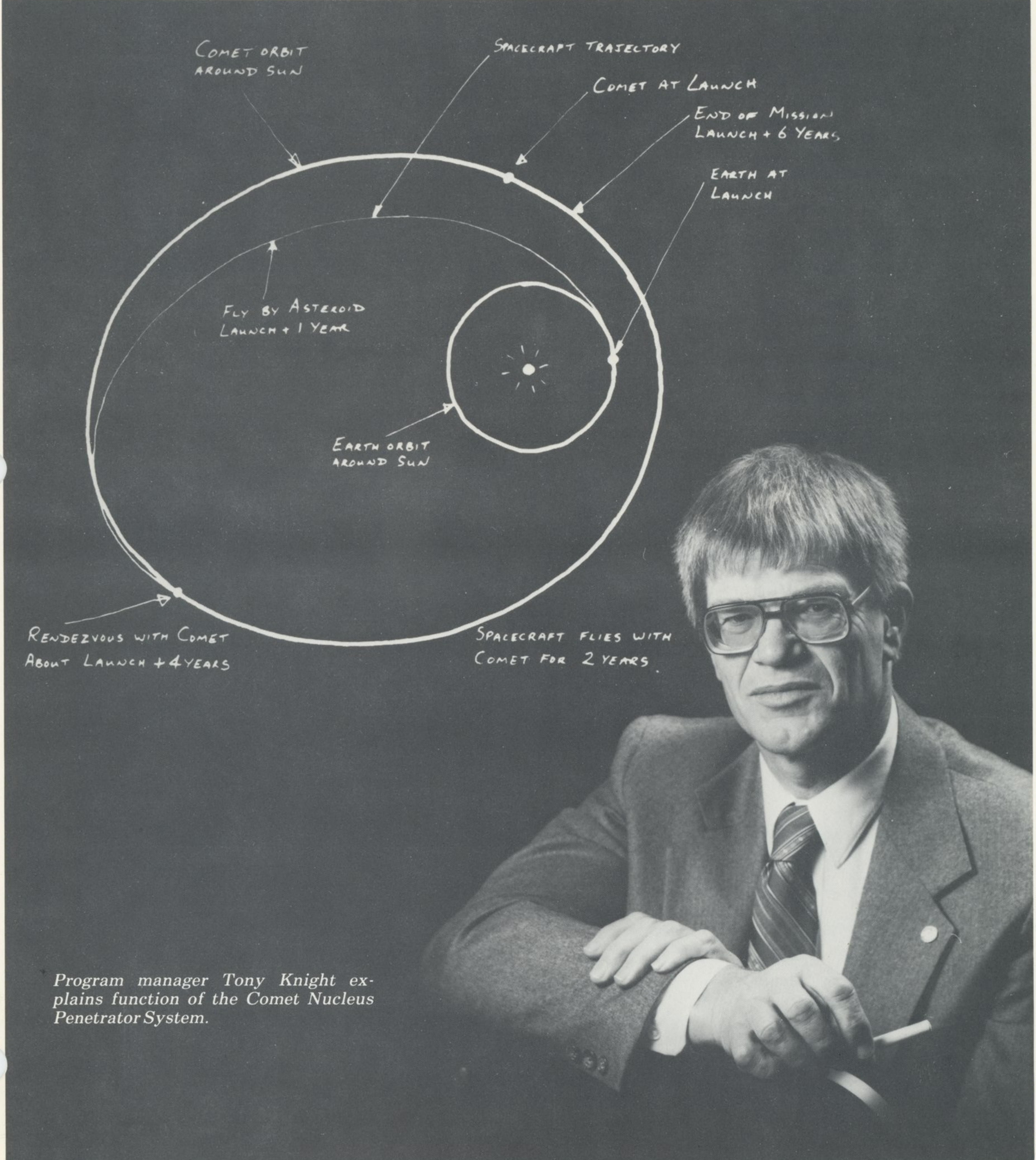


July 12, 1985

Number 14



Program manager Tony Knight explains function of the Comet Nucleus Penetrator System.

Martin Marietta to design system to penetrate comet

Getting a peek inside a speeding comet is not an easy task, but NASA and Martin Marietta plan to do just that in the next decade.

Under a contract to NASA's Ames Research Center, Denver Aerospace is designing a system that will be propelled into a comet to study its composition.

Called the Comet Nucleus Penetrator System, it is scheduled for launch in the early 1990s to the comet Wild-2 onboard a Mariner Mark II spacecraft, as part of the proposed Comet Rendezvous/Asteroid Flyby Mission. Wild-2 (pronounced as vilt-two) is a short period comet that returns to the Sun's vicinity about every five years. Comets are believed to be the oldest unaltered bodies in the solar system.

The mission will be the first to provide extended and detailed observation of a comet, and the first to use the low-cost Mariner Mark II spacecraft. After launch from the space shuttle, Mariner will rendezvous with Wild-2 and fly in orbit with the comet for more than two years.

Instruments onboard Mariner will study the comet from a state of low activity when it is far from the Sun, to maximum activity as it develops its "tail" and passes closest to the Sun.

About a month after rendezvous, a suitable penetration site in the comet will be determined, based on information from the main spacecraft, and the Comet Nucleus Penetrator System will be propelled into the nucleus of Wild-2.

A one-meter-long pointed projectile, the penetrator will be driven by its own propulsion system into the comet, which is believed to be composed of the unaltered material from which the planets were formed—ices, silicates, metals, and complex organic compounds. The penetrator will house sophisticated instruments that will measure the atomic composition of the comet nucleus, and provide data on its thermal and mechanical properties.

Instrumentation includes a gamma-ray spectrometer, an alpha particle backscatter spectrometer, temperature sensors, and accelerometers.

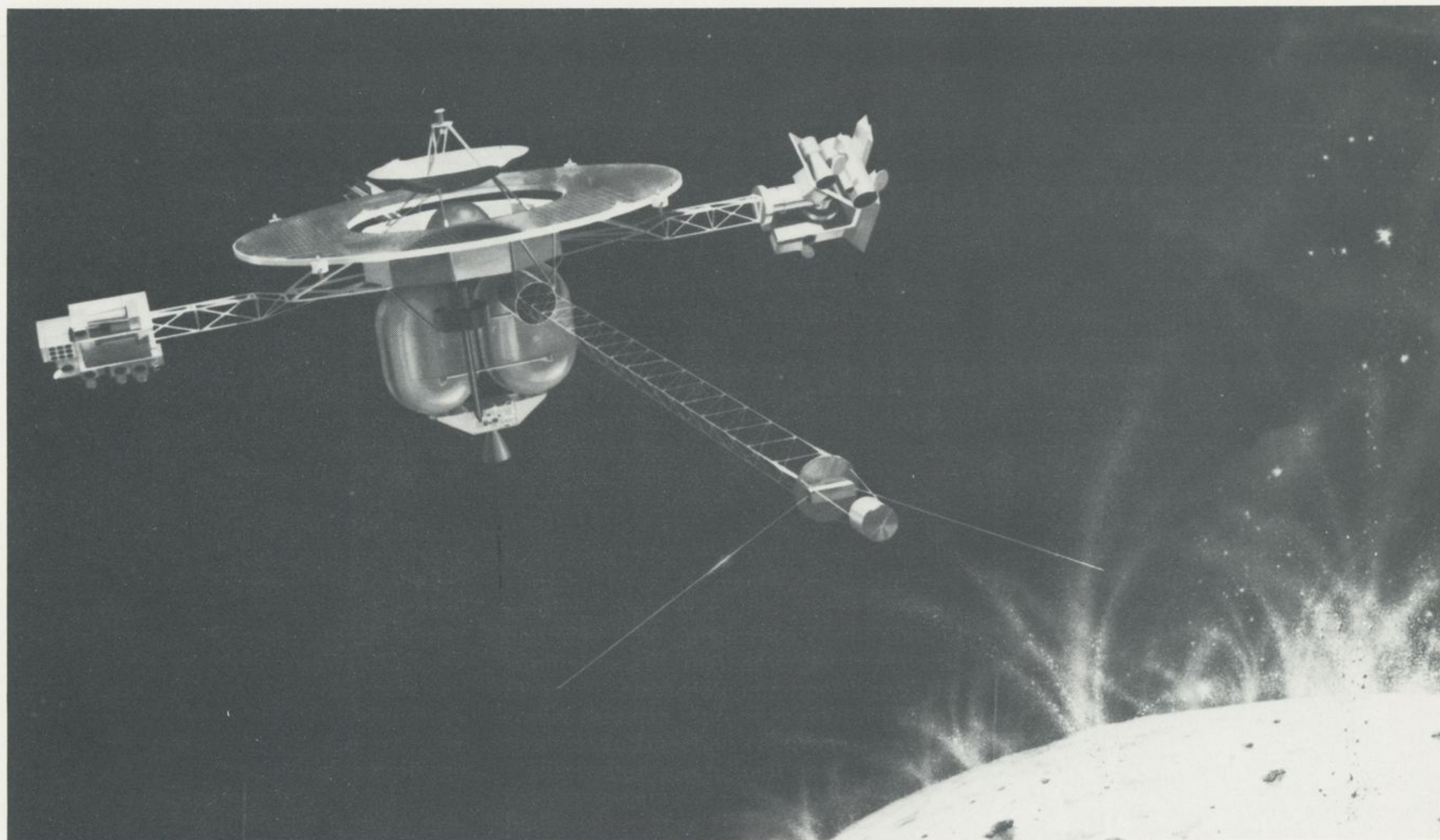
One of the design challenges for the comet penetrator will be to develop a system and its enclosure that can withstand the force of impacting into the icy nucleus of the comet, yet provide protection to the delicate instruments.

Information gained by the penetrator will be transmitted for one week to the main spacecraft for relay back to Earth. The penetrator is expected to provide valuable information about the origins

of our solar system. These data about the pristine bodies in our solar system are not obtainable by any other method. Current comet flyby missions, such as the 1986 missions to Halley's Comet, will not be able to provide as detailed scientific information since the spacecraft will fly by the comet at about 150,000 miles per hour.

Planets and satellites that have been explored so far during the nation's space exploration program offer only a severely altered record of the origins of these bodies, obscured by billions of years of evolution during which their surfaces have been shaped by both external and internal processes. Unlike these larger bodies, comets have spent most of their existence in distant, dimly lit, cold regions of the solar system, and are far too small to have been altered significantly. Scientists believe that comets alone retain unaltered evidence of the chemical and physical conditions under which our solar system was formed.

The Comet Nucleus Penetrator System study, awarded by NASA's Ames Research Center in Mountain View, California, is being conducted at Martin Marietta's Denver Aerospace operations. The six-month design contract, valued at \$250,000, began in April 1985. ■



Artist's concept shows the Mariner Mark II spacecraft in orbit around the comet Wild 2. The penetrator system is the

device that looks like a black thumbtack between the cylindrical propellant tanks at the bottom of the spacecraft.



Thomas G. Pownall, left, chairman and chief executive officer, Martin Marietta Corporation, congratulates Pat and Lou Aldridge after Aldridge won engineer of the year at the awards banquet.

1985 Roll of Honor

The Corporation held its 24th annual celebration of excellence on June 28 at a black-tie gala in Washington, D.C., and awarded Jefferson Cups to 16 individuals from Denver Aerospace, Data Systems, and Information & Communications Systems operations in Denver.

The sterling silver cup, highest award bestowed by Martin Marietta to an employee in recognition of outstanding performance, is a reproduction of one originally fashioned for Thomas Jefferson.

Louis L. Aldridge, engineering manager for the manned maneuvering unit (MMU), was named engineer of the year for outstanding technical contributions to the success of three MMU flights, including the Solar Max and Palapa/Westar recovery units.

Other 1985 honorees selected by management for excellence in their endeavors were:

- Arthur L. Arndt, Denver Aerospace, for outstanding performance as manager of the operations and maintenance department, developing a skilled and cost-conscious maintenance team.
- J. Richard Cook, Denver Aerospace, for excellence in management of subcontractor resources on the ground support systems installation and checkout program to establish an Air Force shuttle operational intercom system.

- Terrence P. Dwyer, Data Systems, for outstanding technical and management contributions to computer systems' live-test demonstrations, which contributed to the company's selection as contractor for the Navy's automated personnel and payroll system.
- John D. Eagen, Denver Aerospace, for outstanding direction of the Peacekeeper transportation and handling equipment project and for technical and management contributions that enabled the company to meet an extremely tight delivery date.
- Nigel D. Fielden, Data Systems, for outstanding technical contributions to development and marketing of a new multilingual software product, and opening up new international business opportunities for the company.
- Gayle J. Howell, Denver Aerospace, for outstanding performance as manager of production engineering at the Michoud Division, for contributions to the successful negotiation and implementation of the rate tooling program, and for other related tooling cost reduction and scheduling achievements.
- Harry L. Kottcamp, Information & Communications Systems, Denver, for outstanding contributions to winning the All Source Analysis System/Enemy Situation Cor-

relation Element (ASAS/ENSCE) competition.

- Louis A. Morine, Denver Aerospace, for outstanding performance as leader of the space fine-pointing simulation efforts, helping establish Martin Marietta as a nationally recognized leader in this field.
- William J. Murphy, Denver Aerospace, for successful acquisition of new business in the defense systems product area.
- Michael J. Povec, Denver Aerospace, for innovative and resourceful management of the quality control inspection activity at the Michoud Division, contributing significantly to the quality and on-schedule delivery of the space shuttle external tank.
- Roger T. Schappell, Denver Aerospace, for outstanding leadership in the field of artificial intelligence research and for significant contributions to the Corporation's selection for the autonomous land vehicle (ALV) national test-bed contract.
- Benton A. Siegel, Data Systems, for management of the marketing, development, and implementation of a low-cost and reliable data collection method for Orlando Aerospace, resulting in substantial cost savings and in establishment of a technological approach applicable to other locations.
- H. Edwin Sparhawk, Denver Aerospace, for leadership of the hard mobile launcher (HML) team that formulated a unique approach to combining mobility and hardness and to development of large-scale test facilities for demonstrating the adequacy of the approach.
- Joseph M. Vellinga, Denver Aerospace, for outstanding technical leadership of the faint object spectrophotograph (FOS) program.
- Lorraine Weitz, Data Systems, for outstanding contributions to major improvements in quality, productivity, sales revenues, profitability, and customer satisfaction by the Professional Services Group. ■

PSP values

Unit values for the Performance Sharing Plan (PSP) as of May 31 were:

- Fund A (indexed equity) 2.8286214521
- Fund B (fixed income) 2.1406679827
- Fund C (company stock) 3.8458821863
- Fund D (TRASOP) 1.5117599263



Award dinner honors long-term service

Employees who achieved 30, 35, 40, and 45 years of service with Martin Marietta by the first half of 1985 were honored recently. Standing, left to right, are Robert L. Worrell (30 years), Gordon N. Sholes, Jr. (30), Gilbert L. Kesler (35), Jess Linthicum (45), Richard E. Weber (35), and Dennis F. Cook, director of personnel. Seated, left to right, are Bernard M. Burke, Sr. (35), Herb J. Miller (45), Virginia M. Williams (40), Robert J. Wertz (30) and Leon C. Fitzkee (30). Not shown are George F. Gaebler (45), Joseph T. Tutchton (30), Lee McKenna (30), Fred C. Michel (30), and John R. Mellin (30).

I&CS awarded contract to install SAC digital information network

The Strategic Air Command (SAC) will have a new, high-speed, digital information network in 1987 at its six Minuteman ICBM wings. Martin Marietta Information & Communications Systems (I&CS) recently won a contract from the Air Force Air Logistics Center in Ogden, Utah, to install the landline communications system in six states.

Called the Strategic Air Command Digital Information Network (SAC-DIN), the system will upgrade command, control, and communications capabilities for the Air Force Minute-

man ICBM wings and other SAC defensive units.

A team of 18 I&CS people will perform the installation and checkout of the new communications equipment over 27 months. The new network replaces an older, one-way network now being used by SAC commanders and Minuteman launch control centers. It will be phased out after the new system is installed. The work will be performed at sites in Wyoming, Missouri, Montana, North and South Dakota, and Utah. ■

Savings bond drive exceeds goal

At the close of the U.S. Savings Bond campaign for 1985, participation for all combined Denver Aerospace locations had increased from 71.4 percent at the start of the campaign to 87.5 percent.

More than 15,800 employees now participate in the payroll deduction program, and 46.6 percent increased their level of deduction.

As in previous years, Canaveral Operations and the Michoud Division set the pace with 98 percent employee participation. Vandenberg Operations had 84.6 percent participation. In Denver, 83.6 percent of employees have

signed payroll deduction cards.

"To those of you who have signed up, I express my personal appreciation for your commitment to this important program which plays a vital role in our national economy," said Peter B. Teets, Denver Aerospace president. "Your support also reassures the government that as one of its top defense contractors, Martin Marietta employees actively support our national economy."

Employees who did not sign payroll deduction cards may do so at any time through the personnel department or recreation/employee services. ■

News briefs

Credit union offers new services

Beginning July 1, the Red Rocks Federal Credit Union began two new services: second mortgages and private airplane purchase loans. Other secured loan rates will be at an all-time low.

Information can be obtained by visiting the credit union office in the Engineering Building, room 120, open from noon to 3 p.m. on Thursday, and from 9 a.m. to 2 p.m. other work days. ■

Employee hours set at Gallery

The Gallery, Denver Aerospace's showcase of models and hardware, will be open to all employees from 11 a.m. to 1:00 p.m. every Wednesday during July and August.

"Opening the Gallery to all employees during the summer months is something we do every year," said Arthur E. Koski, director of public relations.

Koski also said that a public relations representative will be in the Gallery during the scheduled employee hours to answer questions.

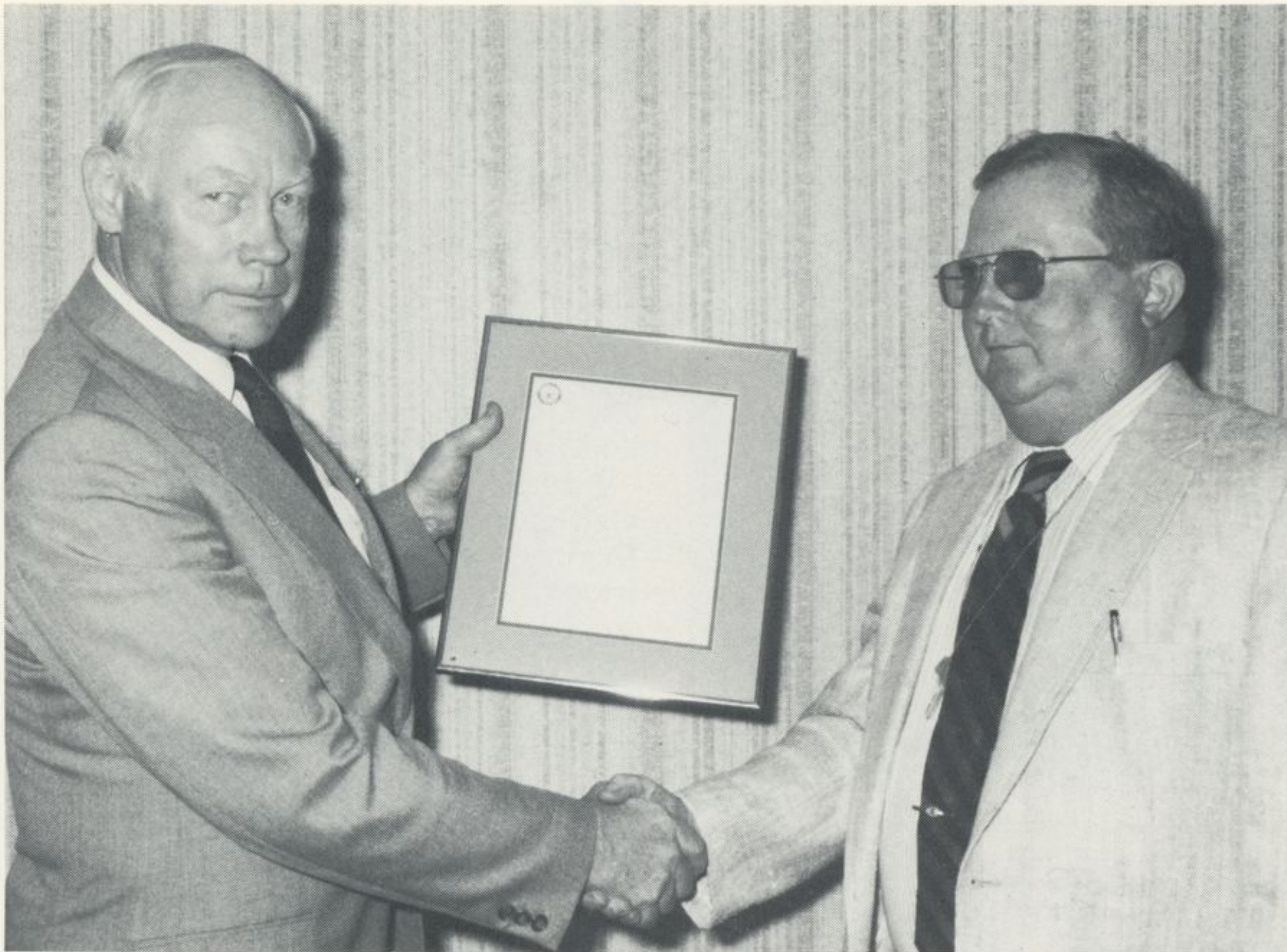
Employees are responsible for clearing any guests with security before visiting the Gallery. Employees must also accompany their guests while on Martin Marietta property.

Normal business-related tours of the Gallery will still be scheduled by calling public relations at ext 7-5364. ■



Ashton wins referral drawing

Philip S. Ashton, logistics engineer for Peacekeeper test field support, referred Charles Norwood to the company and won the Project Referral drawing held in June. Ashton may select a space shuttle launch to attend this year as a guest of Martin Marietta.



Curts praised by Secretary of Defense

Robert I. Curts, right, receives congratulations from Morris H. Thorson, vice president, Space Systems, for earning a commendation from the Office of the Deputy and Secretary of Defense. Curts participated in improving the reorganization and management of command, control, communications and intelligence (C³I) activities for the Department of Defense. The office cited Curts' "willingness to devote extensive time and effort" to the project.



Top students view future

The third annual Rocky Mountain student conference sponsored by the American Institute of Aeronautics and Astronautics (AIAA) brought a number of top university students to Denver Aerospace recently. Students presented papers in the morning, followed by a discussion by Denver Aerospace representatives on industry expectations and job opportunities.

Discussing industry expectations are, left to right, Wayne Simon, principal scientist; James Burridge, retired vice president and chief engineer; M. Kennedy, director of engineering for Bell Aerospace Systems; Grover Hall, director, Peacekeeper engineering; Dale Fester, manager, space fluid systems; Roger Schappel, manager, advanced automation technology; and Dr. Willy Sadeh, chairman, AIAA education committee and CSU professor. Facing the industry discussion group is Steve Wallingford, faculty advisor for the AIAA student section at the U.S. Air Force Academy.

Benefits report: Social Security error will be corrected

Approximately 8000 Denver Aerospace employees failed to receive proper credit from the Social Security Administration for 1980 wages. In addition, some employees may not have received credit for 1981 or 1982 earnings.

A recent notice from the Corporation concerning the earnings problem was posted company-wide, explaining that a waiver of the expiration of the statute of limitations has been secured to allow Social Security to update each employee's earnings record.

The Social Security Administration promises to post correctly all earnings for 1980-1982 by October 1, 1985. At that time, employees may request a detailed statement of earnings using a special form that will be distributed in September.

In the interim, it is important for employees to retain W-2 forms to substantiate earnings.

For further details, consult the notice currently posted in the glass-enclosed company bulletin boards. ■

Buy U.S. Savings Bonds



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

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Photography by: Pat Corkery

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

July 12, 1985



Company supports Boy Scouts of America

Robert C. Blanz, right, president of Mountain Bell, accepts check for \$15,000 on behalf of the Denver Area Council/Boy Scouts of America. Gareth D. Flora, vice president, business development, presented the check from Martin Marietta's Corporate gifts and grants program to Blanz, who is on the executive board of the Denver Area Council and chairman of the Mile High United Way campaign.



Circus entertains employees' children

More than 8000 employees and family members attended the El Jebel Shrine Circus held in June, one of four annual events sponsored by Martin Marietta. (Photo above and right by Don S. Shacklette.)

**Recreation/
employee
services**

Golf—Martin Marietta Open is scheduled for August 10, at Raccoon Creek Golf Course. Denver Aerospace and Data Systems employees, company retirees, and Air Force personnel must submit \$25 and entry forms to recreation by July 26.

Jackets—Nylon jackets in three styles and many colors are available with Martin Marietta Denver Aerospace logo silk-screened in white on the jacket front. Order forms for adult and children sizes may be obtained from recreation racks. Jackets will be shipped to the recreation department for pickup.

Runners—Rocky Mountain Road-runners sponsored a relay race in June from Cherry Creek High School to Colorado Springs. Each runner ran more than 10-mile segments. Denver Aerospace and Data Systems' Team A won corporate first place, and included Tom Kelecy, Doug Haas, Jeff Findle, Leonard Somers, Luke Sanchez, and Alan Lind. Team B, which took corporate third place, was made up of Dave Nickel, Doug Ward, Larry Young, Bob Johnson, Brad Eckhoff, and John Huleatt. Team C placed 40th overall, and included Keven Grealish, Ken Krzyzek, John Ford, Chris Sharf, John Grainger, and Al Depatie.

