

MARTIN MARIETTA

news

DENVER DIVISION

NUMBER 8/1977

Viking  
Rover  
In Paris





# Mars roving laboratory demonstration at Paris

A working model of the mobile Viking laboratory which could land and rove the surface of Mars in the early 1980s will be a feature of the United States Pavilion in the Paris Air Show June 3 to June 12 at Le Bourget Airport.

In addition, James S. Martin, the man who directed the exciting United States landings on Mars last year, will be on hand for press day and the opening of the show. Martin will present a Mars briefing and demonstrate the Mars rover model.

Martin is now a vice president of Martin Marietta Aerospace, whose Denver division designed and built the twin Viking landers that are still active on the surface of Mars.

Martin Marietta also has developed the model mobile laboratory for the display by the United States Commerce Department at the Air Show.

While the present Vikings have answered hundreds of scientific questions about the mysterious Red Planet, the valuable scientific data is posing yet further inquiries and unexplained complexities.

Scientists have agreed that in a return mission to Mars, it will be necessary to have an unmanned laboratory which moves about the planet taking repeated samples of the soil, samples of the at-

mosphere, and photographing the surface.

The proposed mobile laboratory would be able to travel at 150 meters per hour, with a monthly range of 50 kilometers. It would carry an instrument package including unified biology and chemistry experiment, cameras, rock grinder and crusher, as well as a meteorological station.

The scale model of the mobile laboratory will be displayed in a panorama resembling the red rocky surface of Mars. Demonstrations of the rover will be conducted several times daily during the Air Show by representatives of Martin Marietta Aerospace.



## First parachute test system is shipped; tests begin June 15

The first parachute test system for Space Shuttle's solid rocket motors was shipped recently by the division to California to begin a long series of evaluations.

Called the drop test article, the system was designed, developed, and built by the Denver division. The initial units will be tested in drops from a B52 over the National Parachute Test Range at El Centro, Calif. starting about June 15.

Once the design is proved in the test series, the division will contract with NASA to build 12 sets of the parachute decelerator system for use in Space Shuttle flights.

Each decelerator system is composed of

a pilot parachute, a drogue parachute, three main parachutes, a main parachute support structure with attachment fittings, and a parachute location aid for each main parachute.

The decelerator system is installed in the

*A 40,000 pound vehicle to test the first parachute system for the Space Shuttle's solid rocket motors was shipped recently by the Denver division. The vehicle is 50 feet long, with the smallest diameter of four feet, flaring to 10 feet. Shown with the vehicle as it was prepared for shipment are, left to right, Vincent H. Corbett, manager of avionics for the project, and William F. Van Dyke, manager of manufacturing. C. W. "Bill" Spieth is project manager for the Solid Rocket Booster Decelerator Subsystem.*

nose assembly of the Shuttle's solid rockets. The purpose is to provide impact survival of the spent rocket boosters.

When the fuel supply of the twin solid rockets is exhausted, the rockets are jettisoned, returned to Earth by the decelerator system, retrieved, refurbished, and resupplied with propellant for use on other missions.

The drop test vehicle weighs about 40,000 pounds.

The division's contract for the work is with NASA's Marshall Space Flight Center in Huntsville, Ala.

**MARTIN MARIETTA NEWS**  
Published by Public Relations  
**MARTIN MARIETTA AEROSPACE**  
*Call Ext. 5364 with suggestions  
or information for articles.*

Denver Division  
P.O. Box 179  
Denver, Colorado 80201

June 1977



# Authors, inventors, engineers honored

Special recognition dinners were held recently at the division to honor employees for achievements as authors, inventors, and engineers during the past year.

In three separate events, employees were singled out for their contributions to the division.

Named authors of the year were Charles W. White and Bruce D. Maytum.

Inventor of the year was Gerald E. Johnson.

H.E. Craig was chosen engineer of the year.

In addition, Morley V. Friedell, who retired in April 1976, was an honored guest and received his first royalty check for a series of his valve patents Martin Marietta has licensed for use by another firm. He will continue to share in the royalties received by the Corporation as long as the licensing agreement is in effect. The royalties could be paid for Friedell's lifetime and then be paid to his estate.

Also receiving a first royalty check was E.J. Miller whose inventions have also been licensed for use by others.

White and Maytum were cited for their paper, "Eigensolution Sensitivity to Parametric Perturbations."

Johnson's honor as inventor of the year came for his "numerous outstanding and innovative contributions to attainment of important contracts in electronic warfare simulation and related fields." Eight of his invention disclosures have significantly influenced the selection of the division to perform simulator, antenna, and receiver contracts.

Craig was named engineer of the year for his long-term and significant contributions to the Viking project, particularly for his work as key designer of the lander system.

Others honored at the recognition dinners:

## Authors

*Distinguished Contributors:* F.A. Blake, A.J. Castro, B.C. Clark, J.D. Dennis, R.N. Eberhardt, D.A. Fester, D.N. Gorman, T.C. Hendricks, P.J. Jones, W.J. Kacena, R.O. Leighou, Walter Martynec, E. J. Miller, T. F. Morey, C. D. Rowe, A. L. Satin, and J. R. Tegart.

*Honorable Mention:* J. E. Anderson, R. D. Bell, R. E. Hampton, Jr., R. L. Donovan, J. C. DuBuisson, R. G. Dutton, J. E. Goodwin, L. S. Horner, R. L. Knickerbocker, W. J. Maegley, J. E. Morgan, J. L. Oberg, J. C. Pohlen, J. T. Polhemus, A. A. Rosener, A. A. Salim, R. T. Schappel, M. J. Shumaker, W. E. Simon, O. B. Smith, W. H. Tobey, P. E. Uney, A. J. Villars, and David Waddington.



Robert E. Dietz, manager of licensing for Martin Marietta Aerospace, left, congratulates Morley V. Friedell, center, on his first royalty check. John D. Goodlette, executive director of technical operations for the Denver division, right, joins in the congratulations and presentation

## Inventors

*First runner-up:* William J. Owen; *second runner-up:* Laurence O. Williams.

*Inventor Nominees:* Elmer Alexis, J. V. Babb, R. D. Bell, L. E. Bergquist, D. J. Bottoms, W. L. Brown, J. T. Busto, W. P. Coppfer, F. W. Dawson, M. V. Friedell, R. L. Gates, T. G. Gavrilis, M. T. Howerton, Josef Hrcir, W. S. Ivers, M. W. Kuethe, J. R. Lager, J. P. Martin, E. J. Miller, G. O. Olson, D. K. Ong, N. A. Osborne, J. A. Shepic, W. E. Simon, M. E. Wakefield, R. F. Wells, and L. G. Wolfert.

## Engineers

*Technical Achievement Awardees:* J. R. Beall, C. S. Bodley, J. R. Cook, C. G. Cooley, W. L. DeRocher, M. G. Doty, T. E. DuPont, E. A. Euler, N. G. Freeman, R. T. Gamber, R. L. Gruenke, G. W. Hall, R. J. Heyman, R. N. Ingoldby, D. E. Kendall, G. M. Kyrias, B. C. Landry, R. O. Lewis, J. W. McIntosh, L. A. Meeks, A. D. Mikelson, R. G. Peterson, R. J. Polutchko, J. D. Porter, R. L. Rosenthal, A. M. Sandoval, A. RE. Schallenmuller, K. H. Schlichtemeier, R. W. Sjostrom, H. E. Sparhawk, J. A. Sterhad, R. L. Stewart, J. R. Tewell, T. R. Tracey, J. C. Tsucalac, M. P. Udevitz, J. G. Vega, H. C. Von Struve, and V. F. Young.

## Titan's 103rd launch sends two satellites into stationary orbit

A U.S. Air Force Titan III standard launch vehicle boosted two defense communications satellites into stationary orbits about the Earth recently in the 103rd flight of the launch vehicle.

The launch from Cape Canaveral carried twin satellites into an orbit 19,000 miles above the equator. From that point, the satellites will be allowed to drift into permanent positions, one over the Indian Ocean, and the other off the coast of South America. Combined satellite weight was 2,500 pounds.

The launch was the fourth in a series of Defense Communication Systems Satellites, Phase II flights to provide worldwide communications through satellites for the national military command systems.

Titan III is designed and built by the Denver division which also acts as spacecraft and mission integrator for the U.S. Air Force.

## Frontiers of Science scholarships awarded three area students

Three Littleton area high students will attend the 1977 Frontiers of Science Institute at the University of Northern Colorado under Denver division scholarships. They were selected by a committee of the Institute with no involvement on the part of the division.

This is the fourth year the division has participated in the program. The Institute, which lasts eight weeks, provides students the opportunity to better understand the nature of scientific investigation and some of its problems and limitations. The students were selected on the basis of their interest and aptitude in science.

Accepting scholarships were Patricia Griffith, Heritage high school; Priti Popat, Arapahoe high school; and Derek Straub, Littleton high school.

Miss Griffith is planning a career in chemical engineering, but is also exploring physics and the biological sciences. A current physics project studying a runner's movement on a banked track stems from her own interest in the sport. She participates in the 880-yard run and received varsity letters in her freshman and sophomore years. She also takes part in the AAU track program.

Miss Popat expects to earn a bachelors degree in chemistry and a masters degree in biology in her college career. She is also interested in computer programming, astronomy, and photography. She has worked with mentally and physically disabled children as part of her high school extra curricular activities.

Straub is planning a dual major in his undergraduate work with mathematics and computer science or electrical engineering his fields of study. He expects to obtain a doctors degree in one of these fields. He is assembling a digital group computer for the University of Denver mathematics department and last year completed a similar project for the mathematics department at Littleton high school.

The success of the program at UNC can be attested to by the son of a Martin Marietta employee. David W. Hart, son of Mr. and Mrs. Walter Hart, was a Frontiers of Science Institute scholarship winner last year. This year he was named the winner of a Martin Marietta Foundation scholarship. He plans to attend Princeton University and major in physics or mathematics.



## No smoking?

"To smoke or not to smoke, that is the question," is the way Shakespeare might have said it.

Your answer depends somewhat on whose statement you believe—those who conduct antismoking campaigns or those who doubt the validity of these campaigns.

"At the Denver division, we have employees who support both sides of the argument," R.E. Weber, director of professional and industrial relations, said.

"Recently, I was asked to meet with a group of nonsmokers who are seeking relief from 'second-hand smoke'," Weber said.

The group points out that smoke from other people's cigars and cigarettes has an adverse affect on them. Some become ill, some get headaches, and some claim the second-hand smoke makes them tired and less efficient on their jobs. They also cite recent research that claims the smoke they breathe has a greater concentration of noxious compounds than does the smoke the smoker is inhaling.

"We have recognized the discomfort nonsmokers experience," Weber said, "and we have designated some smoking and nonsmoking areas in our facilities where large groups gather regularly. We set up separate areas in our cafeterias more than five years ago, for example."

Nonsmokers are now seeking relief in work areas.

"While it isn't always possible to separate smokers and nonsmokers in work areas," Weber said, "we are asking work-area supervisors to recognize the problem and to seek voluntary separation where possible."

"When work groups are moved from one location to another—and we do move people frequently—our facilities organization is making every effort to solve the conflicts between smokers and nonsmokers," Weber said, "When supervisors of groups being moved request separation of smokers and nonsmokers, the facilities people will honor such requests to the extent practical in designing and arranging the new area."

Courtesy and consideration for fellow employees are essential in recognizing the rights of smokers and nonsmokers, Weber pointed out. Voluntary observance of nonsmoking and smoking



A Martin Marietta grant of \$5000 was presented recently to St. Anthony Hospital Systems for the purchase of a Life Pac 5, a lightweight cardioscope recorder and DC defibrillator, for use in the hospital's Flight for Life helicopter. C.B. Hurtt, vice president and general manager of the division, left, pre-

sented the check to Robert E. O'Haire, director of development for the hospital. Flight Nurse Mary Hart holds the new equipment as Harvey Simons, the helicopter pilot, looks on. The Flight for Life helicopter flew to the division so hospital personnel could accept the grant and display the new equipment.

## New director named for Vandenberg

Thomas S. Fujiyoshi has been named director of Vandenberg Flight Operations for the Denver division by Charles E. Carnahan, vice president for launch vehicles.

Fujiyoshi has held a series of management-level positions at Vandenberg since 1960 when he joined the organization.

He is a native of Bartlesville, Okla. He received his BS in mechanical engineering from the University of Oklahoma.



Thomas S. Fujiyoshi

areas; voluntarily not smoking in meetings when the majority is nonsmokers; making sure cigarettes, cigars, and pipe ashes aren't left smoldering in ash trays, and simply asking the person you are with if they mind if you smoke are all ways to avoid the conflict.

"We will not legislate against either group," Weber said, "because we believe our employees are courteous, considerate, and concerned about each other. We know we can depend on them to work out voluntary solutions when the problem is presented to them."

## On the move

J.P. Coan: from senior group engineer for launch vehicle final assembly and test to program engineer with responsibility for design and fabrication of all structural elements for SCATHA.



## Use head now, or feet later

"If we don't use our heads today in the operation of our automobiles, we will have only two alternatives in the future—our feet!" Ralph L. Stewart, chief of the facilities engineering section, quoted from *Our Energy Problems and Solutions*, a publication of Energy Conservation Research of Malvern, Pa.

"That one sentence made me think of all the cars we drive to work, and then I thought about how far all of us at the division would have to walk if we had to use the 'two alternatives,'" said Stewart, who is leading the formal energy conservation efforts for the division.

According to the publication, almost half the energy used by individuals is for automobiles.

"As a driver," the publication says, "you can make a major contribution to solving our country's energy problems. Today, you can do it in the best, fairest, and the most personally satisfying way possible—as a volunteer. If it is not done now, your driving will be seriously limited in the future."

Stewart said, "The publication lists all the ways that we, as drivers, can help save gasoline. The list is quite long. A few might serve as incentives for division employees."

The list, as condensed by Stewart:

- Slow down
- Drive smoothly
- Don't pump the pedal
- Accelerate to normal speed gradually
- Don't idle the engine long
- Don't warm up the engine excessively
- Use your air conditioner sparingly
- Remove unnecessary attachments that cause air resistance
- Keep your car properly tuned
- Keep your tires properly inflated
- Change from snow tires to regular tires as early as possible

Use of car pools and mass transit are other recommendations from Stewart. "We know from our surveys," he said, "that we average 1.2 passengers per car coming through the gate. Adding more passengers in each car would cut gasoline consumption. But, energy consumption per passenger mile for a large bus would be about 85 percent less than for the typical car now arriving on division property.

"I ride the bus," Stewart said.



Seven teachers will be attending the 1977 Intercollegiate Studies Institute seminar on "The Role of Business in Society" through a \$2000 grant from Martin Marietta. Mrs. LaKay Schmidt, executive director of The Colorado Council on Economic Education, and C.B. Hurtt, vice president and general manager of the Denver division, discussed the program when Mrs. Schmidt accepted the grant. The seminar will be held this month at the University of Colorado. In the past, the seminar has been effective in explaining and defending the free economic system and the positive role of business in our free society.

Junior Achievement of Greater New Orleans recently received a \$500 contribution for Martin Marietta for use in its program of educating high school students in the free enterprise system through companies operated by the young people. Accepting the donation was Stuart L. Hodes, second from right, executive director for JA. The check was presented by Alex Wilcox, second from left, manager of employee labor relations for Michoud. At the left is William T. Brown, a buyer in the materiel organization and Michoud operation's coordinator for JA activities. At right is William T. Willis, equal opportunity administrator. Michoud operations sponsored three companies in the just completed eight-month program. Employees who served as advisers for the companies were John Albert, Ray Baham, Constance Brown, William Brown, Marilyn Robinson, and Marie Troullier.



## From Michoud

### Recreation program participation high at Michoud

More than one-third of Michoud operations employees are participating in recreational activities sponsored by Martin Marietta.

Golf, tennis, softball, bowling, and basketball are open to employees.

Tops in participation was the Friday Nite Swingers bowling league with 102 employees and their wives taking part in the mixed league. Twenty other employees bowled in the Slidell commercial bowling league.

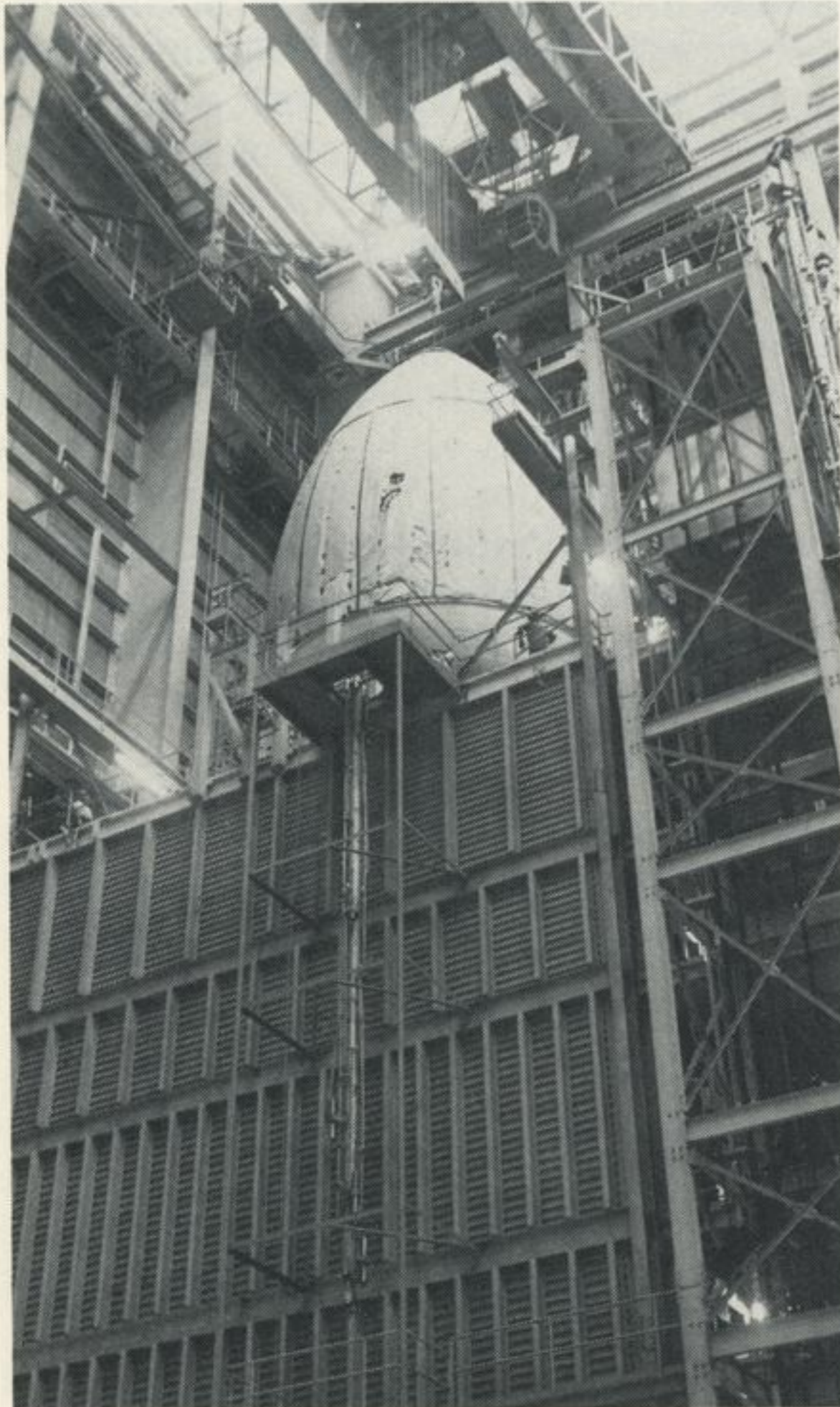
The Sunset Golf League is divided into two divisions, with 24 golfers playing in Slidell and another 34 in New Orleans. The annual open tournament in October is expected to attract 200 entrants.

The round robin tennis tourney has 62 employee entrants.

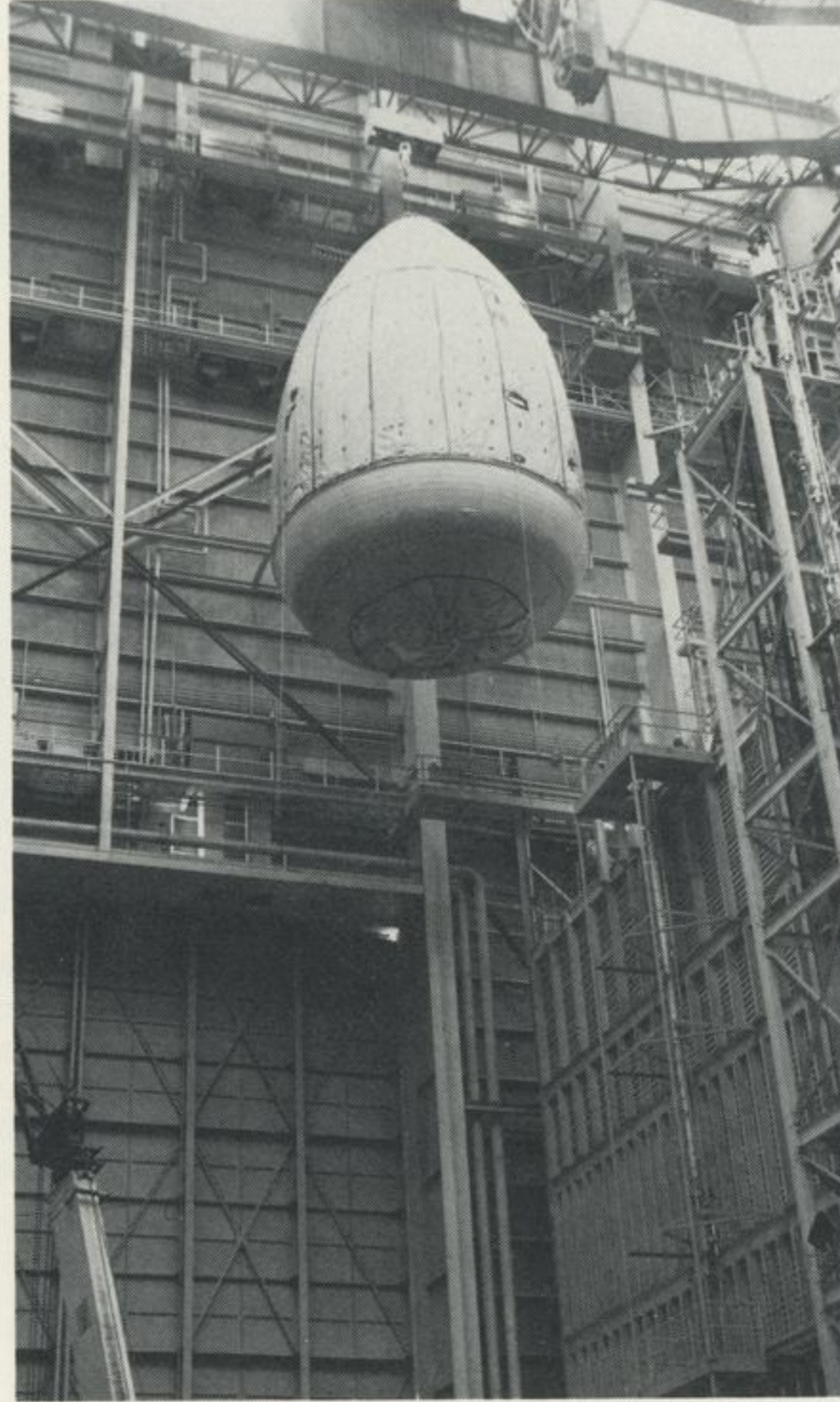
Two teams, one composed of men and the other of women, are competing in the New Orleans Athletic League softball program this summer and two teams will participate in the fall softball season.

Michoud also had an entry in the New Orleans Athletic League's basketball program.

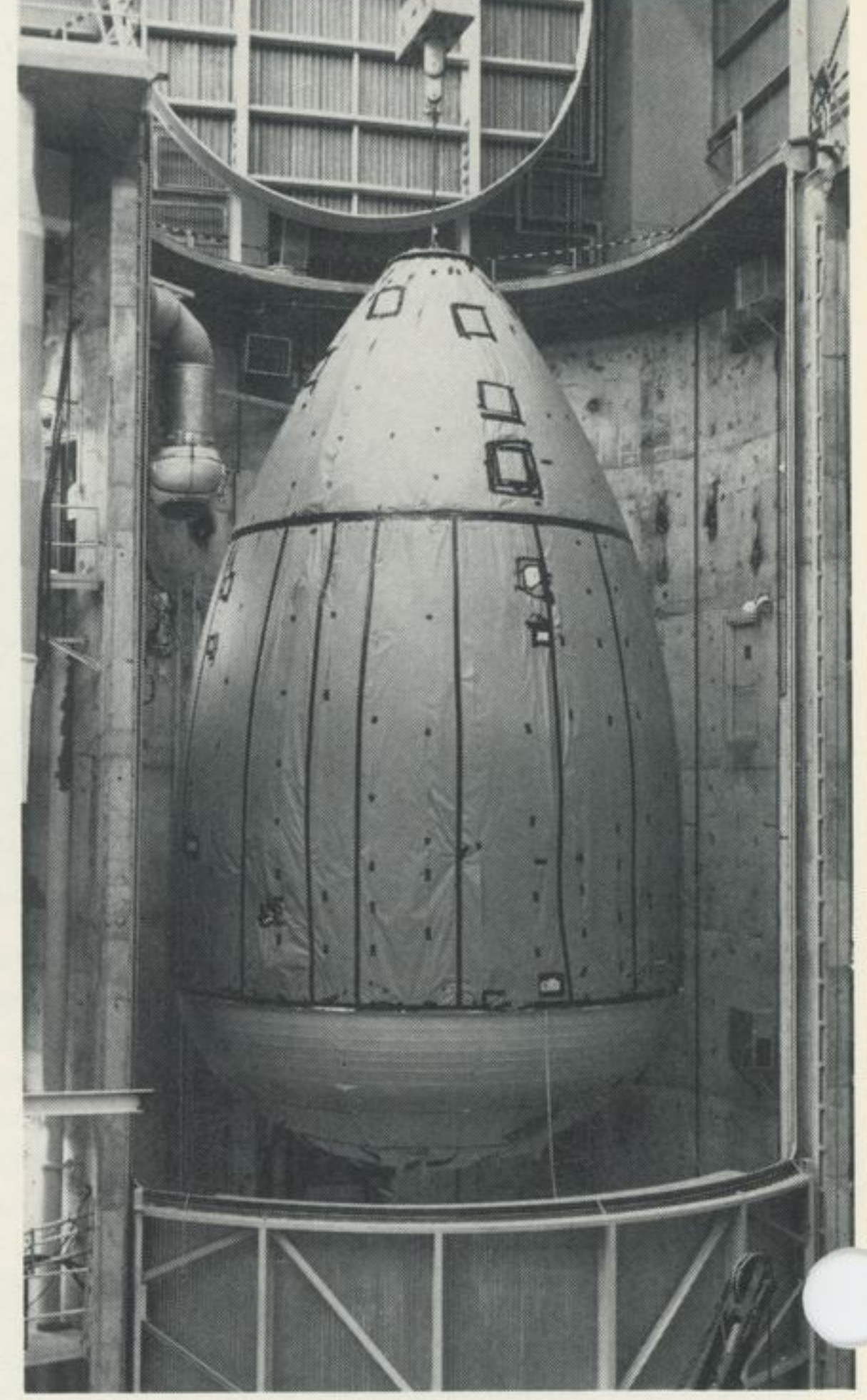




The main propulsion test article (MPTA) liquid oxygen tank has completed proof testing and has been moved to be given its thermal protective system (TPS). In this series of photographs, the liquid oxy-



gen tank is shown, photo at left, being moved from Cell F in the vertical assembly building. In the center photo, the huge tank is suspended high above the floor as it is transported to Cell C. At right, the liquid



oxygen tank is moved into place in Cell C where operations include spraying the aft ogive and barrel section with TPS, using polyurethane foam BX-250. First test of the foam application was successful.

## Michoud employees support food bank

Michoud operations employees recently donated "generous quantities of canned and perishable food" to the Community Food Distribution Center, according to a CFDC spokesman.

CFDC is a nonprofit organization dedicated to helping people in emergencies through its community food bank project.

The food is distributed to those whose homes have been destroyed by fire, flood, hurricane, or tornado or when sickness, accident, or death curtails a family's ability to provide food for its members.

### In Michoud

Call Ray Lacombe at 3606 with suggestions or information for articles for Martin Marietta News.



Philip M. Baptiste, center, executive director of the Opportunities Industrialization Center, Inc. (OIC) of New Orleans, recently received a check for \$500 as Martin Marietta's financial support to the organization. Presenting the funds were Harry J. Baum, right, director of professional and industrial relations at

Michoud, and William V. Willis, left, equal opportunity administrator for the operations. OIC is a national organization recognized for its successful efforts in training disadvantaged individuals for industrial employment.