

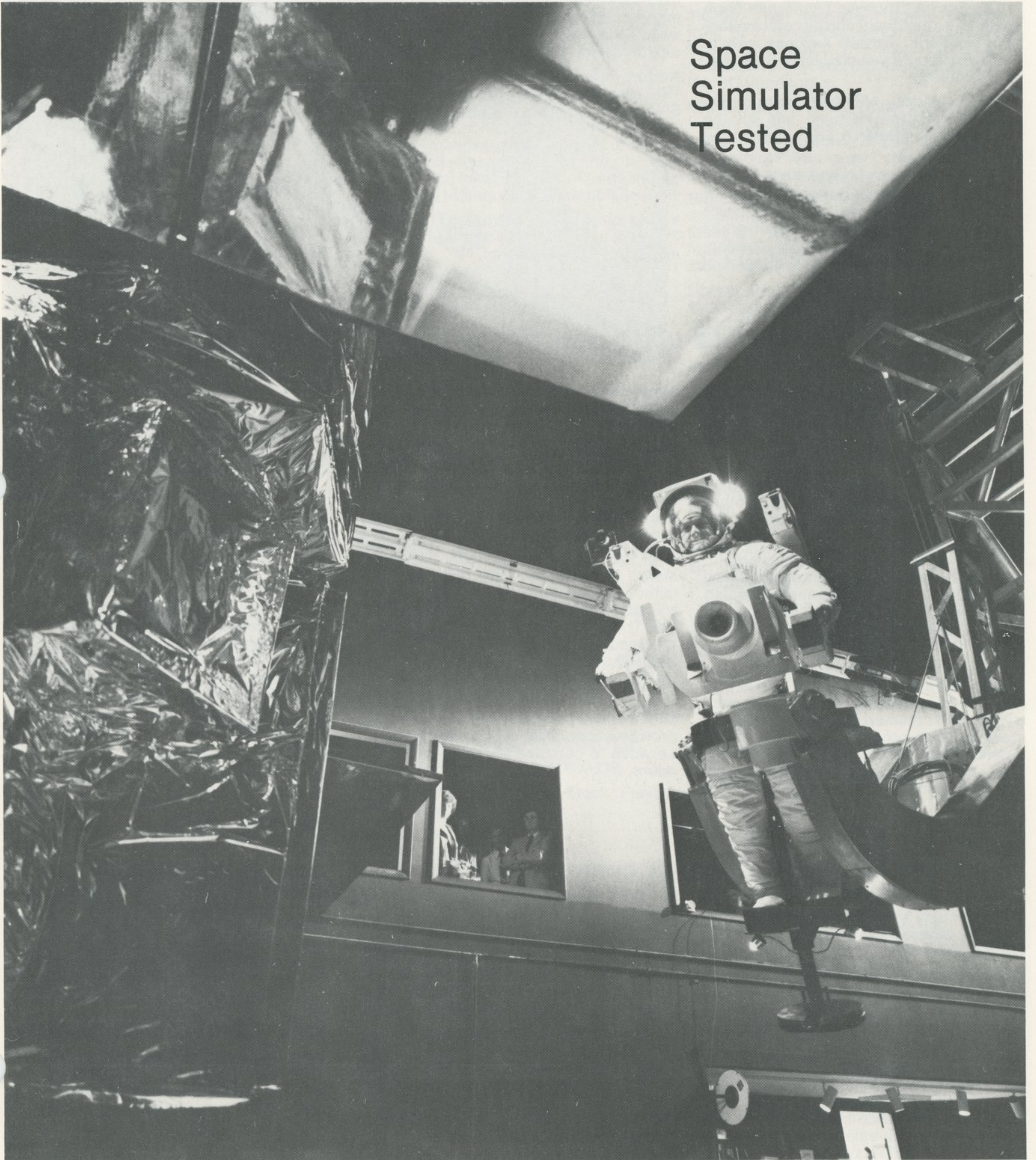
MARTIN MARIETTA

news

DENVER AEROSPACE

NUMBER 2/1983

Space
Simulator
Tested



Key management changes made

R. G. Morra has been named vice president of Technical Operations.

He replaces J. W. McAnally, who was appointed vice president of Defense Systems. H. Wayne Terbush will retire from that position on January 31, after 24 years with the company.

In addition, A. Thomas Young has been named vice president and general manager of the Martin Marietta Aerospace Baltimore division, replacing James S. Martin, who is retiring.

Allan M. Norton, Michoud division vice president of development, will fill the headquarters research and engineering position.

A Martin Marietta employee since 1956, Morra was director of Space Systems for the company's Space and Electronics Systems division. He has also served as director of Engineering for the division; deputy director and technical director of

Defense Systems; director of Manufacturing, Test, and Structures Engineering; and in a variety of other management-level positions.

McAnally became vice president for Technical Operations in 1982. He has been with the company since 1959, serving in a variety of technical and management positions. He has earned many awards, including the NASA Public Service medal for his participation in Viking.

Norton, who joined Martin Marietta in 1962, began work on the company's Space Shuttle design study in 1968 and has been involved with Shuttle since. In 1973, he moved to Michoud as manager of external tank structures. He became director of engineering in 1975, and was promoted to vice president for development in 1981.

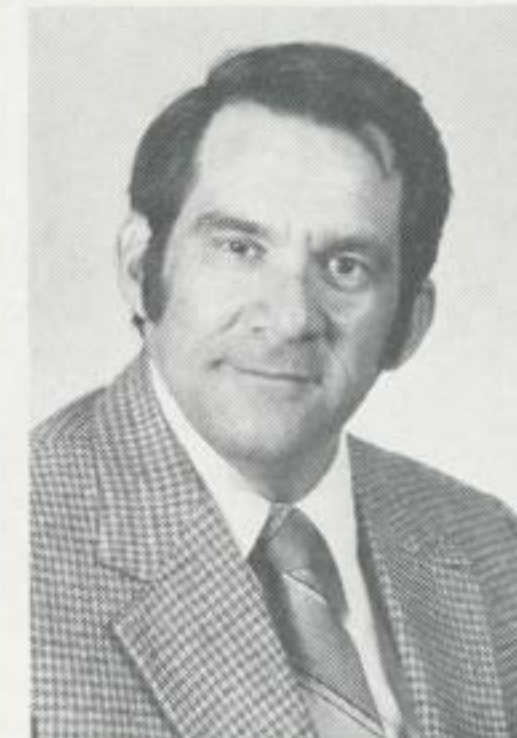
Young joined Martin Marietta in 1982, after 21 years with the National Aeronautics and Space Administration.



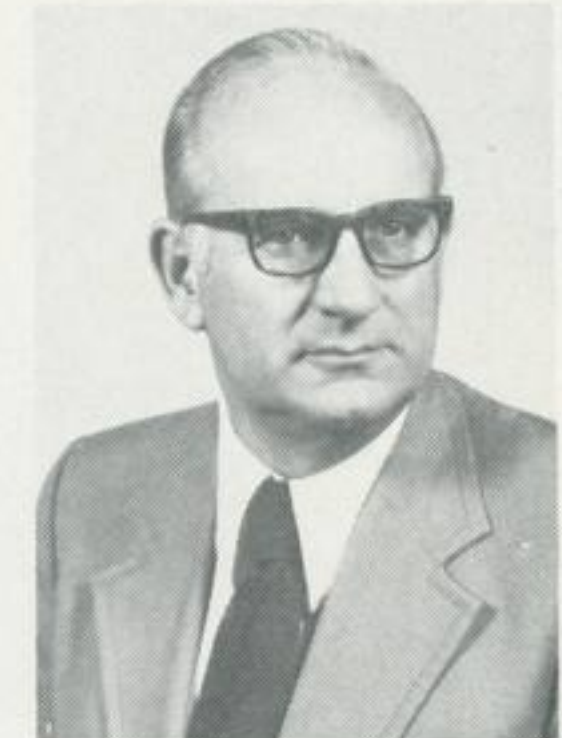
R. G. Morra



J. W. McAnally



A. M. Norton



H. W. Terbush

Company to develop new upper-stage vehicle

Denver Aerospace has signed a memorandum of intent with Orbital Systems Corporation (OSC) to commercially develop and market a new upper stage for the Space Shuttle.

The new vehicle would be used to propel communications satellites and other large spacecraft to orbits beyond the range of the Shuttle.

Under the terms of today's agreement, the company will be the primary technical partner in an aerospace team assembled by OSC. Martin Marietta will develop, test, and produce the upper stage in Denver with funds provided by OSC.

"We are enthusiastic about this opportunity to continue our leadership role in providing cost-effective space launch systems to commercial users through innovative joint programs," said Peter B. Teets, Space Launch Systems division vice president and general manager. "The OSC upper stage to be used on the

Space Shuttle will provide a significant application of Martin Marietta's launch-technology capability."

Design of the new vehicle is based on the large, first-stage solid propellant motor used in the Air Force's inertial upper stage. Its payload performance will be about five times greater than is presently available.

With the initial memorandum complete, Martin Marietta and OSC will begin detailed design studies of the vehicle and will start discussions with future customers. The first flight of the upper stage on the Space Shuttle is expected in September 1986.

Headquartered in Chicago, OSC is a technically based management, marketing, and financial company that was formed to provide economical space transportation services to commercial and government users.

Matching gift program benefits college fund

The United Negro College Fund has received \$3,300 as a result of the Martin Marietta matching gift program for colleges and universities.

Eighteen Denver Aerospace employees contributed \$1100 in 1982. These gifts were matched on a two-for-one basis by the Corporation.

Funds received by the United Negro College Fund help support 42 colleges throughout the United States. Enrollment in these colleges is more than 50,000.

Annual employee contributions of \$25 to \$2000 (in multiples of \$5) to accredited universities and colleges are matched under the program. Information on the program and applications are available from the education and training office, Ext. 5698.

Intelligent automation systems contract awarded

The company has won a \$3.24 million contract to develop the world's first intelligent robot system.

Phase 1 of the advanced intelligent task automation (ITA) program was awarded by Wright Patterson Air Force Base. Roger T. Schappell is the principal investigator for the program.

In addition to forming the basis for the ITA, the technologies will have near-term application to unit processes, component assembly, and batch manufacturing. The program also will establish a technology base to apply ITA systems to complex

military tasks.

The research, development, and feasibility demonstration will culminate in the design for each component as well as the subsystem itself. Hardware will be constructed to show the feasibility of the entire subsystem.

A Phase-2 program, which is a contract option, would include the building of individual components for the subsystem, subsystem integration, and demonstrations to prove applicability to defense manufacturing and military tasks.

On the cover

Astronaut Bruce McCandless flies a simulated night mission during a training readiness review of the space operations simulator this week. The review is intended to prove the readiness of the simulator to train astronauts for the on-orbit repair of the Solar Maximum Mission satellite. Camera-mounted lights and television cameras were used in the simulation, which was flown against a high-fidelity model of the satellite. (Photo by Pat Corkery)

New phone system nears completion

A digital-computer-switched telephone system will go into service February 25.

The new system, employing the latest in telephone technology, will at first serve the main plant complex. The Littleton System Center will be connected in March using a digital microwave system that will accommodate voice and data applications.

Telephone systems at other locations will not be changed at this time.

Existing rotary dial instruments at the main plant will be replaced with Digitone sets between February 25 and March 25.

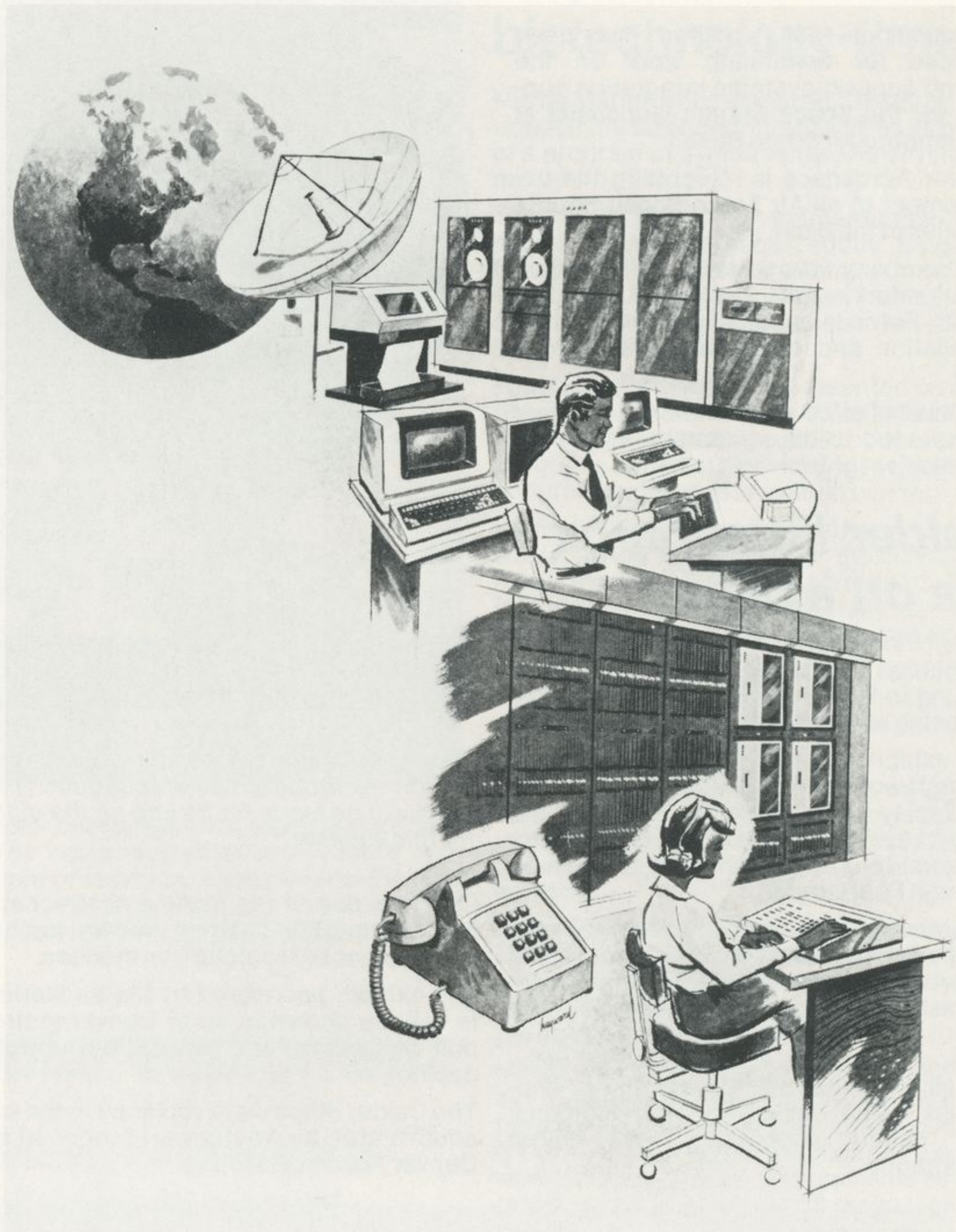
The system boasts features aimed at increasing telephone productivity, including call forwarding and three-way conferencing. The system also will allow users to have busy numbers automatically return the call, and use abbreviated phone numbers for parties frequently called.

To assist employees in the use of the new system, training sessions will be held between February 14 and February 25. Schedules will be distributed the week of February 1. All employees should attend the sessions.

Reports are required from former DOD, NASA employees

Former employees of the Department of Defense and NASA, plus certain military officers, should report aerospace and defense-related employment, if required, by February 15. The report covers the federal fiscal year October 1, 1981, through September 30, 1982.

Forms and information are available from Leroy Hollins, Denver, Ext. 6750; Richard A. Freeman, Canaveral, Ext. 6066; Dottie McCann, Michoud, Ext. 3710; and Bruce E. Pherson, Vandenberg, Ext. 2445.



The cover art for the next edition of the Denver Aerospace telephone directory depicts the changes being made in the telephone system.

Employee's book published by U.S.

Jack Stokes Ballard, strategic systems division, is finally a published author.

Ballard wrote *The Development and Employment of Fixed-Wing Gunships, 1962-1972* ten years ago. The U. S. Government Printing Office published it in October after a lengthy series of declassification procedures.

Ballard's book traces the adaptation of existing fixed-wing aircraft and weapons systems to the needs of the war in Southeast Asia.

Fixed-Wing Gunships was among several volumes presented to Air Force Secretary Verne Orr in ceremonies honoring Ballard and other authors of works produced for the Office of Air Force History.

"The book shows how ingenuity, initiative, and 'making do' with the technology at hand can create a very effective weapons system without going through all the usual research and development, engineering plans, and production. It is a story of shortcutting, and should be of interest to a wide range of aerospace people," Ballard said.

The Shock of Peace, Ballard's second published effort, is a study of the military and economic demobilization following World War II. He is now working on two other books.

Ballard joined Martin Marietta in 1980. He is a senior logistics engineer in the Peacekeeper systems program.

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

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Strategic Systems Division:	John H. Pond 9165
Space Launch Systems Division:	Steven L. Cohen 2037
Business Management:	Daphne R. Gillison 3155
Michoud Division:	Evan D. McCollum 3788
Canaveral Operations:	Donald T. Beck 9108
External Tank Operations (KSC):	Melodie deGuibert 3160
Vandenberg Operations:	William Leary 2202

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

January 28, 1983

Operation Santa Claus beats the blizzard

"Operation Santa Claus 1982 was a resounding success," said Dwaine Schilling, business operations, chairman of this year's program. "We had plenty of eager workers who delivered food to 102 families and toys to 381 children."

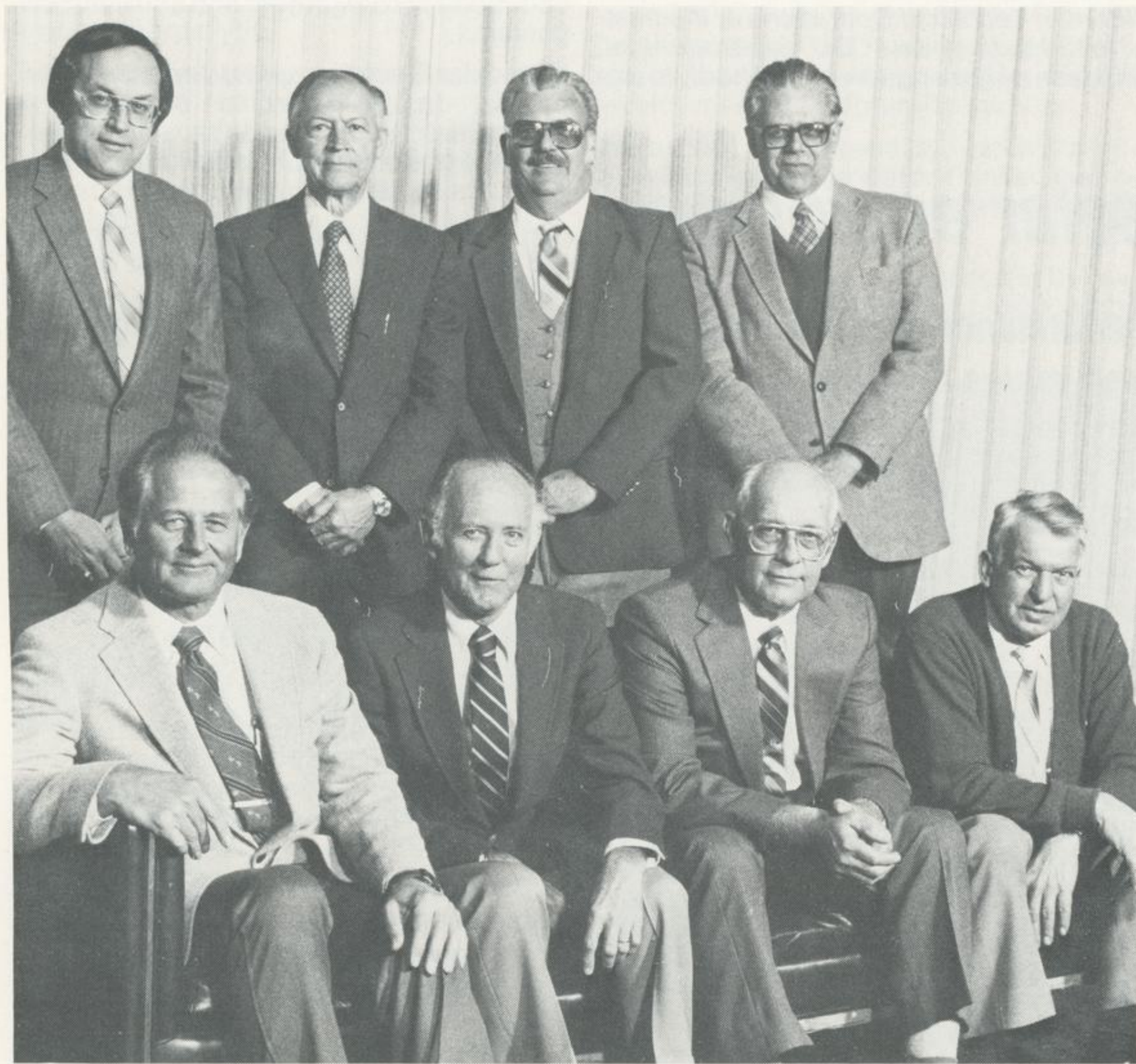
Schilling praised the many employees who helped Operation Santa Claus succeed. Among many notes from families receiving aid was one from a grateful mother. "You'll never know what your visit meant to us," she said. "We were in a desperate situation."

Operation Santa Claus had no difficulty with the weather. Everything was delivered two days before the blizzard, ensuring a Merry Christmas for many who might have gone hungry during the storm.

The committee for Operation Santa Claus 1983, to be chaired by Schilling, has already met several times to plan this year's campaign. Committee members are George E. McCone, Beverly K. Fuhrmann, Roy W. Hall, James B. Spaulding, and Kenneth F. Thompson.



The Peacekeeper missile and its facilities at Vandenberg Air Force Base were the topic of discussion when this group met recently in California. In the photo are, left to right, Maj. Gen. Jack L. Watkins, commander of the U.S. Air Force First Strategic Aerospace Division at Vandenberg; Howard F. Keyser, Strategic Systems division vice president and general manager; John R. Adamoli, Peacekeeper project director for Denver Aerospace at Vandenberg; Joe Jackson, Vandenberg Operations manager of engineering; and Norman R. Augustine, Denver Aerospace president.



Employees observing their 30th and 35th anniversaries with Martin Marietta were honored at a service awards luncheon before the Christmas holidays. Photographed following the luncheon were, standing, from left, J. W. McNally, vice president of Defense Systems, who presented the awards; Nelson R. Cox, 35 years; George F. Fullerton, 30 years; Leon A. Miller, 35 years; seated, from left, Albert C. Selke, 35 years; Kenneth L. Portz, 35 years; Robert B. Eyer, 30 years; and Frank L. Morgan, 30 years.

Distribution set for secretary's handbook

Distribution of the revised Secretary's Handbook will begin the week of January 31, according to the following schedule:

Secretaries from the Engineering Building, Research and Development Lab, Administration Building, Mechanical Engineering Facility, Inventory Building, and General Purpose Lab should pick up handbooks in the Engineering Building second-floor presentation room on January 31. Those whose last names begin with letters A through H may claim books from 8:00 to 9:00 a.m. Last names (I to Q) may pick up books from 9:30 to 10:30 a.m., and (R to Z) from 10:45 to 11:45 a.m.

Space Support Building, Space Support North, and Electronic Manufacturing Facility secretaries should pick up manuals in the SSB sixth-floor presentation room (A to M) from 12:30 to 1:30 p.m. and (N to Z) from 1:30 to 2:30 p.m. on January 31.

On February 3, secretaries from Denver Systems Center, West Point Facility, South Lincoln Facility, and Littleton Systems Center may pick up manuals in the West Point Facility, room 271, (A to M) from 9:00 to 10:00 a.m. and (N to Z) from 10:30 to 11:30 a.m.

That afternoon, Greenwood Commons and Greenwood Plaza secretaries may pick up manuals in Greenwood Commons Facility, building 8100, room 100. The time 12:30 to 1:30 p.m. is reserved for last names (A to M), while (N to Z) should claim books from 1:30 to 2:30 p.m.



Surplus equipment and parts from the Pueblo solar energy manufacturing facility have been donated to Colorado State University. The equipment is valued at more than \$28,000. James W. McNally, center, vice president of Technical Operations at the time the photo was taken, joins Fred W. Smith, left, head of the CSU department of mechanical engineering, and Lionel V. Baldwin, dean of the engineering school, in examining the material.

CSU gets surplus solar equipment

More than \$28,000 in surplus parts and equipment from the solar manufacturing facility in Pueblo has been given to Colorado State University.

The items will be used in the university's mechanical and electrical engineering programs and at the Engineering Research Center.

Included were photovoltaic collector parts, heliostat mirrors, circuit boards, vacuum pumps, hand tools, electrical wire, screws, bolts, washers, and tubing.

Performance Sharing Plan unit values are reported

Unit values for the three Performance Sharing Plans have been reported for the month ending December 31, 1983.

They are:

Fund A (Indexed Equity): 1.8753217538

Fund B (Fixed Income): 1.6206053355

Fund C (Martin Marietta Stock Fund): 1.8122354826

Martin Marietta reports net earnings

Martin Marietta Corporation has reported 1982 net earnings of \$91,642,000, or \$2.92 per share, compared with \$200,072,000, or \$5.39 per share, in 1981.

Sales in 1982 were \$3,526,506,000, against \$3,294,087,000 in 1981.

Fourth-quarter 1982 results showed a net loss of \$2,384,000, or 11 cents a share, which compares with a net profit of \$38,647,000, or \$1.08 a share, in the previous year. Operating earnings of \$5.4 million in the 1982 quarter were more than offset by writedowns associated with the

permanent closing of two cement plants. Fourth-quarter sales increased to \$940,281,000; 1981 fourth-quarter sales were \$860,473,000.

The year's result reflects the severe impact of the recession on profitability in Martin Marietta's nonaerospace business lines, especially in aluminum. Fourth-quarter results were depressed further by heavy interest payments arising from substantial debt incurred late in the third quarter in Bendix Corporation's takeover attempt.

Martin Marietta acquires interest in biotechnology firms

Martin Marietta has acquired a minority interest in three biotechnology firms as part of a program of investments and development in the field.

The Martin Marietta investments total \$25 million. They represent equity ranging from 10 to 20 percent in Chiron Corporation of San Francisco; Native Plants, Inc. of Salt Lake City; and Molecular Genetics, Inc. of Minneapolis.

Martin Marietta will be represented on the boards of directors of the three firms and will assume a leading role in cooperative programs aimed at penetrating major agricultural, health, and industrial markets.

Biotechnology is the application of microscopic living organisms to the development and improvement of products and industrial processes, generally by the modification of cells and genetic material.

Chiron Corporation produces vaccines, viral diagnostic products, hormones, and extracellular enzymes for human and animal health-care markets.

Native Plants develops improved plant varieties, and is in the process of developing genetic techniques for modifying commodity crops, trees, and soil microorganisms.

Molecular Genetics applies sophisticated cellular technologies to develop improved field corn hybrids as well as vaccines, hormones, antitoxins, and other products for use in agriculture.

Martin Marietta has been conducting basic research in plant biology at its corporate research and development center for more than 25 years and recently began work on the use of microorganisms to improve certain industrial chemical processes.

Emergency notices on radio stations

If bad weather this winter causes company facilities to close, employees will be notified by emergency announcements on six local radio stations.

Stations that will broadcast the notices are:

KLZ 560 AM
KOA 850 AM
KIMN 950 AM
KYGO 98 FM
KOAQ 103 FM
KAZY 106.7 FM

Employees are encouraged to listen to these stations when there is a threat of inclement weather.

Follow on awarded on GSS contract

An additional \$66.7 million has been awarded for continuing work on the ground support systems integration contract for the Space Shuttle launchsite at Vandenberg Air Force Base.

Denver Aerospace is integrating the development of all Air Force Space Shuttle facilities at the base.

The company was awarded \$194 million for the effort in 1982. The recent award by the Air Force is an initial payment for the installation and checkout phase of the work.

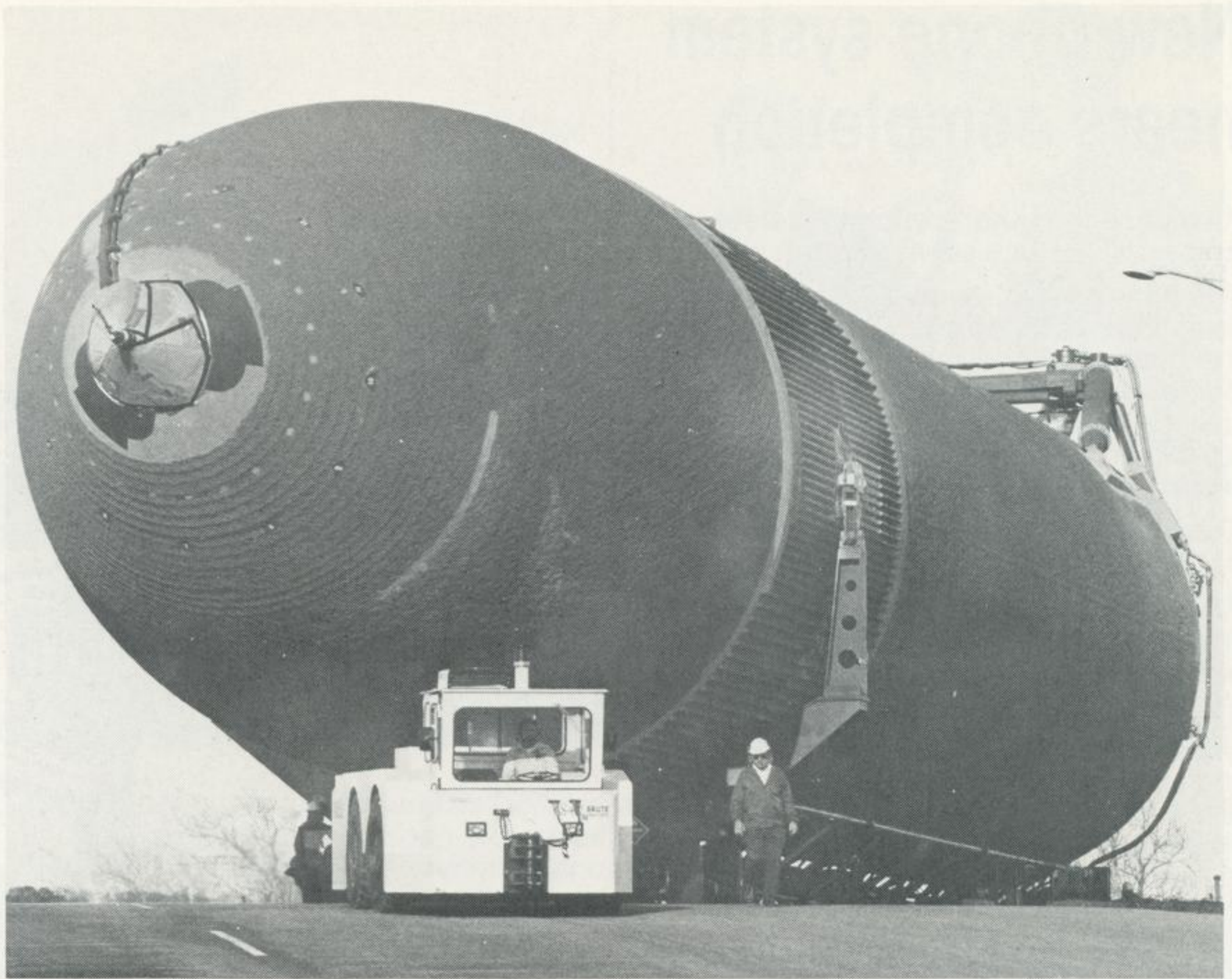
The level of effort at Vandenberg this year is expected to be comparable to that of last year.

Calder lithographs are on exhibit

Color lithographs in "The Unfinished Revolution" by Alexander Calder, formerly hung in the executive office area here, are being exhibited to the public.

The exhibit is at the First Interstate Bank in Englewood through January. It will be on display at the Colorado Gallery of the Arts on the Arapahoe Community College campus in Littleton from February 16 through February 26.

The lithographs were commissioned as a series by the National Emergency Civil Liberties Committee in 1975 for the Bicentennial celebration. They were intended to illustrate concepts of the Declaration of Independence and to convey the joy of living as promised by "the pursuit of happiness." The Declaration and additional text panels accompany the Calder lithographs.



The second lightweight tank is shown leaving the Michoud division for Kennedy Space Center—one day ahead of schedule. The tank arrived at KSC January 17 where preparations will be made for its use on the eighth Space Shuttle mission, which is scheduled for this summer.

Calder is one of the leading abstract artists of the 20th century, known for his development of sculpture as mobiles.

The exhibit, sponsored by Martin Marietta, will be shown in other Denver metropolitan locations and other cities throughout the year.

The Calder lithos were replaced in the executive area by western art produced by Denver Aerospace artists.

Canaveral employees' performance honored

Thirty-two Canaveral Operations employees were honored at year's end for "sustained superior performance" in support of the Space Launch Systems division at Cape Canaveral and Kennedy Space Center.

The employees were cited for their contribution to the success of the division's programs and for their activities in support of launches.

Felix J. Scheffler, the division's director of launch vehicles, presented vice president's awards and silver replicas of the Titan 34D and the Space Shuttle to those honored.

Award winners were:

Theodore H. Allen, Dorothy M. Boger, Donald J. Bollinger, Ulysses Bradshaw, Jesse E. Buggs, David H. Buscher, Mack K. Cannon, Marsha R. Causey, Ben R. Dusenbery, Ralph E. Graves, Diana M. Grier, William J. Habernern, Edgar E. Holt, Henry J. Hopkins, Roy R. Hunter,

Daniel M. Jones, Jr., Mertis L. Kindt, John G. Krall, Bobby C. McCoy, Thomas H. Munro, Lisa J. Perry, Charles E. Poe, Fred W. Robinson, Howard R. Shaffer, Charles W. Sims, Glenn A. Stelzer, John G. Stiene, James A. Weeks, Arthur P. White, Jill L. White, Lee A. Woods, and John H. Young.



Suggestions for cost reductions totalling \$50,469 earned cash awards for five Canaveral Operations employees in 1982. Displaying award checks are, from left, Jack Johnston, engineering; Sharon A. Dill, business operations; Dan C. Shilling, Robert D. Kelly, and Donald D. Dillenbeck, engineering.