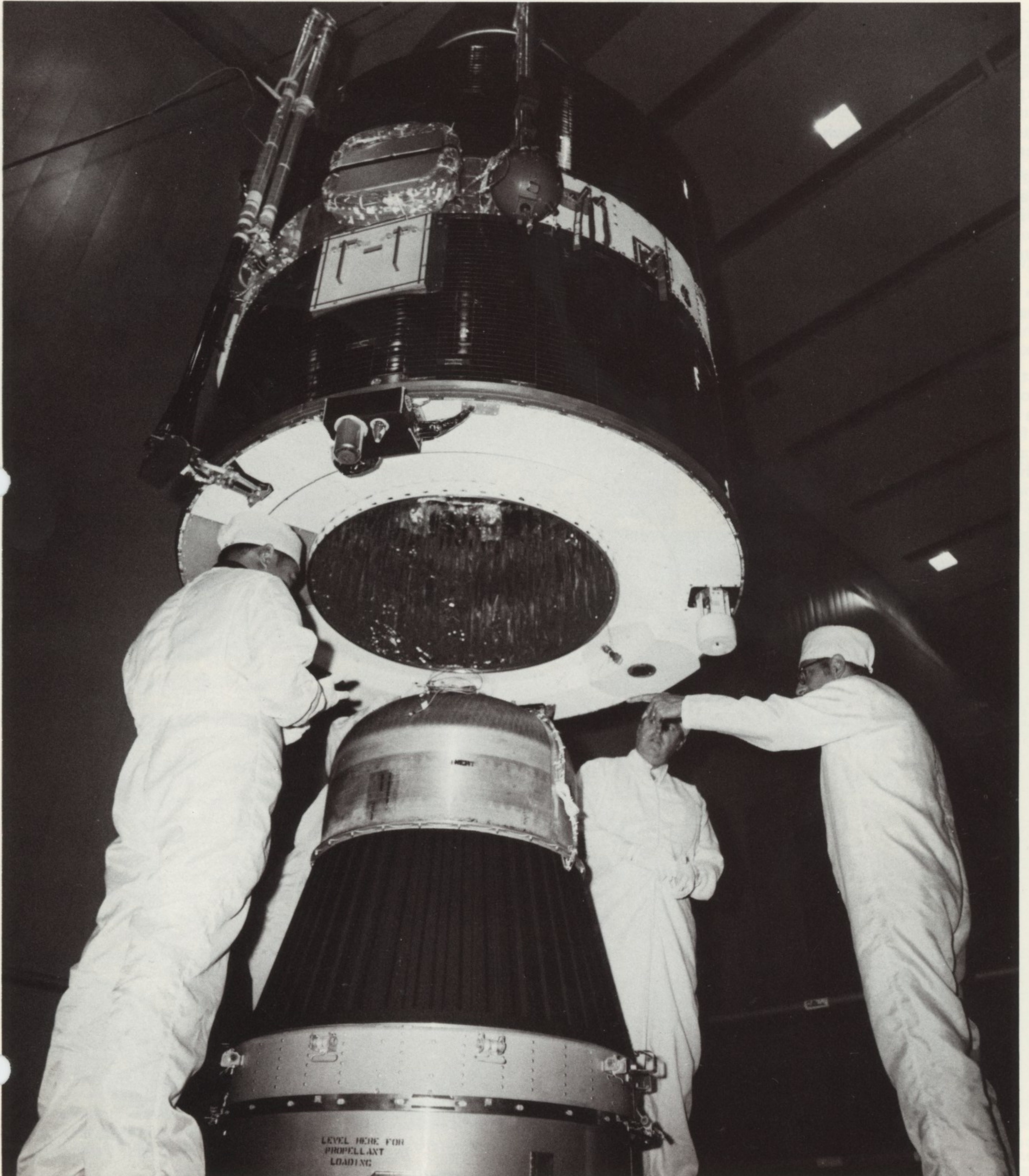


MARTIN MARIETTA

news

DENVER DIVISION

NUMBER 12/1978



SCATHA begins thermal vacuum test

The SCATHA spacecraft is set to begin thermal vacuum testing in the space simulation laboratory. The tests will continue until late September.

The move to SSL came after the spacecraft successfully completed acoustics, shock, and model survey.

SCATHA is a spinning satellite that will be placed in near synchronous, near equatorial Earth orbit. It will house, protect and support 13 scientific and engineering experiments. Its main purpose is to obtain data on spacecraft charging at high altitudes, a task from which it derives its name.

Following the thermal tests, the spacecraft will go through a short integrated systems test and then be shipped to the Goddard Space Flight Center. During the late October tests at Goddard, three types of measurements will be made. One will be a magnetic survey of the spacecraft, the second is a spin balance test, and the final test is to measure the spacecraft's moment of inertia.

At the conclusion of the tests at Goddard, some specific experiments will be returned to the principal scientists for refurbishing and recalibration. The spacecraft will be moved to Cape Canaveral where it will be joined later by the experiments and prepared for launch in late January.

ON THE COVER

The SCATHA apogee insertion motor is checked before installation by, left to right, Edwin McCann, Air Force quality control; Michael Gaughen, test conductor; and Ernest Berliner, propulsion engineer.

Division to compete for solar contract

The Denver Division has been selected as a potential contractor to build a collector subsystem for a pilot plant in California which will convert solar energy to electricity.

In the 12-month, phase 1 program, the division will complete production design and fabrication of test hardware for the heliostats and automated computer control system.

The subsystem is for a 10 megawatt solar thermal central receiver pilot plant to be constructed near Barstow, Calif.

Following a qualification test program and a competitive evaluation of hardware produced by the division and another firm, the Department of Energy will select one of the companies to build the pilot plant hardware.

Paul Brown is program manager for the project.

Division wins two contracts for space instruments

The Denver Division has been awarded contracts to design and build two instruments for the entry probe of the NASA Galileo Jupiter program.

One of the contracts, worth \$1.7 million, is for a cloud analysis instrument called a nephelometer. The nephelometer will measure the concentration and particle size of Jupiter's clouds and provide information about cloud composition.

The other contract, valued at approximately \$1 million, is for an atmosphere structure instrument (ASI). This instrument will measure how the temperature, pressure and density of Jupiter's atmosphere vary at different altitudes. From this information the mean molecular weight of the atmosphere will be calculated to determine the hydrogen-helium ratio in the atmosphere.

The ASI will also measure atmospheric turbulence intensity and the variation of horizontal winds, updrafts, and downdrafts at different altitudes. These measurements will be correlated with the data obtained from the nephelometer.

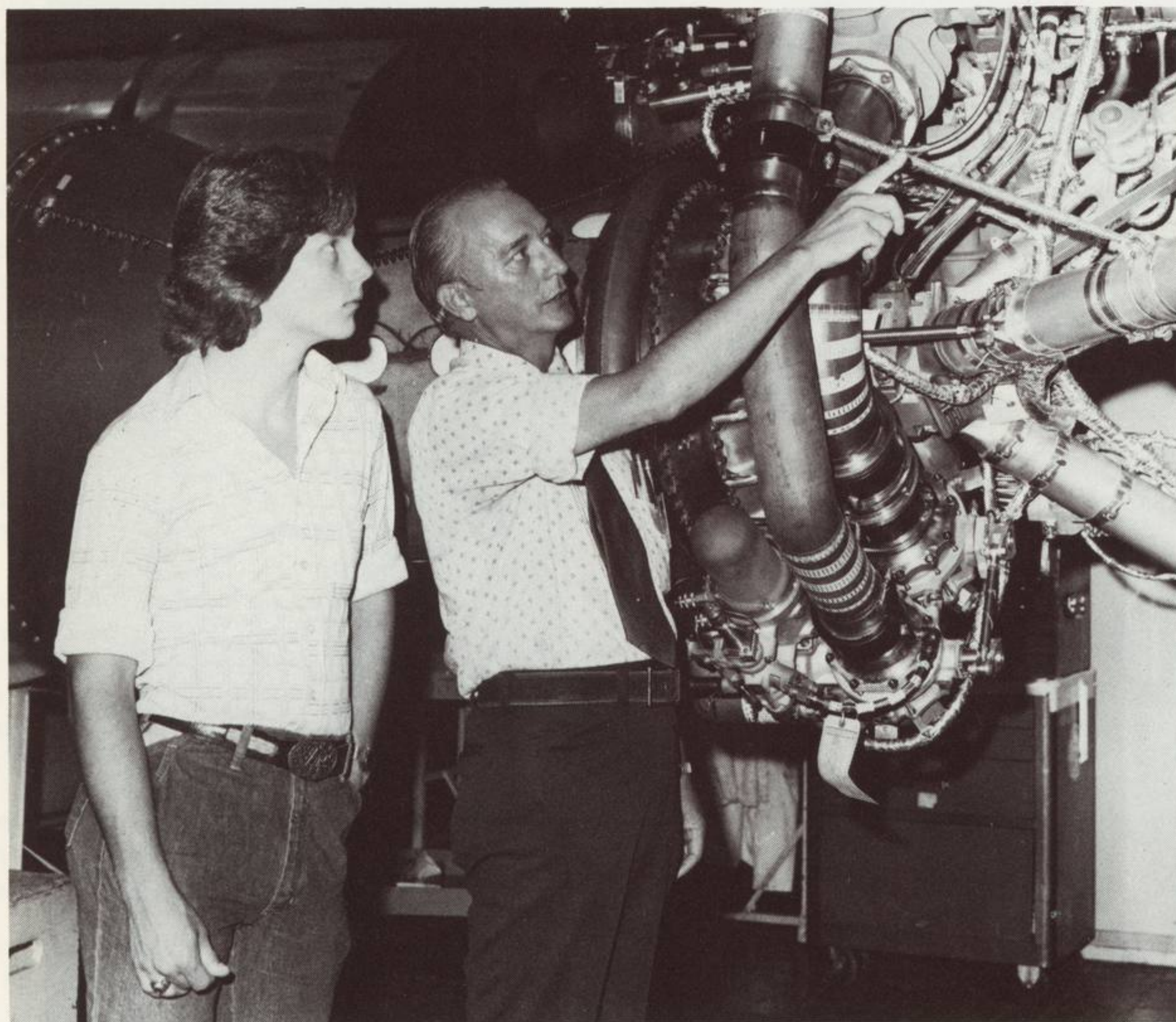
Tony C.D. Knight is the program manager for the atmosphere structure instrument and also served as proposal manager. Knight will supervise 10 employees. Joe Padilla is the project engineer.

William Fraser led the nephelometer proposal team and Lloyd Thayne is the program manager with Philip Avrin as assistant program manager. Thayne will supervise 15 employees.

Knight described the winning of both contracts as "further evidence of the strength of our payloads sensors and instruments group." Both contracts were awarded by the NASA Ames Research Center, Mountain View, Calif.

The Jupiter spacecraft, comprised of an orbiter and the entry probe, will be launched aboard the Space Shuttle in early 1982 and will reach Jupiter about a thousand days later. As the spacecraft approaches Jupiter, it will release the entry probe. The probe will then descend through Jupiter's gaseous atmosphere, relaying data for approximately one-half hour before it is crushed by the tremendous pressure of the planet's lower atmosphere.

The orbiter will photograph the giant planet and its 14 moons and the orbiter's instruments will relay information to Earth. Close-up study of Jupiter is expected to provide new information on origin and evolution of the solar system and on Earth's own beginnings. By comparing Jupiter's characteristics with Earth's, we may gain new perspective about our planet.



Doug Gerecht had a special tour guide when he and other participants in the University of Northern Colorado's Frontiers of Science Institute were guests at the division. His father, John A. Gerecht, shown with him in the photo, is a supervisor in the machine shop. They are viewing a Titan III.

Retirees return for lunch, tour

Twenty-eight hourly employees who have retired from the Denver Division and live in the area were guests for lunch and a tour August 22. Seventeen spouses also were present.

During the tour, Dale Young described work going on in the heat treat, machine shop, and precision assembly areas on the first floor of the factory. On the second floor, Jack Hook discussed major weld



Morris Neeley discussed manufacturing with E. S. Wood and Ann Goss, who were on retiree tour.

and final assembly of launch vehicles.

Moving to the electronics manufacturing facility (EMF), the guests heard about manufacturing processes and product line fabrication from Stephen Davenport and Harry Bulls.

At the inventory building, Donald Delphia talked about activities there, including packing, crating, and transportation.



Frank King shows retiree guests Isadore and Ann Dubowitz work in major weld area.

Donald and Lyda Hill, guests on retiree tour, discuss work with Phil Martinez.



Morris Nelley shows work to retiree guests Sue Aber and John Peterson.



Two programs earn award fees

Two Denver Division programs have earned award fees for performance on contracts with the Air Force Space and Missile Systems Organization (SAMSO).

Performance on the payload integration contract between October 1977 and June 1978 earned a fee of \$375,718.

In announcing the award, Major General Gerald K. Hendricks, SAMSO vice commander, said, "I cannot emphasize more strongly the importance of your tasks under the payload integration contract. The products of this contract directly influence the manner in which payload operations will be conducted in the Shuttle era. Your outstanding performance during the difficult start-up period reflects the professionalism and technical competence your payload integration project team has brought to this program."

The ground support systems performance earned a fee of \$359,211 between January 11, 1978 and June 13, 1978.

Lieutenant General Richard C. Henry, SAMSO commander, said, "The emphasis during this final award fee period has been directed toward completion of the contract within program objectives. Your performance during this demanding period has resulted in completion of the contract well within target cost and schedule. The management and personnel on the ground support systems project team should be highly commended for their efforts. The working relationships they have developed with the program office, the technical competence they have exhibited are both assets which have accrued to our mutual benefit."

Employee chosen as British workshop instructor

William E. Rogers, Denver Division manager of logistics, has been chosen as an instructor in a four-day workshop to be held September 10-14 in Brighton, England.

The *Joint European/U.S. Workshop in Life Cycle Cost Analysis*, is sponsored by the U.S. Society of Logistics Engineers, of which Rogers is a member, and the British National Terotechnology Centre.

Rogers is recognized as an innovator in logistics math modeling techniques for life cycle cost analysis. He has developed several new models and has converted many existing models to run on small programmable calculators. One aim of the workshop is to teach the use of these calculators in logistics analysis and modeling.

Injured employee returns to work; defies predictions

It was snowing March 2 when Jay Beacon drove to work.

"I was going about 40 miles an hour," Beacon said, "when my jeep began to fish-tail."

The vehicle went off the highway about two miles from the plant entrance and flipped over. Beacon was thrown from the jeep and, according to witnesses, the vehicle hit him.

Swedish Medical Center doctors gave Beacon little chance to live through the day but Beacon defied that prediction.

Ten days after the accident, Beacon underwent surgery to stabilize his broken back and permit him to get out of bed. Surgery was successful, but doctors said he would have no movement from the chest down.

Beacon refused to believe the diagnosis. He insisted he would not only move, but he would walk. A psychiatrist was sent in

to prepare him for life in a wheelchair.

After a month in intensive care at Swedish, Beacon was sent to Craig Rehabilitation Hospital to be trained to live in a wheelchair and to develop his strength.

Beacon worked hard. Three weeks later he moved a toe, then slowly he began to get minor movement in his feet. By the end of May he had achieved minor leg movement. But doctors still insisted he would never leave the wheelchair.

Beacon, who is manager of application software design and development, decided to come back to work in the wheelchair. Thanks to the people at the division who visited him regularly, Beacon had kept up with what was going on.

"The support of my friends, the support of the company, and the financial help of the excellent insurance plan gave me an extra mental boost," Beacon said. "My job was waiting for me, so I came back to work."

At first, he spent about two hours a day in the office and by June, was at work full-time.

Since he was in a wheelchair, the company made some facilities changes. He parked near the mail room so he could wheel himself up a ramp and down the hall to his office. Many changes were made that will aid other handicapped persons in the future.

Beacon continued to work out. His equipment included a stationary bicycle in his office.

Out to defy predictions, he began trying crutches and braces. His aim was to walk from his office in the engineering building to RDL where he attended staff meetings.

August 30, Beacon got out of the wheelchair and walked. He is staying out of the wheelchair.

He has defied predictions.

Employees earn new technology, invention awards

The Denver Division's new technology evaluation committee and product development review board have named ten employees to receive cash awards for their ideas.

Selected for new technology disclosures awards submitted as a result of work on NASA contracts were:

John R. Lager, Donald A. Thomas, Walter F. Thiemet, and Dan Padilla, all of engineering mechanics, for their low-cost graphite/epoxy spacecraft body structure. The panel design and manufacturing method are adaptable to mass production and may be useful for home solar heating systems and in the auto industry.

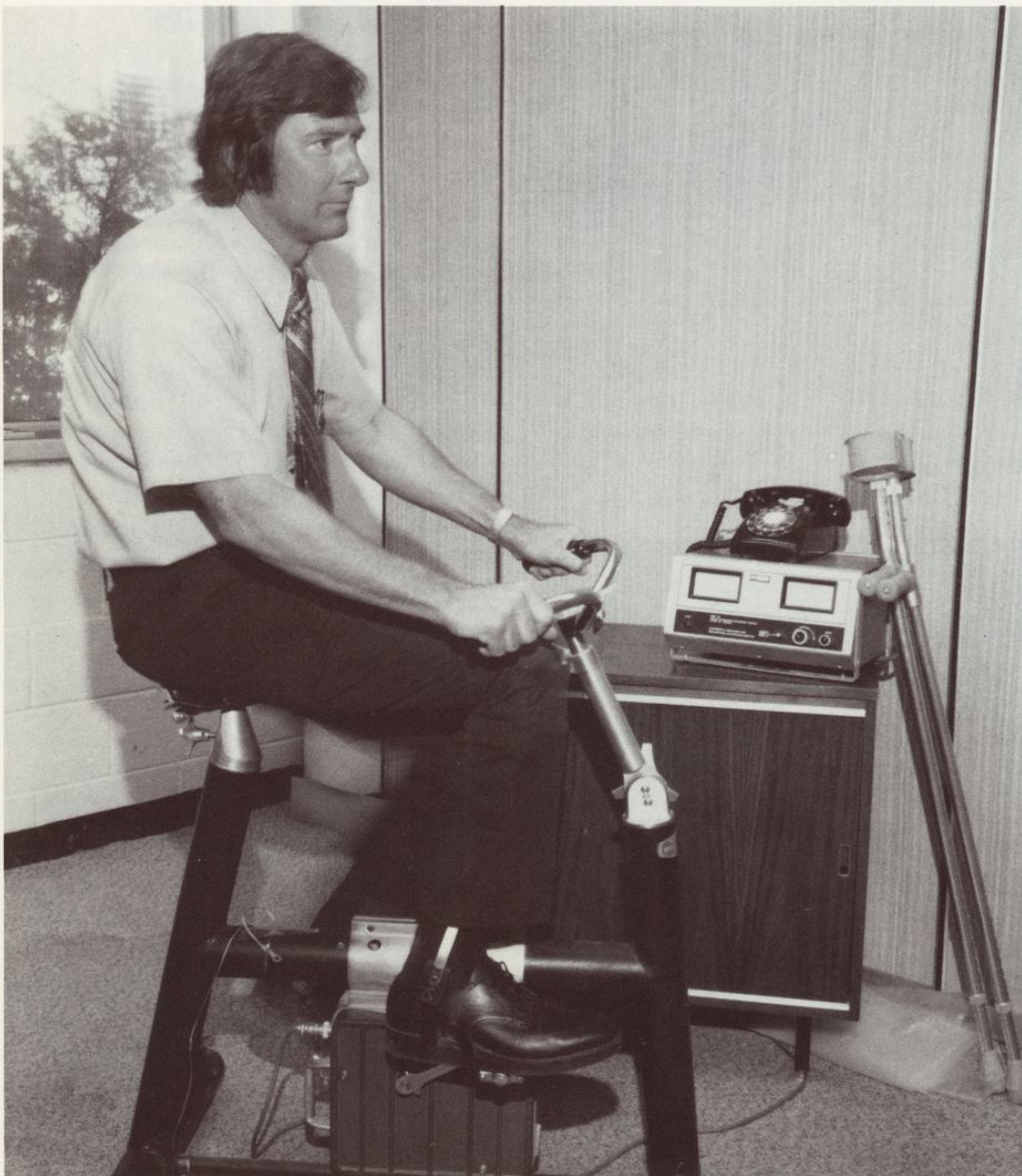
Wilfred L. DeRocher Jr., systems engineering; Robert O. Zernuehlen, electronics; and Gilbert M. Kyrias, engineering mechanics, for a one-g system for demonstrating servicing or repair of a spacecraft in orbit using module exchange. The system has been delivered to the Marshall Space Flight Center.

Invention awards were made to:

John J. Cozzens, electronics, for a battery shipping and storage container that solved a problem on the code switch program with significant cost savings.

William L. Newcomb, engineering mechanics, for a slip plane in earthen cover for MX missile breakout that has had good test results and possible cost savings.

Thomas E. Zaczek, electronics, for an antenna scan-pattern generator that contributed to the winning of a simulator contract.



Jay Beacon rides about 10 miles a day on this bicycle in his office and on a similar one he uses at home.

At Vandenberg

Test conductor certified in launch test

Roger V. Hawkins, Vandenberg operations test operations department, has successfully completed the standboard certification simulated launch test. The test followed a year of training in all phases of launch safety, emergency reaction conditions, and requirements.

The launch standboard team is made up of 26 engineering and technical people whose activities include all possible situations that may be encountered in a receipt-through-launch cycle. The simulated countdown in the three-hour certification process includes the operation of the vehicle under routine, emergency, and vehicle systems malfunction conditions. Launch crew response and reaction are evaluated at the completion of each launch count phase by the standboard team.

Launch crew members participating in

the certification were James R. Larkin, launch console monitor; Robert R. Wade, tracking and flight safety operator; Edward C. Patrick, ground station operator; Lesley L. Holland, pad control; William J. Hunt, ordnance engineer; Darril A. Hinton, facility control console operator; Lawrence H. Heidlebaugh, van power distribution and control operator; and Charles H. Johnes, control center power distribution and control operator.

The culmination of Hawkins' efforts came on August 4 when a Titan III was launched. Following a long-standing tradition at Vandenberg, the tie Hawkins wore was clipped by Edward V. Stephenson, chief of silo launch complex 4 operations. Later, Hawkins was presented the distinctive launch conductor's pin. He is the 19th launch conductor certified at Vandenberg operations.



Roger V. Hawkins, left, and Jim Larkin, center, get a simulated emergency condition from standboard team member Walt Hoskins, right, during test.



Success in the test brings out the scissors so Edward V. Stephenson, chief of silo launch complex 4 operations, can clip tie of Roger V. Hawkins' certification as a test conductor. Jim Larkin watches the ceremony.

At Canaveral

Nine receive service awards

Nine Canaveral operations employees who have completed 20 years' service with Martin Marietta recently received their awards. They were:

Richard Freeman, industrial relations; Lennie S. Manuel, quality; Martha Bloecker and Jack Withrow, materiel; Nicholas T. Geso, Brooks E. Kilgore, Harold B. Lebow, Robert A. Rodamer, and Leon B. Smith, of test operations.

Awards were presented by Felix J. Schefler, director of Canaveral operations.

Solid rocket booster drop test successful

The fifth air-drop of the Space Shuttle solid rocket booster parachute recovery system was conducted successfully recently at the National Parachute Test Range, El Centro, Calif.

The Denver Division is prime contractor for the recovery system and conducted the test for the Marshall Space Flight Center. The Pioneer Parachute Company manufactures the parachutes for the division.

A total of six drop tests are planned in the development program using a dummy booster as the drop test vehicle.

Carried aloft by a B-52, the 270,000 pound test vehicle was released from the aircraft at an altitude of about 20,000 feet.

When Space Shuttle becomes operational, its two solid rocket boosters used on each launch will separate after burnout at an altitude of about 27 miles. The parachute recovery system will lower them into the ocean for retrieval and reuse.

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Denver Division
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At Michoud



More than 500 wooden pilings were driven 60 feet into Louisiana silt to support the 100-foot tall addition to the high bay building at Michoud.

Phase I Michoud high bay addition nears completion

Work on the first phase of a new high-bay addition for Michoud is progressing on schedule with a contract for the second and final phase of construction scheduled to be awarded in October.

The new addition will contain three cells for applying primer, ablator, and thermal protection system foam to the oxygen tank and intertank portions of the external tank.

"This new building will allow us to increase our production rate of external tanks as we move into the production phase," said Randall A Tassin, Michoud facilities manager, "and build the 27 tanks called for in Increment II."

During the first phase of construction, more than 500 wooden pilings were driven over 60-feet into the Louisiana silt to support the 100-foot tall addition on the firm strata below. Foundations and utilities have also been installed.

Second phase construction will include the building, cell fixtures, handling equipment, and environmental process systems.

The new addition is located in the open area between the existing manufacturing building and vertical assembly high-bay building. It will be completed in October 1980.

Michoud awards contract for thrust panels

Michoud operations has awarded a contract to the Vought Corporation of Dallas, Texas for solid rocket booster thrust panels for the external tank.

Two of these large 2-inch thick aluminum thrust panels mount on either side of the intertank and distribute the thrust loads of the solid rocket boosters to the external tank.

The two-year contract calls for Vought to machine 12 panels which includes forming, heat treating, assembling, and delivering the items to Michoud. Amount of the contract is \$795,000.

Michoud completes savings bond drive

Michoud operations achieved 96 percent participation in the recently completed U.S. Savings Bond campaign, an increase of 17 percentage points from the 79 percent rate at the beginning of the drive.

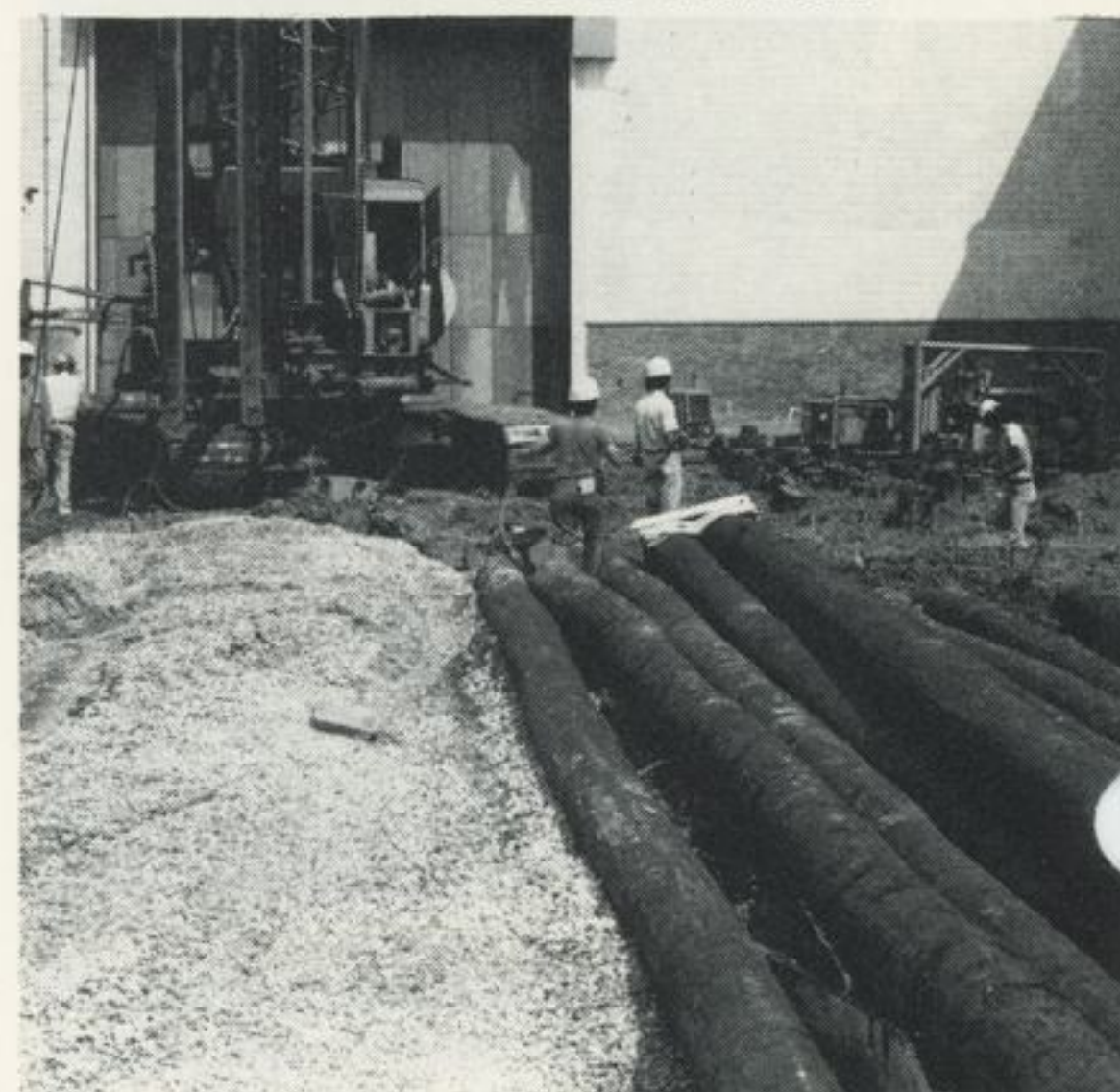
Six departments achieved 100 percent participation. They were: Professional and industrial relations, project planning and support, computer services, reproduction and program support, materiel operations, and the National Space Technology Laboratories operations.

At Michoud

Call Ext. 3788 with suggestions or information for articles.



Boh Brothers Construction Co. is working on foundation and utilities for addition.



Wooden pilings wait to be used for high bay addition.

Blood drive meets goal

Success in reaching the goal set in the Michoud operations agreement with the New Orleans Blood Bank, Inc. means Martin Marietta employees and their families are eligible to receive, with certain restrictions, blood replacement.

Twenty-five percent of Michoud employees donated blood during the recent drive to reach the goal.

If you or a member of your family receive a blood transfusion follow these procedures:

- Provide the blood program chairman, Ray Lacombe, ext. 3606, with this information:
 - Name of patient
 - Hospital where transfusion was administered
 - Dates of hospitalization
- Request the hospital business office contact the blood bank replacement office, (504) 524-1322, to verify eligibility for blood replacement benefits.

Employees may call Lacombe for information and assistance.