MARTIN MARIETTA
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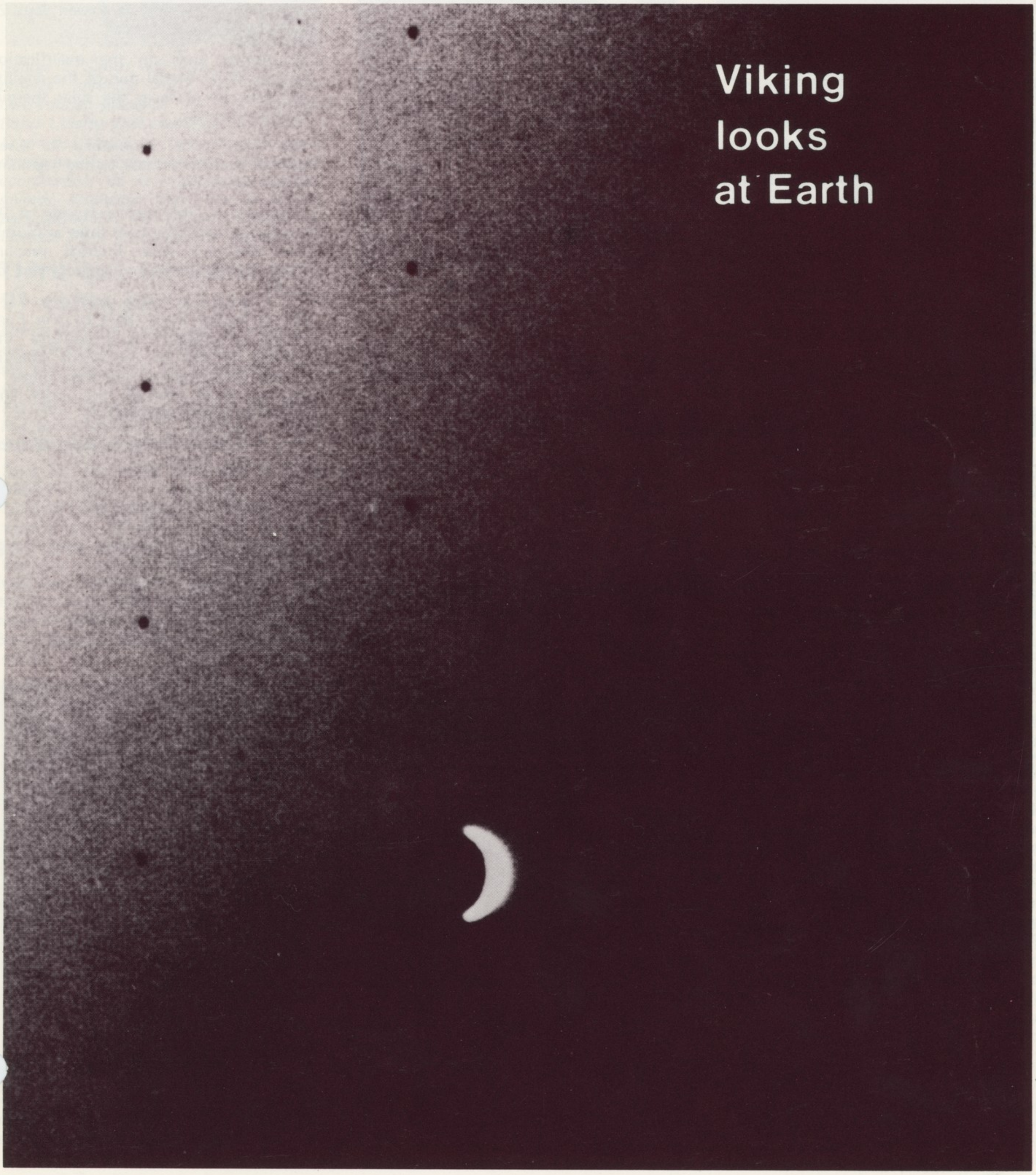
DENVER DIVISION

NUMBER 14/1975

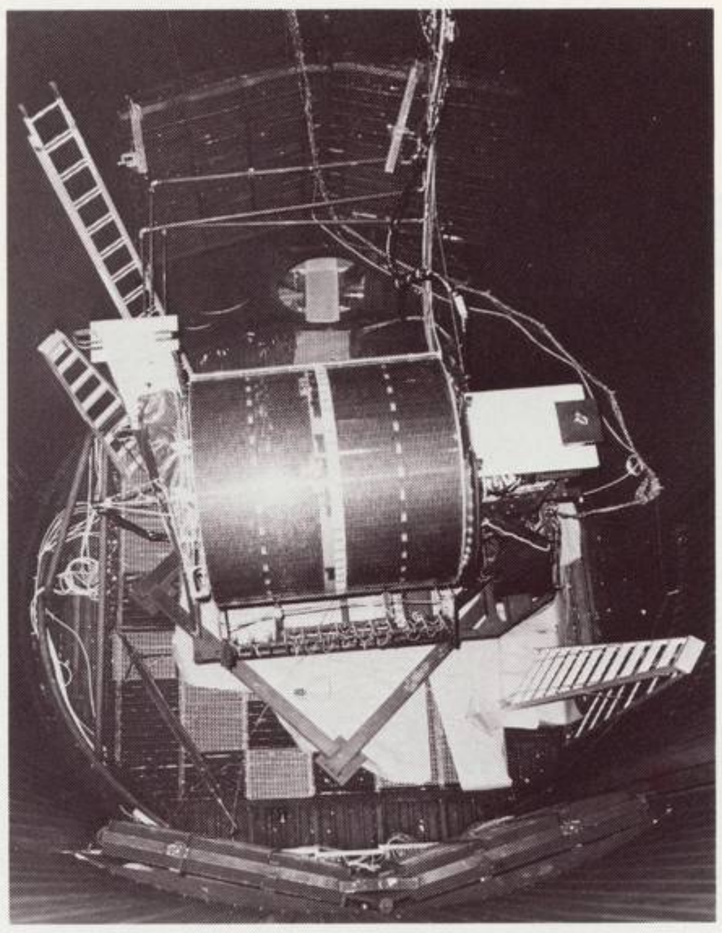
Viking looks at Earth



On the cover--

Viking II's view of Earth from 7,250,000 miles out in space was taken by the spacecraft's television camera Oct. 16. It is a "raw" photo, not electronically enhanced.

NATO satellite being tested here



NATO III communication satellite in solar thermal vacuum chamber.

The NATO III communication satellite qualification vehicle is undergoing tests in the division's 29-ft by 65-ft solar therm vacuum chamber. Built by Aeronutronics Ford Corporation, the satellite is scheduled for launch in early 1976 atop a Delta launch vehicle.

The qualification vehicle arrived Sept. 28 and tests began Oct. 26.

As testing ends on the qualification vehicle, flight model one of the satellite will take its place in the solar thermal vacuum chamber.

The flight model is planned for seven days of round-the-clock testing beginning in mid-November.

During tests, the spacecraft spin at 90 revolutions per minute in three azimuths. The division's solar thermal vacuum chamber simulates the environment of space.

Aeronutronics Ford, part of the Ford Motor Company, is producing the satellite for use by the North Atlantic Treaty Organization countries under a contract from SAMSO, the Space and Missile Systems Organization.

Tom Shupert is supervising the testing for the division.

Employee pledges top campaign goal

Denver area Martin Marietta employees have pledged $145,063 to the 1975 Mile High United Way campaign. With a corporate gift of $24,000, nearly $170,000 will go to assist more than 70 people-helping organizations in the metropolitan area.

Both the Denver division and the Denver Data Center topped dollar goals with the Data Center recently reporting 110 percent of its goal.

Martin Marietta joins UGI in effort to purchase Peabody Coal

Utilities Group, Inc. announced today that Martin Marietta Corporation has joined in the group's efforts to purchase Peabody Coal Company from Kennecott Copper Corporation.

Kennecott is required to divest itself of Peabody pursuant to an order of the Federal Trade Commission.

Howard W. Phillips, a partner of Oppenheimer and Co., Inc., which, together with Kidder Peabody Co., Inc., represents Utilities Group, Inc., welcomed the addition of Martin Marietta to the group.

"Since the withdrawal of Utah International and Kaiser Industries in September, discussions have been held with a number of large industrial corporations which have sought admission to Utilities Group, Inc.," Phillips said. "The most important factor in the selection of a new member was the management ability to help maintain Peabody as the largest and one of the most efficient producers of coal in this country. The proven management and systems capabilities of Martin Marietta and its knowledge of mining from its other activities fully meet this objective."

J. Donald Rauth, President of Martin Marietta, said "We believe that this is an appropriate business opportunity, and we are pleased to have been accepted as a participant in Utilities Group. In view of the energy crisis and the resulting demand for coal, we think there is a bright future for Peabody. We are confident that Martin Marietta can make a significant contribution by helping Peabody expand as a leader in this all-important field."

Peabody's coal reserves are estimated at nine billion tons. Its present production is about 70 million tons per year.

Martin Marietta Corporation had 1974 sales of $1.2 billion and a net income of $81 million. It is a diversified manufacturer engaged in five principal lines of business. Four of these—cement, aluminum, aggregates, and chemicals—are directly related to basic resources. The fifth, Martin Marietta's aerospace company, has been heavily involved in the engineering and development of the Skylab and Viking space projects and in various major defense systems.

Martin Marietta is not engaged in the mining of coal.

Other members of Utilities Group, Inc. include Arizona Public Service, Central Illinois Public Service Company, Cincinnati Gas & Electric Company, Columbus & Southern Ohio Electric Company, Illinois Power Company, Louisville Gas & Electric Company, Minnesota Power & Light, Public Service of Colorado, Public Service of New Mexico, Salt River Project, Tampa Electric Company, Utah Power & Light Company, and Wisconsin Power & Light Company.

HYBIC program earns 100% award fee

A 100 percent award fee has been achieved by the division for its performance on the HYBIC program from April 1 through September 15, 1975.

This is the first time the Jet Propulsion Laboratory's guidance and control Section 344 has awarded the maximum fee on a contract. The Denver division received a 96 percent award fee on the same program for work between November 1, 1974 and March 31, 1975.

The HYBIC (Hybrid Buffer and Interface Circuits) contract was awarded October 31, 1974. With additions since then, the program includes three major activities: HYBIC/Remote Driver Module (RDM) hardware design and build; Bench Test Equipment hardware design and build; and software and system support.

All work is for the MJS77 mission in which two spacecraft will be launched in 1977 for probes of Jupiter in 1979 and Saturn in 1981.

First hardware deliveries and associate software activities were on schedule. Two award fee periods remain and will be based on hardware deliveries and cost performance.

George E. Smith, left, vice president and project director of the Michoud Operations, presents the U.S. Savings Bond Liberty Bell award to Raymond J. Lacombe, manager of security and development. Lacombe was honored as coordinator of a three-week payroll savings campaign that saw employee participation at the Michoud Operations increase from 70 percent to 99 percent.

Third quarter earnings 91 cents per share

Martin Marietta Corporation has reported net earnings of $21,416,000, or 91 cents per common share, for the third quarter of 1975.

For the comparable period in 1974, Martin Marietta earnings were $27,237,000, or $1.17 per share.

Sales for the 1975 third quarter were $290,113,000 compared with $323,021,000 for the corresponding three months of the prior year. For the first nine months of 1975, Martin Marietta reported sales of $782,333,000 and net earnings of $41,429,000, or $1.76 per share. Comparable 1974 results were $918,686,000 of sales, and net earnings of $63,875,000, or $2.86 per share.

Naval Academy graduate heads AFPRO

What are the odds that an enlisted man in the U.S. Navy will become a U.S. Air Force Plant Representative? Even the most daring oddsmaker would shy away from that one.

But, if you had bet on William A. Smith back in 1946 you would be a winner today.

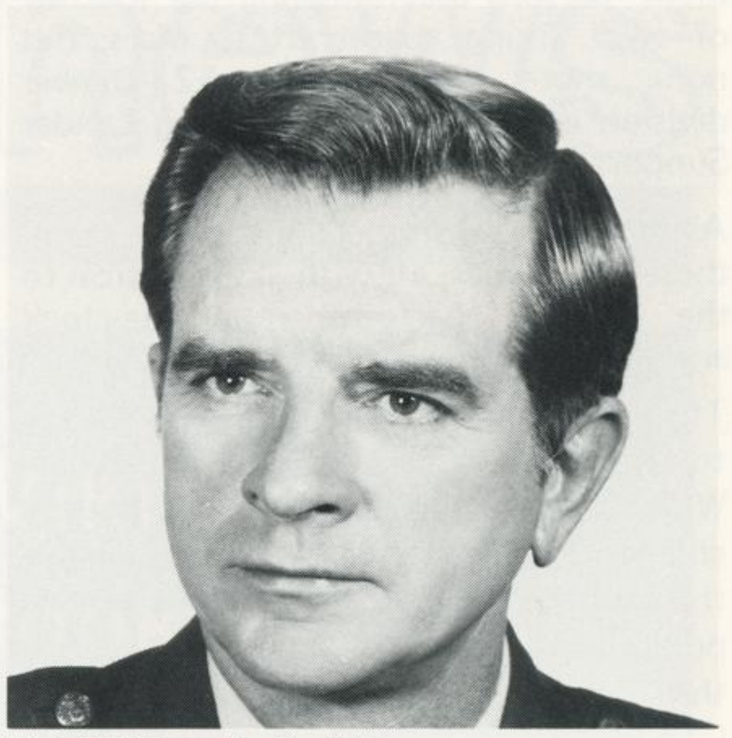
He enlisted in the Navy in 1946, two years later received an appointment to the U.S. Naval Academy in Annapolis, and graduated in 1952. But on graduation day Midshipman Smith became Lt. Smith, U.S. Air Force. He has logged more than 4300 flying hours as an Air Force officer, mostly in fighter aircraft—F86, F100, F104, and F106 included.

While rising to the rank of colonel, Smith became a command pilot and earned the master missileman badge.

Before coming to the Denver division September 29, Col. Smith was with the U.S. Air Force Aeronautical Systems Division at Wright-Patterson AFB. He was program manager for SRAM (short range attack missile) and directed the Simulator Systems program office.

Col. Smith earlier was assigned at two Minuteman bases, saw duty as an air liaison officer in southeast Asia, and was with the Space Systems Division, forerunner of the Space and Missile Systems Organization (SAMSO).

Air Force Plant Representatives, according to Col. Smith, are assigned to manufacturing facilities "considered important enough for added emphasis on



Col. William A. Smith

contract performance and product quality."

The AFPR office here has 16 military and 72 civilian employees.

Recreation Activities

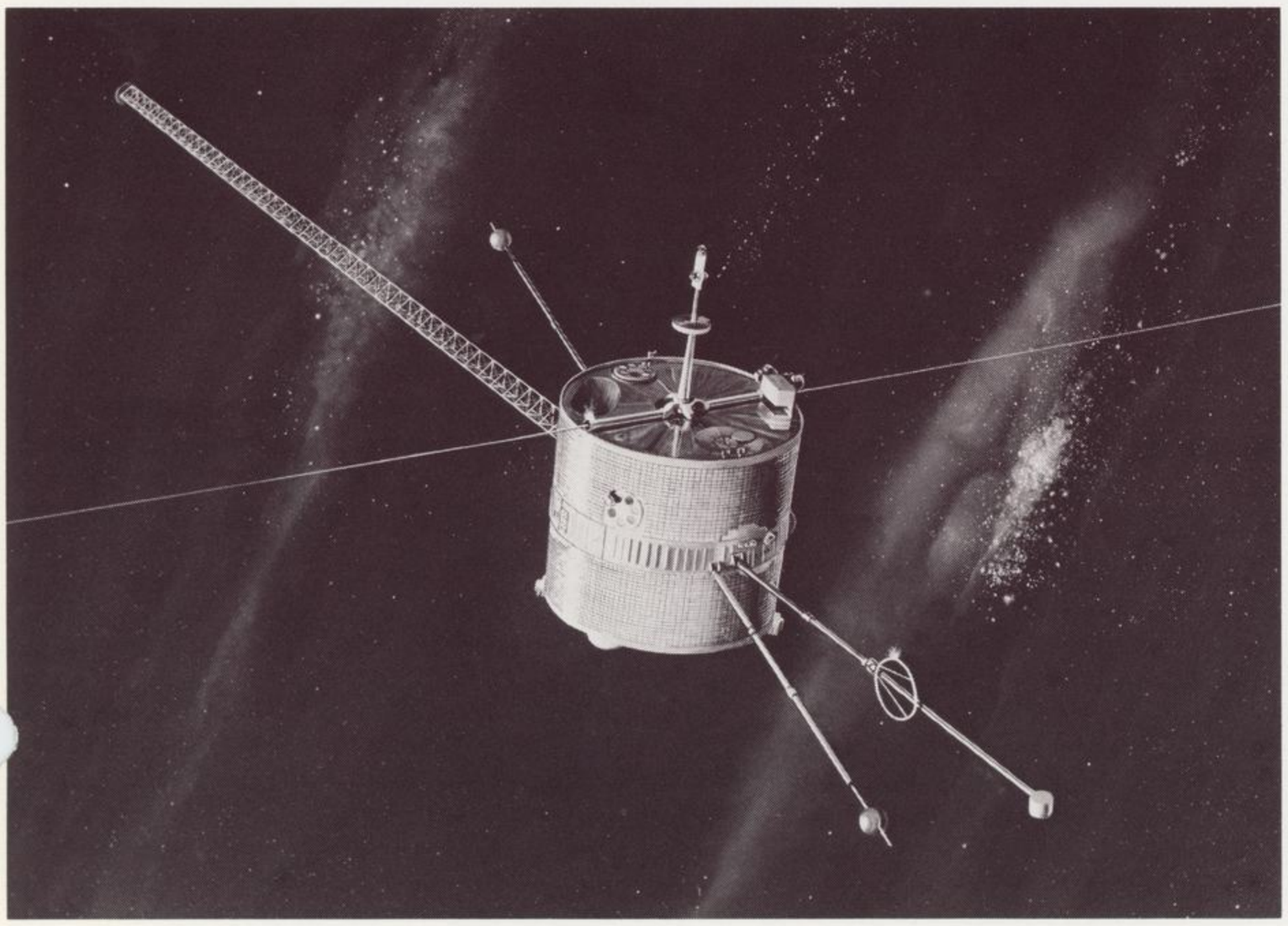
Satellite Ski Club—Membership now open for the 1975-76 ski season. Applications available from club members or recreation office.

Bowling—Mixed league bowls Mondays, men's handicap league bowls Thursdays at Belleview Bowl. Bowlers may still sign up for each league. Scotch mixed doubles tourney Dec. 6, 2 p.m., Broadway Bowl.

Volleyball—League will open play Dec. 2 at Sheridan middle school, Federal and Oxford. Practice session Nov. 18. Open to all employees with mixed teams to be formed.

Basketball—Six-team league will begin play Nov. 19 at Ken Caryl school. Open to all employees.

For information on recreation activities, call Tom Rendler, ext. 3650.



The division's proposal for the satellite in this artist's concept is being evaluated by the Space and Missile System Organization (SAMSO). Called SCATHA for spacecraft charging at high altitude, the satellite will be an engineering test bed for experiments to analyze the electrostatic effect on spacecraft equipment. Robert B. Demoret, who was proposal manager, will be program director when the division is awarded the contract to design, fabricate, and test the satellite and integrate the experiments.

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Lander support office performs round-the-clock monitoring

Many persons are following the journey of two Viking spacecraft to Mars, but none more closely than 52 Denver division employees in the Viking Lander Support Office (LSO) in GPL.

As members of the Viking flight team, these employees, all with skills critical to the project, perform round-the-clock analysis, simulation, and test programs.

The team put its skills to work last week to solve a battery charging problem. While one group simulated a battery charger failure, another was going through the charger circuit to determine points in the circuit that could be causing the problem. By inducing a failure in a laboratory circuit, the team obtained data identical to that being received from the cruising spacecraft.

The way was thus cleared to use the spacecraft's redundant charging circuit with assurance that batteries could be charged without creating other problems in the spacecraft.

LSO activities are directed by Robert J. Polutchko with Kenneth H. Farley leading the engineering function, Francis D. Nold handling operations, and Bonnie A. Claussen heading software.

Major continuing activity at the LSO:

- End-to-end integrated system level test program: multi-day tests in which mission operations software and flight software transmit commands to the lander flight-type hardware (proof test capsule) in GPL and results of those commands are transmitted to mission operations at the Jet Propulsion Laboratory (JPL). An extension of these tests has verified lander ground software, flight software, and flight hardware as a compatible, operational system.

- The LSO has supported the development of the mission operations software system with changes in flight software to simplify and improve the ground software system.

- Support of cruise activities include verifying commands to the spacecraft by test and analysis before they are sent to the spacecraft for execution in flight. Included have been battery conditioning and charging, tape recorder conditioning, and the venting and bake out (to remove Earth contamination) activities for the Gas Chromatograph Mass Spectrometer.

- Tests are conducted to determine contingency solutions to problems before they occur during the cruise of the spacecraft to Mars.

- A high speed data link between LSO and JPL will be used to validate descent to the proper area on Mars and vehicle performance prior to actual descent and landing. The data link is being expanded so transmission from JPL and return transmission from LSO will simulate exactly transmissions to and from the spacecraft in flight.

- Flight hardware trouble-shooting includes anticipating difficulties on landing through analysis and test as well as simulating problems that do arise to find and check solutions before corrections are sent to the spacecraft.

- LSO maintains the wealth of technical data developed during the development, build, test, and launch phases of the project. This Viking "mini-library" is housed in six rooms at SSB. These records are being microfilmed for quick access and use of the information.

"In a very real and critical way," Polutchko said, "LSO flight team members are 'flying' the Viking landers in the Viking Controls Mockup (VCMU), Analog Hybrid Computing Facility (AHCF), and on the Proof Test Capsule (PTC)."

This advertisement, prepared by the division's public relations department to provide information on the Viking project, is appearing in the Washington Post, Washington Star, Wall Street Journal, Los Angeles Times, Aviation Week, and the Denver Post.

Project Viking combines the contributions of an outstanding team of engineering, technical and scientific organizations and individuals. Among the principals:

LANDER
NASA
Langley Research Center
Viking Program Management
Martin Marietta Aerospace
Viking Integrating Contractor
Lander Design and Integration
X-Ray Fluorescense Spectrometer
Structural and Thermal Systems
Soil Acquisition and Processing
Power Control and Distribution
Data Acquisition and Processing
Flight and Ground Systems Software
Aeroshell
Sheldahl, Inc.
Bioshield
Goodyear Aerospace Corp.
Parachute
Rocket Research Corp.
Landing Engines
Celesco Industries
Surface Sampler Arm
RCA Astro-Electronics
Lander Communications
Honeywell, Inc.
Guidance, Control & Sequencing Computer
Data Storage Memory
Lockheed Electronics Company, Inc.
Tape Recorder
United Technologies Corp.
Inertial Reference Unit
Lander Accelerometers
Teledyne Ryan Aeronautical
Radar Altimeter
Terminal Descent and Landing Radar
Atomic Energy Commission
Radioisotope Thermoelectric Generators
General Electric
Batteries
Bendix Aerospace Systems Division
Upper Atmospheric Mass Spectrometer
Retarding Potential Analyzer
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K-West, Inc.
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Itek Corp.
Lander Cameras
TRW Systems, Inc.
Biology Instrument
Meteorology Instrument
Litton Industries
Gas Chromatograph Mass Spectrometer
Raytheon, Inc.
Magnet Arrays

ORBITER
NASA
Jet Propulsion Laboratory
Orbiter Program Management
Water Vapor Mapper
Martin Marietta Aerospace
Propulsion Subsystem
General Electric Company
Attitude Control System
Computer Command System
Motorola, Inc.
Orbiter Communications
Flight Data Subsystem
Texas Instruments
Lockheed Electronics
Data Storage Subsystem
EOS, Xerox Corp.
Power Subsystem
Ball Brothers Research Center
Orbiter Television Cameras
Santa Barbara Research Center
Infrared Thermal Mapper

LAUNCH VEHICLE
NASA
Lewis Research Center
Centaur Vehicle Program
U.S. Air Force
Space and Missile Systems Organization
Titan III Vehicle Program
Martin Marietta Aerospace
Integrating Contractor
Titan III Stage I
Titan III Stage II
United Technologies Corporation
Solid Rocket Boosters
General Dynamics
Centaur Upper Stage

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