

August 3, 1990 Number 15

Seven days and counting!



Magellan spacecraft to reach Venus next week

Space Systems' Magellan spacecraft operations team sent commands to the spacecraft today that will put it into orbit around neighboring Venus next Friday.

"This series of commands will operate Magellan for the next nine days, telling it what to do to prepare for entry into Venus orbit and when to do it," said Ken Ledbetter, Magellan deputy program manager. "Most importantly, the commands give Magellan the precise timing for solid rocket motor ignition to place it into the desired orbit for mapping."

Magellan is now about 1.8 million miles from Venus, approaching the planet at about 10,000 miles per hour.

At 10:32 a.m. MDT next Friday, Aug. 10, about four minutes after Magellan disappears behind Venus and out of view from Earth, Magellan's solid rocket motors will ignite and fire for 83 seconds. This crucial maneuver,

called Venus Orbit Insertion or VOI by the Magellan team, is calculated to send the spacecraft into an elliptical polar mapping orbit around Venus that comes within 155 miles of the planet at its closest point and 1,293 miles at its most distant point. This precise orbit period of three hours and 11 minutes is required for Magellan to carry out its radar mapping of the Venusian surface.

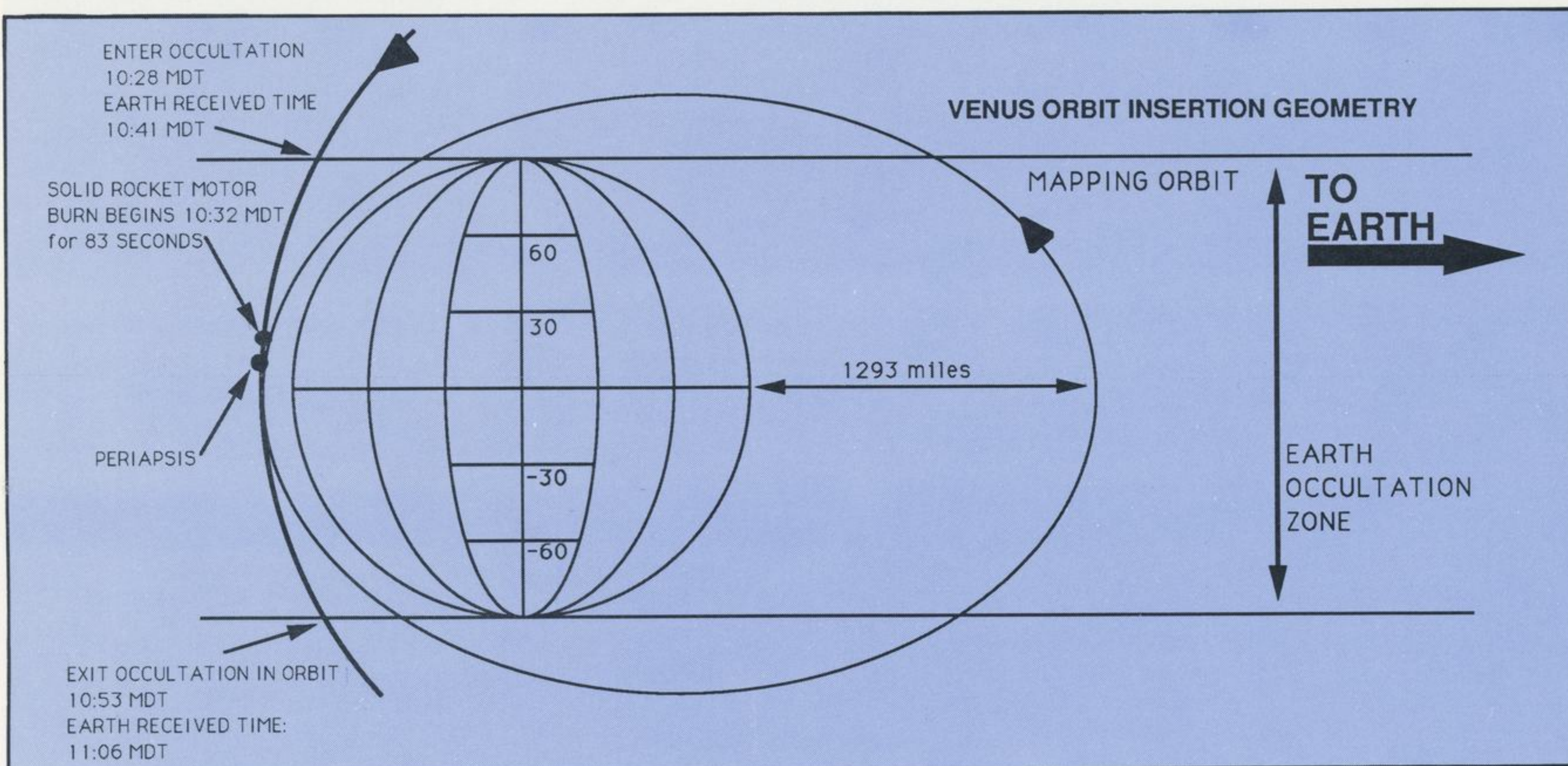
"We are ready for the maneuver," said Frank McKinney, Magellan program manager. "The spacecraft is healthy and the team has put a lot of effort into making certain that this sequence of commands puts Magellan right where it is supposed to be."

But it will be about 33 minutes after the burn before McKinney and the spacecraft team will be able to confirm that Magellan is in the target orbit because the spacecraft will not appear from behind Venus until about 10:53 a.m.

"We will definitely be anxious," Ledbetter said. "Even when the spacecraft comes within Earth's view again, 20 minutes after the burn, we'll have to wait another 13 minutes for the spacecraft's signal to reach the Earth."

Only then will the spacecraft team know that the maneuver has been successful and that Magellan has reached its final destination.

And, as Magellan reaches Venus, a part of everyone associated with the spacecraft—including several hundred Martin Marietta employees who have worked on the Magellan program over the past eight years—reaches Venus, too. Their signatures are fixed to a tiny piece of microfilm mounted on the spacecraft—a reminder that it takes a vast number of people, with a wide variety of scientific and engineering knowledge to build and send a spacecraft to another planet. ■



Augustine appointed to chair advisory committee on U.S. space future



Augustine

Chairman and Chief Executive Officer Norman R. Augustine has been appointed chairman of the Advisory Committee on the Future of the U.S. Space Program. Vice President Dan Quayle made the announcement last week.

Augustine will head the committee chartered to advise NASA Administrator Richard H. Truly on the overall approaches NASA management can use to implement the U.S. space program for the coming decades.

The committee will report its findings in four months to Truly and Quayle.

Specifically, the 12-member committee has a "broad charter" to "review the future of the civil space program, including both management issues and program content," a statement from Quayle's office said.

On the cover

After a 15-month, 795-million-mile journey that has taken it around the sun one and a half times, the Magellan spacecraft will be inserted into Venus orbit at 10:32 a.m. MDT on Aug. 10. The spacecraft's Star 48B solid rocket will be fired to place Magellan into an elliptical polar mapping orbit and then the rocket will be ejected from the spacecraft. In the artist's concept on the cover, Magellan is shown in its final orbit—which comes within 155 miles of Venus at its closest point 10 degrees north of the Equator, and 1,293 miles away at its most distant point.

Stirling thanks SLS Titan IV team

(Editor's note: The following letter was recently sent to Frederick Hudoff, president of Space Launch Systems, by Col. Frank Stirling, the Titan IV program director for the Air Force, thanking the Astronautics Group for another successful Titan IV launch.)

Dear Fred,

On behalf of the Titan IV Systems Program Office, I would like to express my sincere gratitude to the thousands of men and women on the Titan IV team. The second launch of the Titan IV space booster on June 8, 1990, was the culmination of their hard work and tireless dedication to mission success. As you know, the launch was a complete success and we are all proud to be a part of the team.

In addition, the friends and family of our team members can be proud and deserve special recognition. Their patience and understanding during the long hours of preparation and frequent travel were invaluable. In short, the job could not have been done without them.

The Titan IV has now become the nation's only heavy-lift expendable launch vehicle to provide assured access to space and meet the challenges of the 1990s and beyond. I salute you and all your team members and look forward with great anticipation to many more successful Titan IV missions.

CHARLES F. STIRLING, Colonel, USAF
Program Director, Titan IV System



Col. Stirling talks Titan IV

Col. Frank Stirling, Titan IV program director for the Air Force, right, meets with several Space Launch Systems personnel during a Titan IV Business Management Review earlier this week. Pictured with Stirling, from left to right, are: John P. Murphy, vice president and program director, Titan IV; Richard VandeKoppel, director, Titan IV SRMU; Arthur C. Morrissey, director, Advanced Launch Vehicle Development and Applications (ALVDA); and Raymond A. Ernst, manager of Business Development, ALVDA.

Corporate news

Martin Marietta second quarter earnings \$1.85 vs. \$1.64

The Corporation reported 1990 second quarter net income of \$94,521,000, or \$1.85 per share, compared with \$86,921,000, or \$1.64 per share a year ago. Sales for the second quarter increased to \$1,657,153,000 from \$1,433,448,000 last year.

Six-month net earnings were \$161,614,000, or \$3.17 per share, versus \$146,133,000, or \$2.76 per share, for the first half of 1989. Backlog at the end of the second quarter was \$11.3 billion, compared with \$12.0 billion at the same time a year ago.

Norman R. Augustine, chairman and chief executive officer, said, "Sales in the quarter were buoyed by rising volume on several major programs—primarily the Titan IV space launch system and LANTRIN night vision and targeting system. The advance in second quarter net income moves us a step closer to achieving our 1990 objective—maintaining our upward trend of earnings per share."

Martin Marietta continues 33 3/4-cent quarterly dividend

The Corporation's Board of Directors authorized a quarterly cash dividend of 33 3/4 cents per share on the company's common stock, payable Sept. 28 to holders of record at

the close of business on Sept. 4. The action continues the rate on Martin Marietta common, effective in the third quarter of last year, of \$1.35 per share on an annualized basis.

Corporation receives \$300 million contract

The Corporation has received a contract valued at approximately \$300 million to design and develop a new jet engine thrust reverser for Pratt & Whitney and to produce 200 units.

Thrust reversers redirect the flow of jet engine exhaust to assist aircraft braking action after landing.

The new thrust reversers will be designed and produced for Pratt & Whitney's PW4168 turbofan engine by Aero & Naval Systems at Baltimore. The contract also includes a design and development phase and a 200-unit production order. Actual production will begin

in 1993. The contract also includes provisions for follow-on production of up to 300 additional thrust reversers.

"This program broadens our business base with the addition of a major new customer in the expanding commercial aerospace market," said Martin M. Koshar, president of Aero & Naval Systems. The new contract will require a gradual increase in engineering and production positions at the Baltimore facility, with the exact number dependent upon production schedules.

SIP

Unit values for the Savings and Investment Plan (SIP) for United Aerospace Workers (UAW)- and United Plant Guard Workers of America (UPGWA)-represented employees in June 1990 (May 1990 values in parentheses) are:

Fund A	1.3206151276
Indexed Equity	(1.3314425017)
Fund B	1.2275829789
Fixed Income	(1.2201467310)
Fund C	0.8838241774
Company Stock	(0.8797088938)

PSP

Unit values for the Performance Sharing Plan (PSP) for salaried employees in June, 1990 (May values in parentheses) are:

Fund A	6.4560286529
Indexed Equity	(6.5008866392)
Fund B	3.5915017368
Fixed Income	(3.5652298054)
Fund C	4.6867659943
Company Stock	(4.6611263181)

Astronautics Group reduces waste releases from Waterton facility

An aggressive waste minimization program at the Astronautics Group has resulted in a 55 percent reduction in toxic chemical releases from the Main Plant.

The reductions, as reported to the Environmental Protection Agency this month, occurred from 1987 through 1989. The company continues to look for substitutes for the remaining toxic chemicals it uses, with a goal of reducing total releases by 95 percent by 1992, company officials said.

"Our releases are down as a direct result of an active waste reduction program and efforts to teach employees to properly handle and manage toxic chemicals," said Robert McMullen, director of Environmental Management. "By increasing employees' understanding of the negative impact these chemicals can have on our environment, we have been able to implement a waste management program that works because it has the support of the employees."

A recent editorial in *The Denver Post* praised

the Astronautics Group's efforts, saying, "One of the most ambitious efforts may be the waste-minimization program mounted by Martin Marietta at its aerospace plant in Jefferson County. By modifying its manufacturing processes, turning to water-based degreasers and making other changes, the company had reduced its chemical releases by 55 percent since 1987—at a savings of close to \$1 million—and is expecting a 95 percent decrease by 1992."

The group has implemented, or plans to implement, 30 different waste minimization projects ranging from process modification to material substitution and recycle and reuse. One important project was to substitute a water-based degreaser for trichloroethane.

The greatest reductions have been in the release of sodium hydroxide, or caustic soda, according to Kevin Dykema, staff environmental engineer. "We have reduced releases of sodium hydroxide by more than 326 tons by changing the processes in our chemical milling

operations that generate the waste," Dykema said.

Sodium hydroxide, which is used for etching aluminum in the manufacture of Titan launch vehicles, was the first chemical targeted for reduction by the Astronautics Group because it was the largest component of the company's waste in the base year of 1987. It is chemically comparable to drain cleaner used in the home.

Dykema said the company now is concentrating on reducing the amount of solvent releases at the Main Plant. "Our prime targets are trichloroethane and chlorofluorocarbons, which are used in degreasing and precision cleaning operations in the plant."

The Astronautics Group recently joined several other Colorado companies, regulatory agencies, and public interest groups in a consortium called Pollution Prevention Partnership whose purpose is to reduce pollution in Colorado. The group will provide technical information exchange for both large and small businesses. ■

Corporation receives \$138 million postal contract

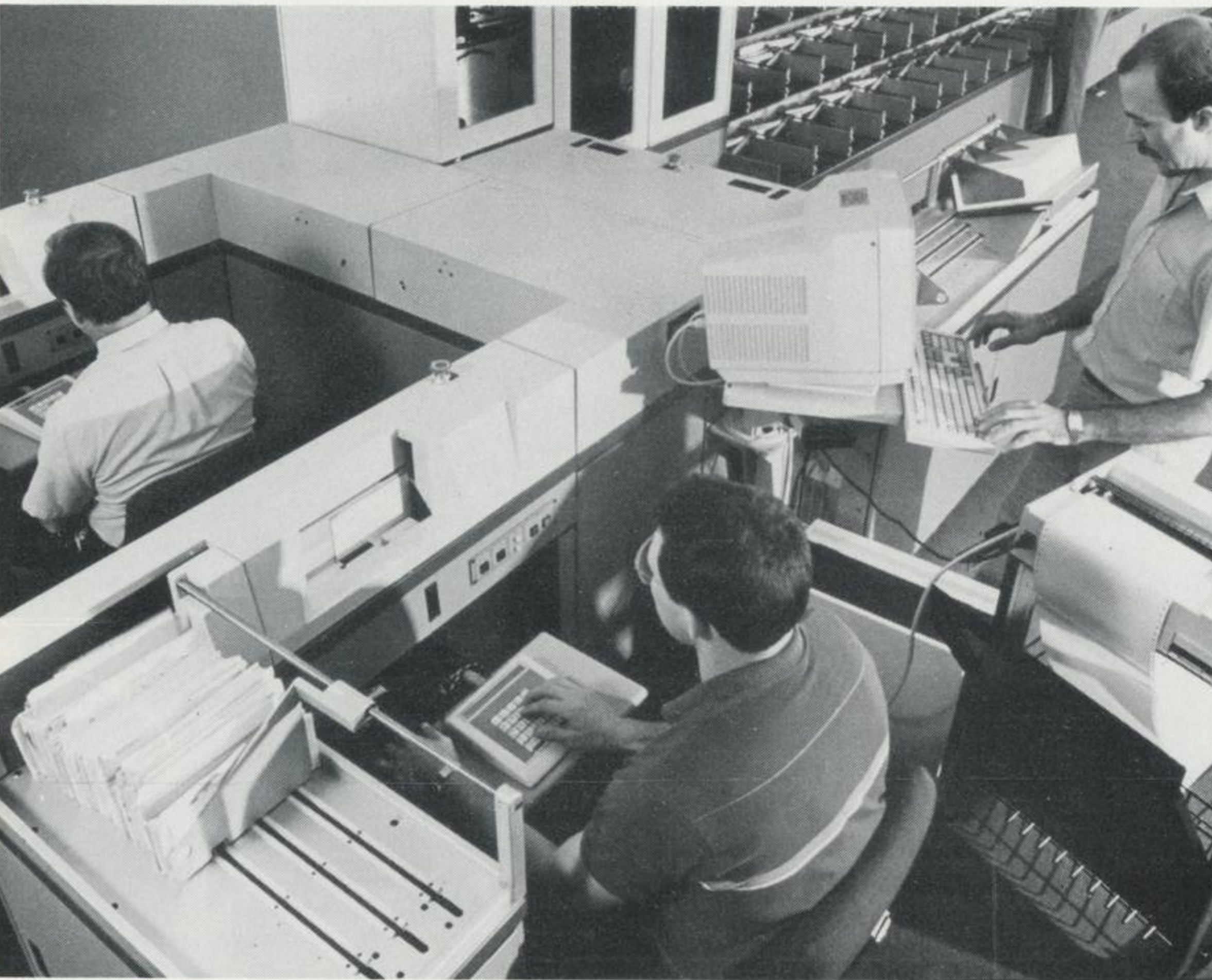
The U.S. Postal Service has awarded the Corporation a \$138 million contract to produce 614 automated mail sorting machines.

The contract is for a new, high-speed sorting machine using bar code technology to process mail by ZIP code. The Delivery Bar Code Sorter will be able to process letter mail by automatically reading and sorting preprinted bar codes.

"I am really excited about this win," B. Clovis Landry, Information & Communications Systems vice president, said. "We are now

a major player in the postal systems market and there are several more opportunities with the U.S. Postal Service."

The new machines also will be able to process mail without bar codes. Operators at two workstations would input codes that instruct the automated sorter where to send the non-bar-coded mail. Information Systems Group will produce the machine at its new manufacturing facility in Albuquerque, N.M. First delivery will be in late summer 1991. ■



Sorter tested

A prototype Delivery Bar Code Sorter is shown in the above photo. Information Systems Group will produce 614 sorters at its manufacturing facility in Albuquerque.

EPA decision expected on Waterton cleanup

The U.S. Environmental Protection Agency is expected to issue a decision by September 30 on the method it believes best to clean up soil and ground water contamination at the Main Plant.

The agency held a public meeting on July 26 to seek comment on its preferred cleanup alternative, which would cost \$58.9 million.

The preferred alternative calls for treating the soils in the area of inactive waste disposal ponds on-site and sending the waste off-site for disposal. The treated soils would be stabilized, placed back into the excavation on-site, and capped.

Contamination in the soil in the area of the chemical storage tanks just north of the factory would be removed by soil vapor extraction.

Contaminated ground water on the entire site would be removed by interceptor wells and treated, then released to the surface water or reinjected into the ground water.

Representatives of the EPA, the Colorado Department of Health, and Martin Marietta gave presentations at the public meeting on the nature and extent of contamination found at the site, how various cleanup alternatives were evaluated, and what the EPA's preferred alternative would involve.

An EPA toxicologist, Dr. Christopher Weis, also outlined for the audience the risk assessment study that was made at the site. "Under present conditions, there is no risk either to employees on site or individuals off site," Weis said.



United Way agencies open doors

About 40 Astronautics Group employees toured four different United Way agencies last month to get a first-hand look at where the money is being spent. Shown above is a group touring the Rocky Mountain Food Bank.

United Way campaign events continue

Group meetings and incentive drawings for the Astronautics Group's 1990 Mile High United Way campaign are underway.

Meetings are conducted back-to-back at 11 a.m., 11:30 a.m., noon, and 12:30 p.m. Remaining dates and locations for these meetings are:

- Deer Creek Facility, Auditorium, Aug. 7 and 15
- Engineering Building, Presentation Room, Aug. 8 and 14
- Space Support Building, Presentation Room, Aug. 8 and 15
- South Park West I, Marketing Information Center, Aug. 8 and 15

Also, contributing employees are eligible for the three remaining incentive drawings. Dates and prizes are:

- Aug. 6, tickets to Ascot Dinner Theatre, tickets to Mann movies, and a travel certificate
- Aug. 13, Ascot Dinner Theatre, a travel certificate, and a jewelry certificate
- Aug. 20, a travel certificate, hot air balloon ride, and two nights' lodging in Vail

Winners of the above prizes will be contacted by phone. Please continue to support the Mile High United Way. ■

**1 OUT OF EVERY 9
BABIES IS BORN
TO A DRUG ADDICT.**

Support drug and alcohol treatment and prevention programs.



MILE HIGH UNITED WAY
It brings out the best in all of us.

Survey results spark changes in evening classes

Earlier this year, 1,026 Astronautics Group employees responded to an Evening Institute Survey distributed by the Central Human Resources Development organization.

As a result of that survey, several changes have been implemented for the upcoming fall semester. Some of the major changes are:

- The institute is now called Martin Marietta Astronautics Institute.
- Students who complete classes will have that information entered into the Corporate Automated Personnel System (CAPS).
- 17 new courses have been added to the institute's schedule and several full-day seminars are being offered on Saturdays.

The fall 1990 Martin Marietta Astronautics Institute catalog will be available next week, and distribution will be coordinated through Astronautics Group mail rooms. ■



I-25 gets new flowers

Carlos Garcia, a member of the Urban Conservation Corps, front right, plants one of 1,000 wildflowers donated by Martin Marietta to the Interscape 25 program during a recent press conference and groundbreaking. Interscape 25 and the Urban Conservation Corps are working together to beautify I-25 and provide summer work for urban youth.

Family Days set for Lakeside

The company-sponsored family days at Lakeside Park are Aug. 18 and 25, and department administrators have started distributing tickets to employees who reserved them earlier this year.

Gates open at 9:30 a.m. both days, with Martin Marietta employees having exclusive use of the park and free rides between 10 a.m. and 6 p.m. Anyone who wants to ride free after 6 p.m. must request a free

wrist band from ticket booths at the merry-go-round or ferris wheel before 5:30 p.m. Tickets are valid only for the date specified.

New employees who did not reserve tickets can obtain them, for Aug. 25 only, from department administrators.

In addition to free rides, employees will be entertained by a show band, an illusionist, juggler, magician, and puppet shows.

SURGE registration forms due next week

Registration forms for the Colorado State University SURGE program are due Aug. 8.

SURGE is an on-site video program offering master's degrees in business, engineering disciplines, and natural sciences.

An informational meeting is scheduled for 11:30 a.m. Monday, Aug. 6, in the Deer Creek Facility's Independence Room.

Registration forms may be turned in at the informational meeting or mailed to Employee Education at mail stop DC1372. ■

Employee services/recreation

Waterton Amateur Radio Society—All hams and those interested in learning more about amateur radio are invited to attend a meeting at 5 p.m. Tuesday, Aug. 7, in the hamshack at the recreation area. For more information, call Tony Kehayas at Ext. 7-2013.

Mile High L5—The group will meet for a picnic and star party at 6 p.m. Friday, Aug. 10, at Observatory Park on the Denver University campus. For details, contact Cyndi Bissett at Ext. 7-5844.

Fathom Dive Club—Members and guests will meet at 6 p.m. Monday, Aug. 13, for a potluck followed by a meeting and program at the Greenwood Point Clubhouse, 5324 S. Broadway Circle, Englewood. Explore the Bahamas aboard the "Bottom Time II." Don Marsh will share his adventures and slides with the group. For more information, contact Mike Deffenbaugh at Ext. 7-8697 or Wayne Cox at Ext. 7-6800.

Hunting and Fishing—The group will meet at 5 p.m. Monday, Aug. 13, in the clubhouse at the recreation area. For more information, contact Mel Smith at Ext. 1-8682.

Red Rock Bowmen—Security briefings are scheduled for 4:45 p.m. Aug. 14 in the recreation area clubhouse. All members must attend this briefing and prospective members are encouraged to attend. For more information, contact Dave Unruh at Ext. 7-0477 or Mark Lyons at Ext. 7-5722.

Flag Football—An organizational meeting for men's competitive and recreation flag football leagues will be at 5 p.m. Wednesday, Aug. 15, in the Space Support Building cafeteria. Attendance is required for team captains. Those interested in forming a team can obtain a roster at the meeting. Rosters and \$10 player fees are due in the Recreation office by Wednesday, Aug. 29.

Hunter Education Classes—Class dates are set for 7 to 9:30 p.m. Aug. 20, 22, and 23 at the VFW Hall, 3860 S. Jason St., Englewood. The range date is from 8 a.m. to 1 p.m. Aug. 25 at the club's shooting range. Students must attend all class sessions. Registration will be taken at the first class and a minimum of 10 students is required to continue meetings. The cost is \$7. Employees, family members, and friends are welcome to attend.

Golf Tournament—Entry forms are in the information racks for the Martin Marietta Open Saturday, Aug. 25, at Raccoon Creek Golf Club. The \$45 fee includes green fees, cart, lunch, and a chance to win door prizes. The tournament is open to the first 144 players, so early registration is advised. The entry deadline is Aug. 14.

Bowlers Needed—Employees are needed to form teams for the Colorado Alliance of Business Bowl-a-thon Sept. 8 and 9 at Celebrity Sports Center. The bowl-a-thon is a fundraiser for the Alliance Youth Programs. Pledges and/or donations are optional. Those raising pledges or donations will be eligible for prizes. Each five-member team will have a choice of 9 a.m., noon, or 3 p.m. playing times on Saturday, or noon on Sunday. Interested bowlers or team captains should contact Mardi Rumin, in the Employee Services/Recreation office, Ext. 7-6750 or 7-6605, by Aug. 15 to obtain a team registration form.

Winning Way To Lose—Employees can begin this eight-week, individualized weight loss program at any time. The program focuses on lifestyle change and includes measuring cholesterol, body fat, and blood pressure. Methods to achieve your personal goals are addressed during weekly consultations. Contact Diane Nolly, R.N., at Ext. 7-7576 to register. The fee is \$25.

Manage your Stress—Exercise this summer in the cool, scenic setting of the Employee Wellness Center at Deer Creek. Exercise equipment can be used by employees free of charge. The center has treadmills, bicycle ergometers, Concept II rowing machines, bioclimbers, Paramount weight machines, free weights and benches, and punching and speed bags. Shower, locker, and sauna facilities also are available. Aerobic and body sculpting classes are offered at 11:15 a.m. and 4:30 p.m., Monday through Friday. Employees can purchase 10- and 20-use class cards. The cards do not have an expiration date and can be used for any class. Cards can be purchased by mail or at the Wellness Center between 11 a.m. and 5:30 p.m. A fitness class registration form is in the information racks. Expanded hours at the Center are 5 a.m. to 8 p.m., Monday through Friday (except closed 9 to 10 a.m. for

cleaning), and 7 a.m. to 6 p.m. on Saturday and Sunday. Qualified staff members are available to assist employees with equipment usage, and to provide health consultations and health screenings between 11 a.m. and 5:30 p.m. Call Ext. 7-7575 or 7-7576 for appointments.

Classes Continue at HEALTHBEAT—Employees, their spouses, and dependents (18 years and older) can participate in fitness classes at HEALTHBEAT Athletic and Rehabilitation Club, 151 W. Mineral Ave. To participate, employees should obtain a class information flyer and medical history form from the information racks. A \$27 card is valid for 20 classes and a \$15 card is good for 10 classes. Aerobics classes are offered at 4:30 p.m., Monday through Friday. The class cards are good for these classes only and do not represent club membership. Class cards can be purchased at the locations listed on the information flyer, and questions can be answered by calling Ext. 7-6605 or 7-6750.

Dinosaur Discount—\$1 discount coupons are available for the life-like robotic dinosaur exhibit set in a primeval swamp now showing at the Public Market in Aurora at Exposition and Sable streets. The show runs from 10 a.m. to 8 p.m. Monday through Saturday and 11 a.m. to 5 p.m. on Sunday, through Sept. 30. Coupons can be picked up at any Recreation information rack. For additional exhibit information, call 671-6103.

Scottish Festival and Highland Games—\$1 discount coupons are available for the Rocky Mountain Scottish Festival and Highland Games Aug. 11 and 12 at Highland Heritage Park, 9300 S. Quebec. Employees can obtain coupons from any recreation information rack.

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