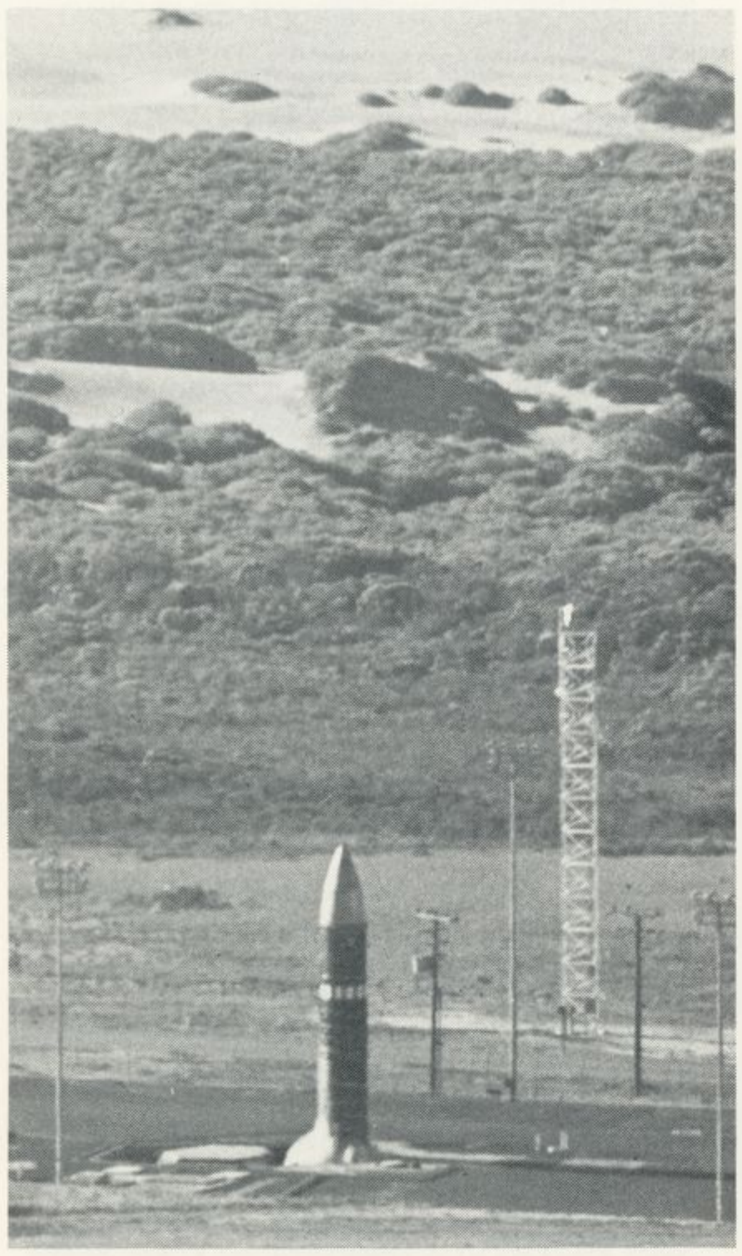
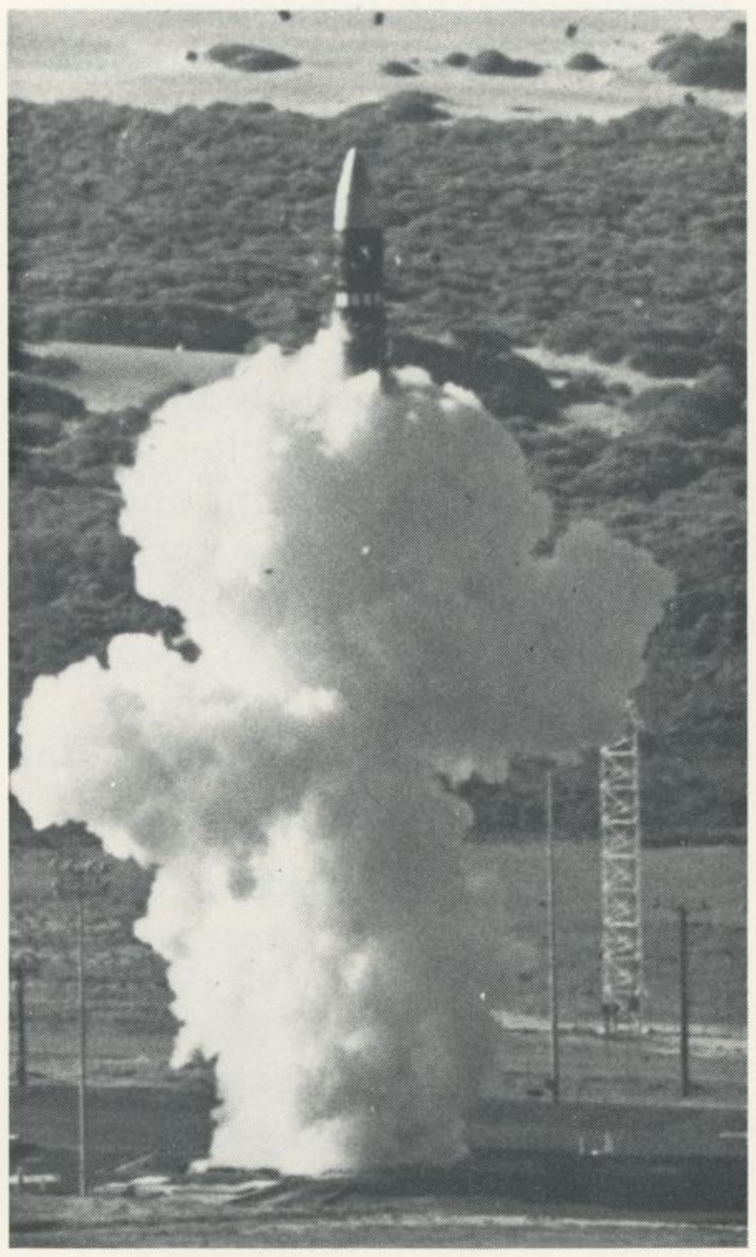
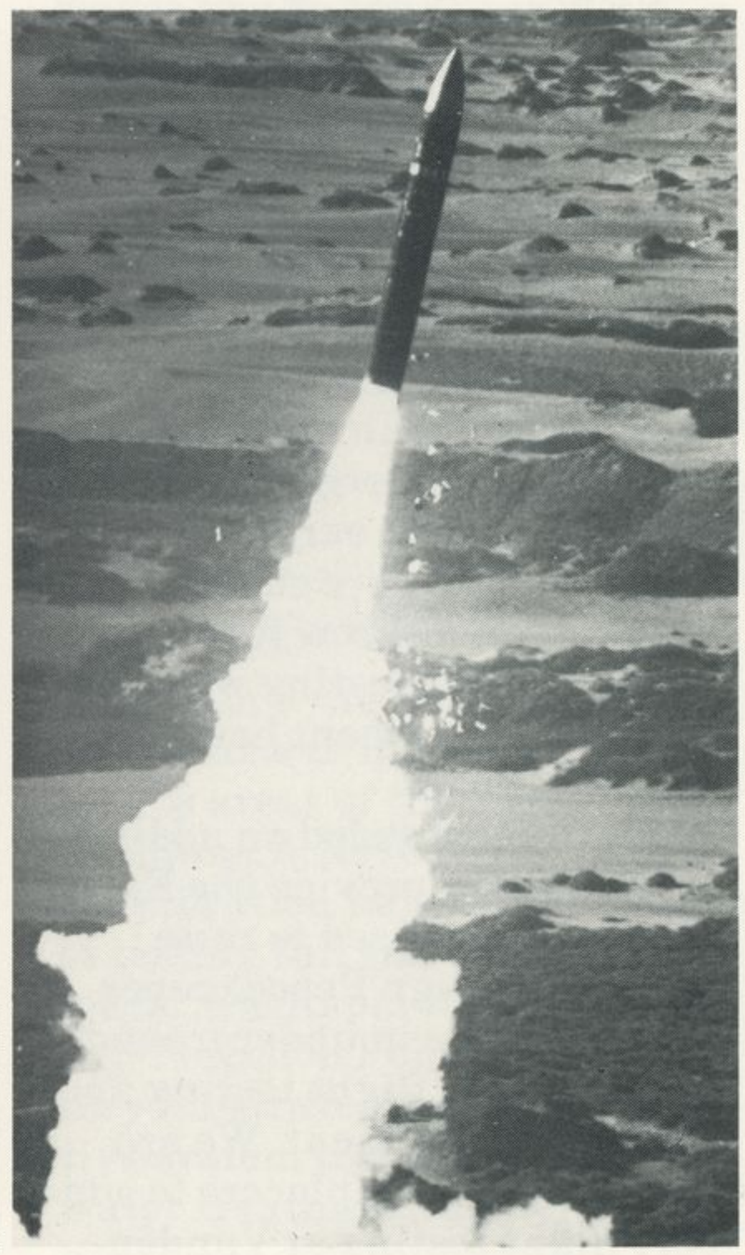
MARTIN MARIETTA
news
DENVER AEROSPACE

December 20, 1985 Number 25







1985—Another record year

'A tribute to the dedication of our people'

(Editor's note: Peter B. Teets, president of Denver Aerospace, recently reviewed the company's 1985 accomplishments and expressed his views on its future. Teets became president of Denver Aerospace on February 7, 1985, when the Martin Marietta Corporation announced the promotion of Norman R. Augustine to senior vice president of the Corporation. Teets had been vice president for Strategic and Launch Systems since 1982, and is a 22-year veteran of Martin Marietta.

The cover photographs show the second Peacekeeper launch from an underground silo at Vandenberg Air Force Base, Calif., on November 13, the tenth Peacekeeper test flight.)

□ **MARTIN MARIETTA NEWS:** 1985 was another record year for Denver Aerospace. We spun off another company, hired more than two thousand new colleagues, won important new business, and continued our leadership in advanced technology. To what do you attribute this year's success?

□ **TEETS:** The sterling performance of 1985 resulted from the exemplary efforts of all of our employees, who worked together as a team. Our accomplishments prove that together we can achieve our continued record of excellence.

□ **NEWS:** Overall, how did 1985 look compared with previous years?

□ **TEETS:** We're all aware of the tremendous growth Denver Aerospace has experienced over the past five years. This year proved to be the best year ever in terms of orders, sales, and profits. We held a local job fair, intensified our recruitment programs, and hired more than two thousand people during the year, more than 500 of them new college grads. Many departments have begun their own orientation programs for new employees, and we'll begin a new orientation program and intensify in-house training in 1986.

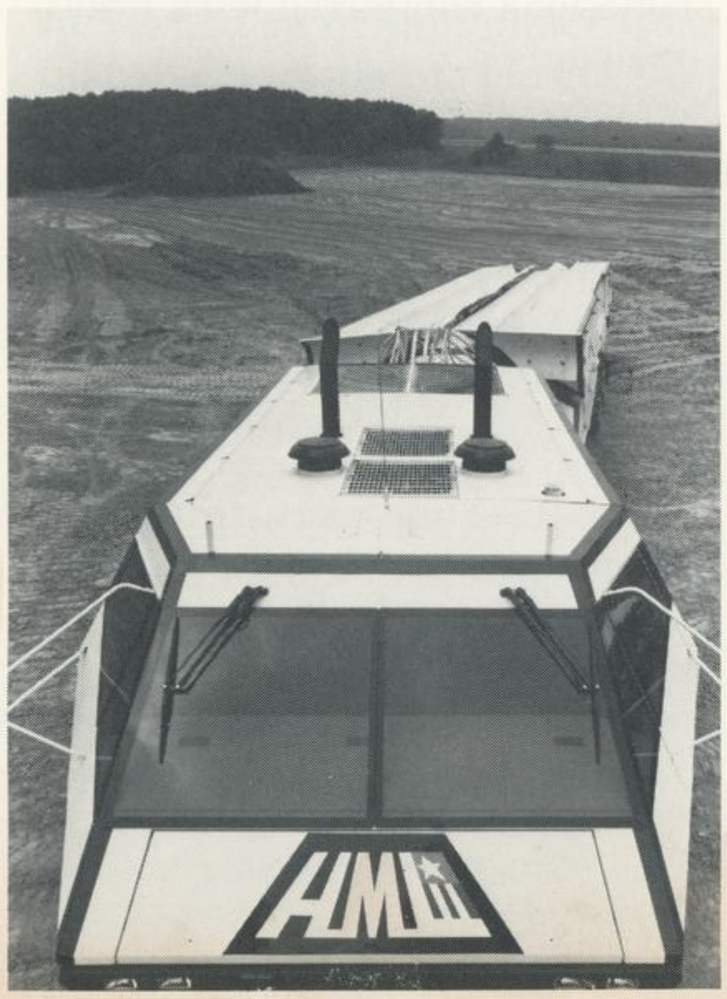
'This year proved to be the best year ever in terms of orders, sales, and profits.'

□ **NEWS:** What do you consider some of the outstanding highlights of 1985?

□ **TEETS:** The first thing that comes to mind, is that the Peacekeeper flight test program entered a new phase with two launches from an underground silo at Vandenberg Air Force Base, Calif. Two earlier launches also were successful, making ten in a row for Peacekeeper. Flight testing will continue as deployment begins in the late 1980s.

We were awarded an additional contract to provide the Emplacer system used to raise, lower, and align Peacekeeper missile stages in underground silos, first for flight testing and later for deployment. We are providing two emplacers to support flight testing at Vandenberg and six to support deployment in Wyoming and Nebraska.

We won a continuing role for Denver Aerospace in the defense of the country with a significant new program—the small intercontinental ballistic missile (SICBM). We were awarded the assembly, test, and system support task for development of this deterrent system, including building the postboost vehicle.

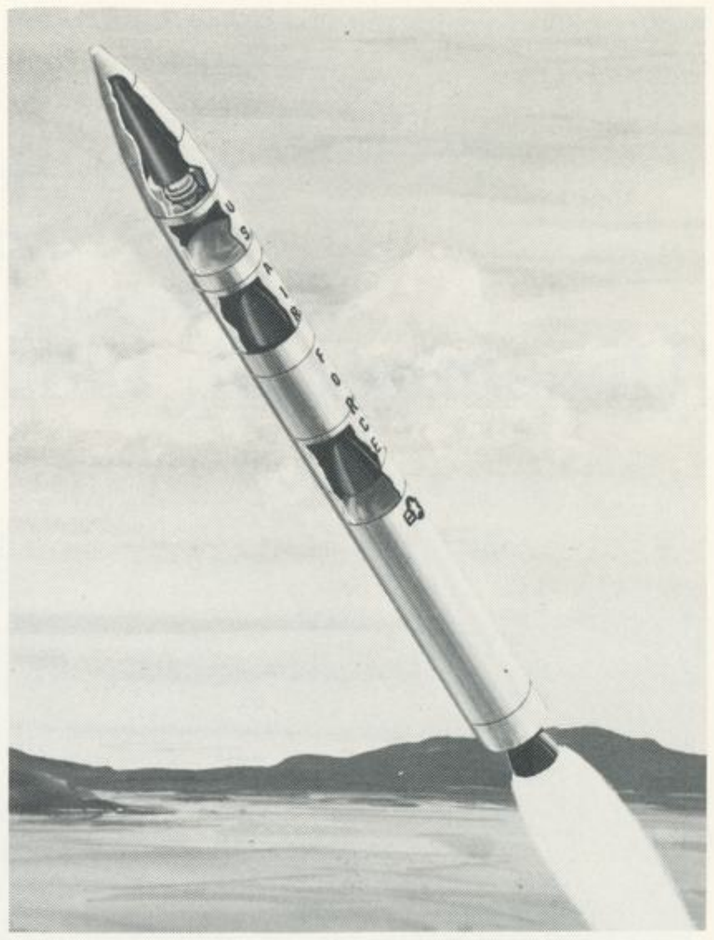


We were chosen as one of two contractors to compete to build the hard mobile launcher, the primary basing concept under study by the Air Force, for the SICBM. We rolled out a test version of our hard mobile launcher design concept in September with our partner, the Caterpillar Tractor Company.

We won an important contract to provide the Air Force with ten Titan 34D-7 boosters as part of the President's policy of assured access to space for critical national payloads. And, we are negotiating with the Air Force to convert decommissioned Titan II ICBMs into space boosters. These two programs should keep us in the Titan launch vehicle business through the 1990s.

□ **NEWS:** We also were reviewed extensively by the Air Force Contract Management Division in February.

□ **TEETS:** Yes, we were, and we received an excellent rating from their Contractor's Operation Review (COR) regarding our systems and practices—one of the best performance ratings given by the Air Force. We want to take advantage of the lessons learned from the review, and set new, higher standards of excellence in 1986 when we will again be audited by the Air Force. We cannot relax our vigilance in adhering to contract requirements.



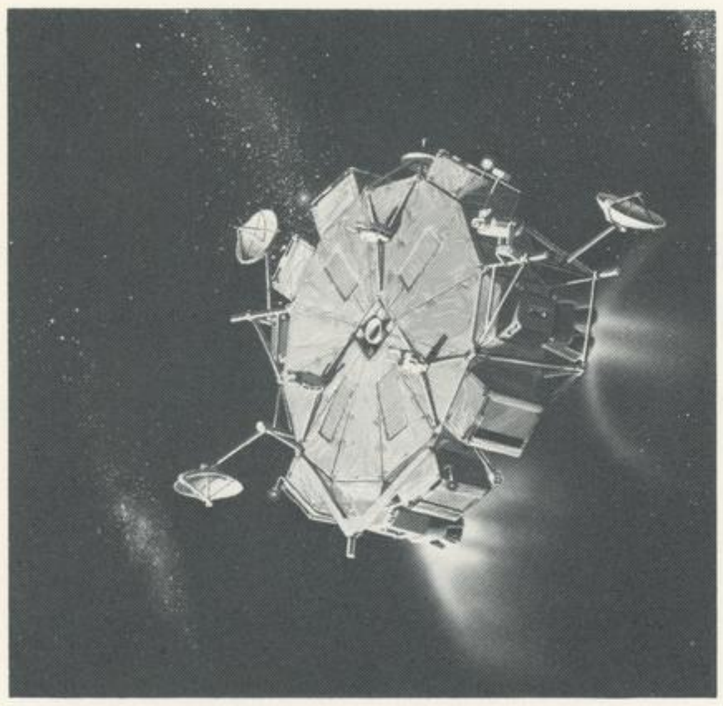
□ **NEWS:** Would you address the Titan 34D flight failure that occurred August 28 from Vandenberg?

□ **TEETS:** While 1985 was a year of tremendous achievements, there were also some disappointments. Foremost among them was the Titan flight failure. The formal failure analysis investigation conducted by the Air Force could not positively determine the specific cause of the failure. I hasten to add that the Martin Marietta flight anomaly investigative team did an outstanding job in sorting through the data, developing rational scenarios, and screening them to an actionable set of alternatives. As a result of the flight investigative activities and other Titan related events, we have redoubled our vigilance in the production, inspection, and operation of all our hardware programs.

□ **NEWS:** What are some of the additional milestones in 1985?

□ **TEETS:** Another Transtage, our venerable upper stage for boosting spacecraft and satellites, was delivered to the Air Force during the year, and two more are slated for delivery in 1986.

By December, Denver Aerospace had provided a number of



other systems for each of the nine space shuttle missions, all of which continued to perform to our standards of mission success. We won a contract to provide 800 more pyrotechnic initiator controllers used on the shuttle. At Vandenberg Air Force Base, we made great progress on the ground support systems for the new space shuttle launch site. All major facilities and systems were turned over by the end of the year, and a first launch is planned in 1986.

Our work on tethered spacecraft systems has also advanced. The second phase of our contract with NASA—to develop the hardware for demonstration test flights—went into effect in January, 1985. A first mission is scheduled for 1988.

The manned maneuvering unit (MMU) was returned after the successful rescue of the Palapa and Westar satellites in 1984. The hardware, when returned to us, was checked and found to be operable. This year we've concentrated on analysis and design for increased propulsion capability and a change to a digital control system. This is in preparation for a flight of opportunity—rescuing another satellite—and for some proposed demonstrations for space station construction during the 1987-88 time period.

We completed the system definition study for an Orbital Maneuvering Vehicle, a space tug to ferry satellites and spacecraft to and from the shuttle or space station. Our proposal for the full-scale development contract on OMV is being delivered today. We won some related contracts to study front-end service kits for the OMV—to help catch satellites and repair them in space.

We were successful in the downselect process this year with the Kinetic Energy Weapon. We've postured ourselves now for a major role in the KEW demonstration program in 1986. Our major objectives will be to win the KEW demonstration award and other sizable Strategic Defense Initiative contracts.

□ **NEWS:** What are some of the program-related events that you anticipate in 1986?

□ **TEETS:** We're going to have a very active year in the Titan program, and I'm looking forward to 100 percent mission success in 1986. I expect Titan launch successes to be the highlight of the year.

On Peacekeeper, we intend to continue our outstanding contract performance through continued 100 percent mission success from Peacekeeper silo launches at Vandenberg.

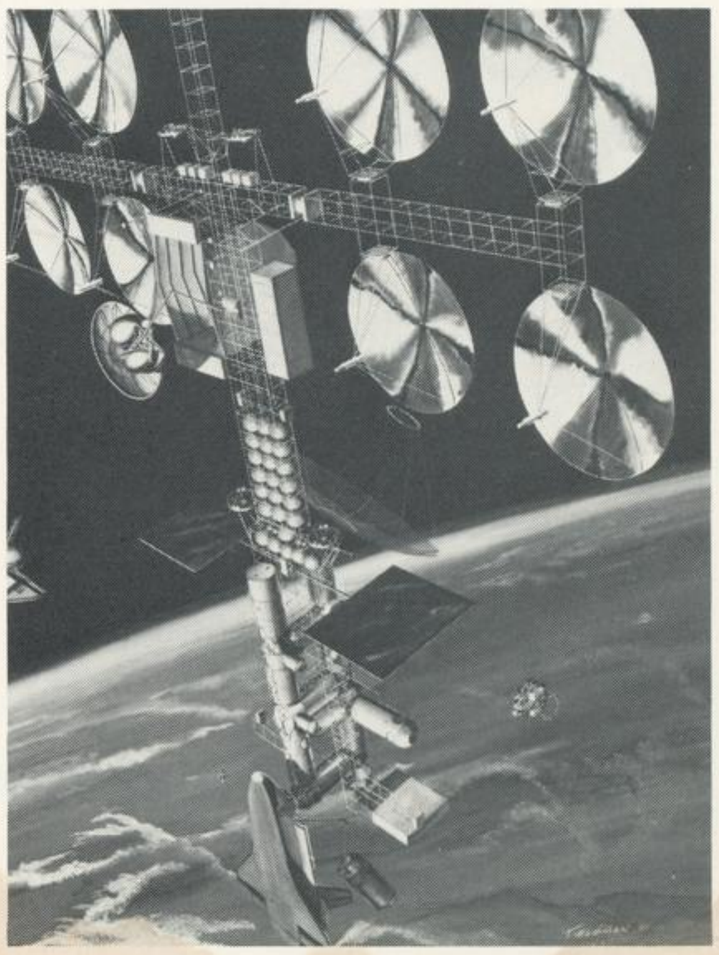
We'll continue development of the SICBM as assembly, test, and system support contractor. Our milestones in 1986 will include completing our design of the facility where we'll build the postboost vehicle for the SICBM... conducting our preliminary design reviews on the the postboost vehicle and instrumentation and range safety system in the first quarter of 1986...assess the readiness of the weapon system to go into full-scale development...starting assembly of the postboost vehicle in the last quarter of '86...a full-scale development decision will be made regarding defense systems acquisition review council.

We will continue work on an Orbital Transfer Vehicle to ferry spacecraft to and from geosynchronous orbits, and on a contract to study future space transportation needs.

Next year, instruments we built for the Galileo Jupiter probe will be put to work with a launch scheduled in May. Those instruments will reveal secrets about Jupiter's atmosphere and clouds, and assist in attitude control of the spacecraft.

Also scheduled for launch next year in August is the Hubbell Space Telescope, destined to unveil our universe for study as never before possible. Denver built the Faint Object Spectrograph for the telescope, to detect and analyze light sources so faint that it actually will look back in time 14 billion years.

Our work with Orbital Sciences Corporation in developing a new upper stage is progressing.



'We cannot relax our vigilance in adhering to contract requirements.'

The Transfer Orbit Stage, along with an apogee and maneuvering stage, is being considered for NASA's Tracking and Data Relay satellite and a TOS only for the Mars Observer mission.

Our first technological opportunity to study Halley's Comet will include a system built by Denver Aerospace for the European Giotto spacecraft. Using a light-flash detector and sunshade, the experiment will analyze individual dust grains from the legendary comet, and identify and transmit the chemical composition to us.

In 1986, most of the major hardware for the Venus Radar Mapper spacecraft will arrive from the suppliers, and checkout and integration will begin. Launch will be in 1988.

□ **NEWS:** We also became more deeply involved in the Strategic Defense Initiative program this year.

□ **TEETS:** That's correct. The government's commitment to study deterrent systems against ballistic nuclear missiles has opened up exciting major new business opportunities for us. Denver has won contracts to study various architectures for SDI, as well as space-based kinetic and directed energy weapons, and targeting and stabilization systems.

In November, we dedicated the Rapid Retargeting/Precision Pointing laboratory at Denver, designed as a national testbed to study targeting and pointing elements of SDI programs.

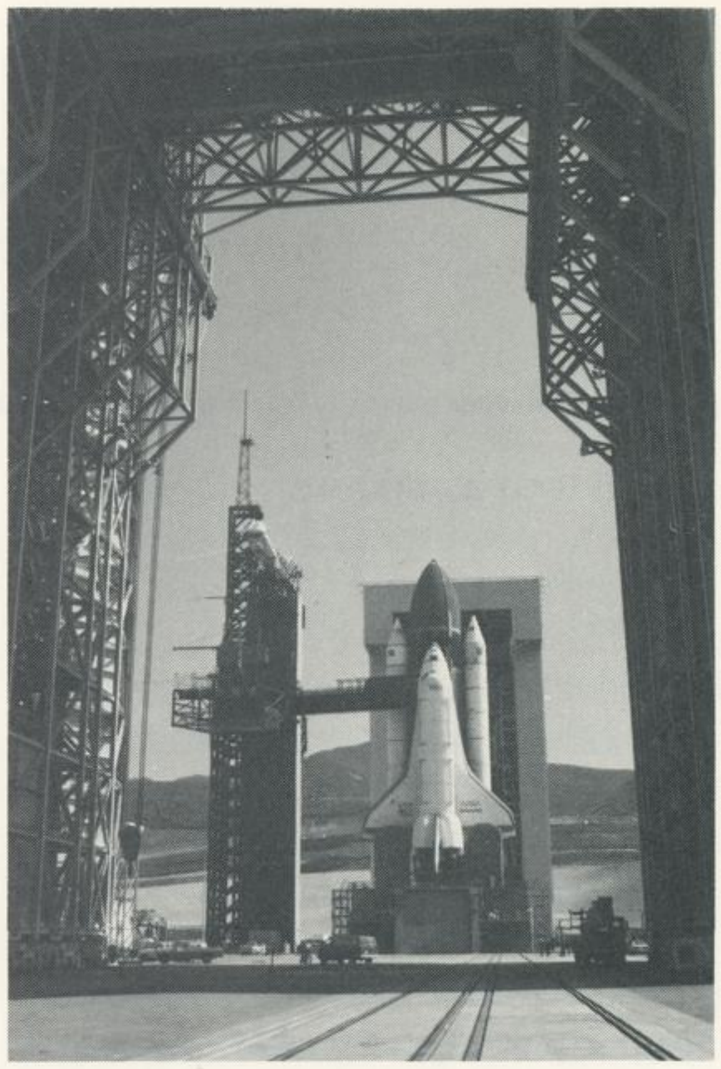
We submitted our proposal for SDI-related tracking and pointing experiments on December 3. We've already begun developing the two sets of experiments for shuttle flights in 1987 and 1988 devoted to SDI.

□ **NEWS:** How much involvement do we have with the proposed space station?

□ **TEETS:** A significant amount. In March, Denver Aerospace won a contract for definition of the proposed space station. We were one of two companies selected for studies on one of four NASA work packages related to space station.

Denver Aerospace, along with Michoud Aerospace, is conducting definition and preliminary design studies of the common modules and also is defining and designing environmental control and life support systems, and an auxiliary propulsion reboost system. Another related study task is focusing on a plan to accommodate orbital maneuvering and orbital transfer vehicles.

Denver is involved in a number of other technology research contracts related to space station. Among these are studies of orbital refueling systems, automated power distribution networks, intelligent robotic systems for the station, and an



atomic oxygen simulation system to examine degradation effects on the station.

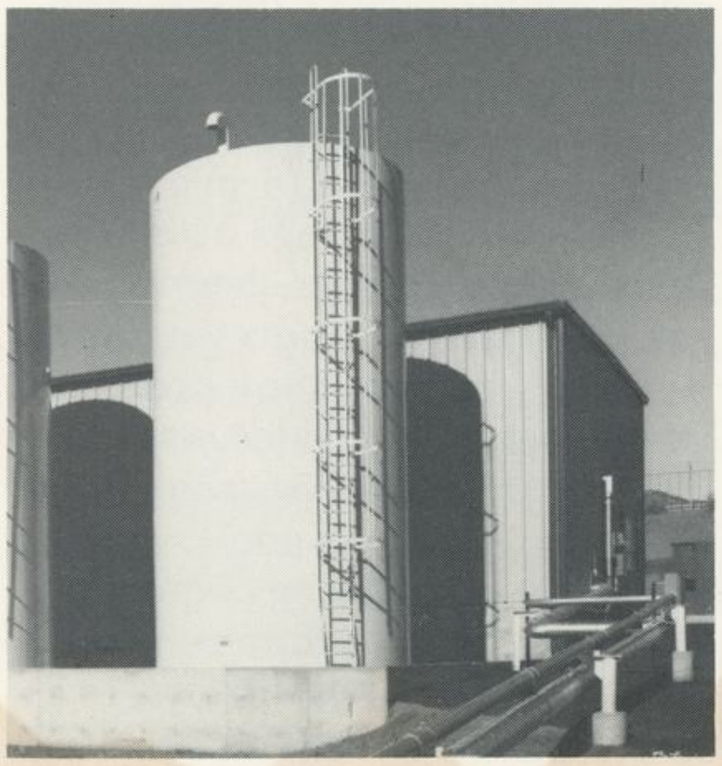
□ **NEWS:** This year we helped to launch a newly independent aerospace business.

□ **TEETS:** That's right. In the fall of 1985, the Michoud Division became an independent company—Martin Marietta Michoud Aerospace. However, we have worked so closely with them in the past that we can indeed share in their great success. They're a good bunch of people.

By early December, there had been nine successful shuttle flights during the year, and the external fuel tank built at Michoud performed excellently on each. During the same period, nine additional external tanks were delivered to NASA, including two to the new launch site at Vandenberg.

□ **NEWS:** How about the Information & Communications Systems company (I&CS)? Can we look forward to a continued close relationship in 1986?

□ **TEETS:** As you know, we have worked very closely with I&CS as part of a spin-off plan to make them an independent



operation by January 1986. Al Hawkins has returned to Denver as vice president of the Denver I&CS operation.

Because of the excellent working relationship with I&CS during 1985 we feel a great deal of pride in their important accomplishments.

In 1985, I&CS formalized a contract to develop, test and integrate components of the All Source Analysis System/Enemy Situation Correlation Element program in a joint Army-Air Force effort. ASAS/ENSCE is a mobile data processing system being procured by the Jet Propulsion Laboratory.

I&CS also won a contract to provide a digital information network for the Strategic Air Command...a contract to do preliminary design of a launch control system for the small intercontinental ballistic missile...and a number of other defense programs.

The Air Traffic Control division won an addition to its contract to integrate systems in the future for the Federal Aviation Administration's modernization program, and the Federal Communications Commission also approved the company's request for the right to build, launch, and operate two communications satellites.

I&CS is also pursuing a key effort in the SDI—a national test bed for many of the new systems that are being studied. The business potential represented by the National Test Bed program is very large and therefore Denver Aerospace will work in concert with I&CS to secure a role for the Corporation.

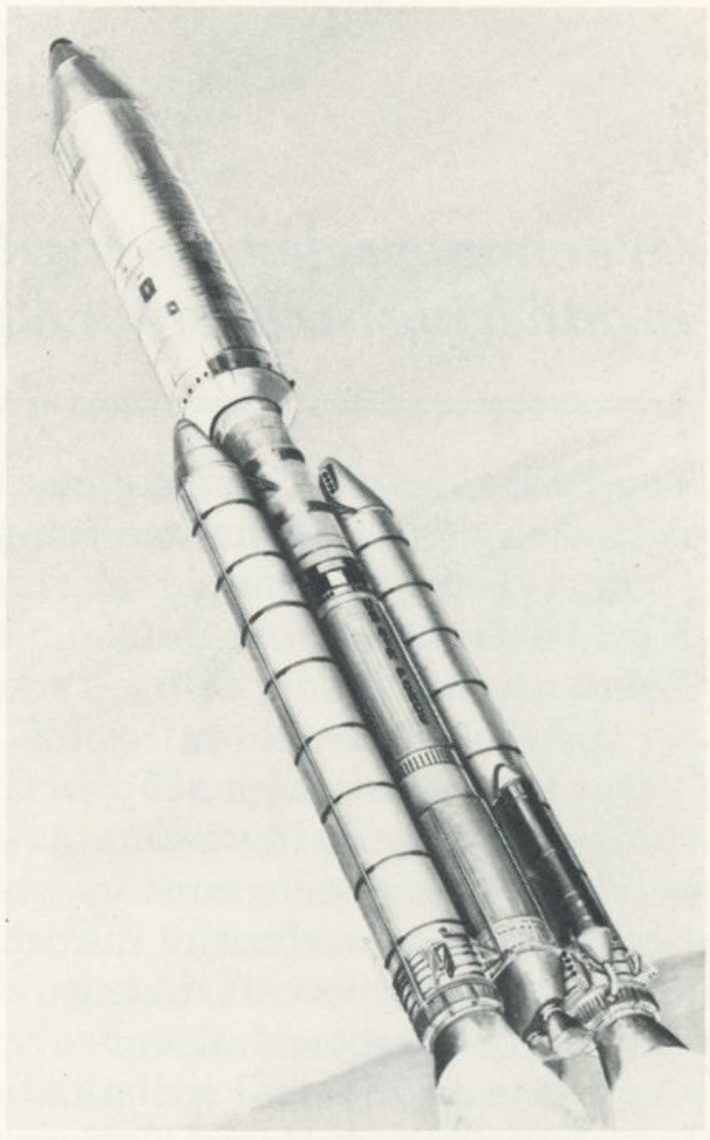
□ **NEWS:** How are we preparing ourselves for the challenge of the years ahead?

□ **TEETS:** In Denver, our research and development work has continued to focus on key advanced technologies. The autonomous land vehicle or ALV is one. Able to follow a road independent of human control, the ALV is being developed as a national testbed for government, industry, and university advances in artificial intelligence systems.

In Technical Operations, key advanced technology contracts were added, including an addition to our Intelligent Task Automation research...development of intelligent robotic systems...research into thermal management and laser fire control, both related to SDI programs...and new C^3I software development programs.

□ **NEWS:** What have we done or plan to do to ensure that our physical plant keeps pace with the growth of business and the workforce?

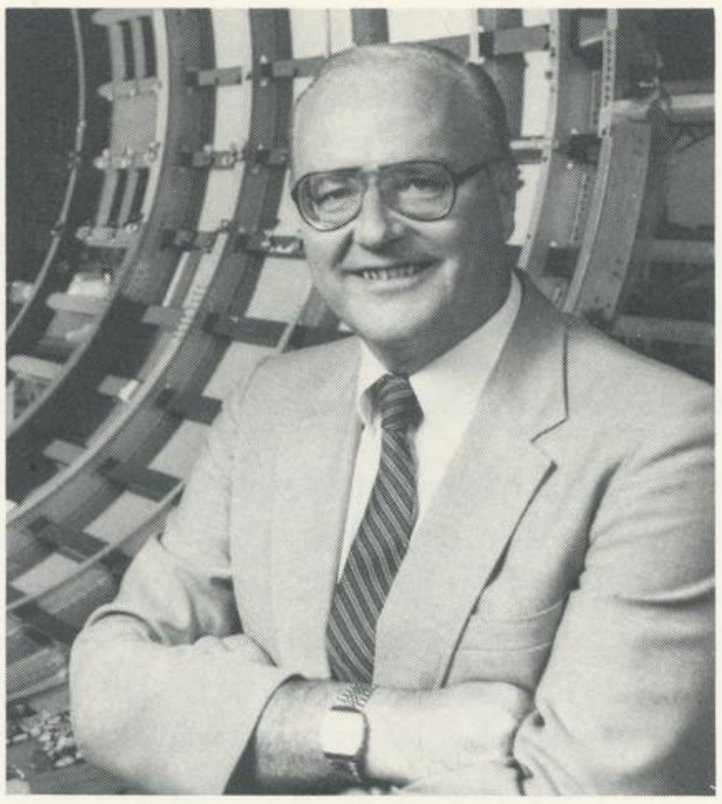
□ **TEETS:** New facilities completed during the year include a new office building at



Waterton—the SSN addition... expansions to RDL and renovation in areas of the Engineering Building...a Reverberant Acoustic Vibration Laboratory capable of testing full size shuttle payloads...the Rapid Retargeting/Precision Pointing laboratory for strategic defense initiative system testing...and a new water treatment facility to upgrade our environmental management programs. We're on a five-year plan to upgrade facilities all across Denver to improve working conditions for our people.

□ **NEWS:** Have a lot of these improvements occurred in response to the employee surveys?

□ **TEETS:** Yes, and we'll continue to act on our employees' concerns. Some of the responses this year include increased communication in the form of additional staff meetings attended by more employees, departmental newsletters, improvements in food services, menu changes, healthier food options, and new second shift and Saturday food service, increased employee training—including courses for supervisors in human relations and company procedures—and additional courses in effective



'...our high integrity and dedication to mission success will propel Denver Aerospace to greater accomplishments...'

supervisory practices, managing personal growth, and more, to accommodate employee requests.

Our program managers course, which began in June, with 30 participants, will accelerate preparation of program managers needed as we continue to grow. We've also added medical coverage for those on second shift.

□ **NEWS:** Our employees have read a lot about our environmental concerns. Could you summarize your personal view of our commitment in this area?

□ **TEETS:** I, as president, and with the Corporation's backing, am totally committed to solving our environmental problems. We have made great strides in that direction during the year. The ground water interception plant we turned on in September is just the most visible part of that effort.

We are working with the Colorado Health Department, the Environmental Protection Agency, and the Denver Water Board to develop mutually satisfactory solutions to other areas.

□ **NEWS:** We've also been reading a lot of criticism of the defense industry in the news. Would you share your views on this subject?

□ **TEETS:** There is no question that our industry has come under intense scrutiny in recent years. Reasons include the huge government deficit, cuts in social programs, and the prominence of the defense budget. And there have been cases cited within the industry of fraud, waste, and abuse.

I hope it is clear to all Martin Marietta employees that the Corporation has redoubled its efforts to be ethical in all its business dealings—both as a moral imperative, and because it's the only way to do business.

Recently the Corporation mailed a booklet to all employees on the subject of ethics in business, and both Mr. Pownall, the chairman and chief executive officer of the Corporation, and Larry Adams, the president and chief operating officer of the Corporation, addressed the Denver large staff on the subject. The Martin Marietta Corporation is serious on this issue.

□ **NEWS:** What are the values considered essential to communicate to our new workforce?

□ **TEETS:** When I think of values there are four areas that come immediately to mind, and the first is integrity in operations. Our customer assumes it—and management must insist on it. Integrity in operations also involves personal integrity and adherence to established procedures and practices. In this regard there is no compromising.

I believe the second value is excellence in performance. The Denver operation has consistently distinguished itself by the performance of our people, particularly in response to perceived problems. Our challenge now is to continue our excellence in fighting fires, but more importantly, to anticipate problems and make better plans.

The third and most far-reaching value involves concern for individual development and dignity. I'm personally committed in 1986 to ensure that we hold all management responsible for more than technical accomplishment, to improve morale and motivation, communication, team building, and recognition of achievement.

Leadership in corporate responsibility is another important value. I believe sincerely that Denver Aerospace responsibility extends beyond paying our taxes and operating within our property boundaries.

□ **NEWS:** Thank you, Mr. Teets and on behalf of all of us at Denver Aerospace, we wish you and your family the best of the holiday season.

□ **TEETS:** Thank you, but let me commend our employees once again. 1985 was another record year in all respects for Denver Aerospace—a tribute to the dedication and professionalism of all our people. Those qualities, our high integrity and dedication to mission success will propel Denver Aerospace to greater accomplishments in the year ahead.

I'm also pleased about the public-spirited character of our people. There are many examples, but the pledge of $1.3 million to United Way earlier this month is an outstanding example. So are our participation in the blood drive, the employee-organized and run Operation Santa Claus, and many others.

I hope all of you enjoy a safe and happy holiday season.