

MARTIN MARIETTA

news

DENVER DIVISION

NUMBER 1/1977



For Titan III

A centennial launch in the bicentennial year

The division's launch vehicle program saluted the nation's bicentennial year appropriately in mid-December with the 100th launch of a Titan III.

The launch at the Western Test Range at Vandenberg Air Force Base ended a decade in which Titan III became the nation's heavy-duty space workhorse booster for military and non-military space launch missions, with assignments that have included military, scientific, and communications satellites.

It was also Titan IIIs that were used to boost the highly successful Viking spacecraft on their flights to Mars.

The Denver division was created to develop Titan as an intercontinental ballistic missile, then designated Titan I. These ICBMs were followed by Titan II, still in the nation's arsenal. The Titan was the first ICBM to be launched from a fully hardened silo. The hardened silos protect the ICBM from attack, leaving them operational for retaliation to the attack.

The Titan III, manufactured in four configurations, is not a weapon, but a standard space launch system.

"The 100th launch is definitely not the end of Titan III use or production," C. E. Carnahan, vice president for launch vehicles said. "We have new production contracts and we expect to be in business for many years to come."

Carnahan, who has been part of the Titan program since it began, said the program has been "remarkable in its longevity."

"Not many programs have been as successful or have provided the long-term business base for an aerospace firm as Titan has for the Denver division," he said. "We can attribute that success to the people who have been part of the program. At some time, almost everyone who has worked at the division has made a contribution to the program."

The Titan III common core vehicle consists of two booster stages evolved from the Titan II ICBM. An upper stage, Transtage, may be added to function both in the boost phase of flight and as a restartable space propulsion vehicle. All stages

use storable liquid propellants that can be left aboard a launch-ready vehicle indefinitely.

Titan IIIB is basically the two stages of the common core vehicle. It can accommodate a variety of specialized upper stages.

Titan IIIC consists of the common core vehicle, plus Transtage, with two five-segment solid-propellant rocket motors attached to either side to function as a boost stage.

Titan IIID is similar to Titan IIIC, except that Transtage has been removed.

Titan IIIE is the newest and most powerful interplanetary launch vehicle in the nation's inventory. It consists of two liquid propellant stages, the Centaur upper stage, and twin five-segment solid rocket motors attached to each side of the first stage.

The Titan IIIE was used by NASA to launch the West German Helios space-

craft to within 23 million miles of the Sun in mid-1974 and Viking spacecraft to Mars in 1975.

"The 100th successful launch of a Titan III is a fitting conclusion to our bicentennial year," Carnahan said. "It is, in my opinion, symbolic of the success of our nation's free enterprise system and the ever-present pioneering spirit."

On the cover

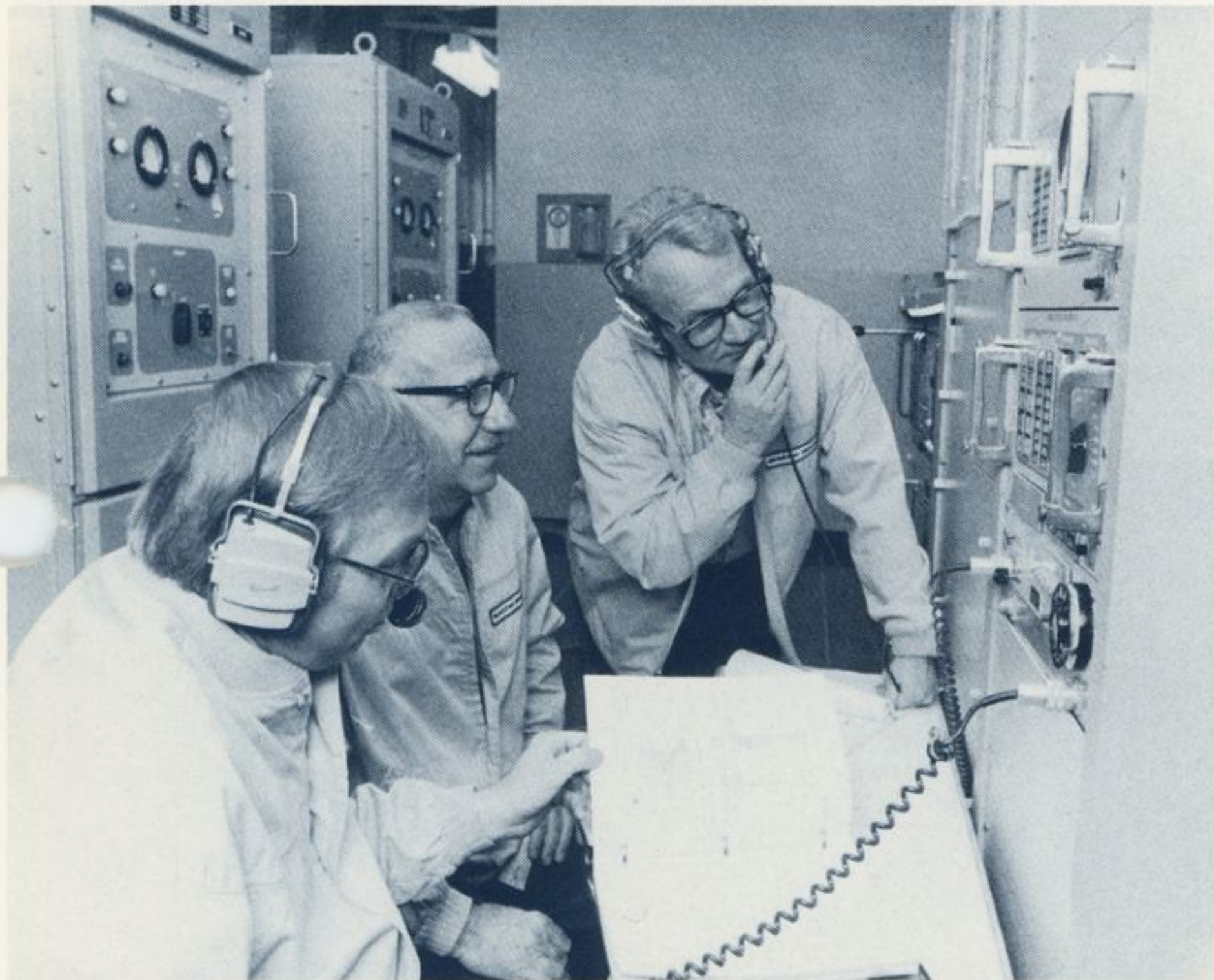
Throughout the successful Titan III launch program, decals commemorating the launches have been prepared and distributed to employees. The cover depicts the latest of these decals. It was designed by C. D. Carnahan, launch vehicles vice president, and was distributed after the 100th Titan III launch in mid-December.



Capt. M. J. Fleiszar and Lt. J. F. Saucier, members of the Air Force launch team; and Richard B. Hooley, launch conductor, and Keith T. Fulton, launch console monitor, of the Martin Marietta launch team; prepare for the final countdown for Titan III launch.



Richard B. Hooley, launch conductor, and Keith T. Fulton, launch console monitor, are shown at launch console just prior to initiation of autoterminal count.



Robert E. Weyrick, Vincent M. Roselli, and Norman L. Shaw monitor the power distribution panel during the countdown sequence for Titan III launch.



Robert R. Wade and Daniel J. Costa, flight safety team, monitor flight safety console during countdown sequence.

Ten employees share VE awards

Ten Titan launch vehicle program employees recently received awards totaling \$1500 for in-scope value engineering ideas. The ideas returned \$141,179 to Titan program reserves and it is estimated they will add more than \$28,000 to Titan program profits.

Most Department of Defense contracts include a value engineering incentive clause that offers a share of savings from ideas that continue to provide the necessary product or service functions, but at reduced costs. For the past eight years, the division has shared these incentive savings with employees who originated the ideas.

However, to be a value engineering change proposal, a cost-reducing idea must require a contract change to allow implementation. Employees, therefore, with ideas that could be incorporated without a contract change could not earn a value engineering award.

In August 1976, the value engineering award program in launch vehicles was expanded to give cash awards for in-scope changes in cases where the savings from the change were returned to the Titan program reserve. The amount of the award is proportional to the additional contract profit the savings earn.

First awards under the program were made to

Charles Vashus for an improved chemical milling maskant, \$496.

John Parrish and Carl Anderson for an improved method of applying ablative coatings; shared \$404.

Emerson Toney shared a \$375 award with Ed Slifker and Lee Klug of Baltimore for developing a reuseable shipping container.

Eli Valencia had redome covers returned from launch sites for reuse; \$67 award.

Don Stanley saved spares about to become obsolescent by trading them onto vehicles scheduled for early flight; \$65 award.

Clay Bland developed a special machining fixture; earned \$49.

Bob Bassett avoided cost of masking tooling holes in chemical milled parts by inserting a short piece of O-ring in the hole; earned \$42.

Employees are encouraged to turn their ideas into cash by calling Leonard Horner, Ext. 4332 (IDEA).

Employees interested in search, rescue urged to register with division

Employees interested in becoming part of air or ground search activities for fliers, hikers, campers, and others missing in Colorado are being encouraged to register with the division's professional and industrial relations department.

"We are encouraging employees to sign up so we can work more effectively with the Civil Air Patrol and Colorado Search and Rescue organizations—particularly when one of our employees is missing," R. E. Weber, director of professional and industrial relations, said.

The need to assist CAP and CSAR became apparent during the search for Bob Booker, a division staff engineer, and his wife who were missing on a flight from Utah to

Denver. The Bookers walked to safety after their plane crashed in a sudden snow storm.

"We don't intend to sponsor units of either organization," Weber said, "but we can act as a go-between for the organizations and division employees. We would expect some employees will want to join the organizations and take part in the excellent training they provide.

"We will make arrangements for employees who are interested to learn more about the organizations, perhaps setting up meetings and briefing sessions."

Licensed pilots and those interested in ground search activity should contact R. E. Burnett, ext. 2234, mail no. 6320.

The Economic Facts

Inflation: What is it?

Inflation.

We read and hear that word a dozen times a day. But what does it really mean?

We know that it makes such things as food and clothing cost more. But how does it do this?

Maybe this will help: Inflation happens when our government spends more money than it receives in taxes. The government then prints enough additional money to take care of the difference between income and expenses. That reduces the value of the money already in circulation.

In other words, the dollar you have now buys less.

Inflation is also caused by wage increases that exceed productivity. You can see how this would happen. If a company pays a worker more money for the same amount of output, then the company has to raise prices on its products because of its increased labor costs.

These are the two major reasons why your dollar doesn't stretch as far as it did a couple of years ago. To correct this, government must live within its income and we will all have to work more efficiently and smarter when we get a pay increase.

It is just that simple—but true.

Withholding forms may need updating

Are you up-to-date on your federal withholding allowances? If not, too much or too little tax is being withheld from your pay.

Examples of situations that could change the number of allowances you claim on a W-4 form are marital status change; a dependent is born or dies; you begin or stop supporting a dependent; you become 65 years old or blind; or the eligibility for additional withholding allowances changes.

You should claim all the allowances you are entitled to, but you may not claim the same allowances with more than one employer at the same time. If you and your spouse are both employed, you can divide your allowances between you, but you cannot claim the same ones.

The Internal Revenue Service requires each employee to file a new W-4 within ten days when the number of allowances he is entitled to decreases.

Employees who need to change W-4 claims should contact departmental secretaries for information.

The James S. Cogswell award, being held by Haynes F. Lindsey, center, security administrator for Canaveral Flight Operations, was presented to CFO for "excellence in industrial security." With Lindsey are John A. Coryell, left, director of Canaveral Flight Operations, and Brig. Gen. Don M. Hartung, commander of the Air Force Eastern Test Range, who presented the award. The facility was one of two selected in the Defense Contract Administration Services' Atlanta region which includes more than 300 defense facilities.



Vice president named for division group

John L. Slack, who was manager of the defense systems' data management activity for the division in 1972-73, has returned to become vice president for command and information systems for the division.

He will be responsible for the division's business activities in the field of large automatic information flow systems, such as acquisition, organization, dissemination, and display of data necessary for the management and direction of civilian and military enterprises.



Immediately before his return to the division, Slack was deputy assistant Secretary of Defense for Intelligence. In his nearly four years in that office he had also held

posts as deputy director of defense intelligence, director of resources and management, and senior systems engineer.

"My goal is to provide a growth rate of about 20 percent for command and information systems," Slack said of his new assignment. "We will attempt to focus the activity of the product area on the more profitable business opportunities."

Slack earned a BS degree in mechanical engineering from Oklahoma State University in 1960 and the same year went on active duty with the Air Force. As an Air Force officer he completed work for both a bachelor's and master's degree in aeronautical engineering in 1962 at the University of Colorado.

He was assigned by the Air Force in 1962 to the National Security Agency and remained with the agency as a civilian in 1965 when he completed his tour of duty. He served as division chief in the research and development organization of the agency and was also a director of field assignments. Prior to leaving the agency in 1972 to accept the earlier position with the division, he was director of the systems analysis directorate for a joint Air Force-National Security Agency facility.

Slack has been awarded the Joint Service Commendation Medal and the Meritorious Civilian Service Citation of the Secretary of the Air Force Special Projects for his work.

He is a member of the American Institute of Aeronautics and Astronautics.

Scholarship application deadline Feb. 1

Employees are reminded that Feb. 1 is the deadline for applications for Martin Marietta Foundation scholarships for their sons or daughters for the 1977-78 academic year.

A change has been made in the eligibility requirements for applicants. The employee whose son or daughter is an applicant for a scholarship must now have been employed by Martin Marietta for at least two years as of January 1 of the award year and be on the active payroll at the time of the award. Formerly, the employee had to have at least five years with the corporation.

In a major change, applications now will be evaluated and selection made by a committee of three persons not associated with Martin Marietta. The committee will be selected by trustees of the Martin Marietta Corporation Foundation from the academic and business communities.

All applications, supporting evidence, and correspondence will be sent directly to the committee.

Application forms and further information about the scholarship program may be obtained from R. W. Walker, personnel administration, RDL 414, ext. 2304, in Denver, or from Ray Lacombe, personnel and industrial relations, column EC40 on the first floor of building 101 in Michoud.

Aluminum mill expansion planned

Plans for major capital additions at the Lewisport, Ky. sheet and plate mill have been announced by Martin Marietta Aluminum. The expansion will increase the mill's output of coiled aluminum sheet by more than 50 percent and will triple its coil coating capacity.

The plant expansion, estimated to cost about \$40 million, has started.

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Division wins MX study contract

The Denver division has been selected to conduct a preliminary design study for mobile strategic missile carriers to be used above and below ground.

The contract is one of a series of studies being conducted by the U.S. Air Force Space and Missile Systems Organization (SAMSO) in the development of the intercontinental ballistic missile system designated MX. The MX system would be deployed in new mobile basing modes rather than fixed silos as today's Titan II and Minuteman ICBMs. The MX also would be larger, more accurate, and armed with more warheads than present day deterrent weapons.

Contract value is approximately \$2.4 million. The division is the principal contractor of an industrial team that includes Terex division of General Motors of Hudson, Ohio, and Ralph M. Parsons of Pasadena, California.

A team of 50 engineers assigned to the project will be under the direction of James A. Sterhardt.

Publications awards deadline is near

The publications award committee has set January 30 as the deadline for entries for evaluation in the division's awards program.

All entries must be submitted in 10 complete legible copies and each must be accompanied by a completed publications award entry. Entry forms and information may be obtained from R. W. Walker, personnel administration, ext. 2304, mail no. 6360 (RDL 414).

To be eligible for an award, the entry must have been published between January 1 and December 31, 1976. Signed articles appearing in professional, technical, or trade periodicals, journals, books, papers or bound proceedings may be submitted. Publications must be related to the author's professional functions in his assigned duties.

Entries will be evaluated on the basis of creativity, quality of content, benefit to company, and mode of expression.

Mars ends conjunction with Sun

Mars has stopped playing hide-and-seek with the Earth, emerging from its partial hiding place behind the Sun and permitting full communication with Viking orbiters circling the planet and Viking landers perched patiently on its surface.

The orbiters are sending back high-rate science data and the landers reacted immediately to commands from Earth.

One problem apparently has developed on lander 2. Command receiver number one seems to have failed. Its symptoms are similar to the problem with the receiver on lander 1 shortly after it set down on Mars to begin the mission. The problem is

NASA administrator offers congratulations for division's work

James C. Fletcher, NASA administrator, recently sent the following letter of congratulations to Thomas G. Pownall, executive vice president of Martin Marietta:

"I personally wish to congratulate you and the Martin Marietta Corporation for your contribution toward the outstanding success of the Viking Mission to Mars. Viking has already attracted a wide and sustained interest, both here and abroad.

"The spacecraft at Mars are performing remarkably well and have significantly increased our knowledge about the planet and the environmental processes operating there. We have every hope and expectation that exciting data will continue to stream back to Earth from the Vikings.

"All of us here at NASA are well aware of the long hours and dedicated effort, often in the face of seemingly insurmountable problems, required of you and your staff to successfully complete the necessary design, fabrication, and testing of flight hardware. We appreciate that dedication and recognize that the success achieved would have been impossible without it.

"I would appreciate your extending my personal congratulations to all of the people in your organization who contributed to Viking.

"People around the world are attentively following the progress of Viking and noting the success to which you so significantly contributed."

being studied and as Cal Broome, new Viking project manager and mission director, says, "It is being viewed with caution."

"We were able to command lander 1—and still can after five months—so we believe we can do the same thing with lander 2," Broome said.

Other than this problem the spacecraft appear "completely healthy."

Among highlights of the conjunction and post-conjunction period was the apparent success of the relativity and solar corona experiment. Data was received throughout the period from both orbiters and at one time or another from both landers.

"Although quite noisy, we did get data right up to conjunction and then resumed getting data two days after conjunction," Broome said. "The radio science team, and particularly Dr. Shapiro, was delighted."

(Dr. Irwin I. Shapiro, professor of geophysics and physics at the Massachusetts

Institute of Technology, is leading the relativity experiment work.)

The team anticipates the data will improve the accuracy of relativity experimentation by a factor of 10 over that achieved by anyone in the past.

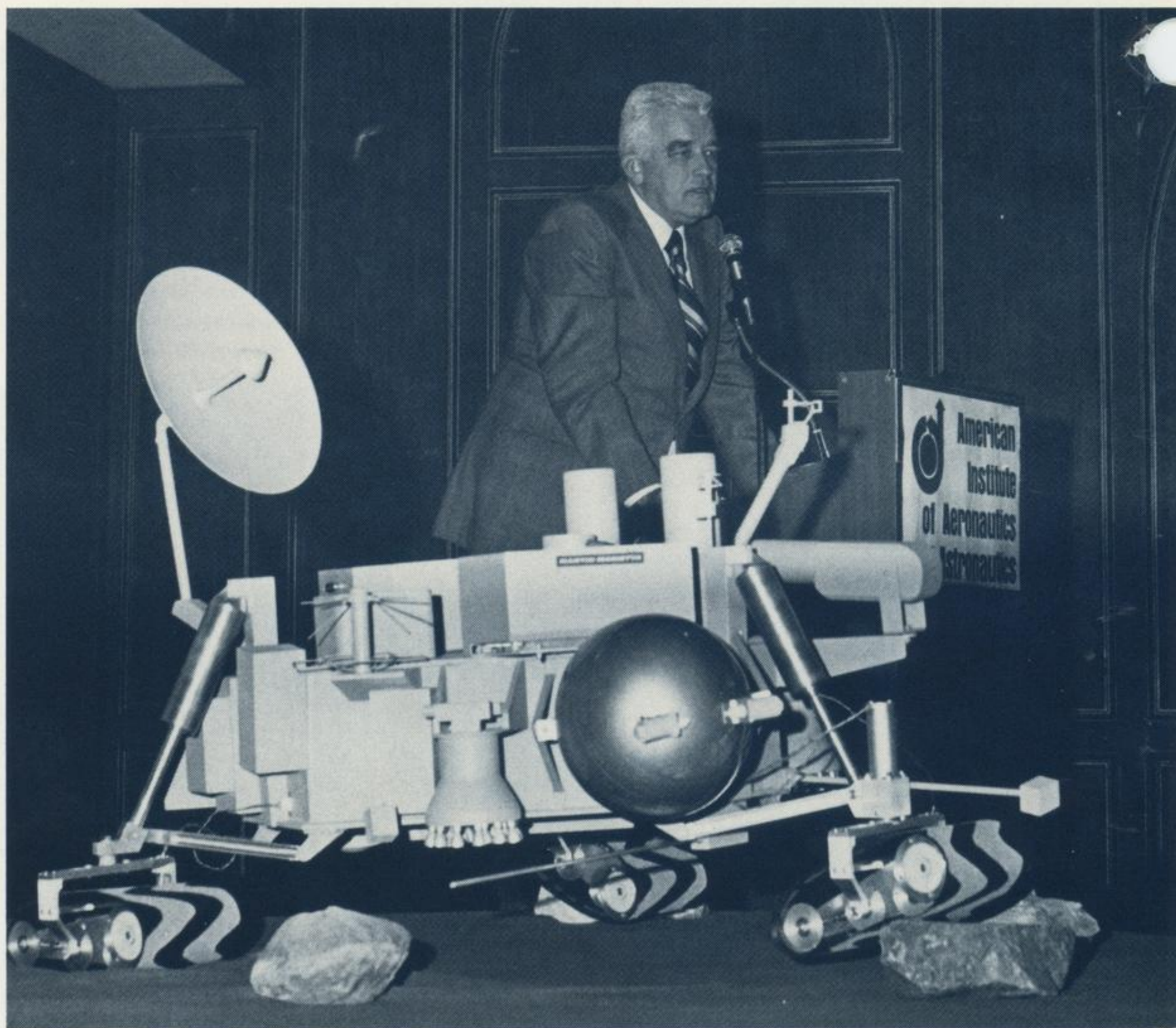
Images from both cameras on both landers have been received.

"Nothing appears to have moved in the Mars scene," Broome said.

Meteorology shows no change in weather; winds are still light, temperatures are dropping some as mid-fall approaches on the planet, and atmospheric pressure is essentially level.

About Jan. 15 surface sampler activities will begin as will new biology and x-ray sequences. Imaging activities will also begin building.

Detailed planning for the extended mission has been completed up to the third week in February, with general planning up to May 31, 1978.



James S. Martin has been named vice president for planning and advanced programs for Martin Marietta Aerospace. Martin, who resigned from NASA in mid-December, is shown here as he spoke to a joint meeting of the American Institute of Aeronautics and Astronautics and the

American Astronomical Society in Denver. In the foreground is a proposed design of a mobile lander to expand exploration on Mars. Martin fills a position left vacant when Robert J. Whalen became vice president and general manager of the Orlando division.