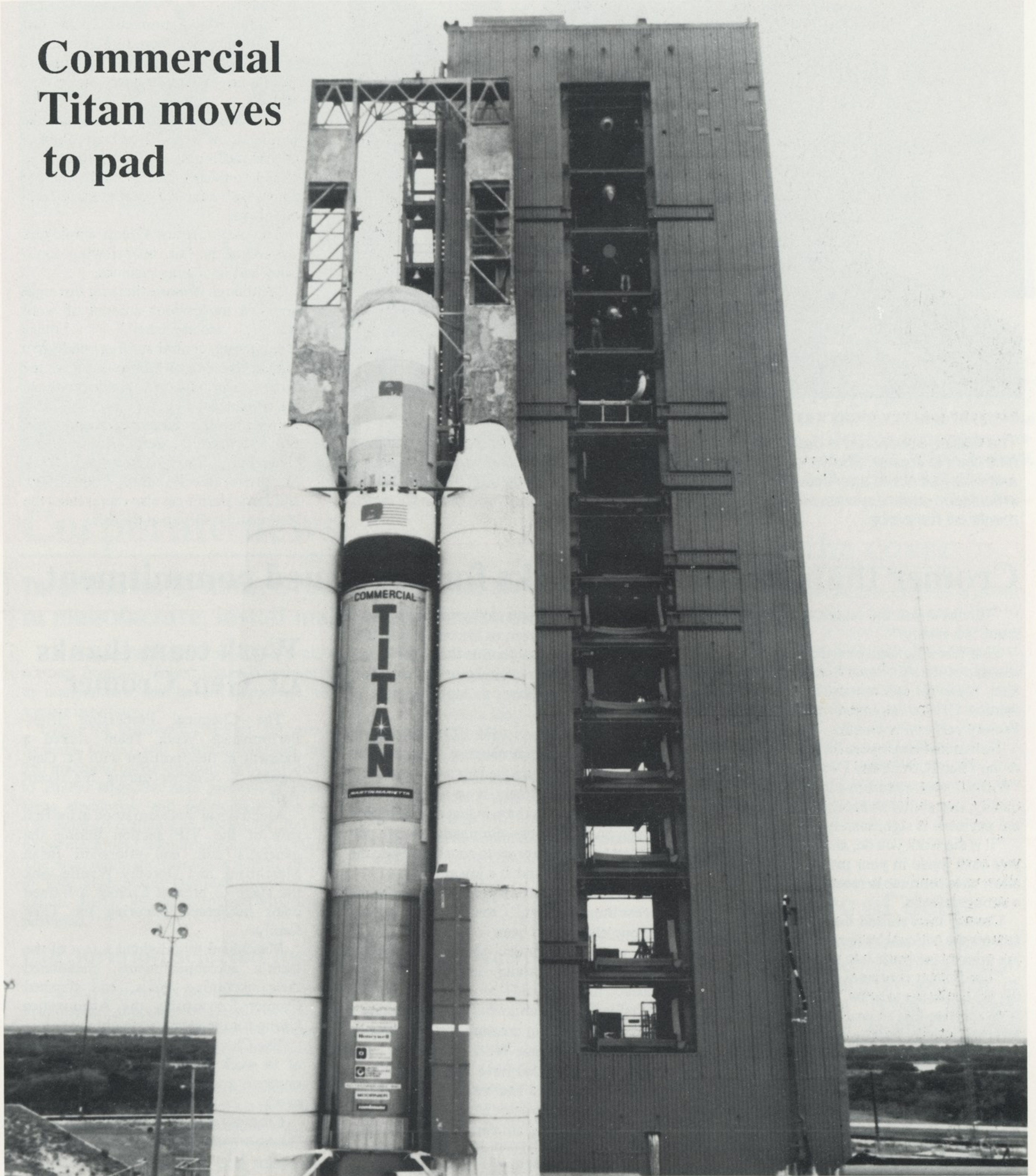


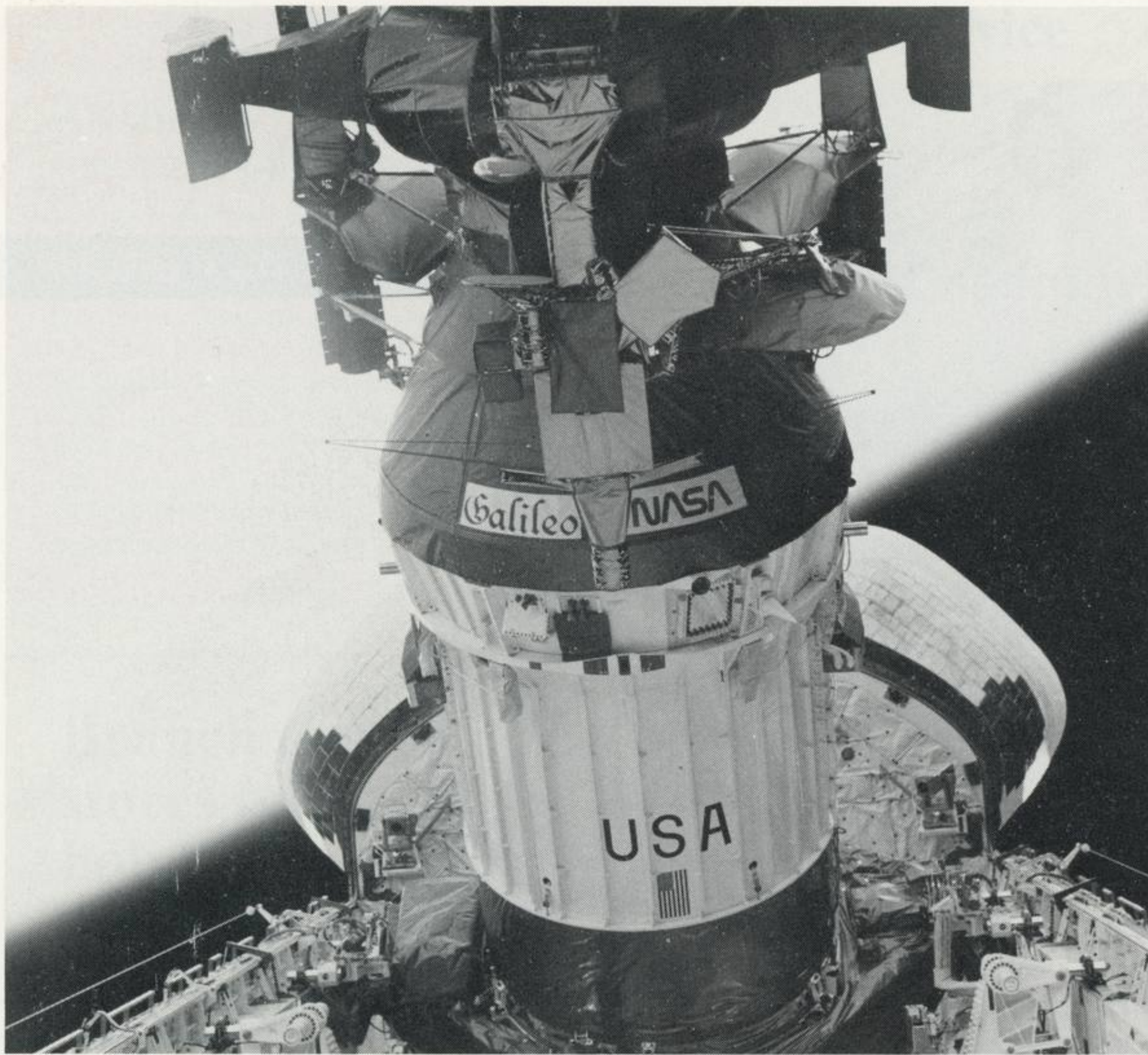
November 17, 1989

Number 24

# Commercial Titan moves to pad







### Six-year journey underway

The Galileo spacecraft is deployed from the Space Shuttle Atlantis to start its 2.4-billion-mile flight to Jupiter. Shown with its Inertial Upper Stage rocket, Galileo was deployed six-and-one-half hours after blastoff on Oct. 18. The Astronautics Group built the attitude and articulation control system electronics for the Galileo spacecraft and three of the six instruments on the probe.

## Group benefits from jobs expo

Thirteen people have joined the Astronautics Group, thanks to its participation in the 9 Career & Jobs Expo last month at Currihan Exhibition Hall. Last year, nine people were hired as a result of the fair.

This year the Astronautics Group, one of 92 companies recruiting at the fair, has been successful in drawing from the expo's largest crowd ever—more than 30,000.

"Obviously we were pleased with the turnout at the expo," Bev Dare, chief of central staffing, said. "With 13 new hires already onboard, and certainly more to come, we've reaped great rewards from our efforts."

Ten Astronautics Group employees worked at the fair, interviewing applicants and reviewing resumes.

"Although we were there for just eight hours, a tremendous amount of work was accomplished," Louise Steinhausen, central staffing, said. "We represented Martin Marietta and at the same time provided a valuable service to the community."

In addition to Steinhausen and Dare, Bob Gammill, Jeff Ross, Rose Neumann, Candy Berends, Stacy Musgrave, Bev Hamdorf, Tom Bailey, and Jerry Hardiman also represented the Astronautics Group at the fair.

## Cromer thanks employees, asks for continued commitment

"Thanks to you and others, assured access to space is a reality."

That's how Lt. Gen. Donald L. Cromer, commander of the Air Force Space Systems Division, began his talk to more than 1,200 Astronautics Group employees assembled in the Factory earlier this month.

He thanked employees for their commitment to the Titan II, 34D, and IV programs and said, "Without your commitment to excellence and quality, our ability to access space with essential payloads is significantly impaired."

"It is the work you do, and the improvements you have made in your productivity, that will allow us to continue to meet our national goal of a strong defense."

Cromer then shifted his discussion to constraints the national budget places on transporting priority payloads into space.

"The budget continues to get smaller while the job continues to grow," Cromer said. "So, it is no surprise that an emphasis on productivity and productivity improvement becomes necessary to meet our challenges with the resources available."

Cromer also pointed out the "partnership" industry and government have formed to produce what is needed more efficiently.

Specifically, the general addressed Martin Marietta's Total Quality Management plan.

"It is an impressive and ambitious plan," Cromer said. "However, an impressive and ambitious plan is only as good as the commitment behind it. The recent capital investments made in this factory show a high degree of commitment."

Moreover, Cromer said TQM initiatives must include the human element. "You all must take pride in producing the best work you can."

Once the commitment is in place, Cromer said the obvious next step is that of continuous process improvement—eliminating waste and unnecessary steps in order to consistently do the job better, quicker and at a lower cost.

"You alone are the best judge about continual process improvement," Cromer told the crowd. "No one else knows your job better than you. With your commitment and willingness to adapt, the productivity improvement will happen."

Finally, Cromer commended the work that's already been done in creating and implementing High-Performance Work Teams. He cited specific instances that have resulted in fewer manufacturing hours and emphasized his feelings about the importance of these teams.

"A new sense of teamwork has taken hold," Cromer said. "This teamwork will be important in responding to the challenges ahead." ■

## Work team thanks Lt. Gen. Cromer

The Chemical Processing High-Performance Work Team shared a moment in the spotlight with Lt. Gen. Donald L. Cromer during his recent visit.

Members of that team stood in the first row of the VIP section during the general's talk, and afterward Brian Marchbank and Dorothy Waufle took the stage to present Cromer a framed color lithograph featuring the Titan family.

Marchbank highlighted a few of the team's accomplishments, mentioned their upcoming goals, and thanked Cromer for visiting the Astronautics Group for the second straight year.

The Chemical Processing team is one of 14 work teams currently striving to improve quality and meet customer needs.

Cromer raised the memento and said, "Quality hardware is what it's all about."



# Magellan's cruise keeps spacecraft team on its toes

Magellan raced across Venus' orbital path last month, finishing the first third of its 795-million-mile flight to that planet, where it will arrive Aug. 10, 1990. So far, the journey halfway around the sun has been anything but a quiet cruise through space.

Martin Marietta's Magellan spacecraft team in Denver has faced daily challenges as the spacecraft neared the sun, encountering some of the strongest solar flare activity ever recorded and reaching temperatures 20 to 30 degrees C higher in certain areas than predicted.

The team is part of the Jet Propulsion Laboratory's Magellan flight team.

"We were counting on a quiescent cruise, but that's not what happened," mused Kenny Starnes, who heads a group of engineers in charge of Magellan's command and data subsystem.

His team anticipated sending operational commands to the command and data subsystem, the "brains" of the spacecraft, once every two to three weeks. "We've already transmitted more than 150 command files—an average of about one a day—to the spacecraft to work out some of the problems we've had during the cruise," said Ken Ledbetter, Magellan mission operations manager.

Most of the problems, which Ledbetter emphasized have had no long-term effect on the mission, have been related to either high spacecraft temperatures or solar activity.

High temperatures have plagued the spacecraft's propulsion and attitude control subsystems. Early in the flight, the spacecraft's rocket engine modules (thrusters) and attitude control electronics began heating up, requiring both the propulsion subsystem and attitude control subsystem engineers to conduct thorough testing and analyses to confirm that the temperatures would not cause any major failures. Because the thrusters and electronics are located on different parts of the spacecraft, changes in Magellan's attitude to roll the spacecraft away from the sun would only cool one subsystem or the other.

"We decided the best choice was to live with the high electronics temperatures for a few weeks," said Chuck Gay, who leads the attitude control group.

According to Jim Neuman, chief of Magellan's thermal subsystem crew, there was never any danger to the attitude control system because the temperatures never surpassed tested limits.

Nevertheless, the spacecraft team's job is to nip potential problems in the bud before Magellan's fault protection system sounds an alarm and reverts to one of its many backup systems.

Solar flare activity has made the mission operations team particularly cautious. The flares have degraded solar panels more rapidly than expected and seem to be the culprit in ongoing

spurious voltage interrupt problems with Magellan's star scanner.

Owen Short's power subsystem team has seen a 10-percent degradation in the solar panels already, but because they were designed to allow 36-percent degradation during the mission, he is confident that power output will be sufficient to fly through cruise, orbital mapping, and the first extended mission.

The star scanner, which helps Magellan verify its orientation and correct its attitude drift, may also be suffering from solar flare interference. For the last several months, unexplainable glitches in voltage readings, perhaps caused by a flow of protons from solar activity, have prevented the spacecraft from making regular updates in its attitude knowledge. While occasionally "missing a star" is not a major problem now, it is being given top priority by the attitude control engineers because it could hinder Magellan's mapping mission at Venus.

The subsystem team is working concertedly to nail down the problem, collecting data and making flight software modifications to filter out the solar interference and correct the problem.

Ironically, Gay said, "everyone thought that with such a long cruise (15 months), people might get bored."

"The joke going around the mission operations control room is that we're still looking forward to a 'quiescent cruise,'" said Ledbetter.

## Briefings scheduled for master's program

The coordinator for the University of Denver's Master of Science in Systems Management will brief interested employees at several facilities in December.

Sheila Bell will speak to new and continuing students at the following locations:

- Waterton, Dec. 5, Technical Support Building, Room 501
- Littleton Systems Center, Dec. 7, Room 136A
- Deer Creek Facility, Dec. 12, Wolfcreek Conference Room

Each talk will begin with a briefing from 11:30 a.m. to 12:15 p.m. and will be followed by registration from 12:15 to 1 p.m.

For additional information, contact Educational Services at Ext. 7-4050.



### Thank you, Charlie Brown

Charles Brown, center, shows off his Silver Snoopy award presented to him by astronaut Dr. Jay Apt, left. The Silver Snoopy is presented infrequently by astronauts to "no more than one percent of people who work on manned spacecraft," Apt told Brown and a crowd of Magellan employees. "This award is not often given to managers, but this is a special case." Brown, recently retired after 31 years of service to Martin Marietta, also received a cartoon featuring the character Charlie Brown, far left, from Charles M. Schulz commending him on his dedicated work to the company and the Magellan mission. Grover Hall, vice president of NASA Space Systems, right, also congratulated Brown.





### Symposium draws huge crowd

*President Peter B. Teets addresses some of the more than 900 people who attended the First National Total Quality Management Symposium earlier this month at the Hyatt Regency. Representatives from U.S. defense industries and agencies used the three-day gathering as a forum to brainstorm TQM initiatives and ideas and ways to communicate those messages. Several people from the corporation presented papers, participated on panels, and helped host the symposium.*

## Martin Marietta gift links kids to outside world

Kids at The Children's Hospital in Denver are communicating across the nation despite the fact that many of them can't speak, write or use their arms or legs. Thanks to advanced computer resources and adaptive devices, the hospital's AccessAbility Resource Center is opening new doors to the outside world.

The "Kids Linking Kids" program focuses on computer technology and its power to make the difference for kids with disabilities. Advanced telecommunications techniques are connecting and giving disadvantaged kids the ability to communicate with their peers in another part of the country or the world.

The motivation for developing the AccessAbility Center began with a young man named Jimmy Loper (a former patient in the terminally ill ward at Children's). Loper, who became friends with Martin Marietta through the volunteer assistance of employees and Apple Computer, Inc., developed the SilverSurf Club, which has evolved into the "Kids Linking Kids" program at The Children's Hospital. Tragically, Loper died in 1988 before he could see his idea come to fruition.

A recent company gift will help ensure that kids at The Children's Hospital maintain this computing power. Martin Marietta's Corporate Gifts and Grants Foundation provided a \$5,000 gift that will be used to operate the system and further develop software.

"This network makes information available for people with disabilities," said Ann Grady, Director AccessAbility Resource Center. "Our goal is to provide activities that will expand children's experience, abilities and self-esteem. The focus is on abilities, on what they can accomplish—not on what their limitations may be."

Much of the information ricocheting on the network deals with location adaptive devices for handicapped individuals or simply casual correspondence between kids with similar concerns. Currently, 20 similar centers exist around the country. The Denver center involves 100-150 children. A nationwide alliance with Apple Computer, Inc., provides equipment, training and connectivity. Most of the centers are community-based and parent-initiated. Children's is unique in that it is hospital-based.

"We have taken special initiatives to support computer education in our community," said Max McGarr, vice president of the Information Systems Group Denver Account. "We are very proud of these efforts, and the funding for the 'Kids Linking Kids' program fits nicely into our plans to continue sharing Martin Marietta resources in Denver."

For more information on the "Kids Linking Kids" effort, contact Ann Grady, Director AccessAbility Resource Center—The Children's Hospital, (303) 861-6250. ■

## Allow eight weeks to get papers cleared

Astronautics Group authors and presenters should allow at least eight weeks for getting abstracts, articles, presentations and papers cleared.

And they must get their clearances prior to publication deadlines and presentation dates.

One key reason for this long period is the International Traffic in Arms Regulations (ITAR).

The ITAR sometimes requires clearing even unclassified information about items on the munitions list with the U.S. Government prior to public release—including information on work not done under contract.

The munitions list is a long one. It includes launch vehicles, ballistic missiles, spacecraft and associated equipment, military and space electronics, and technical data—virtually everything the Astronautics Group does.

The yellow Publication Clearance Form (DEN 864870, revised 06-89) can be ordered from office supplies. Directions for completing it—how many copies are required, depending on who the customer is, etc.—are on the back of the form.

"Most contracts require that articles, presentations or papers based on work done under contract be cleared by the customer," Arthur E. Koski, director of Public Relations, said. Public Relations handles clearance of articles and papers.

"But even when contracts don't require a customer clearance, the ITAR frequently comes into play, and a government clearance still will be required. Different customers have different lead time requirements for clearing materials," Koski said. "That's why we advise allowing at least eight weeks."

Authors should also send Public Relations three copies of their paper or article after it has been published, along with a cover sheet showing the name and date of the publication. Public Relations provides one copy to the Publication Awards Committee and one to the library. ■

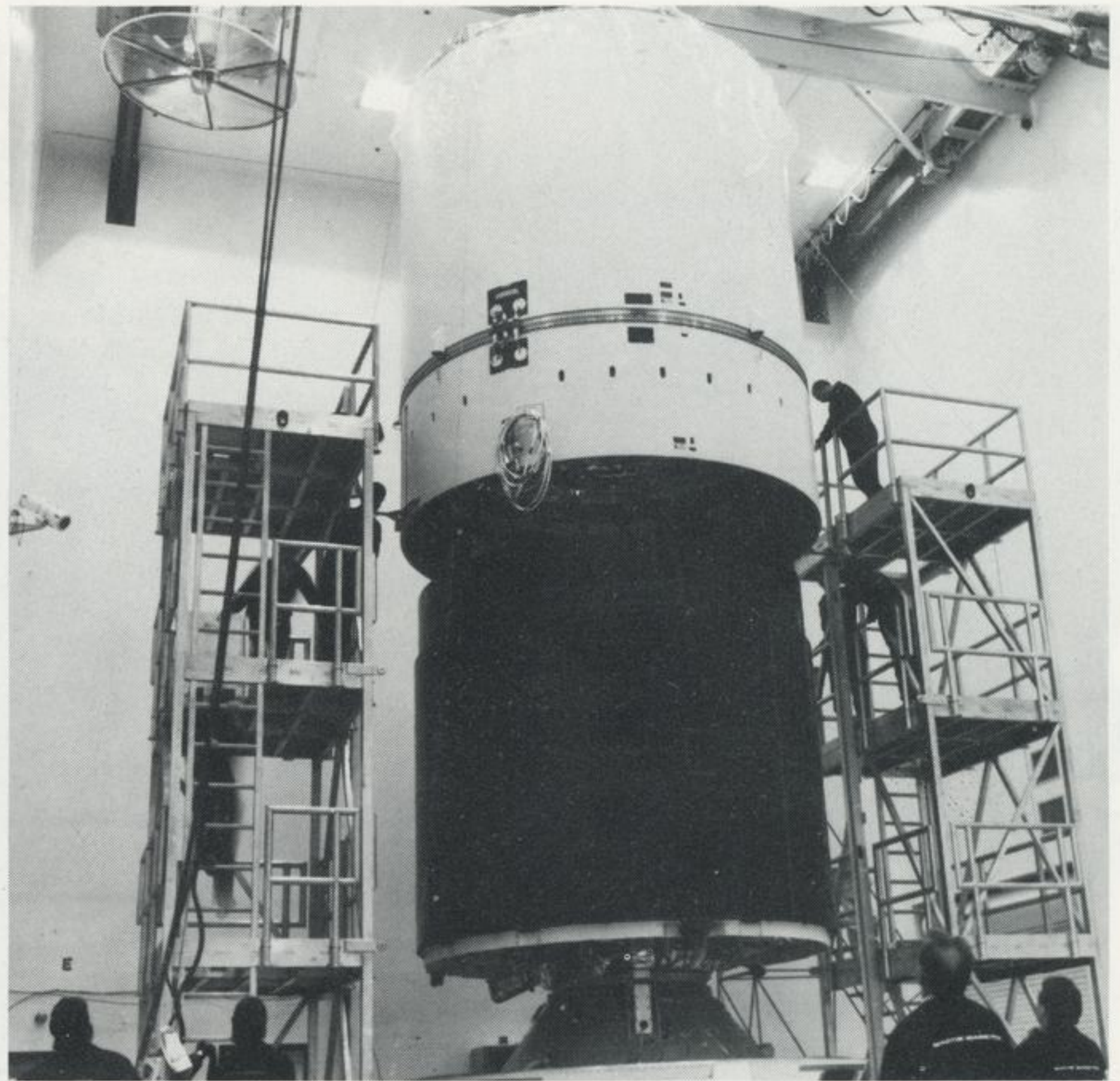
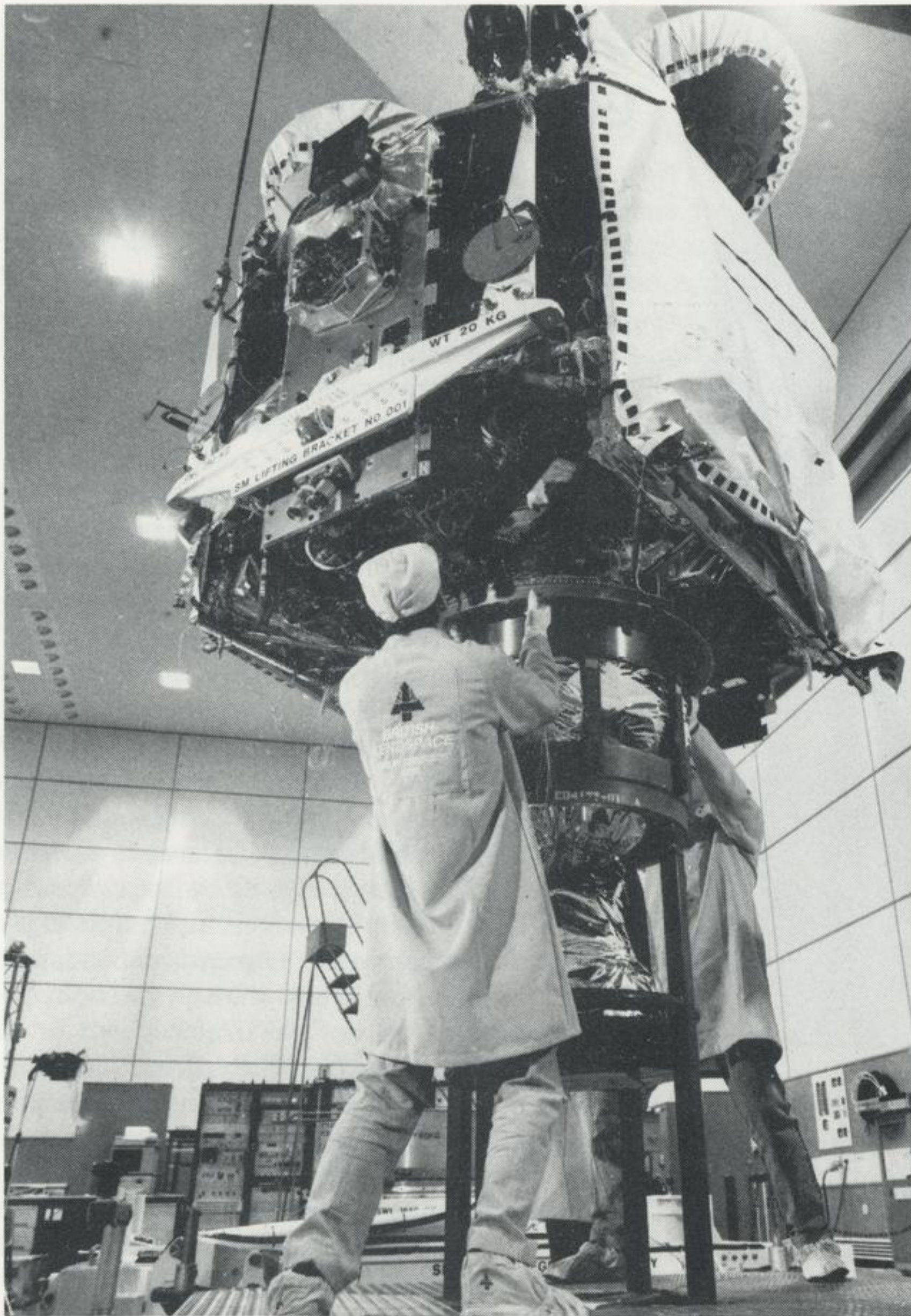
## Substance abuse training begins for supervisors

The Employee Assistance program has started Substance Abuse Awareness Training. The Department of Defense requires this training for all supervisors.

Supervisors should complete their training by the end of this year. The following people should be contacted to arrange for training: Chris Bosselman, Space Systems; Dick Ristine, Space Launch Systems; Jim Schaefer, Strategic Systems; and Charles Roach for Commercial Titan and Astronautics Central.

Training takes less than one hour to complete.





### Commercial payloads

*Martin Marietta's first Commercial Titan rocket, scheduled for launch in December, will carry two communications satellites—the JCSAT 2 for the Japan Communications Satellite Company and the Skynet 4A for the United Kingdom Ministry of Defence. Shown being prepared for flight are the Hughes-built JCSAT 2, above, and the Skynet 4A, left, built by British Aerospace.*

## Corporate news

### Information Systems Group wins postal service contract to manufacture, install mail-sorting machines

The Corporation has won a \$38.2-million contract from the United States Postal Service to manufacture and install automated mail-sorting machines.

Under the three-year contract, Information Systems Group will manufacture and install 267 machines capable of sorting by ZIP code up to 10,000 large flat mail pieces—magazines, large envelopes, and periodicals—per hour. The contract contains an option for 200 additional machines for approximately \$24 million. The semiautomatic machines will be installed in 156 large postal facilities throughout the nation. Parts, kits and spares will also be provided.

“We welcome this opportunity to apply Martin Marietta’s technological expertise in automation and production systems to the Postal Service’s long-term mission of greater accuracy, reliability, and speed in delivering the nation’s mail,” said Robert J. Polutchko, president of the Information Systems Group.

The contract, part of the Postal Service’s efforts to improve mail processing through cost-effective automation and mechanization, will be performed by Information & Communications Systems.

### Corporation selected for technical services contract

The corporation has been selected by the Jet Propulsion Laboratory of Pasadena, Calif., to provide broad professional service support for the laboratory’s Technical Support Effort Personnel program.

The contract calls for the Information Systems Group to provide specialists in such areas as computer analysis and programming, mathematics, and other engineering, technical, and scientific areas to assist JPL in scientific and

planetary projects. The three-year contract also contains renewal options for two additional one-year periods.

A division of the California Institute of Technology, JPL is a federally funded research and development center operating under contract to the National Aeronautics and Space Administration. JPL currently has approximately 700 professionals employed through the Technical Support Effort Personnel program. ■

## On the cover

The first Commercial Titan is shown after being rolled out to Launch Pad 40 on Oct. 31 at Cape Canaveral Air Force Station, Fla. Scheduled for launch next month, the Commercial Titan will carry two communications satellites (see above photos) into orbit. “It’s a major milestone,” said Edward M. Browne, president of Commercial Titan, Inc. “It’s a significant achievement for the Commercial Titan program as we approach our first launch.”

## Beware of deer

There have been 14 reported auto/deer accidents this year on roads leading in and out of Astronautics Group facilities. And as the weather changes more deer will be in the area.

Please exercise caution at all times to help eliminate this problem.



## Alcoholics Anonymous meetings planned

Employees who want to address personal alcohol/addiction problems can attend Alcoholics Anonymous meetings at two work locations. Groups meet at 11 a.m. Mondays and Fridays in Room 402, Technical Support Building, and at 11:30 a.m. on Wednesdays at Littleton Systems Center, Room 201. Locations may change due to room availability. Contact the medical office, Ext. 7-4676, to confirm meeting location.

## Branch company stores open for holiday season

Employees can purchase Martin Marietta logo items and many other unique gifts for Christmas at the company store and its three holiday branch locations. The main store is located at Waterton in the Engineering Building, west of the first floor cafeteria. Hours are 7 a.m.-5 p.m., Monday through Friday.

Branch stores will operate Monday through Friday, Nov. 20 to Dec. 22, at the Space Support Building, Littleton Systems Center and the Deer Creek Facility. Purchases can be made with cash, or checks. The stores offer gift certificates, and authorized purchases by company departments can be cross-charged.

A calendar of special event sales, times, and specific locations will be in the information racks soon.

## 30 years of service



Employees celebrating 30 years of service in 1989 were honored recently at luncheons. Some of the honorees include, standing, left to right: Donald Nickel, Reid Clausen, Mick Commerford and Wallace Pitt. Seated, left to right: Robert Golla, McKinley Lockett Jr., Ernest Littler and Robert Sanchez.



Seated, left to right: Ralph Westerman, Perry Thornton, Ovid Bloom and Kent Paser. Standing, left to right: Norman Vaughan, Harlan Nassen and Vic Patton.

## Employee services/recreation

**Ada/Software Engineering Working Group**—Interested employees will meet at 5 p.m. Monday, Nov. 20, at Littleton Systems Center, Room 106. Contact Robert Lewis at Ext. 1-6731 for further information.

**Photography Club**—Platte Canyon Photography Club members will meet at 7 p.m. Monday, Nov. 27, at the Public Service building, 10001 W. Hampden Ave. Celia Roberts, professional freelance

photographer, will present a slide show featuring people residing in different environments around the world. Everyone welcome. Contact Bill Privratsky, Ext. 7-4969, for details.

**RTD Fare Saver Books**—Ten-ride coupon books valued at \$10 are available for \$7.25 at Employee Services offices in Deer Creek and Waterton and from volunteer recreation representatives at the Space Support Building and LSC.

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