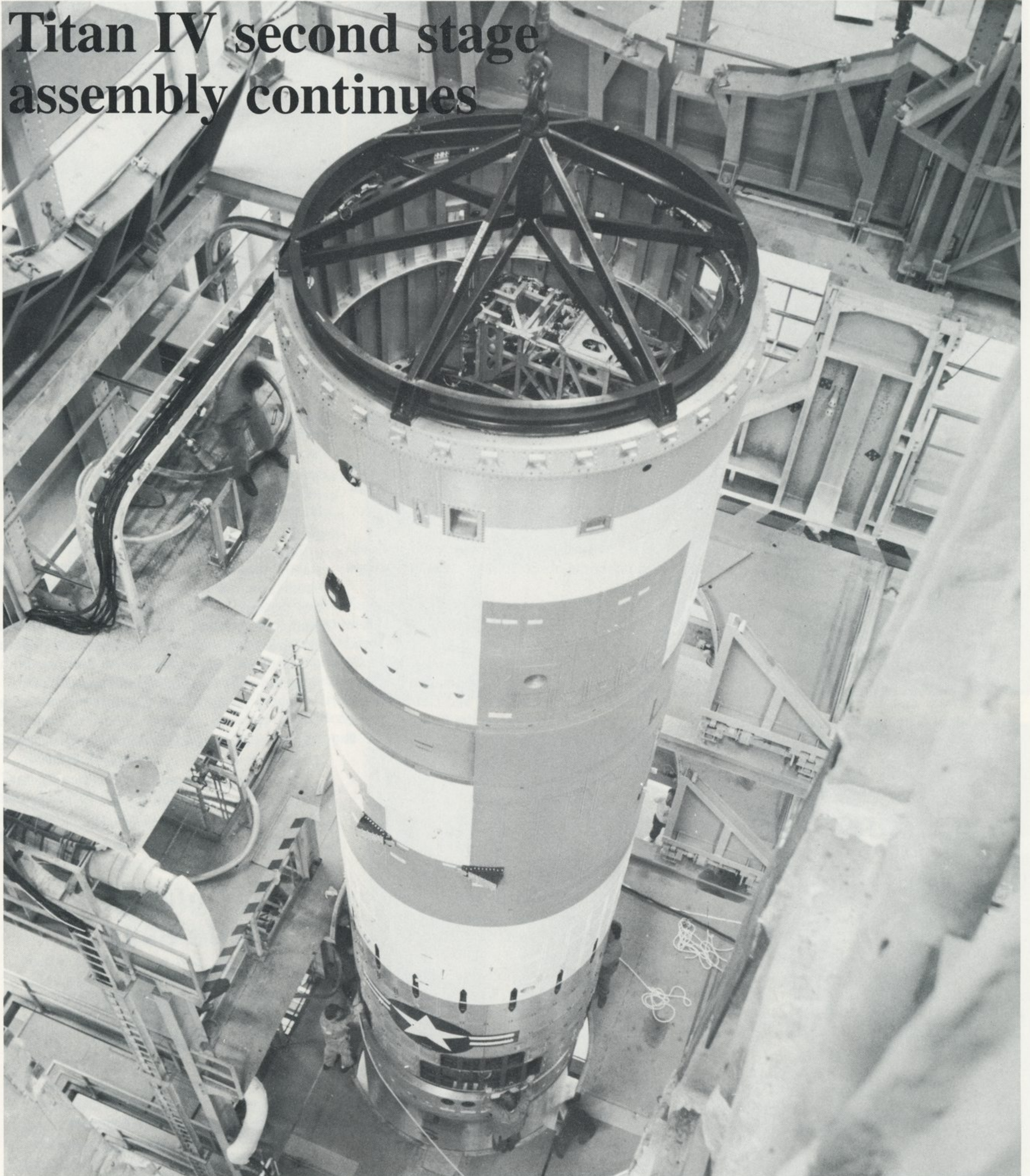
news

ASTRONAUTICS GROUP

May 6, 1988

Number 9

# Titan IV second stage assembly continues





Past and present Kepner-Tregoe instructors are, left to right: Tom Newell, Hank Abney, Chris Bosselman, Brad Bradbury, Mike Sumida, Cris Cook, Leslie Rogers, Donna Sexton, Bob Peak, Gary LeMaster, George McCone and Debra Evans.

## Kepner-Tregoe instructors honored

Instructors in the Martin Marietta Kepner-Tregoe program were honored recently for dedicated, long-term leadership.

Martin Marietta instructors have trained more than 2,000 employees in the Kepner-Tregoe problem-solving and decision-making processes since 1981, when the program began.

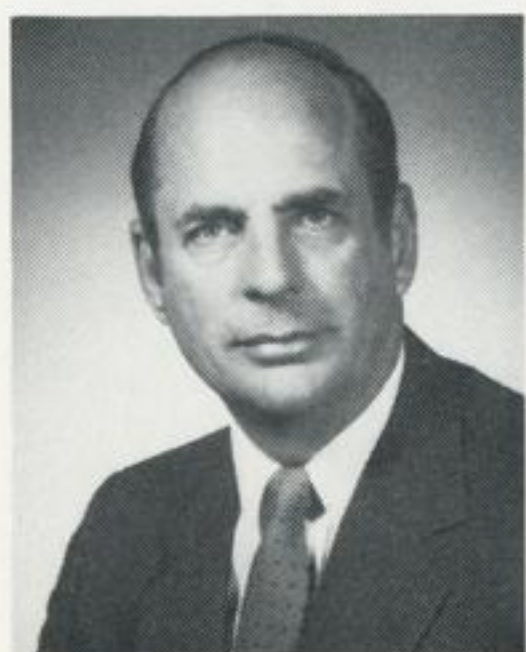
Employees can become certified program instructors by attending an intensive two-week training course sponsored by the Kepner-

Tregoe organization and then teach a workshop under the observation of a Kepner-Tregoe associate.

Kepner-Tregoe instructors honored for their participation in the program include Tom Newell, Hank Abney, Chris Bosselman, Brad Bradbury, Mike Sumida, Cris Cook, Leslie Rogers, Donna Sexton, Bob Peak, Gary LeMaster, George McCone and Debra Evans.

For more information on the Kepner-Tregoe program, call Cris Cook, Ext. 7-3737. ■

## Augustine elected board chairman



Augustine

Norman R. Augustine, chief executive officer, has been elected to the additional position of chairman by the Martin Marietta Corporation, succeeding Thomas G. Pownall, who is retiring after 25 years with the Corporation.

The Board of Directors elected Augustine as chairman at its regular monthly meeting April 27, following the Corporation's annual meeting in Oak Ridge, Tenn. Pownall, who retired April 30, continues as a director and will be chairman of the Executive Committee of the

Board of Directors.

Augustine has been vice chairman and CEO since December 1987, when Pownall relinquished the chief executive's office in anticipation of retirement.

Caleb B. Hurtt continues as president and chief operating officer, the office to which he was elected last December.

Augustine joined Martin Marietta in 1977 as vice president of aerospace technical operations and has headed many of the Corporation's principal operating elements in a series of increasingly responsible assignments. Elected an officer of the Corporation in 1982, he was president of Martin Marietta's astronautics activities at Denver from 1982 to 1985. ■

## Shuttle subsystem contracts awarded

For NASA's new Space Shuttle, Martin Marietta Space Systems is building equipment to provide fuel to thrusters and to alert the crew if any malfunctions occur within the orbiter.

Rockwell International Corp. has awarded Space Systems contracts worth \$7 million to build two systems for the new shuttle—the reaction control system (RCS) tanks and the caution and warning (C&W) system. Space Systems also has built the systems for previous orbiters.

Rockwell was awarded a contract last year to build the new shuttle. As yet unnamed, the new orbiter will replace the shuttle Challenger.

The RCS tanks provide pressure-fed propellants to the orbiter's 24 control thrusters while in orbit and during reentry. The RCS tanks are 39 inches in diameter and contain capillary screen surface tension devices to assure an uninterrupted supply of liquid propellant during low- and zero-gravity phases of a mission. The 30-month, \$5-million contract will provide six tanks. Program manager is Mike Wakefield.

The caution and warning system alerts the crew with audible alarms and visual alarms when an out-of-limit condition occurs. Space Systems has already built eight systems and spares for existing orbiters, and the new \$2 million contract calls for a new system to be built and delivered to Rockwell in January 1990.

The system consists of electronics that constantly monitor 120 different aspects of the shuttle, including environment, the flight control system, and payload status. The system compares existing conditions in the shuttle systems against their proper states, and if there is a problem, the system alerts the crew with lights on a control board and various alarms.

"We're proud of the fact that we've had a 100% mission success record on shuttle flights," said Harry Sickler, program manager. Development of the system began in 1974.

Sickler said the system is a "criticality one" item on the space shuttle, which means that the craft won't fly unless the system is working. ■

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# SDIO responds to report by Office of Technology Assessment

(Editor's note: The following article is reprinted from the Strategic Defense Initiative Organization (SDIO) in response to a report to be released by the congressional Office of Technology Assessment (OTA), and is presented as background to Martin Marietta employees.)

With some strong exceptions, the Strategic Defense Initiative Organization (SDIO) believes the soon-to-be released report by the congressional Office of Technology Assessment (OTA) on SDI Technology, Survivability, and Software reflects a decidedly more constructive and balanced assessment than previous reports by OTA. We find this encouraging in light of the varied viewpoints of the OTA's oversight committee which had among its members some of the strongest critics of the SDI program. However, we feel that OTA conclusions on battle management capability reflect opinion with no real analysis and are based primarily on extrapolation from past experience as opposed to the potential of the newer technologies becoming available in SDI research and in the computer industry. We firmly believe the public will reach the same conclusion once given an opportunity to review the document in detail. The *Washington Post* reporter's attempt ("SDI Faulted in 2-Year Hill Study," April 24, 1988) to draw a few sweeping conclusions from a summary of a complex 900-page report is both wrong and anything but responsible reporting.

Many technical studies have been performed to evaluate SDI, some more serious than others, that concluded (1) certain elements or aspects of the defense system would fail for various reasons, or (2) some objectives could not be achieved. Several of these studies included the work of reputable scientists. Most of these claims have been disproven by careful analysis and experiments and are no longer seriously considered. Others require further analysis and testing. Once again a serious study proposes a possible "fatal flaw" for the SDI concept. We expect this issue will also be resolved as our simulations and field testing programs occur over the next few years.

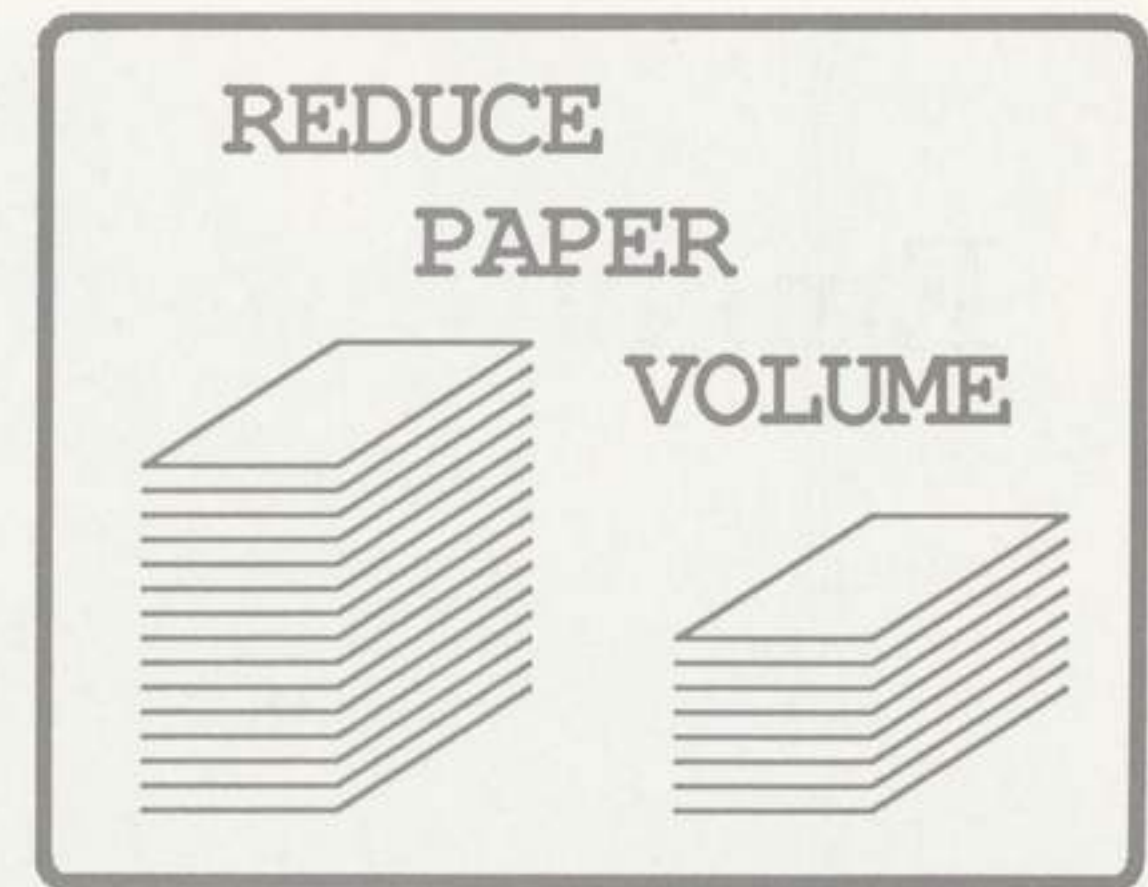
Some general OTA findings, *not mentioned* in the *Washington Post* article, are ones with which SDIO is in strong agreement: (1) that SDIO has identified the major issues associated with a defense system and has programs in progress to address these issues; (2) that a Phase One (i.e., initial phase) of an increasingly capable, multiphase deployment, defense system architecture, as has been proposed by DOD, probably will be technically deployable in the 1995-2000 timeframe; and, (3) that the projected development time scales and progress in several key areas will be slowed, or cannot be achieved, if the Congress continues to fund the SDI below required lev-

els. Both DOD and OTA are in complete agreement on this final point.

We find many of the report's conclusions to be unduly pessimistic. Technical experts can and will continue to differ on how rapidly this nation can mature the technologies needed for SDI. We believe our projections of development and testing timeliness, as reflected in the SDIO 1988 *Report to Congress on the Strategic Defense Initiative*, are accurate. In this regard, some of the principal findings of the OTA report are not substantiated by convincing evidence. Critical reporting such as was in the *Washington Post* article demands that the SDIO support its arguments with high levels of scientific and engineering evidence. We accept this challenge, but suggest that reporters of "contrary" opinion apply the same stringent standards to those who criticize the program.

The *Washington Post* article highlighted the fact that the OTA discusses several possible Soviet countermeasures to U.S. ballistic missile defense deployments and that these countermeasures would be "less costly to develop than the exotic space-based weaponry and associated sensors currently on Defense Department drawing boards." The *Washington Post* failed to report that the OTA concedes that there are serious questions about the ability of the Soviet technology base to support the development of these countermeasures with the timeliness necessary to counter projected Phase I deployments. Regardless, SDIO analyses and some recent experiments indicate that strategic defenses would be successful in the face of likely Soviet countermeasures in the same time frame. More work is needed in this area, and the SDIO will continue to address this issue. However, speculation about the possible effectiveness of year 2010 Soviet countermeasures against late 1990 SDI deployments is not in the spirit of serious discussion of this important national issue.

The OTA assertion that "there would be a significant probability that the first time the ballistic missile defense system was used in a real war, it would suffer a catastrophic failure" is based solely on opinion and not on any firm scientific analysis. Specifically, the OTA's extrapolation of battle management software reflects only a philosophical opinion with no technical basis. It does not take into consideration (1) how the strategic defense system will be structured, (2) how it will operate, (3) why the battle management system is being designed as it is, and (4) what progress has been made to date in those areas. The OTA conclusions are based on conjecture, not on fact, and SDIO believes that they are wrong. ■



## Quality assurance improves process

A team of employees from the Quality Assurance department is analyzing, rewriting and simplifying quality assurance practices within Plant Operations.

Based on a task directed by Bud Irvine, director of the department, the team reports success in simplifying quality assurance practices (formerly referred to as quality procedures) and reducing the number of pages by approximately 45 percent. The team reduced the number of words, eliminating redundant requirements and duplication of other policies, procedures and practices. It also replaced paragraphs and pages with simple diagrams.

Draft copies of the simplified quality assurance practices have been reviewed and are scheduled for release this month.

The team plans to continue seeking new areas for simplification and monitoring areas for additional simplification. Members of the team include Robert Swope, team leader and chief of quality engineering; Steve Davies, technical lead; and Rich Hammel and Kim Barnes, senior quality engineers. ■

## PSP

Unit values for the Performance Sharing Plan (PSP) for salaried employees in March (February values in parentheses) are:

Fund A	Indexed equity
4.2908980007	(4.4247920854)
Fund B	Fixed income
2.9102901360	(2.8869856477)
Fund C	Company stock
4.7018622928	(4.9276799574)

## SIP

Unit values for the Savings and Investment Plan (SIP) for employees represented by United Aerospace Workers (UAW) and United Plant Guard Workers of America (UPGWA) in March (February values in parentheses) are:

Fund A	Indexed equity
0.9205777569	(0.9536113000)
Fund B	Fixed income
1.0446466248	(1.0397204936)
Fund C	Company stock
0.9042329844	(0.9508795751)



## Teets named AIAA Fellow

Peter B. Teets, Astronautics Group president, has been elected a fellow of the American Institute of Aeronautics and Astronautics (AIAA) "in recognition of his many outstanding contributions and acknowledged leadership in the professional aerospace community," the AIAA said.

AIAA fellows are chosen for notable and valuable contributions to the arts, sciences, or technology of aeronautics or astronautics.

Presentation of a certificate and pin signifying Teets' election was made during the AIAA Annual Meeting and International Aerospace Exhibit, May 3-5, in Arlington, Virginia. ■

## Project Challenge offers fifth news magazine

The fifth video news magazine, produced by the Project Challenge team, is now available to all employees. The video features brief comments by top management on four concerns covered during a recent management offsite meeting.

Following introductory remarks by Peter B. Teets, Astronautics Group president, Santo Bertuzzi, Project Challenge program director, speaks of the important transition of Project Challenge initiatives to users. Stanley F. Albrecht, Plant Operations vice president, speaks about the role of Project Challenge in subcontract management. Clifford Kronauer, Effectiveness Programs director, reviews cultural resistance to change.

J. Richard Cook, Technical Operations vice president, concludes with brief comments on the organization and future of Project Challenge. The program ends with several items on current events at Martin Marietta.

The Project Challenge technology training video group produces and distributes the news magazines and has a library of video magazines with emphasis on Project Challenge initiatives. Both 1/2-inch (VHS) and 3/4-inch (U-Matic) formats are available.

Previous news magazines focus on the progress of Manufacturing Resource Program II implementation (No. 1, 9 minutes); Process Simplification (No. 2, 12 minutes); computer-aided engineering/computer-aided design/computer-aided manufacturing (No. 3, 15 minutes); and Annual Performance Improvement Program/Policies, Procedures and Practices (APIP/P<sup>3</sup>) (No. 4, 16 minutes).

For information, call G. Stailey, technology training registrar, Ext. 1-9529. ■

## Company-sponsored events to feature circus, baseball and concert

*The Beach Boys will appear in concert with the Denver Symphony Pops on Saturday, September 10, as one of three company-sponsored family activities for employees this year. In addition to the Beach Boys, the schedule includes the El Jebel Shrine Circus, Saturday, June 18, and the Denver Zephyrs versus Buffalo Bisons baseball game, Saturday, July 16. Employees who have not received a family event selection card can obtain one from the following areas: Astronautics Group, recreation information racks; I&CS, Benefits office, Sue Lloyd, Ext. 7-0484; and Denver Data Systems, Personnel office, 790-3001.*

# Technical Operations intern to be selected by Corporation

The Astronautics Group is in the process of selecting the 1988-89 candidate for corporate technical operations intern. Beginning its eleventh year, the intern program is designed for engineers, labor grades 43-47, who have been employed by the company at least three years and who have demonstrated the potential to assume significant responsibilities.

The intern spends one year in Bethesda functioning as a regular member of the headquarters staff, reporting directly to the vice president of Technical Operations. Though assignments vary from year to year, the intern typically participates in technical reviews; proposal blue team reviews; independent research and development review cycles; support of the strategic technologies plan; corporate audits prior to POS/QSA or contractor operations reviews; and a variety of standing committees throughout the Martin Marietta technical community. The projects are diversified and involve the intern in all staff functions.

The Astronautics Group will select and nominate one individual to corporate on May 20. Candidates from throughout the Corporation will be interviewed at headquarters, and

the selected intern will be announced on June 13. The intern will report to Bethesda on August 2.

For more information on the program, contact George Hickerson, Organization and Management Development, Ext. 7-6518. ■

## First quarter earnings 96 cents versus 80 cents

Martin Marietta reported 1988 first quarter net earnings of \$50,948,000, or 96 cents per share, compared with \$44,060,000, or 80 cents per share, for the first three months of 1987.

First quarter sales were \$1,295,803,000, compared with \$1,144,801,000 in the same period of 1987. Backlog rose to a new high of \$11.1 billion.

Norman R. Augustine, chairman and chief executive, said, "The improvement in first quarter results supports our expectation for further solid earnings progress in the balance of the year." ■

### MARTIN MARIETTA NEWS

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## Company exhibits around the globe

Martin Marietta exhibits at trade shows around the world each year, and the 1988 season has gotten off to a busy start. Since the beginning of January, the company has participated in nine major exhibits, including two held overseas.

Exhibits were held in Washington D.C., Los Angeles, Calif., Cocoa Beach, Fla., Colorado Springs and Denver. Product areas featured in these exhibits included Commercial Titan; Advanced Launch System; Zenith Star; Space-Based Interceptor; Magellan; Flight Telerobotic Servicer; and the National Test Bed (NTB), an Information & Communications Systems program.

Pictured on the cover, clockwise, from the left, are three recent exhibits. John Montgomery, Business Development manager, Space Systems, far left, explains the Zenith Star to an attendee at a Strategic Defense Initiative conference held in Washington D.C. During a conference sponsored by the United States Space Foundation in Colorado Springs, Jerry Zionie, vice president and program director, National Test Bed, facing the camera, explains Martin Marietta's role in NTB to interviewers. The Astronautics Group exhibited at the "Always Buy Colorado Try It and Buy It Expo" held at the Stock Show arena in Denver.

Astronautics also exhibited many of its NASA and Air Force space programs at the Space Congress in Cocoa Beach, Fla., last week, and at the American Institute of Aeronautics and Astronautics international conference held in Washington, D.C., this week. ■



# Employee services/recreation

(Note: The Employee Services/Recreation office has moved to Room 407 on the third floor of the Deer Creek Facility, mail stop DC1344. The phone numbers remain the same: Ext. 7-6750 or 7-6605. The department plans a satellite operation at Waterton, at a time and location to be announced. Until the satellite office opens, movie tickets and bus tokens are available at Waterton from Marge Losey, Room 607, SSB, from 1-3:30 p.m. Purchase is by check only.)

**Get a Fresh Start**—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., May 16, 19, 23 and 26 in Room 208 at Goddard Junior High School, 3800 W. Berry Ave. To register, call the Employee Services office, Ext. 7-6750 or 7-6605.

**Commodore Users Group**—The club will meet at 5 p.m. Tuesday, May 17. For more details and the location, contact Chuck Barton, Ext. 7-9950.

**Parapsychology Club**—The group will meet from 5-7 p.m., Thursday, May 19, in the cafeteria at LSC. Nonemployees are welcome to attend, but corporate policy requires a minimum age of 16. Employees must provide escorts for their guests and give names of guests to Janna Winkel, Ext. 7-7814, DSC, or Helen Hussander, Ext. 1-6887, SouthPark West II, 24 hours before the meeting.

**Skyline Hunting and Fishing Club, Inc.**—The club will meet at 5 p.m., Monday, May 9, in the Deer Creek cafeteria (A level). The club will conduct hunter education classes in May, June and July. May dates: 17-20 and 23, 7-9:30 p.m. at DSC I, and May 21, 8 a.m.-1 p.m., at the Skyline Hunting and Fishing Club Range. Those enrolled must attend all six classes. A minimum of 10 students is needed at the first class to continue classes. The total

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 7-6750.

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

**Cafeteria Highlights**—Employees may reserve and purchase the featured "pie of the day" from the Engineering Building and Space Support Building cafeterias by calling Ext. 7-4373. Carry-out boxes are available. Pies will be sold soon at the Littleton Systems Center and Denver Systems Center cafeterias.

**Bicycling**—Ten employees or spouses are needed to participate in the Denver Public Library's "Denver Little 500" bike race on July 10. Modeled after the race in the film "Breaking Away," the event will race cyclists on one-speed bikes around a running track. For details, call Rob Botman, Ext. 7-7932, or Tom Parmentier, Ext. 7-3717. Cyclists interested in training together for the "Ride the Rockies" bike tour should contact Rob Botman or Joe Buescher, Ext. 7-3583.

**Mile High L5**—The local chapter of the National Space Society will meet at 7 p.m. on Friday, May 13, in Presentation Room 103A at SouthPark West. Alex Gimarc, of the Space Studies Institute (SSI), will discuss the work SSI has done to develop technologies that will enable future construction of a space colony from materials found on the moon. Names of guests requiring badges must be phoned to Jeff Zerr, 790-3857, by Tuesday, May 10.

**Tennis**—Registration forms for the spring/summer tennis tournament will be in recreation racks after May 10. The registration deadline is May 20. The tournament is a round-robin format and is open to all levels of play.

**Blood Bank**—The Belle Bonfils Blood Bank will be in the sixth floor presentation room of SSB on Wednesday, May

18, and Thursday, May 19, from 8:30 a.m. to 2:30 p.m. Donations are needed to increase the blood supply for the Memorial Day weekend. Employees at the main plant can schedule an appointment with their department contact as listed: Product Assurance, Stephanie Teel, Ext. 7-6070; Facilities, Linda Boster, Ext. 7-5511; Publications, Barb Todorovich, Ext. 7-5209; Central Laboratories, Gloria Kennedy, Ext. 7-8168; Manufacturing, Joy Archibald, Ext. 7-5088; Special Programs (Space Systems Company), Donna Cashen, Ext. 7-4816; Defense Systems, Norma Emerson, Ext. 1-8089, or Terri Sprague, Ext. 1-8062; NASA Programs, Bev Finger, 7-5691; Advanced Programs, Sandy Scherer, Ext. 7-4634. All others may schedule time through the Employee Services office: Ext. 7-6605 or 7-6750.

**Career Women's Association**—The association is sponsoring a full day of activities at the Deer Creek Facility on Saturday, May 14, using the goals and techniques of Colorado Outward Bound.

Attendees will acquire team building, communication, and problem-solving skills, as well as an "I can do anything" attitude. Joe Neri will instruct the course. For more information, contact Norma Beasant, Ext. 7-3144.

## On the cover

Martin Marietta employees assemble the Titan IV second stage in the vertical integration building at Cape Canaveral Air Force Station, Fla., in preparation for the first launch. Martin Marietta Space Launch Systems is responsible to the Air Force for development, production, and launch services for 23 Titan IV space launch vehicles.

"I Cannot Tell A Lie..."



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