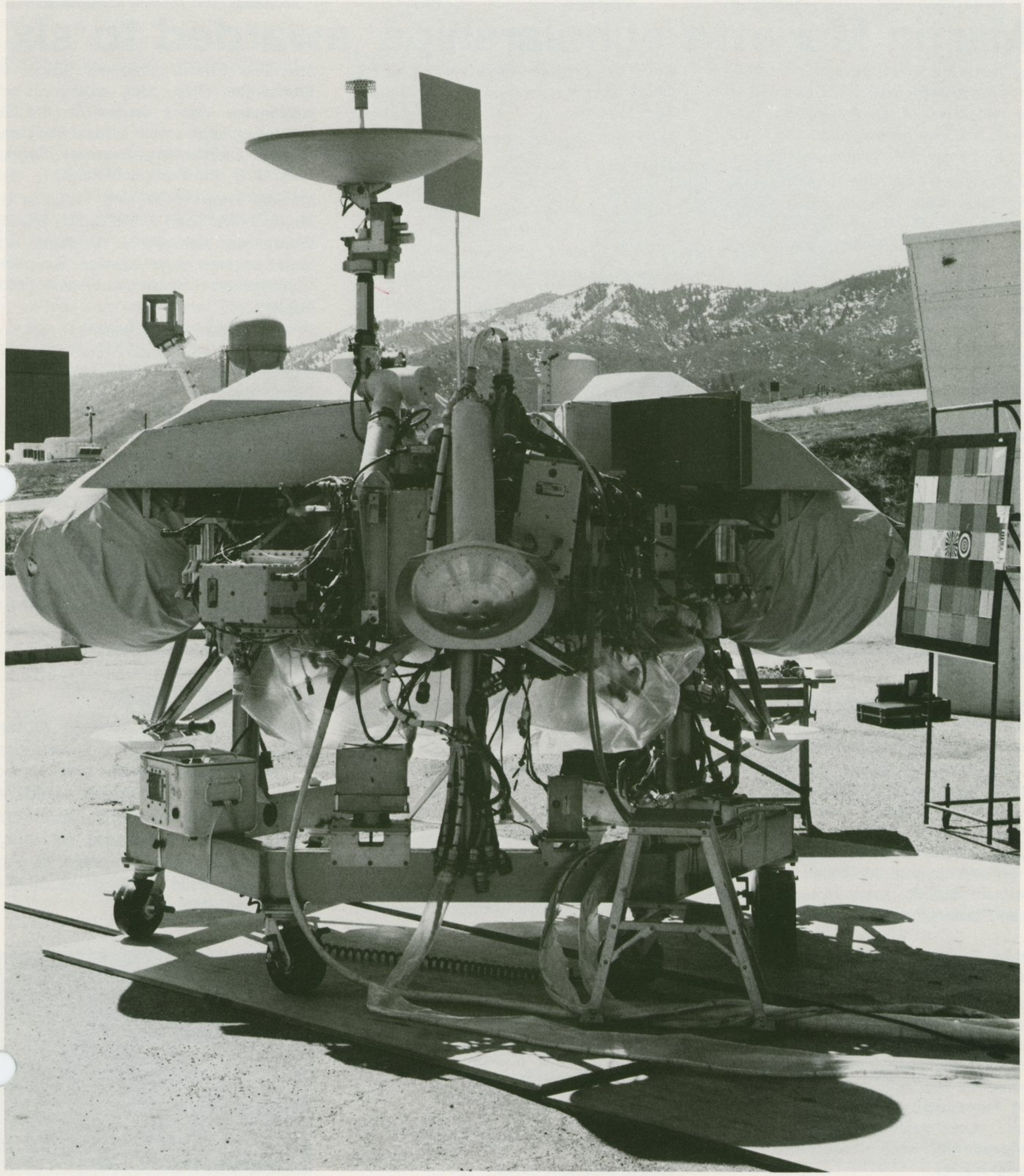
MARTIN MARIETTA
news
DENVER DIVISION

NUMBER 5/1976

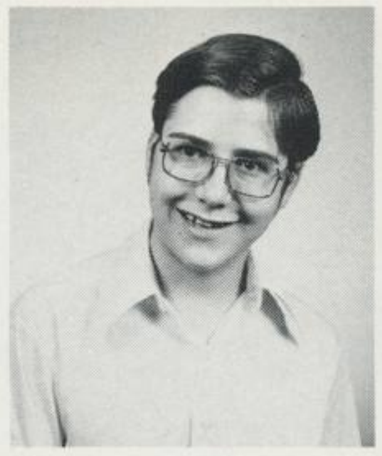



Frederickson


Kingsley


McDonald


Way


Lewis


Kovalick

Martin Marietta scholarships awarded to six

Five Martin Marietta Corporation Foundation scholarships have been awarded to five daughters of Denver division employees and one has been awarded to the son of a Denver Data Center employee.

Division winners are Alice Ione Frederickson, Julie Aless Kingsley, Gae Elaine Kovalick (at Michoud Operations), Michele Louise McDonald, and Andrea Sweeny Way.

Robert W. Lewis was named from Data Center nominees.

The annual scholarships, renewable for four years, are valued at $1,500 a year. They are awarded to high school seniors who have a parent working for the Corporation and whose academic standings qualify them for unconditional admission to an accredited college or university.

Since the program began in 1956, 52 scholarships have been awarded to Denver area students.

The 1976 winners, parents, and plans:

Alice Ione Frederickson, daughter of Mr. and Mrs. Lloyd A. Frederickson, is a senior at John F. Kennedy high school. Her father is a staff engineer at the division. She plans to major in chemical engineering at the University of Colorado.

Julie Aless Kingsley, a senior at Abraham Lincoln high school, plans to study accounting at Arapahoe Community college. She is the daughter of Mr. and Mrs. Harold E. Kingsley. Her father is a machinist at the division.

Gae Elaine Kovalick, whose father is a senior engineer and procedures analyst at the division's Michoud Operations, is attending Friends Boarding School in Barnesville, Ohio. Her mother is an elementary school teacher in the St. Tammany Parish school system. She plans to attend Wittenberg university, Springfield, Ohio, and major in biology.

Michele Louise McDonald, daughter of Mr. and Mrs. John J. McDonald, attends Westminster high school. Her father is a senior engineer at the division. She plans to pursue a pre-law course at Adams State college.

Andrea Sweeney Way plans to major in psychology at Colorado State university. She is the daughter of Mr. and Mrs. M. Lloyd Way. Her father is a supervisor in publications services. Although legally blind, she has attended public schools and is a senior at West high school in Arvada.

Robert W. Lewis is a senior at Columbine high school who plans to attend the University of Colorado to major in engineering physics. He is the son of Mr. and Mrs. Richard L. Lewis. His father is a senior computer system designer for the Denver Data Center.

Division submits GSS proposal

The Denver division's proposal for the Ground Support Systems (GSS) for Space Shuttle has been submitted to the Air Force System Command's Space and Missile Organization (SAMSO).

Objectives of the project, for which a contract is expected to be awarded in early July, are to complete the definition of requirements, prepare the remaining facility design criteria, develop part one specifications for support equipment/software, continued verification of logistics planning, perform facility design surveillance, and support Air Force participation in NASA space transportation system development activities.

Robert D. Rhodus is project director for the division. L. F. Nichalson is his deputy.

Two firms are teamed with the division and a third will be used on a subcontract basis. Team members are the architectural and engineering firm of Ralph M. Parsons for the facility criteria work and IBM for computer and software definitions. Lockheed Missile and Space company will have a subcontract for special studies.

June 2 Holiday?

No, June 2, 1976 is not a division holiday despite what you read in the *Martin Marietta News* a couple issues ago.

The typesetter—and several proofreaders—simply had their months mixed up.

The holiday is really *July 2*, a Friday set aside as Bicentennial Day.

Corporation elects 'outside' director

James Lee Everett III, president of Philadelphia Electric company, has been elected an "outside director" on the board of the Martin Marietta Corporation.

A graduate of Pennsylvania State university, he joined Philadelphia Electric's engineering department in 1950 and, except for three years in Detroit as a participant in a nuclear power study team in the mid 1950s, has been with the utility company ever since.

He became executive vice president of the company in October 1968 and was elected president in April 1971.

On the cover

Viking proof test capsule lander used in Viking Flight Operations at the division recently was moved outside so flight cameras could be calibrated in natural sunlight. Cameras were calibrated for color and stereo pairs by using targets as well as wide angle shots of the hills above GPL.

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Call Ext. 5364 with suggestions or information for articles.

Denver Division
P.O. Box 179
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April 1976

Division safety outstanding in Air Force audit

For the second time in two years, the Denver division has earned an "outstanding" score in a Department of the Air Force safety audit.

Only minor discrepancies were found in the inspection by Charles B. Newton, safety manager for the Air Force Contracts Management division at Albuquerque. He awarded the division 89 out of a possible 100 points.

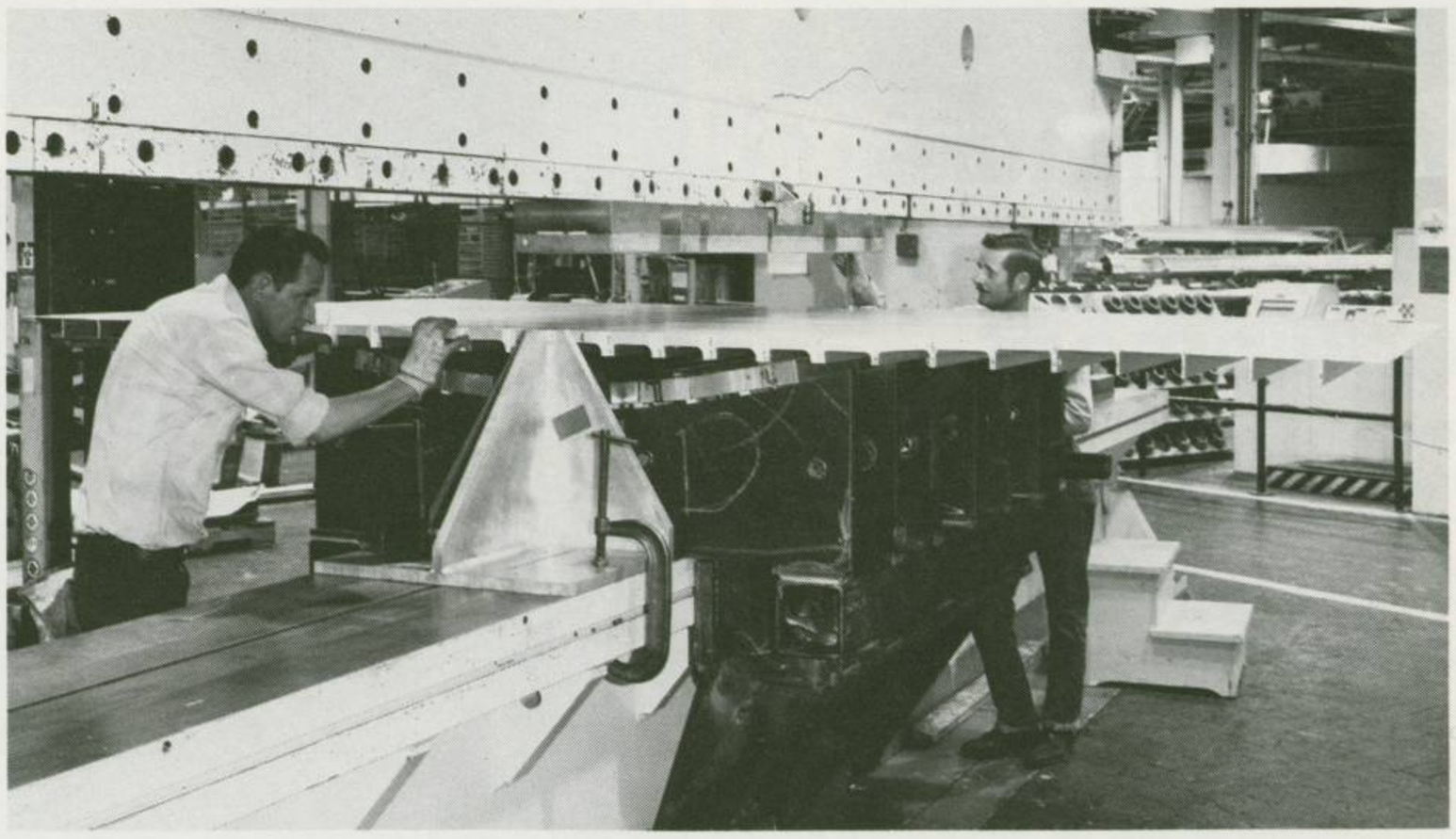
No discrepancies were found in the management of the division's safety program, the hoist and sling program, the compressed gas cylinder program, use of low pressure air line nozzles, nor in the use of grinding wheels.

In a memo to all supervisors and area safety/housekeeping coordinators, L. J. Adams, division vice president and general manager, offered his congratulations and expressed his appreciation to all employees for obtaining the top rating in the safety audit.

"I sincerely appreciate the involvement and efforts of each individual involved in this major safety achievement," Adams said.

The division has also been honored by the National Safety Council with a second place award in the 1975 aerospace industry safety contest.

Plant Protection Cpl. George A. Benway, Jr. is shown in the new security headquarters. The headquarters operation has been moved from the area off the second floor of manufacturing to the division's fire station. Equipment in the new location includes monitoring devices for the new building automation system. The equipment, shown behind Cpl. Benway, allows remote control of heating, air conditioning, and lighting in division buildings.



Development of a forming process is underway in the division detailed fabrication area for Solid Rocket Booster (SRB) thrust panels for Space Shuttle's external tank. The external tank is being manufactured by the division's Michoud Operations. Using the division's 400-ton press brake, operator Ray Jereaw, right, and helper Ken Scott, left, position a development test panel on die number one in the brake. Two of the panels, each forming one-eighth the circumference of the external tank, hold the SRBs on either side of the external tank. The first full size panel, 11 feet wide and 22½ feet long and varying in thickness from .090 inches to 2.062 inches, will arrive in Denver in early June. First set of panels for use is scheduled to be complete in late July.

IUS proposal completed, submitted to customer

The division's proposal for a propulsion system to provide extra energy for payloads to be used beyond the orbital range of Space Shuttle has been submitted to the Air Force System Command's Space and Missile Systems Organization (SAMSO).

While Space Shuttle will be capable of delivering a variety of payloads into Earth orbits of 100 to 400 miles, other payloads will require an additional propulsion system to achieve higher orbits or escape velocity for journeys into the solar system.

The propulsion system, designated Interim Upper Stage (IUS), will provide the extra energy needed for higher orbits and escape velocity. IUS will also have a redundant avionics system.

R. D. Rinehart is the division's program director for IUS and managed the proposal preparation. Peter B. Teets is deputy program director.

Thiokol Chemical Corporation is teamed with the division on the proposal and will provide the solid rocket motors. Paul D. Nance is IUS manager for Thiokol.

The total space transportation system of Space Shuttle and IUS will provide for routine, low cost, manned, and unmanned exploration of space.

Contract award is expected later this year. Also competing for the contract are the teams of The Boeing Company/United Technology, Lockheed/Hercules, and General Dynamics/Aerojet.

Two colleges get surplus equipment

Denver division surplus equipment—and scrap—is aiding educational programs in two Colorado colleges.

Metropolitan State college in Denver received six typewriters to be used in a program offering typing skills courses to developmentally disabled adults.

The course is part of the college community services program and the division's support was discussed at the national convention of the Association for Supervision and Curriculum Development in Miami, Florida.

Otero junior college in LaJunta received 1,200 pounds of scrap aluminum for use in the machine shop training program. The school also obtained electronics parts from the division through the Federal Property Disposal segment of the Four Corners Regional commission for use in the electronics program.

The gifts were made according to Corporate Policy on Contributions A-5. Generally, an organization must be nonprofit and tax exempt before it may submit a request for surplus equipment. Requests are reviewed with particular attention to benefits equipment or material will provide for a broad segment of a community.

Treatment plant discharges crystal clear water

The division's tertiary waste treatment plant, first in industry and one of only two in the state, has been in full operation about eight months, discharging crystal clear water into the South Platte river and the Chatfield Dam and Recreation area. The other similar plant is the Colorado Springs municipal facility.

Operating in three stages (thus the tertiary title), the plant is treating both industrial and domestic waste from division buildings and meeting or exceeding Environmental Protection Agency (EPA) standards.

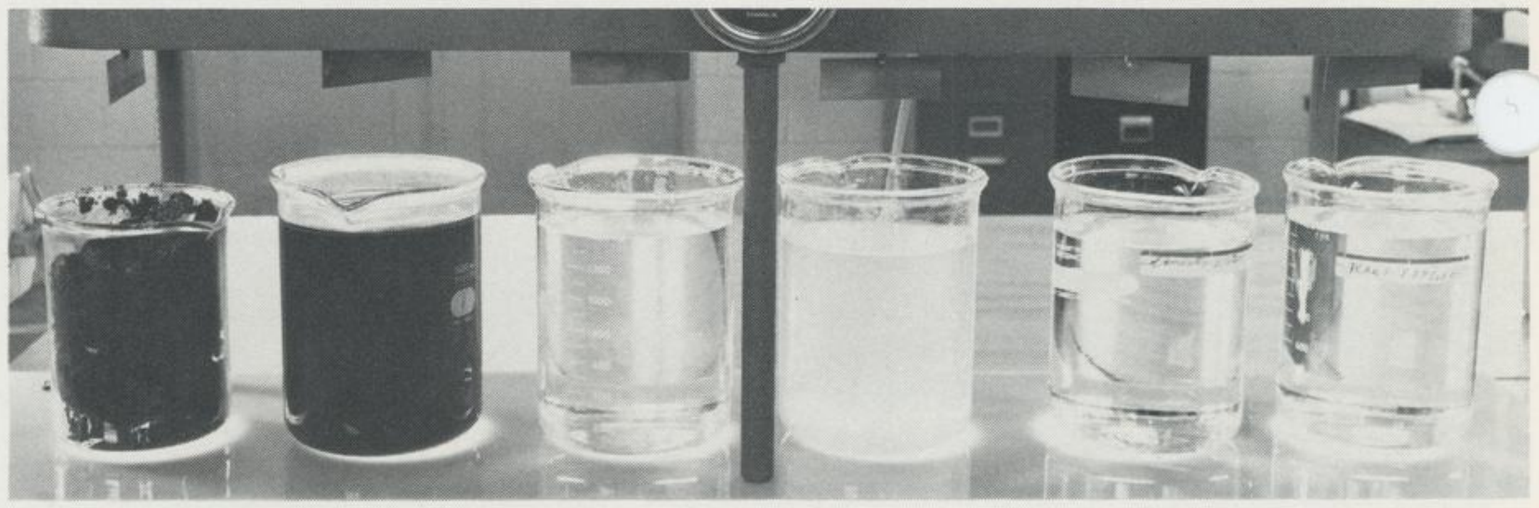
Primary concern at the plant is the treatment of industrial waste — waste that comes from the division's manufacturing and laboratory operations. The division was one of the first companies in the state to treat industrial waste and has always had a treatment facility.

"We have now gone one step further in our industrial waste treatment," C. F. Ames, who supervises the treatment plant operation, said. "We now treat industrial waste twice by itself in the first two stages at the plant and then combine it with domestic waste for treatment in the third stage."

Heavy metals—aluminum, iron, titanium, zinc, copper, silver, and chromium—are removed mostly in the first two stages and finally in the third stage. The metals are a major concern. In some forms they could be toxic if left untreated.

"Martin Marietta has always been concerned with our impact on the community and its environment," Ames said. "The tertiary treatment plant is helping us protect that environment."

L. V. Napue, water analyst at the treatment plant, runs continuing checks on the more than 300,000 gallons of water discharged daily from the treatment plant. He is responsible for keeping the discharge crystal clear—and in some ways with fewer impurities than the water originally taken from water mains.



Among regular tests at the division's tertiary treatment plant are comparisons of steps in the treatment. In the beakers are, left to right, domestic sludge, precipitate from industrial treatment, industrial waste sample, domestic waste sample, domestic tap water sample, and a sample of water as discharged from the plant.

L. V. Napue, left, water analyst, and C. F. Ames, who supervises the tertiary treatment plant, not only check records but also make regular visual inspections of equipment efficiency.

Denver division's Vandenberg Flight operations was recently awarded the Commander's Safety Award at the Space and Missile Test Center (SAMTEC) at Vandenberg Air Force Base, Calif. Participating in the award ceremony were, left to right, Elsie M. Overbey, senior accountant, and member of the employee safety committee; Joe F. Savidge, technician A/ordnance, UAW Local 617 steward, and safety committee member; C. Gary Winsell, inspector A, president of UAW Local 617; Horace O. Reed, technician A/instrumentation, safety committee member; Lois F. White, administrative secretary; and Col. Alvin L. Reeser, SAMTEC vice commander and chairman of the seven-member panel that selected the safety award winners.

Paul Antreillo, maintenance, wears the safety glasses that prevented a serious eye injury as he was repairing a compressor in the quality laboratory when a spring from the compressor struck the left lens of his safety glasses. Antreillo has been nominated for a Wise Owl award, part of a national eye safety award program sponsored by the National Society for the Prevention of blindness.

MARTIN MARIETTA
news
MICHOUD OPERATIONS

Tank test articles readied

Testing leading to certification of the production External Tank (ET-7 and [illegible] includes External Tank test articles required to support the three major ground test programs – structural test, main propulsion test, and ground vibration test.

The first of these ground tests, the structural test, is performed in three separate elements at Marshall Space Flight Center (MSFC) facilities at Huntsville, Alabama.

The Intertank Structural Test Article (ISTA) consists of a full size flight type intertank, a liquid hydrogen tank (LH_2) simulator and a liquid oxygen tank (LO_2) simulator. Each simulator, with its attached load ring, is mated to the intertank to form the test structure.

The simulators will provide the proper stiffnesses to ensure the correct introduction of test loads into the intertank during various test conditions. The simulators also contain provisions for cryogenic conditioning of the intertank interfaces. Each is mated with its respective load ring at Michoud Assembly Facility (MAF), delivered to MSFC as an integral unit.

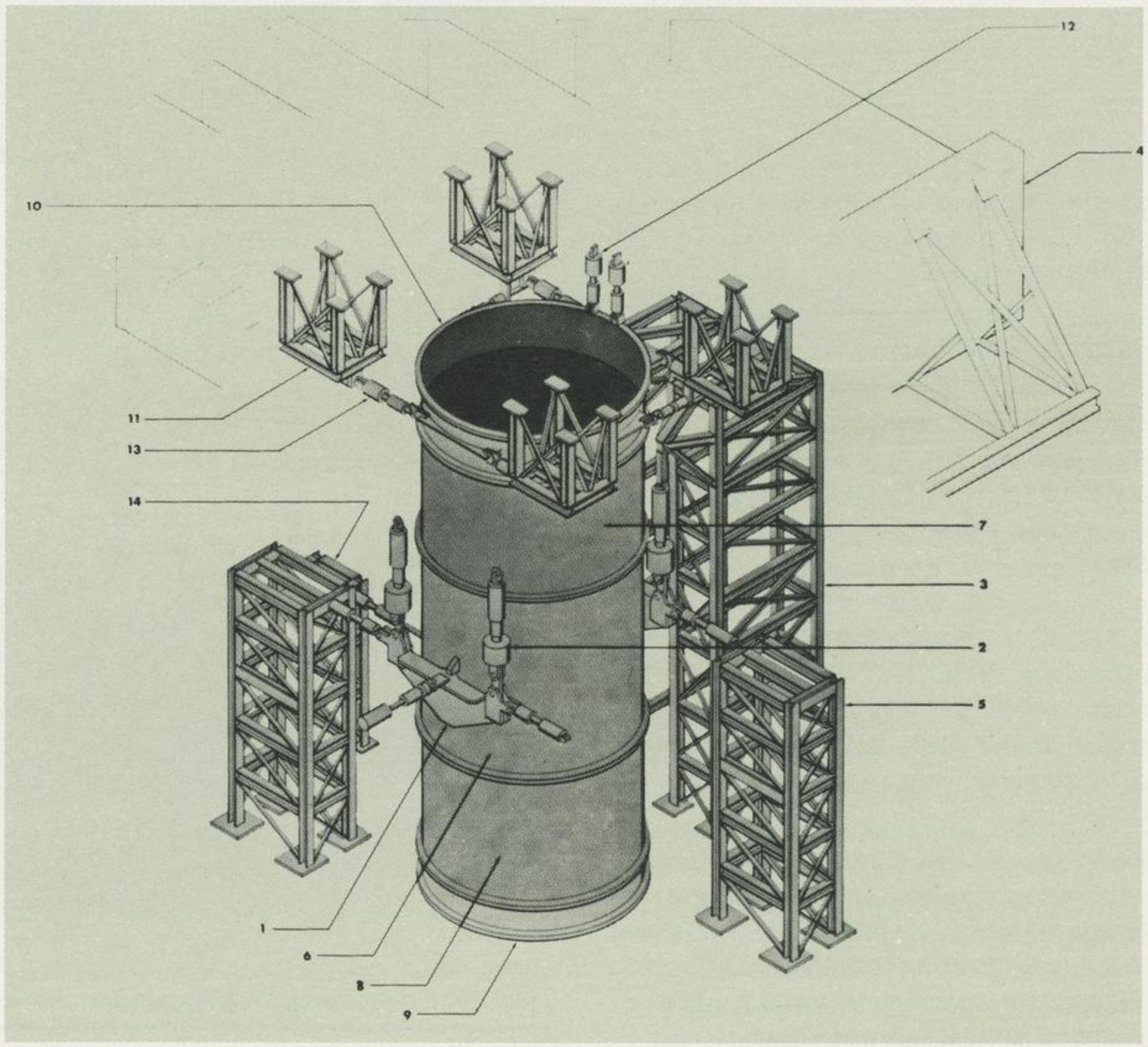
The intertank tests are the initial tests [illegible]formed on the STA test program. [illegible]ucturally qualifying the intertank prior to its use on the more complex LO_2 and LH_2 tank tests as well as demonstrating the load carrying capability of both simulators, minimizes the test risk for the LO_2 and LH_2 tank tests.

Specific intertank test objectives are:

- Verify the structural integrity of the major structural elements—including skin-stringer stabilizing frames, main frame, Solid Rocket Booster (SRB) beam, thrust panels, skin-stringer panels, bolted end flanges, and SRB forward attachment hardware;
- Determine influence coefficients of the intertank for structural characteristics;
- Qualify the LO_2 and LH_2 simulators prior to their use in the structural tets of the LO_2 and LH_2 tanks;
- Qualify brackets and components and their backup structure.

The first of the two load rings needed for the ISTA, the LO_2 load ring, is being drilled on the 34-foot Century-Detroit boring mill for load-line attaching points [illegible]d for turnover fitting attachment. The [illegible]t operation will be to precision machine the simulator interface tang on the 40-foot Niles mill. The load ring is then positioned as the base for the LO_2 simulator assembly tool.

The three components of the ISTA will go by barge to Huntsville early next year to begin the first of a long series of tests to ensure that astronauts who fly the first Space Shuttle will have the safest possible journey.



1—SRB-ET Load Beam; 2—SRB-ET Vertical Load Line; 3—SRB-ET Main Load Tower; 4—Existing Load Test Crosshead; 5—SRB-ET Tangential Load Tower; 6—Inter Tank; 7—Lox Tank Simulator; 8—LH_2 Tank Simulator; 9—Aft Load Ring; 10—Forward Load Ring; 11—Crosshead Shear Tower; 12—Forward Vertical Load Lines; 13—Top Horizontal Load Line; 14—Orbiter Load Tower.

Safety glasses, shoes available

Plant safety has made it possible for all Michoud Operations employees to purchase safety glasses and/or safety shoes.

The Wright Plastic Lens Laboratory will have a representative in Building 101 at Column EB-38, (small room across from main lobby) every other Wednesday from 1:00 p.m. to 4:00 p.m.

Employees interested in purchasing industrial safety glasses should secure a prescription from their doctor and present it to the Wright representative. No special forms are required. You will receive your glasses on the next visit.

The Wright representative will have a complete display of frames to choose from. He will also fit and adjust the frames and make any repairs or adjustments necessary.

The Knapp Safety Shoe Company shoemobile parks inside Building 103 at Column L-1 (near the canteen) every other Thursday from 1:00 p.m. to 4:00 p.m.

The shoemobile carries a complete line of safety shoes in almost all sizes. Sizes not in stock may be ordered and will be delivered with the next visit.

A payroll deduction plan has been established for safety glasses or safety shoes purchased.

In Michoud

Call C. H. Fleischer at 3876 with suggestions or information for articles for the Martin Marietta News

From Michoud

Weld fixture is precision equipment

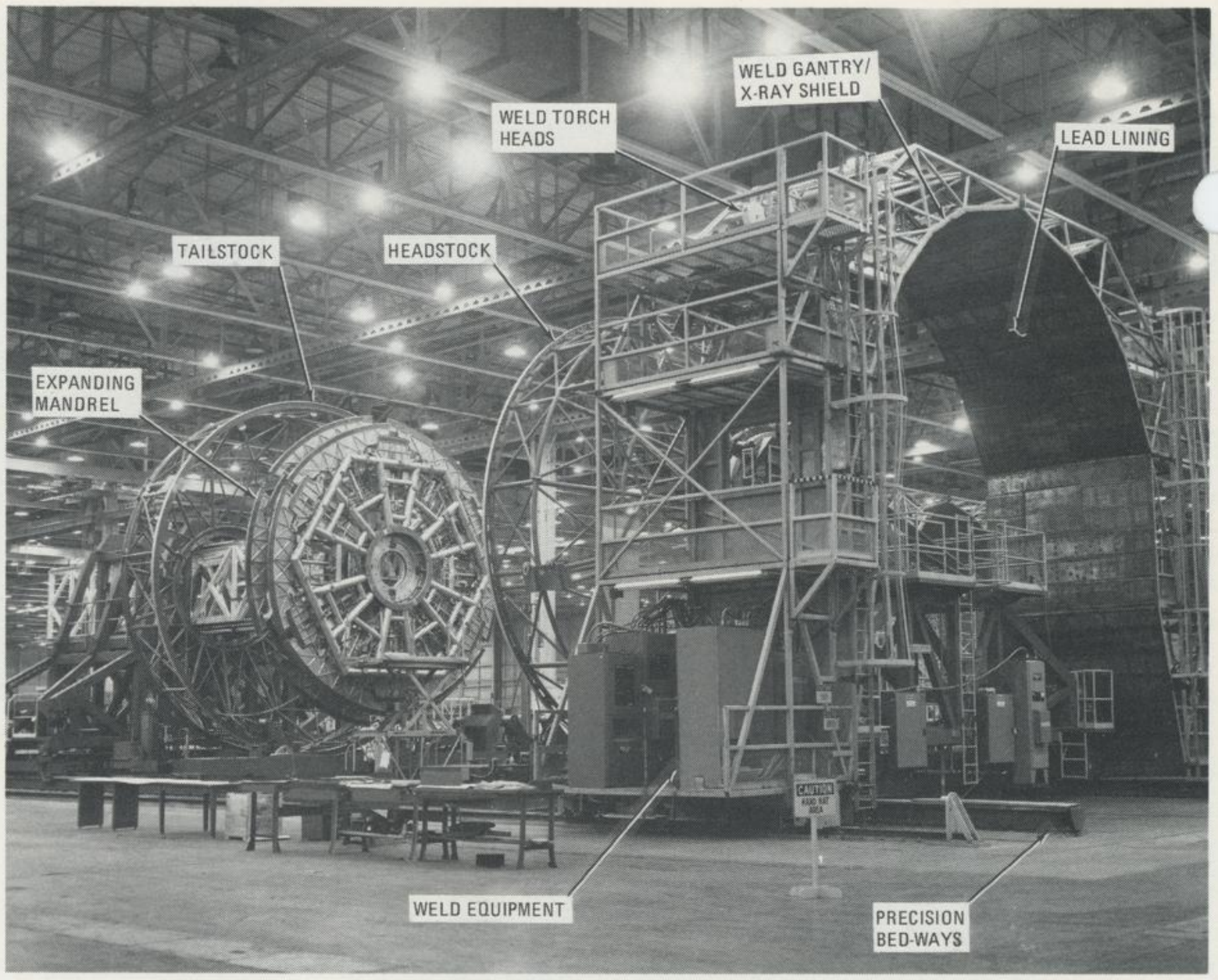
The tool shown in photo at right is one of the most significant major tools recently completed for the External Tank program at Michoud Assembly Facility. The tool function is to weld the final structural assembly of the liquid hydrogen tank.

The tool will produce tanks 27 feet in diameter and 99 feet long by aligning, trimming and joining by welding the individual major tank subassemblies, including domes, barrel sections (produced on a Denver division designed tool) and intermediate frames. The weld fixture, basically a massive lathe, is 32 feet tall, 55 feet wide, 155 feet long, and weighs approximately 345,000 pounds.

It operates on a pair of precision ground ways to insure accurate fit-up of tank components from the first weld which joins a dome and barrel section to the last closure weld at full tank length.

As lathe type fixtures, these units contain all of the familiar basic elements of headstock, tailstock, and precision bedways. Unique to these fixtures are such items as a 27½ foot diameter expanding mandrel which serves as a sizing media and weld heat sink source at each of the mid-barrel welds. Also unique is the combination weld gantry/x-ray shield, which is the tallest and widest structure on the fixture completely straddling the basic fixture elements and the tank being welded. The gantry's functions are to provide a stable platform for the weld equipment and torches, and also serve as a radiation shield when in-process x-rays are taken to confirm weld quality. The actual welding of the tank sections is accomplished by rotating the tank past a fixed position set of weld torch heads.

The tool was designed and fabricated by the Vought Corporation of Dallas, Texas.



31 complete secretarial seminar

Thirty-one Michoud Operation employees completed a Secretarial Seminar April 5 and 6.

The "Building of Administrative Strengths" seminar, conducted by the management education firm of Batten, Batten, Hudson & Swab, Inc. of Des Moines, Iowa was held in the Michoud Assembly Facility. It emphasized secretarial growth and development, strength assessments, behavioral understanding, and increased effectiveness in working with people.

Attending the seminar were Janet Alvarez, Martha Anderson, Sharon Borgerding, Joy Damon, Earline Escarra, Mary Finch Pat Frahm, Doris Gray, Leona Hal Susan Hesson, Marie Hoff, Sharon Hursey, Shirley Jarrell, Sarah Kehm, Thelma Kern, Shirley Kirk, Lynn Laborde, Dell LeBlanc, Mary Lestelle, Barbara Lombard, Barbara Dry, Hazel Patyrak, Donella Scott, Kay Seaner, Sally Selby, Sandra Showers, Marilyn Spitzfaden, Joan Stevenson, Marie Troullier, and Judy Wheeler.

George E. Smith, vice president and general manager of Michoud Operations, describes the External Tank's relationship to the Shuttle vehicle to Joseph C. Domino, right, president of the New Orleans Chamber of Commerce, and Thomas W. Purdy, executive director, during a recent tour by members of the Chamber's board of directors.