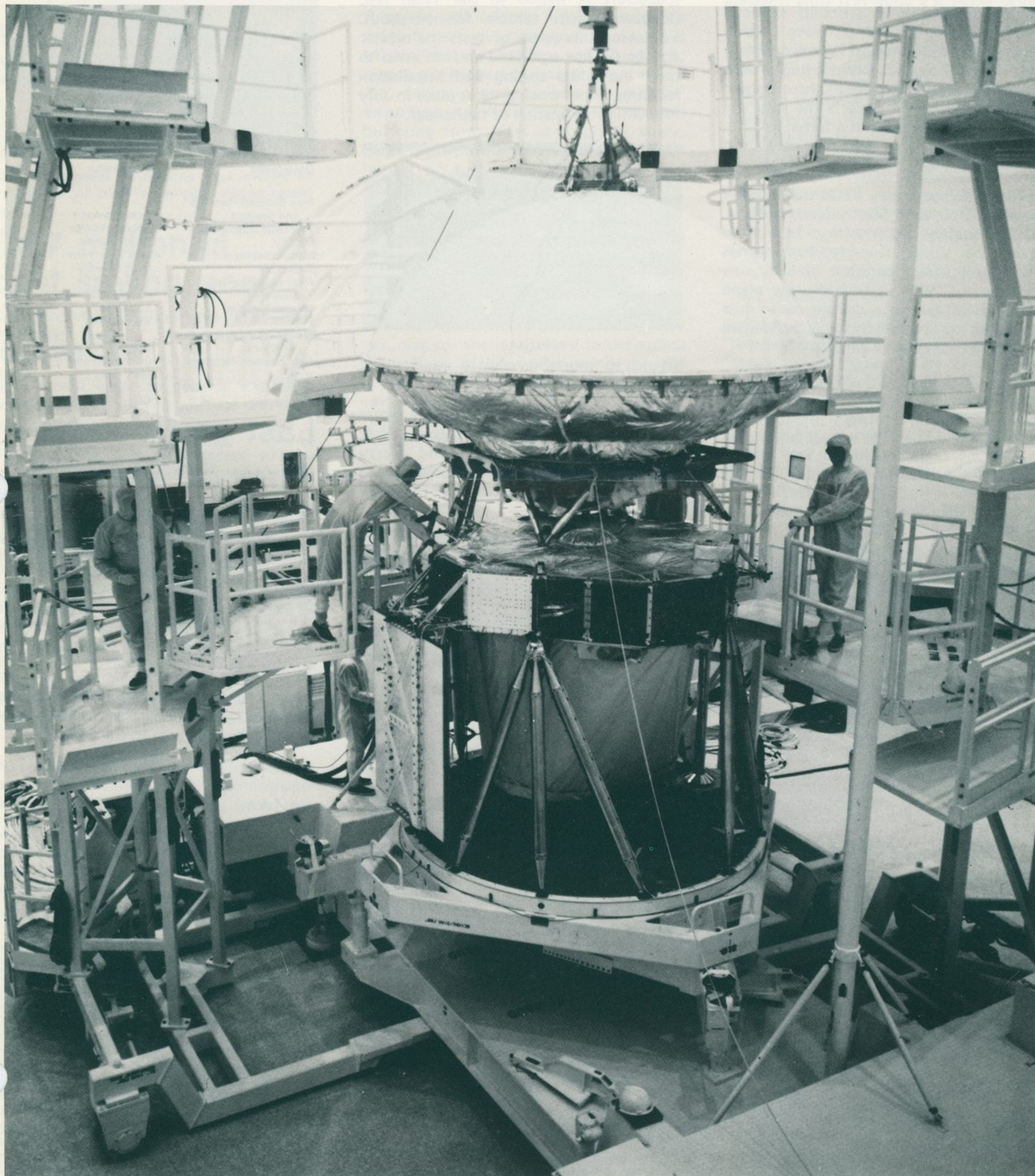


MARTIN MARIETTA

news

DENVER DIVISION

NUMBER 4/1975



3 employees aid lonely traveler during delay

O'Hare International airport in Chicago isn't the best place in the world to spend 12 hours waiting for an airplane. It's even worse when it's your first time traveling alone.

Mrs. Robert Sherman of Lakewood had that experience, but her 12 hours were better than most because of three Denver division employees. Here is the way she described the incident in a letter to L. J. Adams, division vice president and general manager:

"One week ago today I was traveling by air from Denver to South Bend, Indiana. Unfortunately it was my first time traveling alone. Due to high winds resulting in the operation of only one runway at O'Hare in Chicago, my plane landed two hours late, causing me to miss my flight to South Bend. I was detained in Chicago for about 12 hours.

"There were three fine gentlemen on my flight from Martin Marietta enroute to Mishawaka, Indiana and in the same predicament. They were so gracious and kind to me, taking me 'under their wings,' I was so appreciative and would like you to know what fine representatives of your company they are. I have told them and I

On the cover --

Viking lander 1, inside its dome-shaped bioshield, and orbiter 2 are mated for the first time inside a clean room at the Kennedy Space Center, Florida in preparation for tests. Between now and the scheduled August 11 launch date the spacecraft is mated to the Titan III Centaur launch vehicle for checkout. Following this series of tests the orbiter and lander are separated and returned to their individual testing and installation facilities. Final mating takes place in July following sterilization of the lander.

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would so much appreciate your telling them also!"

The three employees receiving the praise are Ken Niemi, procurement; Neal Allen, product integrity engineer; and Marty Bolt, materials engineer. They were on a business trip to qualify a potential supplier.



Participation at 96 percent in bond campaign

More than 96 percent of the division's employees were participating in the U.S. Savings Bond payroll deduction program as the 1975 campaign ended March 28.

"We still have some sign-up cards out," T. J. Rendler, coordinator of the campaign said. "We expect the final figures to show close to 100 percent participation."

Preliminary department results:

Department	Coordinator	%
New Business Planning and Support	Ann Johnson	100
Technical Operations	Robert Holmes	95
Quality	Roger Prince	97
Manufacturing and Test Executive	Jack Churchman	97
	Irene Woodzell	100
Plant Operations and Materiel	Al Ringhofer	94
Launch Vehicles	Top Callan	100
Finance	Warren Bien	97
Professional and Industrial Relations	Dorothea Gibson	99
New Business Programs	Gordon Wenner	97
Viking	Mary King	100

Last group moves from AC building

Technical writers and editors, illustrators, and typists of publication services have moved from the AC building to the fourth floor of the SSB.

Move of this group completes the vacation of the building at Hampden and Wadsworth. Plans call for sale of the building and land.

It is anticipated that publication services facilities will form the nucleus of a central proposal area in the SSB.

Purpose of the area will be to provide an environment that will lead to more uniform and improved new business proposals.

In other recent facilities rearrangements, the first three bays of GPL have been vacated and equipment removed. This area may be used for dead storage.

William J. Owen, right, explains his automatic space sextant to Reid H. Clausen, left, director of electronics, and John M. Wilson, chief of guidance and control. The division has been awarded one of two contracts for preliminary design of an autonomous navigation system, because of Owen's idea. It could also lead to a high altitude navigation satellite system hardware program. Owen received a cash award for his invention in a congratulatory letter from L. J. Adams.

90 days on Mars

Lander requirements demanding

(This is one in a series of articles discussing scientific experiments to be conducted on Mars by the Viking orbiter and lander.)

Requirements for the Viking lander are space flight's most demanding: two days of sterilization baking before launch; ascent gravity and vibration forces atop a 1.4 million-pound rocket; 11 months' exposure to harsh space conditions; buffeting from Mars atmospheric entry, parachute opening, and retrorocket firing; impact on surface of Mars at speed of four feet per second.

Then it must function as a finely tuned, self-sufficient laboratory and data transmission complex for 90 days.

Meteorology

Landers as they enter Mars' atmosphere will analyze the ionosphere to determine the effect of the solar wind on the planet's atmosphere. As they descend, the landers will record the temperature, pressure, and chemical content of the atmosphere at different altitudes.

The orbiters will observe the formation and movement of clouds and record their

temperatures for analysis of their composition. The lander mass spectrometer will analyze the amounts of carbon dioxide, oxygen, nitrogen, and other gases in the atmosphere at the surface during the first three days, before starting analysis of the soil.

Lander instruments will measure pressure, temperature, wind speed and direction periodically to log daily and seasonal variations in weather and will record the movement of weather fronts, thermals, and dust devils past the landing sites. Seismometers will record background noise from winds and temperature and pressure changes.

Instruments

Meteorology Unit—Transducers measure temperature and pressure: anemometer measures wind speed by its cooling effect on heated wire. Accelerometers and radar altimeter are used to determine atmospheric density and pressure from their drag on the descending lander.

Infrared Spectrometer—Detects and measures moisture in the atmosphere from the changes in solar radiation as it reflects from Martian surface through the atmosphere to the orbiter. It can detect water in amounts down to one micron.

Retarding Potential Analyzer—Measures the concentration and charge of ions and electrons in the ionosphere as they flow across the analyzer's charged grid in lander capsule.

Upper Atmosphere Mass Spectrometer—Identifies chemical content and concentrations in upper fringe of atmosphere.

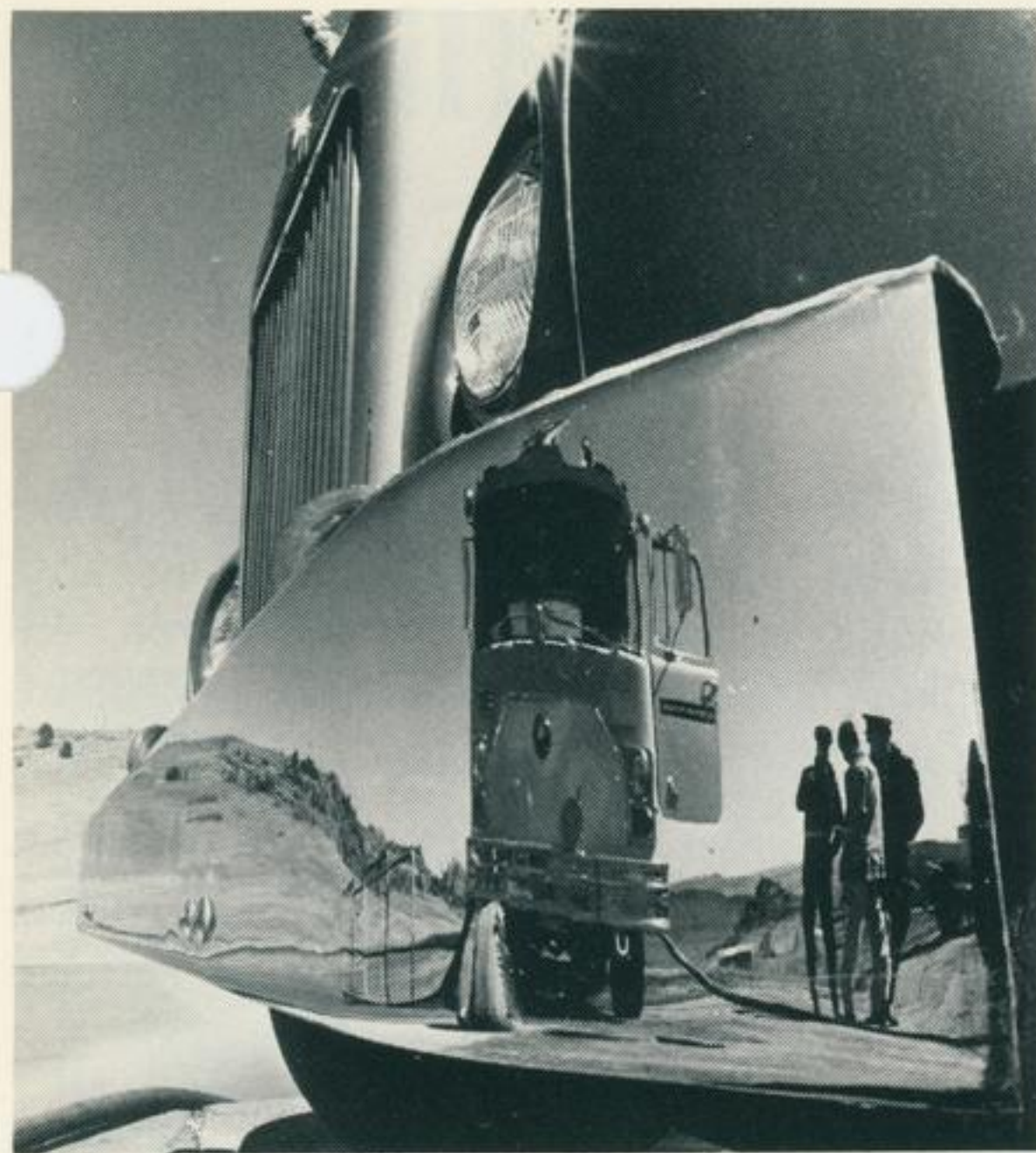
Radio, Radar Systems—S-band Earth-Mars microwave link for commands and data relay; UHF lander-orbiter links; X-band orbiter-Earth link for science use.

Recreation

Softball: 12-inch, slow-pitch; departmental leagues registration during April. Play begins in mid-May.

Tennis: Annual spring tournament registration through April. Play begins early in May.

Hunter Safety: Classes April 8, 10, 15, 17, 22 from 7-9 pm general purpose clubhouse. Range April 26. Call Ken Boettcher, ext 2994 or Ray Mueller, ext 4666.



Division's newest fire-fighting truck is reflected in bumper of older equipment during recent tests.

\$4.7 million is cost saving goal

Savings of \$4.7 million have been set as the 1975 goal of the division's Cost Reduction Program.

In a recent letter to division executive management, L. J. Adams, vice president and general manager, wrote:

"Each of you is well aware of the emphasis I place on getting costs down to the point where we can be cost competitive in bidding on new business programs. Our Cost Reduction Program is one of the tools we are using to attain that cost competitive position. I am counting on your support to ensure that we endeavor to exceed our 1975 cost reduction goal of \$4.7 million."

Employees who contribute ideas that result in reduced operating cost will be considered for awards and special recognition by the Executive Awards Committee.

Employees who have cost reduction ideas are urged to submit them through their department coordinators.

Martin B. Chandler, manager of the Idea Program, is administrator of the Cost Reduction Program. Department coordinators are:

Department	Name	Ext
TECHNICAL OPERATIONS		
Manufacturing & Test	Jack Churchman	4349
Quality	Jack Stout	2112
Engineering, R&D	Len Horner	4332
Denver Data Center	Richard Scott	4949
ADMINISTRATION		
P&IR	John Selman	4720
Contracts & Legal	Alice Anderson	4424
Finance & Planning	Warren Bien	2749
PLANT OPERATIONS & MATERIEL		
	Al Ringhofer	4655
LAUNCH VEHICLES		
Canaveral Operations	Ritchie McConahy	6246
Denver Representative	Don Dennis	3810
Vandenberg Operations	Mac Beales	75+243
Denver Representative	Al Miller	2144



Bridget Dabkowski, 16-year-old daughter of Mr. and Mrs. Leon Dabkowski, has been elected president of the Catholic Youth Organization of Mississippi. She is the first young woman to hold that office. Her father, "Dabby" Dabkowski, is manager of production control for External Tank at the division's Michoud Operation.

Executive Management Profiles

(One in a series of sketches of division executive management.)

Raymond S. Wiltshire leaned forward in his chair.

"We are going to win over \$14 million in research and technology and support services contracts this year."

No hedging. Ray Wiltshire had 100 percent confidence in the statement. And with good reason. As director of research and technology programs, he had an original goal of \$6 million in contracts at the beginning of 1974. The goal regularly was moved upward throughout the year. The final 1974 result: more than \$12 million in contracts.

Wiltshire is a precise man.

As he talked, he produced several pages of information to make certain what he was saying was clearly understood.



Raymond S. Wiltshire

For example, when asked about his responsibilities, he pointed to one of the pages. It read "...responsible for maintaining division-related technology by winning...contracts, applying Independent Research and Development Funds (IRAD), and allocating bid and proposal funds."

The R&T program this year involves more than 100 contracts with 40 different customers—value \$12 million; 50 IRAD tasks worth \$4 million; and \$1 million to cover 250 bid and proposal authorizations.

More than 400 scientists and engineers, working in 31 laboratories, will take part in the 1975 R&T program.

Few of these employees, however, are badged—assigned directly—to Wiltshire's organization.

"I want to emphasize that our activity is a true team effort," Wiltshire said. "The few people who do work directly for me join their talents with a wide variety of people from other organizations to achieve our goals."

"Completing more than one proposal every working day—and winning two out of three of these proposals—is an example of the true team-concept," Wiltshire explained. "It would take a large, costly, almost impossible to manage organization if we attempted to form a permanent group to accomplish this task."

"Instead, individual marketing, contracts, finance planning and control, and manufacturing experts from my staff work with individual technical experts from almost all other division organizations on specific proposals."

Since most research and technology proposals span only 30 days from receipt of the request to submitting the completed document, the technical people are soon pursuing other assignments, including work on R&T proposals already won.

The purpose of all this effort is to maintain broad-based technology competence for the division's new business activities.

Although Wiltshire admits he is sometimes tempted to get involved in the laboratory work, his almost daily visits to work areas are strictly hands-off.

But on weekends it's hands-on as Wiltshire operates his amateur radio rig (WAØUDI), does some flying, or goes backpacking with his family.

Wiltshire, who has a BSEE degree from Ohio State University, is an Associate Fellow of the American Institute of Aeronautics and Astronautics and Martin Marietta's corporate representative to that organization's Technical Committee on Space Systems.

He, his wife, Louise, and two children live in Englewood. Son Blaine is a high school senior and daughter Brenda is a high school freshman.

Helios flies close to Sun

Helios 1, launched Dec. 10, 1974 by a Titan IIIE from Cape Canaveral, has ventured closer to the Sun than any previous spacecraft. It flew within 45 million kilometers (28 million miles) of the solar surface March 15.

The spacecraft, built by West Germany as part of a joint venture with the United States, at times encountered temperatures hot enough to melt lead.

Speeding past the Sun at 238,000 km (143,000 mi) an hour, Helios will measure the solar wind (ionized particles given off by the Sun), magnetic fields, solar and galactic cosmic rays, electromagnetic waves, micrometeoroids, and the zodiacal light.

Additionally, information concerning celestial mechanics, relativity, and the Sun's atmosphere will be derived from analysis of spacecraft radio signals and tracking data.

Stanley J. Hightower, left, discusses his thermal modeling technique to simulate performance of heat exchangers with Charles D. Brown, manager of aerothermal and propulsion engineering. The technique, described in Hightower's award-winning NASA new technology disclosure, was developed during the Skylab program using a thermal network to simulate the governing equations for heat transfer in a heat exchanger. Results of the method provided good correlation with flight data from Skylab.

