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MARTIN MARIETTA

# news

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# Full-size MX model assembled, vibration tests begin

Vibration tests on a full-size ground test model of the Air Force MX with a full-weight first stage have been completed here. Tests with an empty first stage will begin shortly and are designed to simulate flight conditions after first stage burn-out, prior to separation from the second stage.

The tests began after the 71-foot long, 92-inch diameter full-size vehicle was assembled in the vertical test facility at the general purpose laboratory. This is the only time prior to deployment that flight weight MX missiles will be assembled at a location other than Vandenberg Air Force Base.

The ground test vehicle lacks propellants and warheads. Ballast simulates the full 195,000 pound launch weight vehicle.

The missile is being subjected to low-frequency vibration in the five to 50 hertz range, simulating that expected during the first minutes of flight. The tests, to be completed in April, will evaluate the stresses of launch on the missile's structure and internal components.

Following the tests, the disassembled missile components will be shipped back to stage contractors and to Vandenberg where MX test launches are scheduled in early 1983.

## SMARTS completes design review

U.S. Air Force Tactical Air Command representatives have commended the Denver Aerospace SMARTS team on the quality of work on the program.

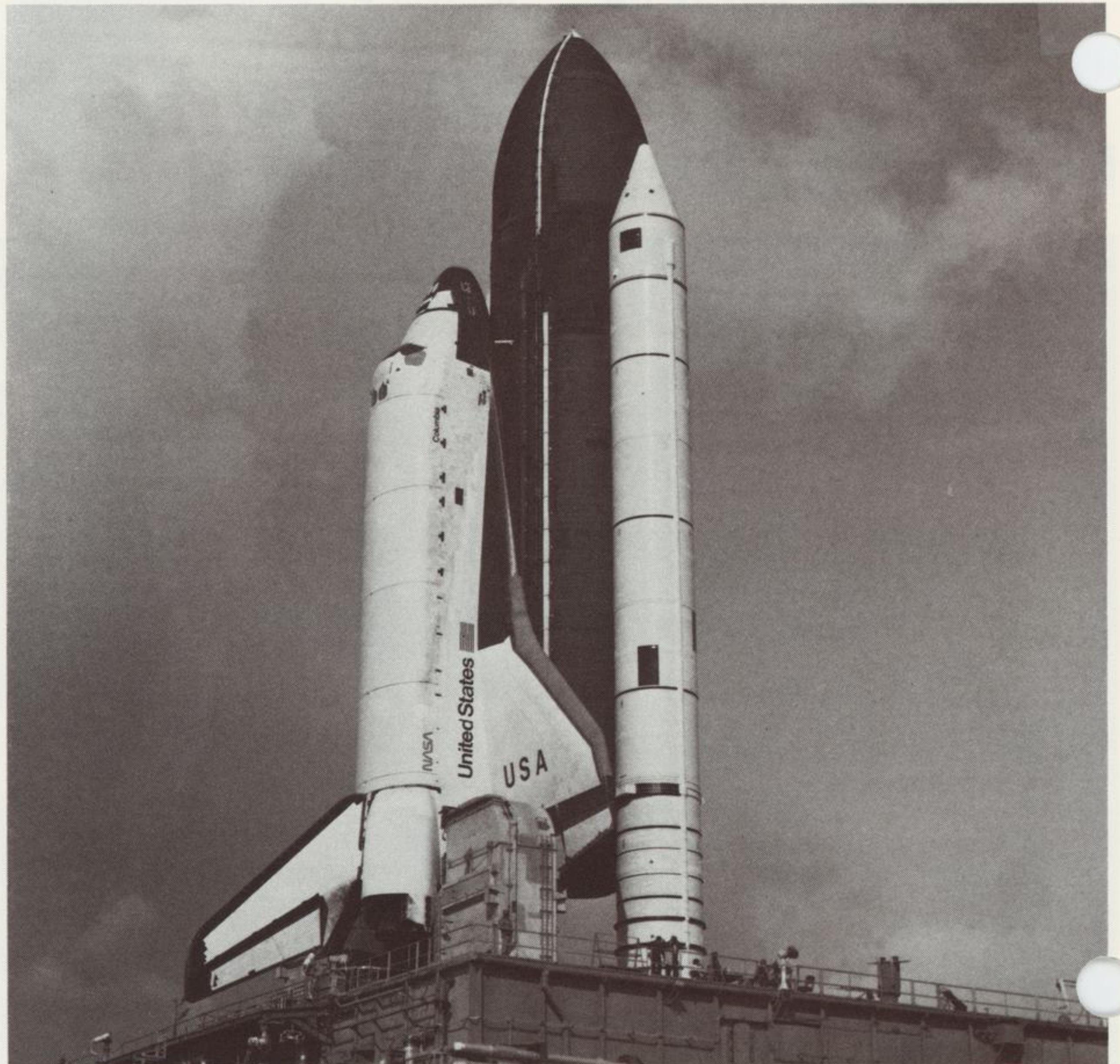
The commendation came after a successful hardware critical design review conducted in mid-February on the Simulation, Monitoring, Analysis, Reduction, and Test System (SMARTS).

Under the SMARTS contract, awarded July 15, 1981 and managed by William J. Wise, the command and information systems product area will install the first of four increments of the program at Langley Air Force Base, VA. An additional six increments are planned for Langley and other locations.

SMARTS will be used to test the compatibility and interoperability of tactical air forces' command, control, and communications systems.

### On the cover

**A full size, ground-test MX missile has been assembled here for use in the vibration test program.**



The new-look, light brown external tank shows a sharp contrast against the white of the orbiter and solid rocket boosters as Space Shuttle Columbia was prepared for the March 22 launch.

## Space Shuttle begins seven-day mission

A new-look external tank at liftoff, a new landing site at the end of the flight, and in between seven busy days—that's a brief description of the third mission for the Space Shuttle Columbia.

The external tank, minus 600 pounds of white paint, was light brown, the natural color of the spray-on foam insulation. The paint had been applied to the first two tanks as part of the surface protection system. Its purpose was to protect the underlying foam insulation from potential ultraviolet light damage while the Shuttle assembly was on the launch pad.

Engineering analysis showed that the external tank's thermal protection system would adequately protect the tank without the layer of paint.

The new-look tank will darken progressively before launch as the ultraviolet rays from the Sun strike it. This UV radiation has no other effect on the tank or any of the Shuttle's components.

White, however, will be the predominant color at the mission's end with the shift of the landing

site from California's Mojave Desert to New Mexico's White Sands missile range.

The shift was made by NASA when rain continued to soak the Rogers Dry Lake Bed, making it too wet for a safe landing by Astronauts Jack Lousma and Gordon Fullerton, Columbia's crew.

Northrup Strip, two seven-mile-long runways forming an X on the white gypsum flat, was the backup landing site for the first two flights and had been the scheduled alternate for this flight.

Neither the change in the tank color or the landing site made any other alteration in the planned seven-day, 115-orbit mission.

## Junior Achievement to market products

Decorative framed glass pictures produced by The Glass Works, a Denver Aerospace sponsored Junior Achievement company, will be on sale from 10:30 am to 12:45 pm, March 29, at the cafeteria entrances in the engineering building and SSB.



## College relations program successful

Denver Aerospace has become one of the five top aerospace companies in college recruitment over the past two years," said R. W. Gammill, chief of college relations.

"We have gained national recognition for our program because we are not just recruiters," he said. "Our co-op program, our intern program, our participation in placement councils, and providing speakers for student technical societies have helped achieve the reputation we have."

The success of the college relations program is reflected in the statistics.

From 1970 to 1976, 306 new college graduates were hired. In the next five years—1977-1981—more than 1100 were hired, with more than 800 of those in 1980 and 1981.

"More than 25 percent of the professional employees hired in 1980-81 were new college grads," Gammill said. "The overall grade point average was 3.18."

In 1981, employment offers were made to 892 graduates from 144 colleges and universities. More than 46 percent accepted the offers.

"Our co-op and intern programs have also grown with our improved program," said Gammill. "In the decade of the '70s we had from four to eight co-op students at any one time. In 1981 we had 20 students active in the program. We have seen a similar growth in the intern program. In 1980 we had 67; last year we had 137. We hired 32 after they graduated and most were in professional assignments."

Although recruiting efforts will be reduced some in 1982, Gammill plans to maintain firm relationships with the colleges and universities.

"It is important that we continue our association with the student technical societies and with the placement offices, and that we participate in such functions as career fairs," he said. "We need the new ideas and new skills that the top students can bring to our business."

Gammill is a member of the College Placement Council and the Rocky Mountain College Placement Association. He served as conference chairman for the Rocky Mountain group's national conference.

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DENVER AEROSPACE

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March 26, 1982



Space launch employee of the year, Edward C. Kane, right, receives his award check from William Johnson, vice president for production operations in Baltimore. At left is George Lawrence, chief of manufacturing engineering in Denver for space launch systems division and the interdivisional coordinator for that division.

## Recreation

**Hunting**—A hunter-education course will be held beginning April 6. Sessions will be from 7:00 to 9:30 pm. Cost is \$5.00. Call the instructor, Ray Mueller, Ext. 4866, or Richard E. Benson, Ext. 5141 for information.

**Softball**—Softball league officials are needed for the 1982 season. Contact Paul Turner, Ext. 9136, or David Foran, Ext. 7326.

**Tennis**—Entry forms for men's and women's singles, doubles, and mixed doubles spring tennis tournament will be available March 29 and are due April 19 at the recreation office.

**Theater**—A 25 percent discount is available on tickets for two one-act baseball theme plays at the Denver Center for the Performing Arts. Reservations for the 8:00 pm performance April 24 are due April 1. The plays are "What the Babe Said," by Martin Halpern, and "Yanks 3, Detroit 0, Top of the Seventh," by Jonathan Reynolds.

## Employee of year named in space launch systems

The only engineer assigned to the space launch systems division's Titan program in Baltimore has been named the division's employee of the year.

Edward C. Kane, a senior engineer in the division's engineering and liaison department, was cited for his "outstanding dedication and performance" in support of the Titan program.

Baltimore Aerospace produces drop hammer forged parts for the Titan space launch vehicle.

At Baltimore, Kane lends his assistance in "all work disciplines required to produce Titan hardware." He makes recommendations for tooling designs, reviews the assembly process and suggests improvements, participates in trouble-shooting and problem resolution, assists in program quality, and maintains close technical coordination with the program in Denver.

Kane has been assigned to space launch systems for 20 years.

## Employee groups cited at Kennedy Space Center

Three Denver Aerospace groups at Kennedy Space Center have received safety awards from NASA for their performance during 1981.

External tank operations and the checkout, control, and monitor subsystem groups received the center director's safety award for outstanding achievement in accident prevention. The center director's award is the highest safety award attainable from NASA at KSC.

External tank operations, CCMS, and the solid rocket recovery system group also received the NASA accident prevention certificate in recognition of their exemplary safety record without a lost-time accident in 1981.

Through 1981, external tank operations accumulated more than two million hours, CCMS more than 350,000 hours, and the SRB recovery group more than 30,000 hours without a lost-time accident.



The Marshall Space Flight Center director, William R. Lucas, left, was in Michoud in mid-March to review the external tank project with division management. He is shown here talking with Richard M. Davis, vice president and deputy general manager of the Michoud division.



## Product exhibits are planned for early April

Denver Aerospace and Martin Marietta Data Systems will be exhibiting products and capabilities to Data Processing Management Association (DPMA) and Navy League audiences early next month.

At DPMA's Southern Colorado chapter meeting in Colorado Springs, April 6-8, the company's exhibit will feature the capabilities of Data Systems national data network, command and information systems capabilities, and the company's multiple Space Shuttle roles.

Shirley Prutch, vice president of Data Systems, is delivering a major address at the conference on the theme of Automation in Southern Colorado.

At the annual Navy League Exposition in Washington, DC, also April 6-8, technical operations will be demonstrating SEATAG, a tactical navy weapons war game designed to be played on a microcomputer. Denver Aerospace facilities also will be shown in a multi-media presentation on the Aerospace company.

A major part of the Navy League exhibit will be devoted to the Navy's vertical launching system for dissimilar missiles that was started in Orlando and recently transferred to Baltimore for production.

## Employees honored for course work

Eleven of the 48 employees named to the Martin Marietta personnel development all star team for work in 1981 are from Denver Aerospace.

They are recognized for outstanding achievement in the Corporate-sponsored and conducted personnel development programs.

Those named to the team are John McCorkle, Robin B. Knox, John Roman (Michoud), Richard T. Evans (Michoud), Jesse R. Deal, Richard C. Behm, Thomas G. Alexander, Richard R. Kee, William A. LeBlanc, Kenneth R. Robak, and Dale Shields.

The selection was made by the instructional staff based on a demonstrated enthusiasm concerning personnel development; comprehension of the complex management concepts, principles, and techniques; leadership exhibited in group activities; personal contribution during the seminar; high priority on the ability to communicate; and a positive and constructive attitude toward the corporation and the employee's position in the corporation.

## Performance Sharing Plan unit values reported

Unit values for the Performance Sharing Plan at the end of February were:

Fund A (Indexed Equity): 1.4383184971  
Fund B (Fixed Income): 1.4707396482



Seated at the controls of a Titan Flyers airplane is Robert A. Mills, the first employee to solo after instruction through the employee flying club.

## Employee flyers log two 'firsts'

Helping put man in space has been a Denver Aerospace project for years, but now some employees are helping fellow employees take to the air.

Theodore A. Gould and Robert A. Mills have scored two "firsts" in the new effort.

Gould, command and information systems, is the first member instructor of the Titan Flyers to have an employee-student solo. Mills, MX transportation handling and stress engineering, is the first employee to solo.

Gould is a certified commercial flight instructor. He is deputy commander of the 76th Senior Squadron of the Colorado Civil Air Patrol and serves on the Federal Aviation Administration regional safety council.

Mills was inspired to learn to fly by the exploit's of a former classmate, Space Shuttle astronaut Joseph Engle. He joined the Titan Flyers, the employee flying club, took 11 hours of dual training with Gould, and successfully soloed.

Titan Flyers offer private lessons, a commercial course, mountain flight instruction, and safety seminars. More than 100 members share the Cessna 182, Cessna 150, Piper Tomahawk, and Grumman TR2 aircraft based at Arapahoe County Airport. Members pay about one third less for flight time by using the club's aircraft.

Information on the club is available through the recreation office Ext. 6750.

## Vandenberg employee wins west coast race

Michael B. Ryan, a senior contract administrator at Vandenberg operations and a former three-time All American NCAA cross country runner, was the winner of the recent five-mile Commander's Run at Vandenberg Air Force Base.

Running in the rain, Ryan jumped to an early lead and finished with a time of 25:49—one minute and 17 seconds faster than his nearest competitor.

Ryan is a graduate of the U. S. Air Force Academy and the University of Cincinnati School of Law. In 1965 he was the NCAA cross country champion and is listed in the 1969 and 1970 editions of "Outstanding College Athletes in America."

## Recipients named for IR&D awards

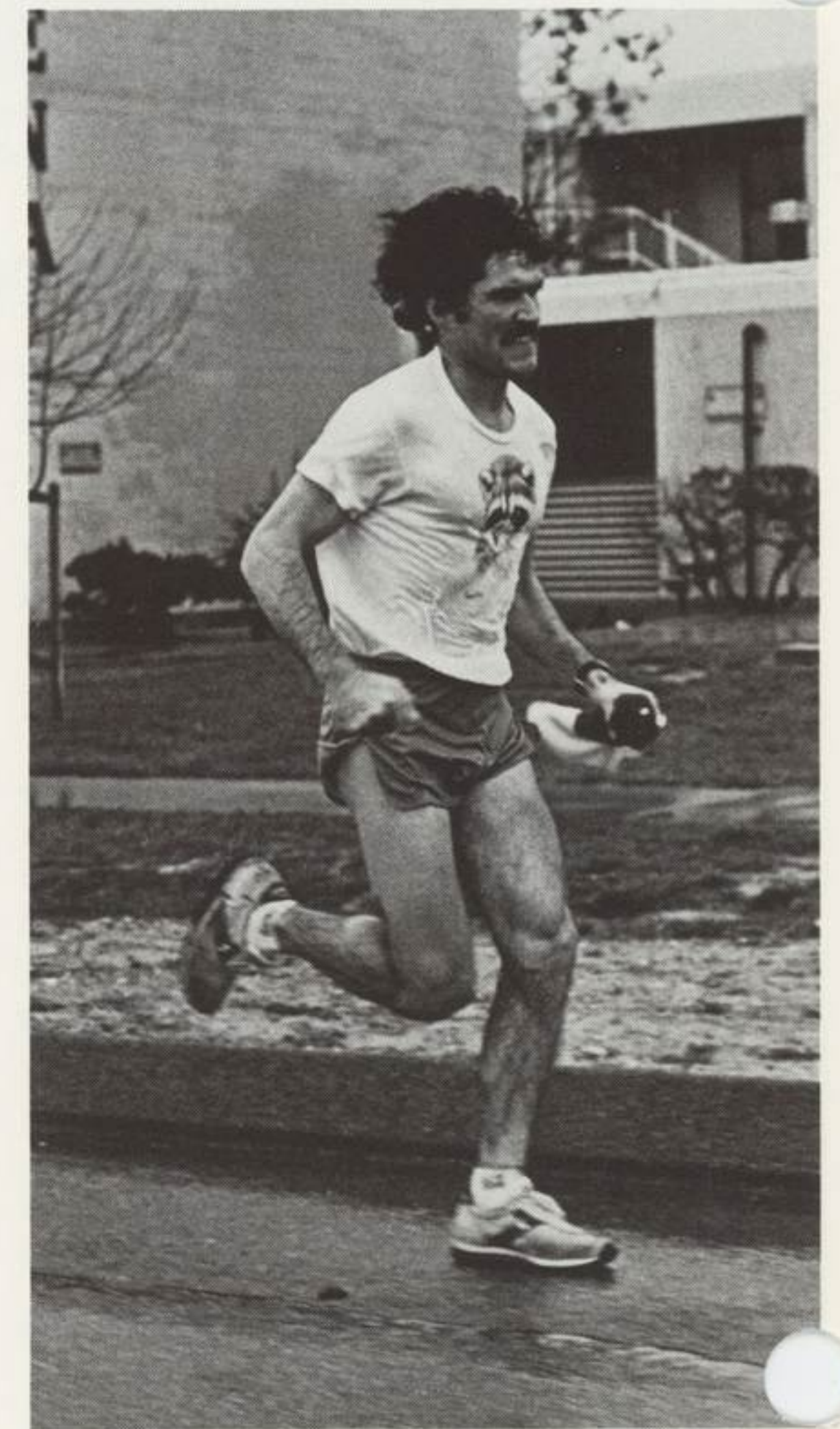
Wallace S. Paulson, chairman of the independent research and development structural and materials panel has been chosen as the outstanding panel chairman and 10 principal investigators have been recognized for their performance on IR&D programs.

Those honored March 18 here and March 23 in Michoud were chosen on the basis of government IR&D scores, evaluation comments, and on the value of the work to Denver Aerospace. The programs in Paulson's panel received the highest average score in the evaluations.

Principal investigators who received awards were William J. Bailey, cryogenic storage technology; Douglas B. Cross, aerobraking research; Donald S. Crouch, tethered satellite; Loren De Size, for a classified study; John F. Flater, advanced command, control and communications end-to-end data systems; William L. Leonard, a classified study; Joe E. Renfro, line termination system; and Cletus J. Siebert, electromechanical mechanisms development.

At Michoud those honored were Virgil M. Davis, Shuttle derived vehicle facilities/operations definition and design; and Leslie R. Miles, residual stress analysis.

Selection of employees for the awards was made by Robert J. Polutchko, vice president for technical operations; James L. Burrige, chief engineer; and Ronald A. Bena, IR&D program manager.



Running in the rain, Michael B. Ryan, senior contract administrator at Vandenberg operations, bested his nearest competitor by more than a minute in winning the five-mile Commander's Run at the Air Force's West Coast Missile Base.