

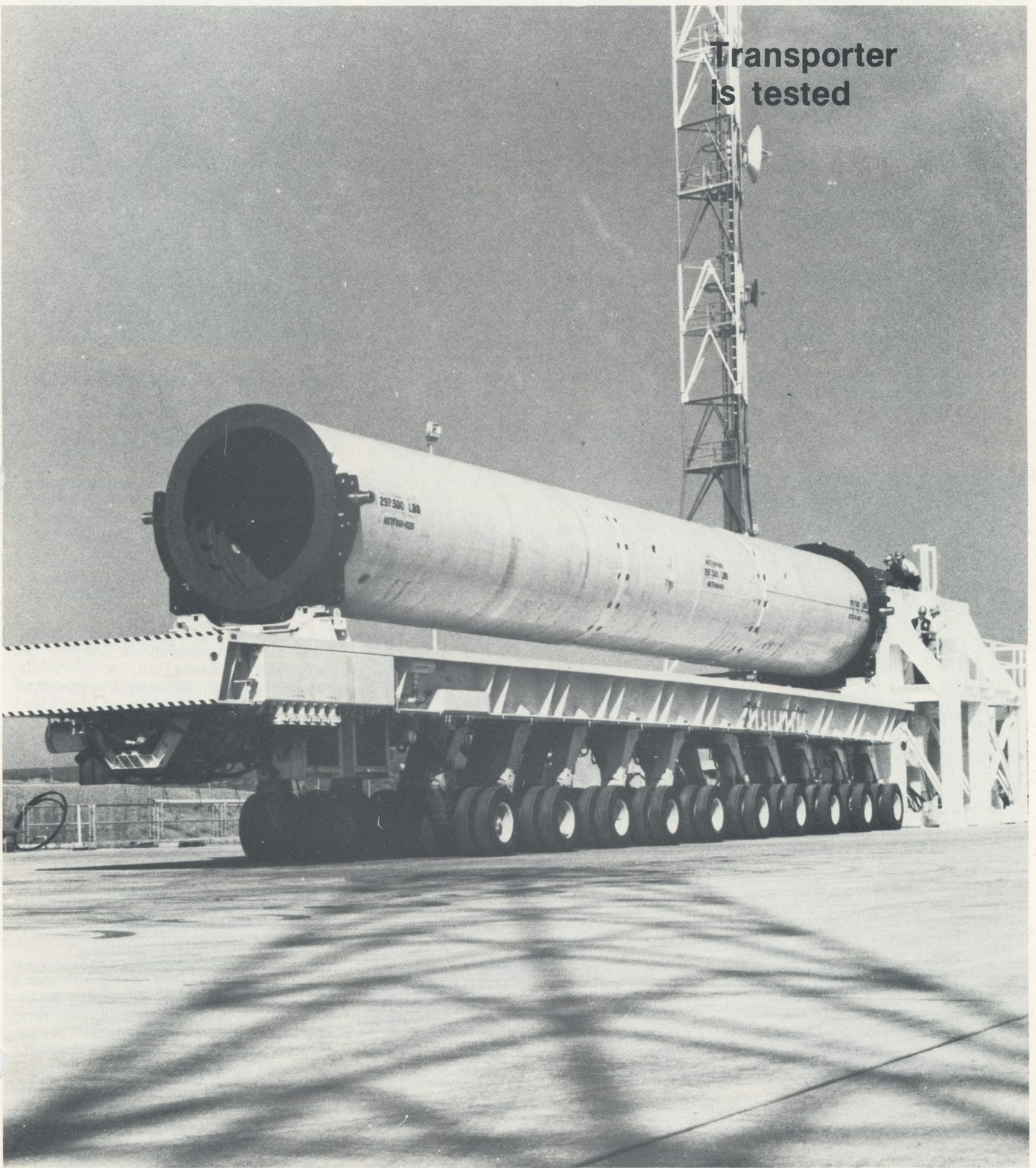
MARTIN MARIETTA

news

DENVER AEROSPACE

NUMBER 4/1983

Transporter
is tested



Unique vehicle built for Peacekeeper

An 80-wheel, 122-ton, dual-engine, computer-assisted transporter is playing an important role in the Peacekeeper missile flight test program.

The vehicle will be used to transport the 300,000-pound launch canister and missile to the launch support stand for firing.

The Peacekeeper missile system is the first to be fully assembled away from the launch pad, then moved to the firing site. During the flight test program, the missile stages are tested in various facilities at Vandenberg Air Force Base and then bolted together in the missile assembly building. The transporter moves the 150-ton canisterized missile with its sophisticated instrumentation and monitoring equipment several hundred yards to the launch stand.

The uniquely designed 80-wheel vehicles are capable of making the precise movements necessary to attach the loaded canister to the launch support stand.

The 87-foot long, 13-foot wide vehicle weighs approximately 245,000 pounds unloaded and is powered by two 450-horsepower diesel engines. The twin powerplants are attached to hydraulic motors located in the drive wheels.

The transporter can operate at speeds as slow as one-eighth of an inch per minute to as fast as nine miles per hour unloaded.

Loaded with its 150-ton payload, the machine normally operates at five miles per hour and can be driven up a normal grade.

The main frame of the vehicle is supported by 20 four-wheeled, hydraulic support cylinders. Each wheel unit can be independently steered and can rotate 180 degrees around its axis. The hydraulic cylinders are capable of raising and lowering the transporter bed three feet.

A computer in the driver's cab coordinates steering commands for each wheel through the operator's steering wheel. The computer also independently adjusts each support cylinder to ensure automatic load leveling over grades of three degrees or less.

The operator has a choice of five driving modes to allow the vehicle to move in any direction, including traverse and sideways movement. It is also capable of making a 360-degree turn about its center axis.

Both vehicles are fully operational and have been used to move an empty canister to the missile assembly building where the missile is assembled inside the launch tube. The transporter also has been used to carry and attach a 300,000-pound simulated canisterized missile to the test pad's launch support stand for a proofload test.

On the cover

A fit test is made to assure proper mating of a Peacekeeper missile canister and base assembly to the main launch support stand at Vandenberg Air Force Base before the start of the flight test program. The trial used a full-weight, simulated, canisterized missile. Following attachment of a canister to the launch support stand, the transporter is lowered and driven away. Before launch, the canister is hydraulically raised to a near-vertical position.

Satellite launch is proposed on commercial Titan

Denver Aerospace has submitted a proposal to launch Intelsat VI international communications satellites on commercial Titan launch vehicles beginning in 1986.

The bid is the first to be made by the newly formed commercial Titan venture underway in the Space Launch Systems division.

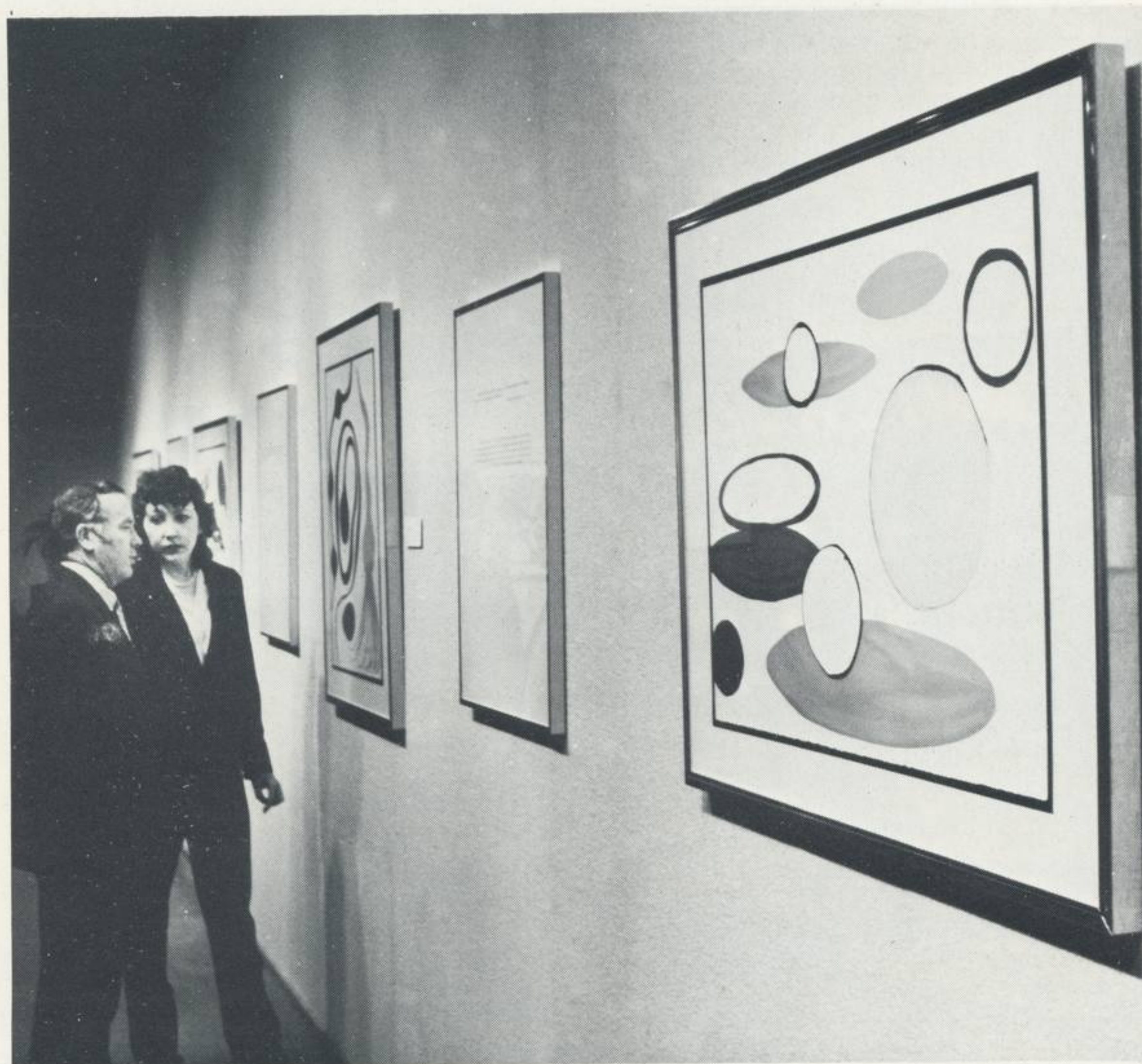
The proposal, submitted to the International Telecommunications Satellite Organization by SpaceTran, Inc of Princeton, New Jersey, called for the launch of two Intelsat VI satellites on dedicated Titans and for Titan backups to the scheduled Space Shuttle launches of the other Intelsat VI satellites.

The Intelsat VI satellite, now under construction, will be one of the heaviest commercial satellites ever built and will provide more than twice the communications capacity of previous satellites in the Intelsat series.

The Intelsat organization is a consortium of 108 nations providing the majority of satellite telecommunications services among the nations of the world.

The Denver Aerospace/SpaceTran proposal will be evaluated, along with those for Space Shuttle and others, by the organization's board of governors starting in March. A decision is expected in mid-1983 on selection of launch vehicles for this important satellite system.

Martin Marietta and SpaceTran, Inc signed a letter of intent last October by which Denver Aerospace will build and launch the commercial Titan for SpaceTran.



The Alexander Calder lithograph exhibit sponsored by Martin Marietta is at the Colorado Gallery of the Arts on the Arapahoe Community College campus. Shown at the opening of the exhibit are John H. Boyd Jr, director of public relations, and Sally Perisho, curator of the gallery. The exhibit is at the gallery until February 26.

Production changes make Martin Marietta News more current

Martin Marietta News is an inside job

With the first issue this year, typesetting has been done by editorial, paste-up of camera-ready copy by graphics, and printing by reproduction. In the past, these services have been provided by outside vendors.

"We have brought mechanical production inside to reduce the time between writing a story and publishing it for employees," said John H. Boyd, Jr, director of public relations. "The outside printer took five days to do what we can do inside in two days or less."

"If a story warrants it, we can write it Thursday afternoon and have it in the paper Friday," he said.

"Employees told us in the survey a year or so ago that the News is their main source of information," Boyd said. "We want to do all we can to keep it that way."

Planning for each issue of the paper begins at the editorial board meeting about 10 days before its distribution to employees. Each division and major organization is represented on the board.

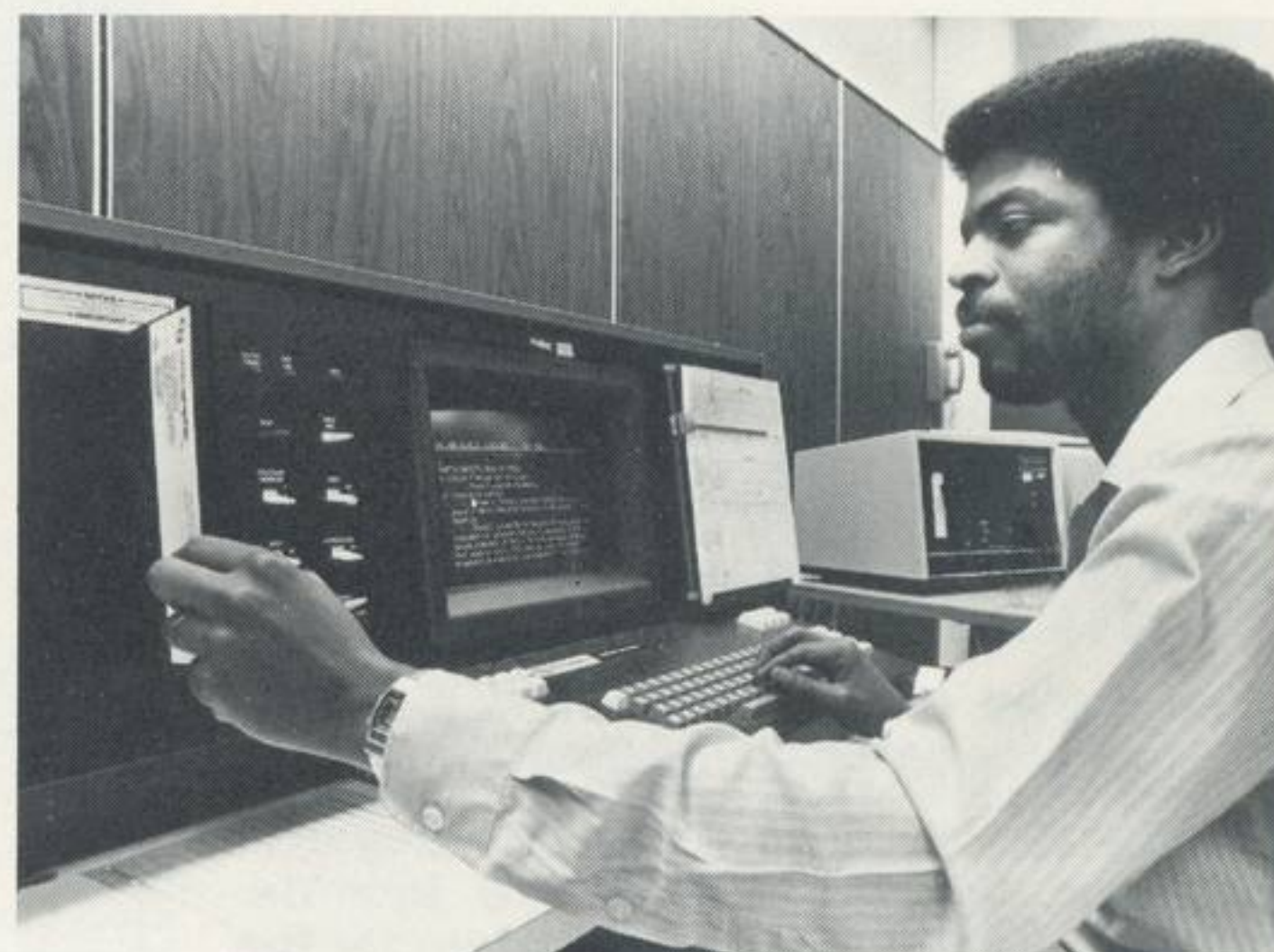
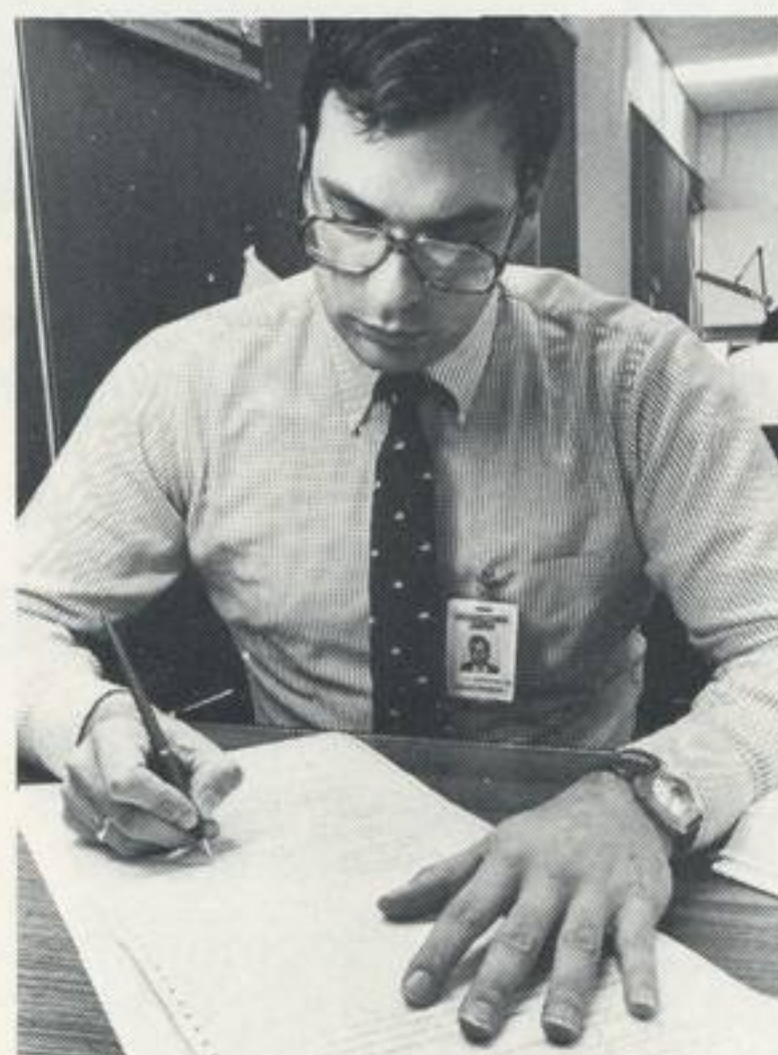
Proposed contents and story possibilities are discussed by the members and the editor.

Writing and editing for the News is done by a firm that specializes in employee communication and publications like the News.

"Bob Black and his company have been doing the News since 1975," said Boyd. "Black has been in the news business for more than 40 years and has spent 25 of

next page, please

Martin Marietta News stories are transmitted electronically from the editor's Littleton office to the main plant for review. Susan Sohmer is shown on the receiving end of the telecommunication system linking the two word processors.



After review in public relations, News stories again are transmitted electronically, this time to editorial where John Bernhardt, in photo at left, checks for glitches that might have occurred in transmission and for errors in spelling and grammar. Bruce Mixon, in right photo, prepares to check line endings and hyphenation on phototypesetting equipment that produces the type you read in the News. Stories have been transmitted electronically from word processing equipment to the phototypesetter.

Orbiter Challenger set for sixth Space Shuttle mission

The sixth Space Shuttle mission, scheduled for March, will feature new Shuttle hardware and carry the world's largest operational communications satellite into orbit.

STS-6 will be the first flight for America's newest spaceship, Challenger. Challenger is the second of four operational orbiters to be built. Its engines also are being used for the first time and will provide 104 percent greater thrust than the engines of the orbiter Columbia.

Other hardware being used for the first time includes the Michoud division's new lightweight external tank. The tank is approximately 10,000 pounds lighter than the one used for the first Shuttle mission. Lighter weight solid rocket boosters also will contribute a weight savings of 8000 pounds over those used previously.

The mission will be commanded by Paul J. Weitz and piloted by Col Karol J. Bobko (USAF). Donald H. Peterson and Dr Story Musgrave will be the mission specialists.

Challenger's principal cargo is the first of

three identical tracking and data relay satellites (TDRS). TDRS-A will inaugurate a new era in the way Earth-orbiting spacecraft are tracked and their data transmitted to Earth. An Air Force developed inertial upper stage will be used to boost the satellite into orbit.

Four days into the mission, a three and one-half hour EVA is scheduled by the two mission specialists. Musgrave and Peterson will move throughout the orbiter's payload bay, testing a variety of support systems and equipment designed to aid future EVAs.

Experiments flying aboard STS-6 include the continuous-flow electrophoresis system, monodisperse latex reactor, and night/day optical survey of lightning. All three experiments have flown previously.

Three Getaway Specials also are riding in Challenger on its first flight. The George Park Seed Company is sending 25 pounds of fruit and vegetable seeds into orbit to determine how seeds must be packaged to withstand space flight; a Japanese experiment sponsored by a Tokyo newspa-

per will attempt to produce artificial snow in zero gravity; and six different experiments ranging from metal purification to the effects of weightlessness on microorganism development will be contained in a U. S. Air Force Academy canister.

The Challenger is scheduled to conclude its five and one-half day mission with a landing at Edwards Air Force Base, California.

Martin Marietta stock dividend announced

Payment of the initial dividend on Martin Marietta's \$4.875 convertible exchangeable stock was announced January 27.

The initial dividend will to be paid March 15 to holders of record at the close of business on February 14.

This first payment will be \$1.12396 per share, prorated to cover actual time less than a full quarter that the issue has been outstanding.



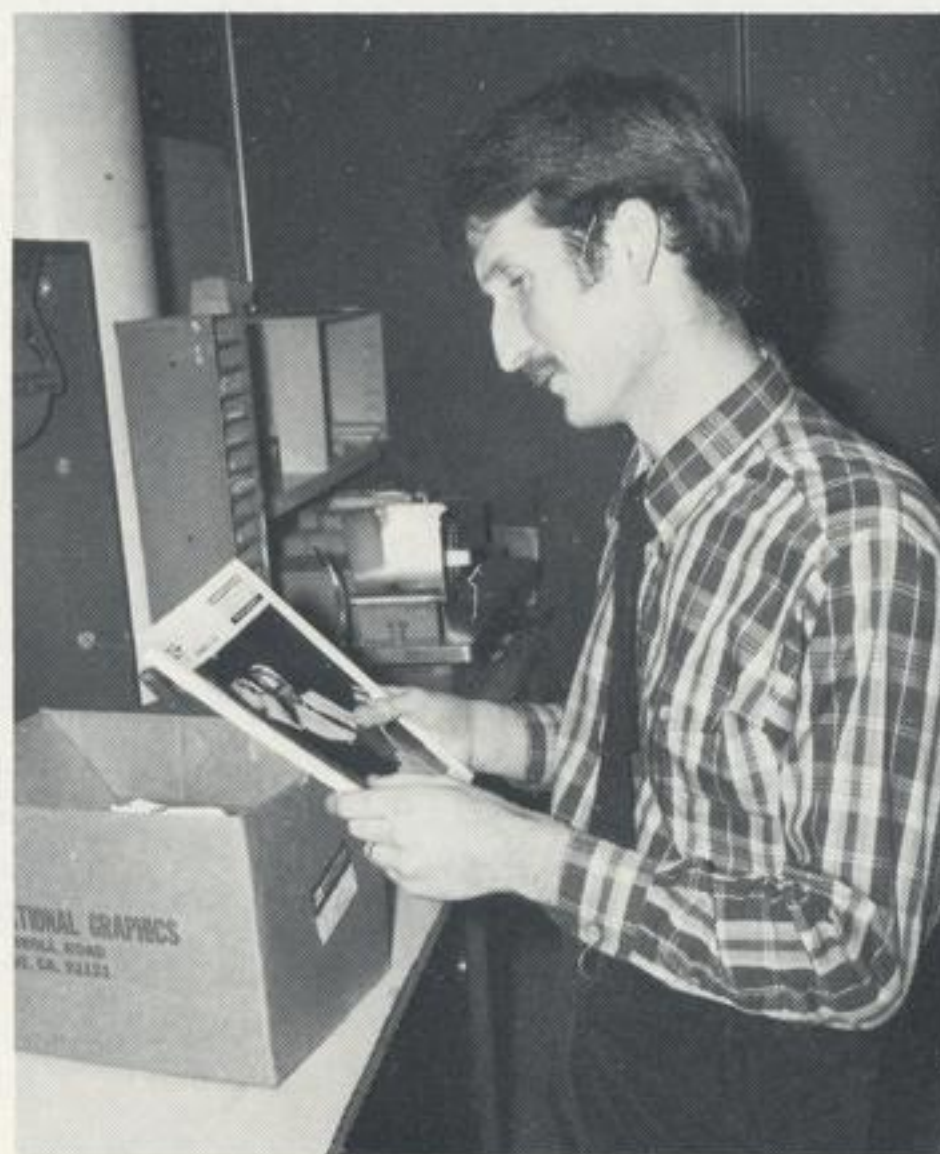
Artist Doug Ratcliffe, left, of graphics, prepares News pages so they can be photographed to produce plates for the printing process. Bob Black, right, the editor, checks progress of the pasteup.



The negatives from which plates are made for the offset press are made and checked by Al Viola in the photo lab.



Press operators Larry Ross, behind the press, and Paul Witt, kneeling, complete the printing operations for the News.



The News is distributed to the portable bulletin boards every other Friday by the mailroom's Dave Bowlin. He also helps pack the paper for shipping to employees outside Denver.

from preceding page

those years working with the aerospace industry. He and his people know our business and the needs of employees. I consider him a part of my staff."

Black and his staff gather the information for stories through interviews with those involved in all aspects of the business.

When stories for the News have been written, they are transmitted through a telecommunication system that links word processing equipment in Black's Littleton office with similar equipment in the public relations office at the main plant.

After stories are reviewed, the copy is again transmitted electronically to editorial, where George Hoerter and his staff set the stories into type.

When the type is set, Tim Brenner supervises the artists in graphics who prepare the camera-ready flats from which the negatives and plates for offset printing will be made.

These negatives and plates are made in photography under the leadership of Ned Stephenson.

Pat O'Connell then takes over and directs the printing, cutting, and folding of the paper in reproduction.

The News is in the portable bulletin board distribution boxes every other Friday. It is distributed to those boards and mailed to all facilities outside Denver by George E. Dickens and his mailroom staff.

"It takes the skill, dedication, and cooperation of a lot of people to publish the paper," Boyd said. "We are trying to make it more valuable to employees each issue."

Scholarship, award named for engineer

An employee who died in 1981 has had a scholarship and an engineering mathematics award established in his memory at the University of Arizona.

Robert B. Cook joined the company as an engineer in 1980 and was stricken with cancer shortly thereafter. He died in March 1981.

He had retired from competitive bicycling at age 22 to begin his career as an engineer here.

The scholarship named in his honor is open to Colorado students attending the College of Engineering at the University of Arizona.

Cook was named to the 1980 Olympic cycling team and was called the best U.S. hill climber. When he died, the New York Times called his six straight wins of Col-

orado's Mt. Evans Hill Climb "a feat easily comparable to the three consecutive Boston Marathons won by Bill Rodgers".

The Mt. Evans Hill Climb, a grueling 28-mile race up to 14,264 feet, was renamed for him.

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

February 25, 1983

Phone changeover is this weekend

Telephone service at the main plant will be limited this weekend.

Voice service will be interrupted beginning at 5:30 p.m. today (Friday) as Northern Telecom digital equipment replaces Mountain Bell service.

Normal service will be restored Monday, February 28.

Denver Systems Center, Greenwood Commons, and South Lincoln facility employees should dial 6 plus the five-digit extension to reach main plant telephones. There is no dial tone after the access code 6 is dialed.

There is no change in accessing the MARCALL network.

Telephone system changeover at the Littleton Systems Center is scheduled for March 19.

Titan Preparations keep teams busy

Excitement, suspense, and anticipation build as a Titan launch vehicle is in the final countdown to launch. The emotions peak when the vehicle lifts off on its journey to space.

It's the launch that attracts all the attention—not the thousands of hours launch teams spend getting the vehicle and themselves ready for that final moment.

A test conductor is assigned to each mission and is responsible for the care and checkout of the vehicle from the time it arrives at Cape Canaveral until it is launched.

Requirements change with each vehicle and each launch. Titan 34D-1, for example, mated to the new inertial upper stage, required 1038 engineering changes compared to an average of 297 per vehicle for the last three Titan IIIC vehicles.

The test conductor leads teams from electrical/electronics, mechanical/propulsion, support groups in test operation, and engineering and quality. They are supported by others in materiel, personnel, and business operations.

During the time between receipt of the vehicle and its launch, the team is responsible for all testing, scheduling, and launch activities. This includes transportation and handling, erection, subsystems checkout, combined systems testing, modifications, solid rocket mating, upper stage mating, payload mating, and integration of associate contractor activities.

Currently, there are three test conductors at Canaveral operations. Nicholas T. Geso was conductor of C-38, the last Titan IIIC. Thomas H. Munro was assigned to the first Titan 34D/IUS. Forbes S. Hays is handling Titan 34D-10, the first 34D transtage vehicle to be processed at Cape Canaveral.

Both Titan stages and the transtage arrive at the Cape Canaveral Air Force Station skidstrip on an Air Force C-5A. They are transported to the vertical integration building for erecting and mating. A combined systems test is conducted following the subsystems checkout.

After test data are reviewed and analyzed, a technical evaluation team presents the information to the customer for review and acceptance.

Other processing in the vertical integration building includes engine checkout, tank leak tests, and mechanical assembly and simulation tests for those items not yet mated to the core vehicle.

The launch team moves the vehicle by railroad to the solid motor assembly building, where the solid rocket motors are added.

Final integration tests of the entire assembly are conducted at the launch complex.

These skillful and dedicated professional teams are responsible for the spectacular success of the Titan launch vehicle.

Proposal prepared to process Shuttle

Denver Aerospace, three major aerospace firms, and one airline company will submit a proposal in April for the NASA/Air Force Shuttle Processing Contract (SPC).

The team would provide a single operational entity to achieve the efficiencies sought by NASA and the Department of Defense in processing Space Shuttle at Kennedy Space Center and Vandenberg Air Force Base.

Rockwell International is the team leader. Other members are The Boeing Company, United Space Boosters, Inc., and United Airlines. The four aerospace firms all have related Space Shuttle processing experience. United Airlines adds its familiarity with routine operations of aircraft.

The proposal is due April 29, with announcement of a winner expected in late summer.

"We believe the most important item to be addressed in the proposal is the management of the transition process as we move toward the operational era of the Shuttle program," said James W. McCown, who is leading the proposal effort for Denver Aerospace. "Our team has the experience, knowledge, and efficiency that we believe is essential to succeed at this kind of job."

Fifty-five full-time employees at Denver, Michoud, Kennedy Space Center, and Vandenberg operations are assisting in the proposal.

January retirements

Forty-eight employees retired in January, taking advantage of the company retirement plan. Date of retirement and length of service (years/months) are also indicated:

January 1

James C. May, 19/8; Beal M. Teague, 28; Richard R. McCollough, 24/8; Milton H. Sniogowski, 45/10; Richard E. Nenno, 22/7; Robert G. Seymour, 22/11; Edward B. Burton, 15/10; Fred W. Hopper, 9/6; Charles E. Weidlein, 26/10; William R. Post, 20/5; Clinton K. Bush, 24; Arthur S. Beer, 5/3; Casimer L. Wanca, 19/3; Walter Martynek, 43/3; Elwood B. Dohner, 37/3; Earle W. Brinck, 37/7; Duane Flower, 26/4; Kenneth O. Hambrock (Michoud), 5/3; Louis Muehlberger, 46/11; Robert L. Hannah, 30/3; Edward J. Tanner, 41/6; George C. Pfaff, Jr, 39/6.

January 5

John T. Borak, 31/5.

January 7

Carl R. Stewart, 23/7; Arthur L. Prior (Cape Canaveral), 21/10; Lest E. Trout, Jr (Vandenberg), 30/11.

January 14

Carroll F. Bowman, 32; Clement E. Long, 25/4; Kenneth W. Howell, 20/5.

January 16

Frances C. Loughlin, 6/8.

January 17

Murray E. Newsum (Cape Canaveral), 22/5.

January 21

Donald E. Williams, 34/4.

January 28

Joseph E. Wisneski, 43/5; Victor J. Baranyai, 24/8; Thomas P. Goodeluinias, 30/3; Russell E. Crouse (Cape Canaveral) 43/7; Martha E. Bloecker (Cape Canaveral), 24/7; Louis Vittor (Cape Canaveral), 39/3; Raymond T. Fairbanks, 23/9; Harve S. Bradford, 23/5.

January 31

Lloyd C. Shambaugh, 26; Samuel J. Harper, 43/8; George L. Vogel (Kennedy Space Center), 5/2; H. Wayne Terbush, 23/11; William D. Van Arnem, Jr, 38/9; Agnes L. Dawson, 5/2; Gustave K. Yung (Michoud), 5/2.



Test operations employees in the launch control center are responsible for test management for the acceptance combined test. They are, left to right, Roger L. Schmidt, Forbes S. Hays, and Roy R. Hunter. Donald D. Anderson, at right, is the countdown announcer. Schmidt is the test operations electrical lead; Hays is test conductor for Titan 34D-10; and Hunter is chief test conductor for test operations at Canaveral operations.

Employee krewe joins Mardi Gras

How do a handful of transplanted Denverites in the Michoud Division find happiness in New Orleans and become part of the local culture? By starting their own carnival club, of course.

Mardi Gras and the Carnival season are an integral part of New Orleans social life. Carnival clubs, or krewes, have been celebrating Mardi Gras—Fat Tuesday—since 1857, when the Mistick Krewe of Comus held its first parade on the night before the beginning of Lent.

Since then, the tradition has grown, touching every class and geographic corner of the city—including new arrivals at the Michoud division.

About three years ago, a dozen transplanted northerners decided to play a more active role in the carnival. And so was born the Krewe of Kork.

Ron L. O'Neal, production operations, is president of the krewe, which now has 30 members.

That first year, the 12 employees built their first float on a rented flatbed truck, more by chance than design. Still, their costumes were judged superior, and Kork has been winning awards ever since, including the Sweepstakes Prize in the two parades it entered this year.

The Krewe of Kork now owns a mobile home frame on which the float is built.

Preparations for this year's float began in late October. John Dustin, a tool designer, drafted the final sketches for the 14-foot by 55-foot doubledeck float.

"We have to draw upon our own work experience," reflects O'Neal, "because we do all the work ourselves, from carpentry to electrical work to the animation on the float. We work very hard; everyone has an assignment, but it has made us a tight-knit organization."

Department secretary employee of the year

Betty McCormick, secretary for 86 employees at Kennedy Space Center, has been named 1982 employee of the year for external tank operations.

"Betty is indeed a rare person," commented Louis Favata, manager of the systems engineering department where Betty works. "Her efficiency and dedication are enhanced by her composure, good humor, and total dependability."

Forty-four of the employees she assists sit within 50 feet of her desk. Besides handling all the typing, filing, copying, and mail distribution for the department, Betty answers about 200 telephone calls a day.

"It is a source of awe and amazement to everyone, including me, that she manages our incredible work load so efficiently," Favata added. "We even received a letter of commendation from NASA noting her exceptional performance."

Betty and a guest will receive a trip to the Michoud division as her award.



The customary Mardi Gras trinkets are passed out along the parade route by the Krewe of Kork during New Orleans carnival season. The krewe is made up of Michoud division employees and their spouses.

Michoud employees named to boards

Four Michoud division employees have been named to boards and committees of organizations in the New Orleans area.

Richard R. Foll, director of engineering, has been named to the University of New Orleans engineering advisory board. He joins a group of executives who work to improve the UNO engineering department.

The YMCA of Greater New Orleans has named Robert F. Hieter to the New Horizons campaign steering committee. The campaign is attempting to collect \$4,000,000 for capital improvements to the YMCA's ten facilities. Hieter is director of production operations.

Kenneth P. Timmons, vice president and

general manager, has been selected as chairman of the manufacturing division of the 1983 corporate campaign for the Blood Center of Southeast Louisiana. Timmons will play an active role in efforts to increase blood-drive collections by 5000 pints in 1983.

Frank L. Williams, director of advanced programs, has been elected to the board of directors of the Greater New Orleans Science and Engineering Fair, Inc. The fair has provided recognition for outstanding achievement by junior and senior high school science students for more than 29 years. Williams will assist in the organization, planning, and management of upcoming fairs.

Recreation

Choir—The Martin Marietta Singers, who appear at holidays in the company cafeterias, are expanding their program to all year. Employees with previous singing experience are invited to attend rehearsals held at 5:00 p.m. the second Monday and fourth Tuesday of each month at St. James Presbyterian Church, 3601 W. Belleview (at Lowell). For information, call Joe Neri, Ext 6619, or Barbara Cash, Ext 5471.

Skiing—Satellite Ski Club will travel to Telluride March 18-20. The \$110 cost includes lodging at the Oak Street Inn, lift tickets for two days' skiing, and dinner on the return trip. For information, call Roger Miller, Ext 5532.

Golf—The Ladies Golf League is forming now for the 1983 season. Play will be from May 23 through August 31 at Foothills Golf Course. Applications are due March 1 to Mary Freed, Ext 2551, Mail No. 2513, or to Anna Dixon, Ext 2589, Mail No. 2589.

Running—The Shepherders running club begins its spring handicap series March 10. The series is eight races plus a makeup, with all races beginning at 4:45 p.m. on the South Chatfield course. Volunteers are needed for each race. Call Stan Barrett, Ext 9185, or John Huleatt, Ext 7708, for information. All employees, onsite service personnel, and dependents are eligible to participate and receive awards.