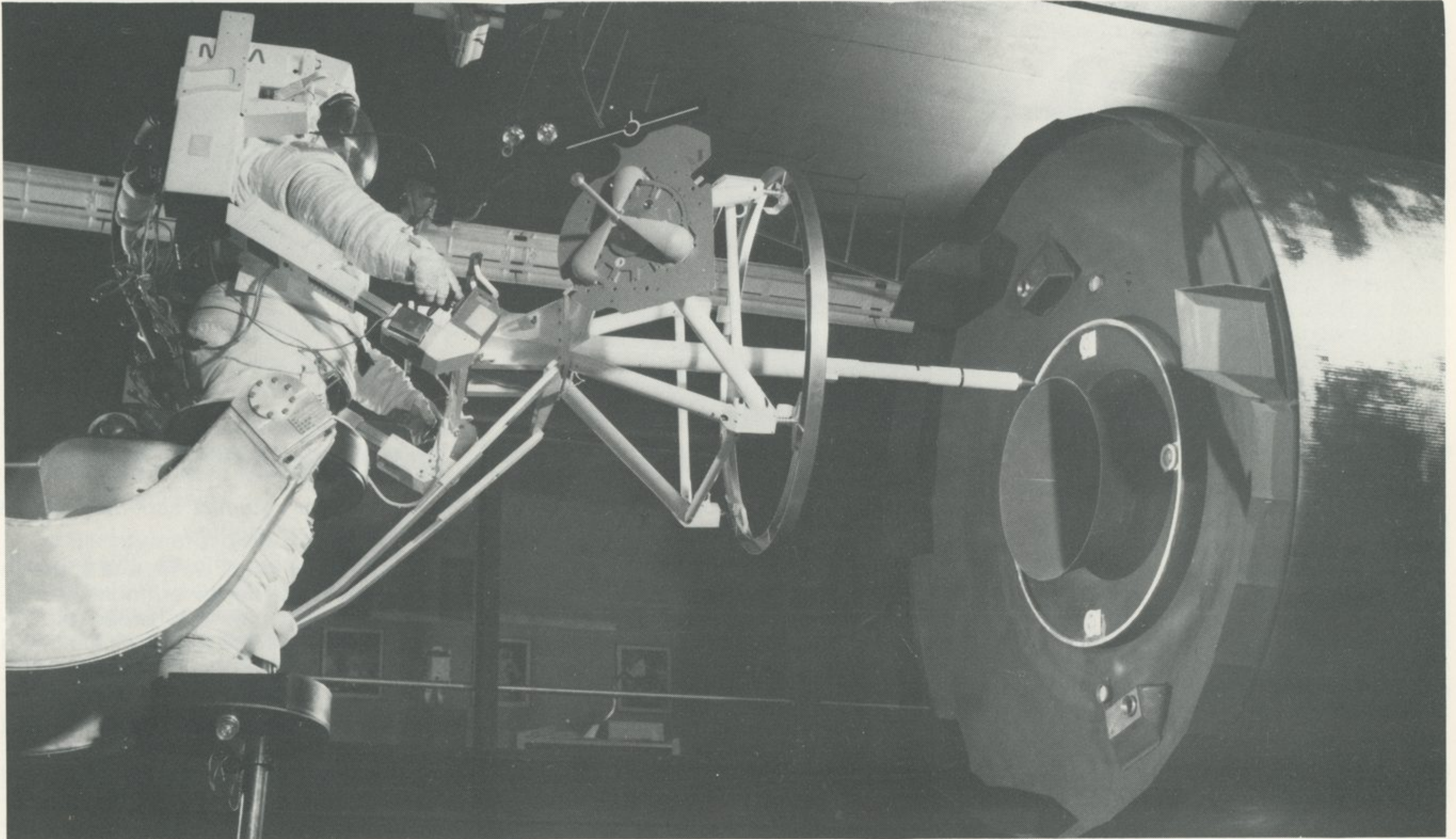


NUMBER 18/1984



MMU to the (Palapa) rescue

The manned maneuvering unit (MMU) will play a pivotal role in the rescue of the Palapa B-2 communications satellite, planned for space shuttle mission 51A which is scheduled for launch Nov. 2.

Earlier this month, NASA signed an agreement with insurance underwriters to retrieve the Indonesian satellite, which failed to achieve proper orbit after its booster engines malfunctioned. It was launched from the space shuttle on mission 41B in February. A second satellite, Westar 6, encountered similar problems on the same mission, and the underwriters are negotiating its possible retrieval.

The mission crew will be Frederick H. Hauck, commander; David M. Walker, pilot; and Joseph P. Allen, Dale A. Gardner and Anna L. Fisher, all mission specialists.

Allen and Gardner have been training for the mission in the company's space operations simulator (SOS) laboratory at the Waterton plant. A six-degree-of-freedom, moving-base carriage is used to simulate MMU maneuvers. An apogee kick motor capture device (ACD) unit identical to the flight hardware is used on the simulator to practice capture techniques with a full-scale mock-up of the satellites' bottom section, including the nozzle cone of the apogee kick motor (AKM). Both astronauts are expected to be practicing capture procedures at Denver at least once a month until launch day.

Retrieval of Palapa, and possibly Westar, will mark the first time NASA has conducted extravehicular activity for a commercial user, and the first time a satellite previously deployed will be returned to Earth. The mission also will mark the third time in a single year MMUs have been used on space shuttle flights.

Techniques for the upcoming rescue mission were proven last April when astronaut George Nelson flew an MMU with a different attachment device from the space shuttle Challenger to rendezvous with the Solar Maximum satellite. Nelson was able to match rates with the spinning Solar Max and attempt to attach the capture device to a protruding pin on that satellite. Although docking was not completed due to a protruding insulation fastener, the MMU proved it could maneuver an astronaut safely to dock with a satellite or spacecraft.

The manned maneuvering units were designed, built and tested by Denver Aerospace for NASA, and were test flown for the first time on mission 41B in February. After use on 41C for the Solar Max repair mission, the two units were returned to Denver for testing and checkout. They are scheduled to be sent back to the Kennedy Space Center for installation in Discovery Sept. 10.

English air show features Denver Aerospace

Denver Aerospace products—ranging from the manned maneuvering unit (MMU) to the tethered satellite—will be among the featured displays Sept. 2-9 at the Farnborough Air Show near London.

The Denver products are part of a larger Martin Marietta Aerospace exhibit featuring tactical weapons and battlefield systems, shipboard vertical launchers, spacecraft and orbital transfer vehicle (OTV), as well as air traffic control system engineering and integration.

One exhibit highlight is a model of the world's smallest manned spacecraft, the MMU, which twice this year flew space shuttle missions. It is scheduled again for a November mission to recover Indonesia's Palapa satellite and perhaps Western Union's Westar satellite. Both failed to achieve proper orbit during the February space shuttle mission when their payload assist module (PAM) motors failed. In addition to the full-scale unit and

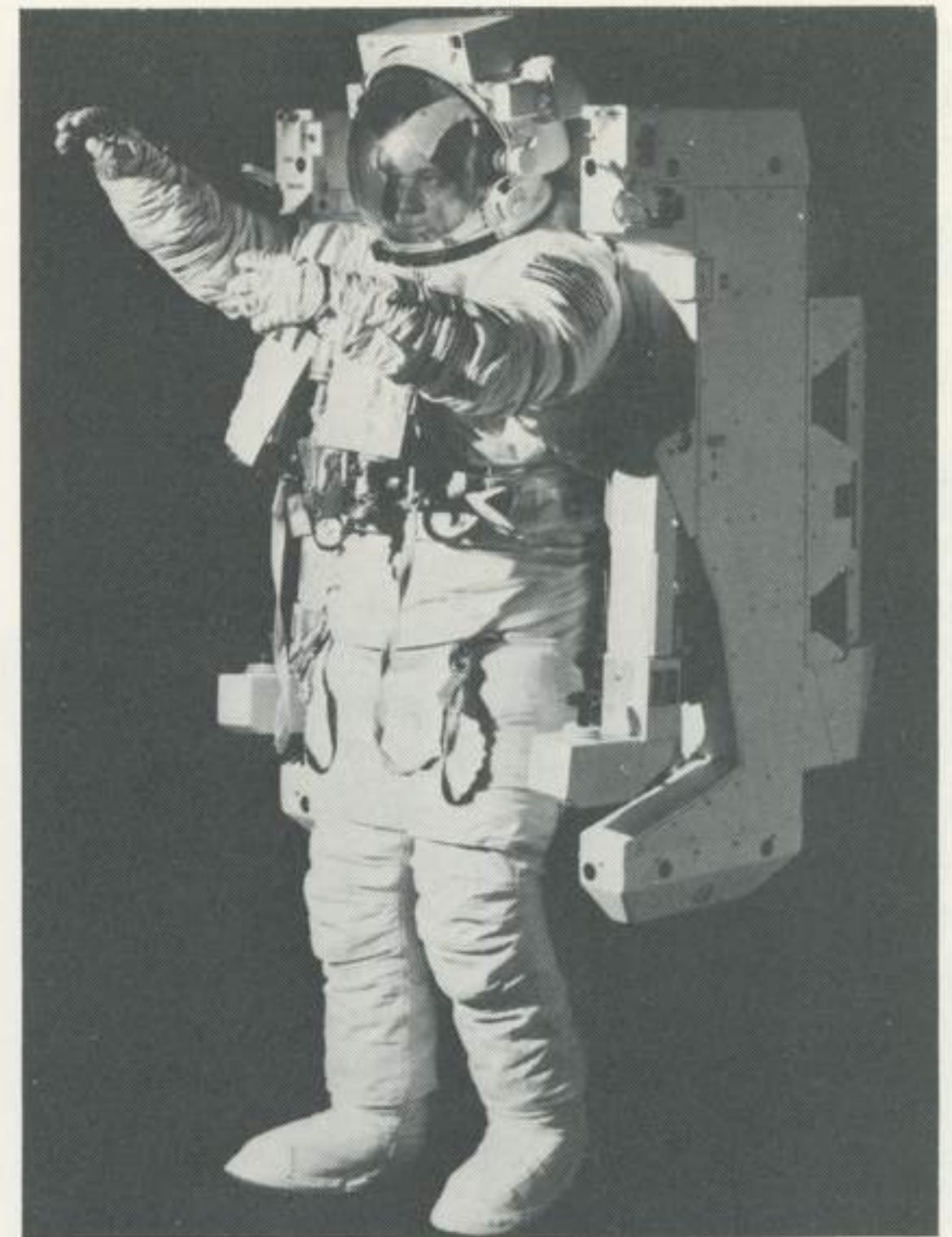
suiting astronaut mannequin, film taken during those missions will be shown.

Other space-related products from Denver Aerospace include the transfer orbit stage (TOS) for boosting satellites from the space shuttle to high orbits; the TOS and orbital maneuvering vehicle (OMV) for moving payloads about in space; the tethered satellite system; and illustrations and literature on a space station concept.

In tactical and battlefield systems, the exhibit will feature the automated staff message processing system recently demonstrated and tested by U.S. troops in Europe.

Air traffic control system engineering and integration will be highlighted through graphic displays and literature.

The corporate exhibit also will feature products from Orlando and Baltimore.



Bruce McCandless with MMU

Young new Baltimore Aerospace president

A. Thomas Young has been named president by Martin Marietta Aerospace of its Baltimore division.

Young, 46, a vice president of the aerospace company since 1982, has headed the Baltimore division as general manager since January 1983.

In Baltimore, Martin Marietta produces the vertical launching systems for the Navy, major tail structures for the new Air Force B-1B bomber, and jet engine fan reversers for commercial aircraft. The division also is Martin Marietta's center for composite material development and applications.

Young was director for NASA's Goddard Space Flight Center before joining Martin Marietta in 1982 as vice president of research and engineering on the company's headquarters staff.

Most recent blood drives net 250 pints

Denver Aerospace employees donated 250 pints of blood during the two most recent visits of the Belle Bonfils mobile blood unit to Denver Systems Center (DSC) and Littleton Systems Center (LSC), according to Ron Bergin, donor resource specialist at Denver's Belle Bonfils Memorial Blood Center.

LSC collected 90 units last week and DSC collected 160 last month.

Any Martin Marietta employee, or immediate family members, may contact Lori Sharp, Denver Aerospace blood donor coordinator, ext 6605, about blood transfusions or to make arrangements for replacing blood. The service is available to all employees, regardless of whether they have been blood donors.

Counsel's Corner

On contract fraud, waste and abuse

(Editor's note—The following is the first in a series of columns scheduled to be published in the Martin Marietta News issue at the end of each month.)

Much has been written and said recently on the subject of fraud, waste and abuse in the government's procurement of supplies and services. The government has instituted a comprehensive program to eliminate such activities and prosecute offenders. Our company has policies and procedures which govern our participation in and performance on government contracts. Compliance with those policies and procedures, however, will always rest with the individual employee.

For the Martin Marietta Corporation to continue to be characterized by integrity and ethical conduct, we, the individuals who are the corporation, must be committed to accomplish all our tasks in an exemplary and proper manner. We must be accurate and truthful in what we say, and be honest in all our dealings. All employees of the corporation are expected to follow not only the letter, but the spirit of the policies and procedures which govern our performance and conduct. It is difficult for written policy or procedure to cover every situation in which an improper action could arise. However, the proper choice of conduct for one to pursue in any situation would be dictated by one's conscience—doing what is right.

Jacques H. Croom
Aerospace General Counsel

Michael A. Steuer
Chief Counsel
Martin Marietta Denver Aerospace

Corporation, Japanese enter metals joint venture

Nippon Kokan K.K. and Martin Marietta Corporation have signed an agreement in principal to establish a new joint venture using the latest metal processing technologies of both companies for the production and worldwide marketing of aluminum- and titanium-fabricated products.

The two firms will negotiate a definitive agreement to form a new corporation (60-percent owned by Martin Marietta and 40 percent by NKK), consisting of the Torrance, CA plant of Martin Marietta Aluminum, Inc., its associated technology, and related Japanese expertise. NKK will make an investment of more than \$45 million.

The joint venture is expected to supply traditional U.S. markets and develop new Asian and European markets. The Torrance facility employs 1570 people in the

production of aluminum and titanium extrusions and aluminum forgings for commercial aircraft, automotive and other transportation markets. Torrance is a leader in the development of proprietary techniques for melting and casting lightweight alloys.

"We welcome the participation of Nippon Kokan KK in the Torrance venture," said David C. Dressler, president of Martin Marietta Aluminum, "and we look forward to working with the Japanese in the further commercial development of Torrance products and processes."

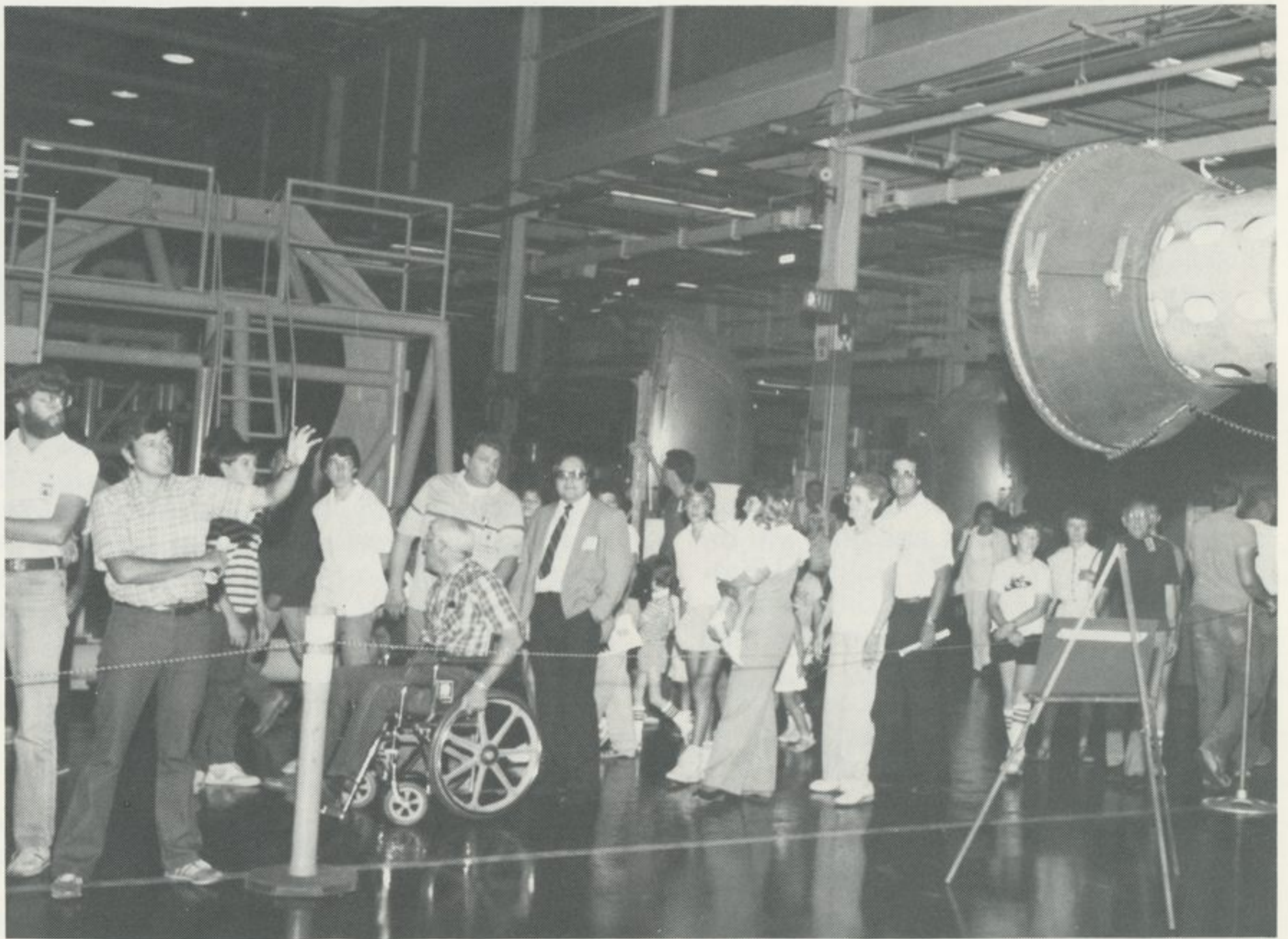
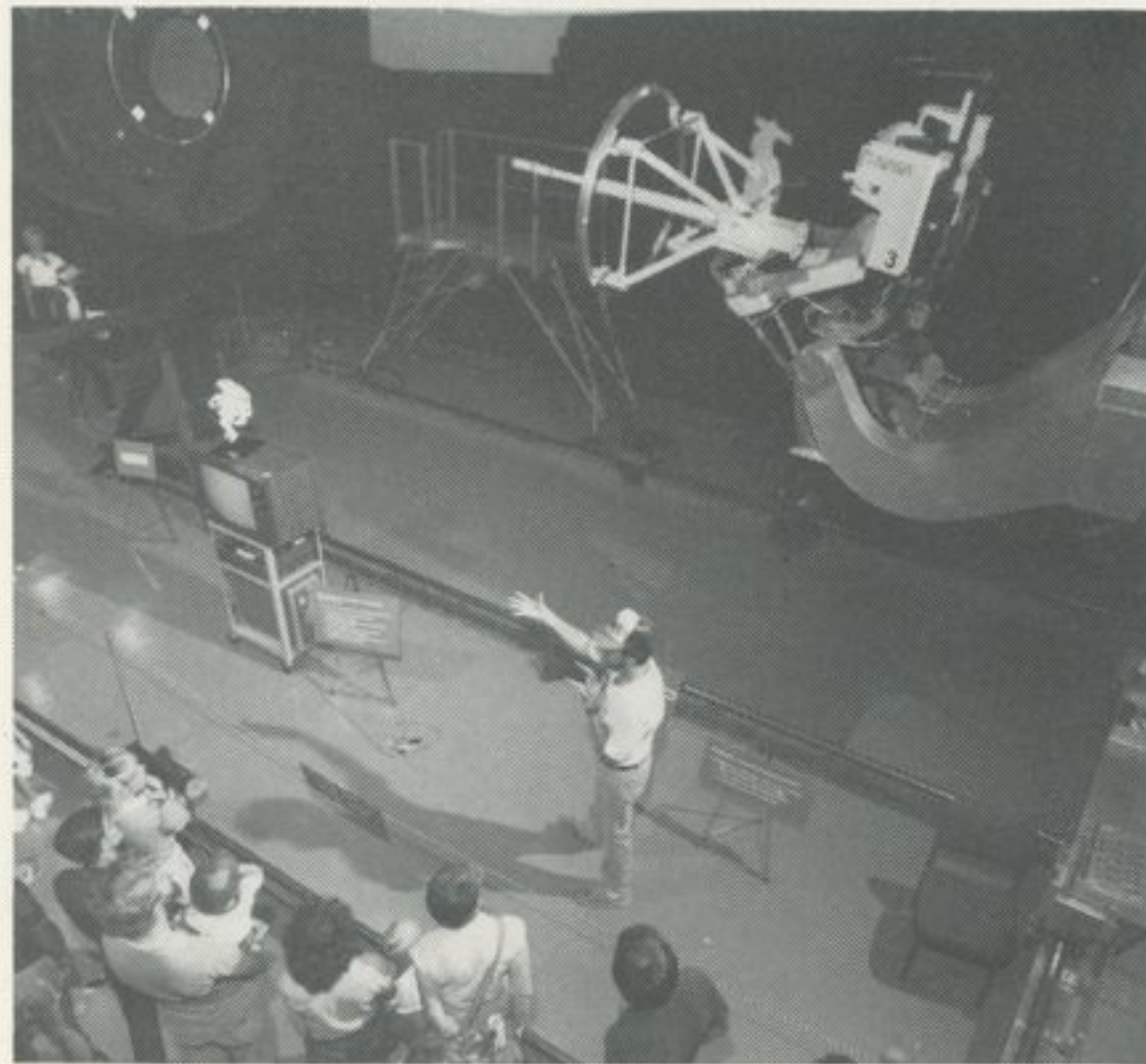
Upon completion of negotiations, the definitive agreement will be subject to approval of directors of both corporations and to appropriate governmental review, both in Japan and the U.S.

Enjoyed your company last Saturday; thanks for coming



THE STATS....

If numbers really do tell the tale of the tape, then last Saturday's Denver Aerospace family open house was indeed a success for everyone involved, worker and visitor alike. Employees, guests, and their families turned out in strength—an estimated 20,000. The party went through 2000 sticks of cotton candy, 13,108 hotdogs, and 1101 gallons of soft drinks. The giveaway tally was 14,000 manned maneuvering unit brochures, 16,000 special issue *Martin Marietta News*, and 17,000 commemorative ballpoint/digital clock pens. The day-long observance also featured astronaut Vance Brand, circus clowns, musical and acrobatic entertainers, aerospace and defense exhibits, film and videotape presentations.



STOP PRESS

300th Titan launched

A Titan III rocket roared into space Tuesday from Vandenberg Air Force Base, CA, marking the 300th in a long and successful line of Titan launches.

That launch marked the 126th success in 129 operational launches for the Titan III series of space boosters. The Titan III, built by Denver Aerospace, is recognized as the country's most powerful expendable launch vehicle.

"With the 300th launch, the Titans continue their unparalleled record as the most reliable expendable launch vehicle in existence today," said Norman R. Augustine, Denver Aerospace president. "In more than 20 years as the mainstay of the Air Force's space program, Titan has built a reputation for excellence that is second to none. Titan also has a proven performance record for non-military payloads, having launched many of the landmark missions of the United States' space program."

The latest evolutionary refinement to the Titan III series of space boosters is the Titan 34D, which has recorded five successful launches since October 1982. A further refinement of that vehicle, a Titan with a Centaur upper stage and two seven-segment solid rocket boosters, has been proposed to the Air Force to meet its needs for assured access to space.

Titan IIIs began service in 1964, and have achieved a 97.7 percent operational launch success record, delivering more than 150 payloads for both the Air Force and NASA into earth orbits or on missions to the sun and planets. Titan IIIs also were employed to launch the Viking spacecraft to Mars during 1975, and the Voyager deep-space probes of 1977.

Earlier versions of the launcher family were the Titan I and II intercontinental ballistic missiles (ICBM). Titan I ICBMs were first launched for test purposes in February 1959, and were deactivated during 1965. Titan IIs evolved into a space launch vehicle in the 1960s, and were chosen for ten Gemini manned space program missions in 1965-66.

Falcon Foundation receives grant

Norman R. Augustine, (seated left), president of Denver Aerospace, recently presented a \$30,000 check to Lt. Gen. Benjamin N. Bellis, U.S. Air Force-retired and president of the Falcon Foundation. Also pictured is Fitzroy "Buck" Newsum of the public relations department, himself a retired Air Force colonel. The donation is part of the company's continuing awards and grants program.



He was a 2 1/2-year-old during the 1980 open house and those photographs of him in the fireman's gear and on the paramedics radiotelephone to promote last week's family open house appeared in issues 15 and 16 of the 1984 *Martin Marietta News*, respectively. Today, he is now 7, has two younger brothers, and is still extremely fond of fire and fire-rescue equipment. Shown here on board a recent flight to visit his grandparents in Ohio. Ben, is the son of Tom A. Mottinger, a 15-year Denver Aerospace employee. Tom is currently a senior group engineer in systems engineering now working on the orbital maneuvering vehicle (OMV). Last spring Ben had an opportunity to visit his father's office, but declined because he learned there wouldn't be any fire trucks on hand.

Skills training to offer advanced first aid, etc.

The skills training department's upcoming advanced first aid/first responder and cardiopulmonary resuscitation classes are open to all Martin Marietta employees and their spouses.

Class sizes are limited and early registration through Sharyn Baker, paramedic skills training specialist, ext 6167, is encouraged.

The advanced first aid course will begin Sept. 18 and continue through October. It involves 48 hours of theoretical instruction and practical work. Upon successful completion of the course, participants will receive a certificate of advanced first aid and cardiopulmonary resuscitation.

A nine-hour segment cardiopulmonary resuscitation classes will be offered Sept. 15 from 8 a.m. to 5 p.m.

Denver Symphony tickets here

Distribution of Denver Aerospace family event tickets for the Sept. 21 performance by the Denver Symphony is scheduled for Wednesday, Sept. 5.

Only department administrators may pick up the tickets for those persons who signed up for the family event late last year. Tickets will be available from the recreation department, Engineering Bldg module 124B between 10 a.m. and noon and from 1 to 4 p.m. that day.

Employees hired since December 1983 who have not reserved concert tickets are eligible for two each.

Employee benefits tip

A change in any employee's status for any reason—marriage, divorce, new dependent—should be recorded with the Denver Aerospace benefits office to assure complete and correct coverage for the employee and the eligible dependents. The benefits office, ext. 3009, is located in module 125 of the Engineering Bldg. Hours are 10:30 a.m. to 12:30 p.m., and 2 to 3 p.m., Mondays, Wednesdays and Fridays.



Now is the time to clean your chimney. Creosote build-up causes chimney fires.

Tool identification system pioneered at Denver Aerospace could save billions

A tool identification index system used in Denver Aerospace manufacturing operations since 1977 has the potential to save the U.S. metalworking industry billions of dollars over the next decade, according to the developer.

Harold L. Gariety, who heads the company's quality of work-life program, pioneered the system and gained successful world marketing licensing to the Stanley Works Corporation, New Britain, CT.

Gariety said the tool identification system being used by the company before 1977 had seven-digit numbers which bore no relationship to what a tool actually was. That resulted in costly delays and hampered product quality.

"A \$128 tool can shut down a whole factory, if that tool can't be found when it's needed or if the wrong tool is planned for a job," Gariety said.

So Gariety went to work in 1976 to find a better way to identify metalworking tools. The resulting system, which took eight years to develop, test, and be positioned properly for world distribution, currently lists some 14,000 individual items in 27 categories.

The system standardizes the tools in a direct-readout numbering system according to their metallurgical content and how they are designed. It also lists the tools available from manufacturers throughout the industry.

"A tool identification index system is the backbone of any effective computerized tool management network in today's manufacturing environment," Gariety said.

Since its implementation at Denver Aerospace, the system has improved tool ordering accuracy from 72 percent to 99-plus percent, according to Gariety. In addition, it has allowed a 60 percent reduction in inventory.



Anderies, left, and Gariety look over some inventory among the high density storage bins in the first floor factory master tool crib.

"Previously, we often had several of the same kind of tool in our inventory," explained Jack Anderies, tool control manager. "Now we know exactly how many of each kind of tool we have at any given time, and where that tool is."

Gariety estimates the system saved the company nearly \$46,000 (based on 1444 man-hours at \$32 an hour) during 1978 in time lost by machinists, manufacturing engineers and planners, buyers of tools, and those who stock tool cribs and retrieve tools from them. He believes it has the potential to save similar amounts for other companies to whom it will be marketed by Stanley under a licensing agreement signed last January.

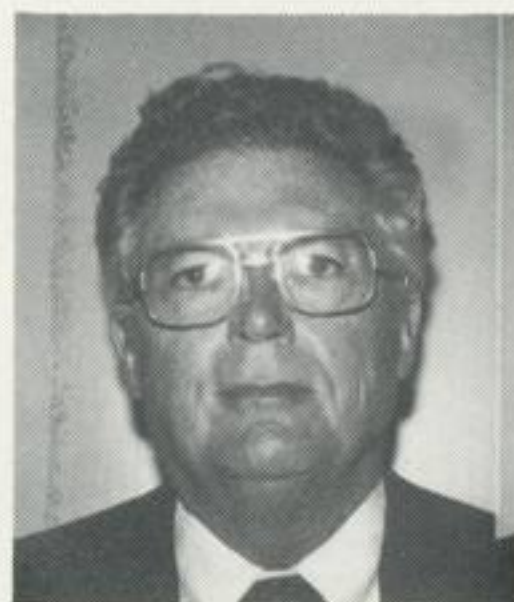
"Stanley estimates the system could increase productivity in the metalworking environment by 50 percent," Gariety said.

He added that as competition keeps getting tougher, companies need to look to new ways to improve productivity. A tool identification system is one such breakthrough.

Gariety urged other employees with good ideas that could be licensed not to file them away in a cabinet.

"It may take some years to develop an idea and get it licensed, but you can make it happen," he said.

Selbie named vp for new information company



Frederic D. (Don) Selbie, last week named vice president of business development for Martin Marietta Information & Communications Systems, will be relocating to the new company's Bethesda headquarters. He will report to Robert J. Polutchko, president of the company, which was formed August 1.

Selbie previously was director of program development for what once was the space and electronics systems division at Denver Aerospace and now is known as the space systems division. He joined Martin Marietta Aerospace in 1963 after 20 years of Air Force service in such varying capacities as director of space and missile requirements at Strategic Air Command (SAC) headquarters at Omaha.

Mandatory security briefings slated for Sept., Oct., Nov.

Denver-based Martin Marietta Aerospace employees will begin attending mandatory 30-minute security awareness briefings which will begin Monday, Sept. 10 for a 60-day period.

Each employee and each employee's personnel representative will receive copies of the briefings schedule. Makeup sessions will accommodate those employees whose work assignments prevent them from attending their assigned briefing times.

MARTIN MARIETTA NEWS

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

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DENVER AEROSPACE
P.O. Box 179—Denver, CO 80201

August 31, 1984

Recreation

(Editor's note—Martin Marietta Denver Aerospace's Recreation Department, ext 6750 and 6605, is located in Engineering Bldg, module 124. Flyers on sports and other extracurricular activities, discounted tickets, special sales, and trips are available from that office and from the department's information racks throughout the company.)

Alpine—The Rocky Mountain Alpine Club (RMAC) plans an all-day technical rock climb on the third flatiron at Boulder Sept. 15. The day's climb will have at least four pitches, a 200-foot free rappel, and be in the 5.3 to 5.4 degree of difficulty (Marc Brideau, ext 8346).

Hunting/Fishing—The Skyline Hunting and Fishing Club's next general meeting will be at 4 p.m., Sept. 10 in the clubhouse at the Martin Marietta recreation area. The club also will conduct hunter education classes from 7 to 9:30 p.m., Sept. 11, 13, 18, 20, 25 and 27 at Denver Systems Center (DSC). Course cost is \$5 (Dick Benson, ext 6209 or 985-3728). Rifle sight-in shooting at the club's range for employees and their guests is from 8 a.m. to 1 p.m., Sept. 16, Oct. 6 and 7. Cost is \$1 per rifle.

Parapsychology—The Parapsychology Club's monthly meeting features basic experiments to investigate the individual's personal psychic potential (Gloria Kratz, ext 5609). The session will begin at 5:15 p.m., Sept. 20, in room 200-A at Denver Systems Center (DSC).

Photography—The Platte Canyon Photo Club's guest speaker will be Michelle Elm, a 1984 National Employee Service Recreation Association (NESRA) photo contest winner (Bill Privatsky, ext 4969). She will show color slides of her recent world travels in room 200-K at Denver Systems Center (DSC) at 7 p.m., Sept. 20.

Radio—Radio Club members and prospective members will receive a demonstration of the amateur radio satellite, OSCAR, at its monthly meeting at 5 p.m., Sept. 4 in the radio shack at the Martin Marietta recreation area (Tom Fulton, ext 2930).

Riding—The weather-cancelled open O-Mok-See for employees, families and friends has been rescheduled by the Ridge Riders Saddle Club for noon, Sept. 29. (O-Mok-See is an Indian word for a variety of horse racing competitions, including barrel and flagpole events.) Ribbons and belt buckles will be awarded to the high-point scorers in the five-event competition for three classes—seniors, juniors and sub-junior classes (Irene Woodzell, ext 5804 or Frank Roe, ext 9592).

1984 open golf winners announced

Winners of 1984 Martin Marietta Open Golf Tournament trophies and/or gift certificates from last month's links tourney at the Riverdale Golf Club near Brighton have been named.

Men winners:

Peoria low net: John Leritz with a -56, and runner-up Steve Hickel, -58; handicap low net: Bob Flowers, -62, and runner-up Tom Konrad, -65; scratch low gross: David Bourcier, -76, and runner-up Tom Logan, -77; closest to #5 pin: Jerel Nielson; closest to #11 pin: Forrest Blessingame;

longest drive on the seventh hole: Bob MacKinnon; and longest drive on #13 hole: Keith DeSilvey.

Women winners:

Peoria low net: Claudine Knox, -62, and runners-up Cathy Flowers and Karen Keeley, both -64; scratch low gross: Jean Williams, -101, and runner-up Kathryn Leigh, -102; closest to #5 pin: Leigh; closest to #11 pin: Barbara Bicknell; longest drive on the seventh hole: Knox; and longest drive on #13 hole: Flowers.



Earlier this month, C.E. Smith, C.D. Miller, and R.R. Ford (left to right) each received 25-year service awards—Bulova watches which they are holding—for their work in the factory area for the product assurance department. Smith has worked the second floor factory for his full 25 years, including all Titan programs. Miller, a second floor inspector, has been involved with the second floor factory's space launch systems operations, including the Titan I, II, and III family of vehicles. Ford, vice president of United Auto Workers (UAW) Local 761, most recently has been tooling inspector in the product assurance department concerned with tools used to fabricate hardware for such programs as Titan, Peacekeeper, the space shuttle's external tank, and defense systems. Pictured with the three is Richard E. Hannum, director of product assurance and systems safety.

Martin wins 'Ski the Challenge'

A 28-year-old Colorado native and Martin Marietta computer programmer has won the 1983-84 "Ski the Challenge" competition by becoming the first skier to make all the state's 35 ski areas in a single season, surpassing of the paltry required number of 20.

For his Herculean effort—starting at Keystone during October of last year and culminating at Berthoud Pass June 23—William M. Martin, who works on the AN/MSR vans project in the ground electronics production systems (GEPS), won a Gerry powder jacket, a pair of Rossignol skis and Soloman bindings.

Martin completed his outings in single weekend days, including the drives back and forth from the Denver area. His busiest trip was when he skied three areas in one day: Ski San Isabel, Conquistador and Ski Broadmoor.

The ski challenge was sponsored by Colorado Ski Country USA (837-0793), a non-profit trade organization representing those 35 areas.

July PSP values set

Unit values for the Performance Sharing Plan (PSP) as of July 31, 1984 (with June's figures in parentheses for comparison) were:

- FUND A (indexed equity), 2.1437691159 (2.1825920917);
- FUND B (fixed income), 1.9450113454 (1.9268591769);
- FUND C (Martin Marietta stock fund), 2.3148952243 (2.1124064101);
- FUND D (TRASOP), 0.9142652905 (0.8350167830)