MARTIN MARIETTA
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Research plane is presented to Air Force Academy

A supersonic research vehicle that aided in the design of the Space Shuttle orbiter has been placed on permanent display at the Air Force Academy.

H. F. Keyser, vice president and general manager of the strategic systems division, presented the research plane to General Kenneth Tallman, superintendent of the Academy, in ceremonies January 27.

Called lifting bodies, two of the craft were built by Martin Marietta. One, called the X-24A, was flown by the Air Force on 28 research flights from 1969 to 1971. During the tests, the X24A reached a top speed of 1045 miles per hour and a maximum altitude of 71,400 feet. It was launched from a modified B52 aircraft and landed at speeds between 180 and 230 miles per hour. The Space Shuttle orbiter will land at about 225 miles per hour.

The lifting body research program provided some of the data on which the design of the Space Shuttle orbiter was based. The SV5-J—the designation of the craft on display—was an advanced piloted lifting body configuration capable of high speed maneuverable flight from extremely high altitudes to landings on conventional runways.

A lifting body uses its entire fuselage to provide lift. A goal of the research was to explore the flight characteristics of the vehicles and to develop piloting techniques for later re-entry flights.

The SV5-J was built by Martin Marietta in Baltimore in 1966. The X-24A, which was identical except that it used a rocket engine rather than a turbojet, was completed in 1967—also in Baltimore.

The SV5-J supersonic research vehicle was donated to the U.S. Air Force Academy by Martin Marietta Aerospace in ceremonies at the Academy January 27.

Accepting the SV5-J research plane for permanent display at the U. S. Air Force Academy is, right, foreground, General Kenneth Tallman, Academy superintendent. Making the presentation for Martin Marietta Aerospace is, left, foreground, H. F. Keyser, vice president and general manager of the strategic systems division. In the background are, left, George L. Schulstad, director of the MX Washington office and a retired Air Force brigadier general; and Fitzroy Newsum, right, manager of civic liaison and a retired Air Force colonel. Newsum made preparations for presentation of the research craft.

Moving day coming for some employees

Moving day is coming for a large number of Denver Aerospace employees.

Plans developed in late 1980 are being implemented to put most of each division's employees in one area. The relocations are designed to give organizations room to grow, to provide a better working environment, to help increase productivity, and to improve the efficiency of operation for the varied business areas.

Strategic systems division will occupy the Denver systems center and the West Point facility at Hampden and Wadsworth.

Space launch systems division will move from the engineering building to the Greenwood area.

Space and electronics systems division will move some employees from the SSB and the administration building to the engineering building.

Moves from the SSB will permit installation of a dust-free precision production area in that building.

To make room in the West Point facility for the strategic systems employees, the finance function will move to Greenwood Commons. The materiel/procurement function will move to Cinderella City.

Schedules for the moves will be communicated directly to those employees involved.

On the cover

The space shuttle vehicle, with the orbiter, solid rocket booster, and external tank mated, is being readied for its first launch at Kennedy Space Center.

President to speak at chamber meeting

C. B. Hurtt, Denver Aerospace president, will be the speaker at the February 25 meeting of the Littleton Chamber of Commerce.

The special luncheon meeting was planned to recognize the 25-year contributio of Martin Marietta to the Littleton are and to honor Hurtt.

"Littleton, Its Time in Space," is Hurtt's topic. He will review the work of the past 25 years and discuss current and future programs here.

Solar hardware manufacturing under way at two facilities

Rose Fitzmaurice connects a photovoltaic cell to a bypass diode on the photovoltaic assembly line. The cell and diode are mounted on an aluminum heat diffuser.

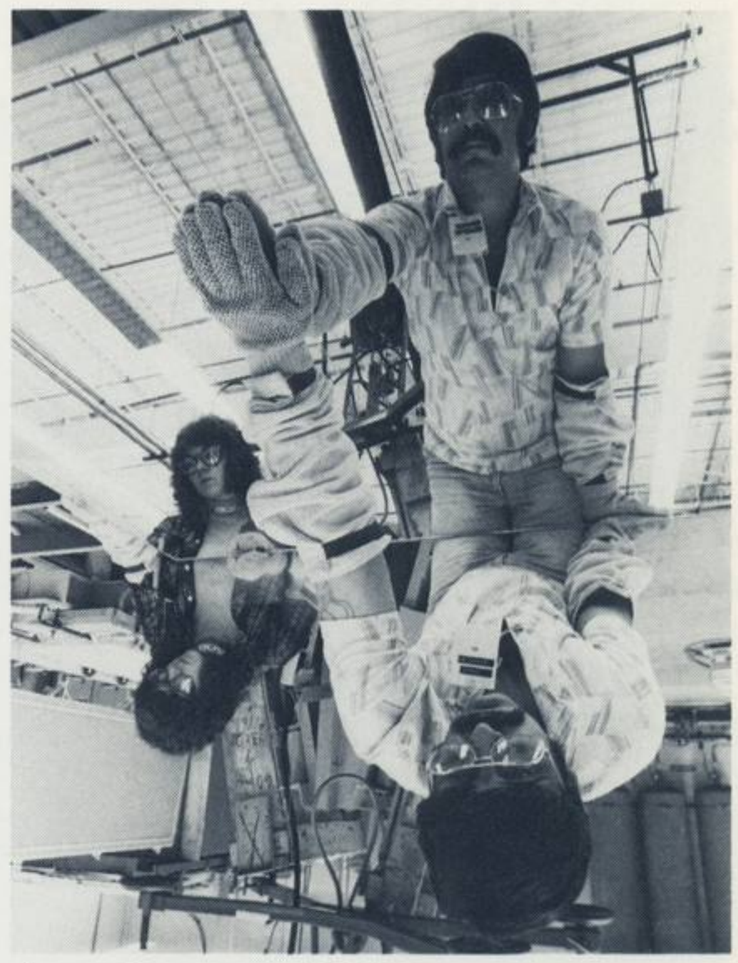
Full scale production of commercial solar energy hardware is under way at two Denver Aerospace facilities. Photovoltaic concentrator arrays are being assembled at the main facility in Denver, and heliostat mirrors are being fabricated at a recently-opened Pueblo facility.

The photovoltaic assembly line is located in the inventory building and is manned by 26 employees. The line, operating on two shifts, is capable of producing up to 120 photovoltaic concentrator arrays per month. Each array consists of 256 solar cell/Fresnel lens combinations and a self-contained Sun tracking unit.

The new mirror fabrication unit is located at the Pueblo Army Depot in a building leased from the Corps of Engineers. The plant will produce about 23,000 mirrors.

Denver Aerospace is under contract to the U. S. Department of Energy to supply 160 photovoltaic concentrator arrays as part of a 350-kilowatt power plant in Saudi Arabia. The power plant will be the largest commercial application of photovoltaic technology in the world when it goes into operation this fall.

Another DOE contract calls for the manufacture of mirrors for 1818 heliostats for a 10-megawatt central receiver power plant under construction near Barstow, Calif., and mirrors for 93 heliostats for a 500-kilowatt central receiver plant under construction near Almeria, Spain. Each heliostat consists of 12 mirrors. The Spanish plant will be in operation in August; the Barstow facility, in December.



James Gonzales and Billie Pruitt are reflected in a heliostat mirror they are inspecting prior to shipment from the mirror fabrication facility at Pueblo.

Employees cited for SRB decelerator work

William R. Woodis, manager of Space Shuttle's solid rocket booster decelerator subsystem, has been selected to be NASA's guest at the first Space Shuttle launch. He is being honored for his "outstanding achievements" in the design, test, and management of the SRB decelerator subsystem, an advanced recovery system, throughout its development.

Woodis also was a part of the 17-member project team chosen for a NASA Group Achievement award for "exemplary team performance and significant contributions to the SRB development air drop test program." The employees were praised by George B. Hardy, the NASA manager for the SRB project.

In addition to Woodis, team members are John A. Boddy, Martin Costello, Joseph C. Dole, Melvin D. Fry, Orville V. Gans, Kenneth S. Gates, Jesus O. Gonzalez A., Robert F. Johns, Thomas J. Lebel, William S. Prewitt, Michael K. Saemisch, Dean A. Schneebeck, Richard B. Seymour, C. William Spieth, Frank Tammetta, and Robert Vosbeek.

Vosbeek was program manger for the ject. L. J. Lippy is director of space tems.

The project is responsible for delivery of hardware for the first six flights and refurbishment hardware for the first four flights as well as post-flight analysis of those flights.

NASA Group Achievement award was presented to the solid rocket booster deceleration system team for contributions to the air drop test program. L. J. Lippy, space system director, right, presented the award to William R. Woodis, center, who will be NASA's guest at the first Space Shuttle launch, and to Robert Vosbeek, left, former program manager. Lippy presented awards to each member of the honored team.

Share certificates are offered by credit union

The Red Rocks Federal Credit Union is offering share certificates with anticipated dividends ranging from 10 percent to 12 percent annually, depending on the maturity period.

Credit union members with $500.00 in a regular savings account may purchase the first certificate for $1000.00 and thereafter in $100.00 increments.

Although rates are subject to change, six-month certificates will yield an anticipated 10 percent; one-year certificates, 10.5 percent; two-year certificates, 11 percent; and two and one-half year certificates, 12 percent.

Information on certificates is available at the credit union.

Share-the-ride coordinator at DSC

Lori Sharp, share-the-ride coordinator, will be in the DSC lobby February 26 from 8:00 am to noon to help employees form carpools.

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AFPRO aids, monitors contract performance

The Air Force plant representative office (AFPRO) monitors contract performance by Denver Aerospace and aids in that performance where the staff can be helpful, according to Col. Kenneth G. Haug, the Air Force plant representative.

"We are in business primarily to protect the government's interest," he said. "We monitor costs, schedules, and performance not in a punitive way, but in a way that helps prevent problems and aid the contractor."

Face value of the more than 170 contracts under the cognizance of the AFPRO as of December 31, 1980 totalled more than $2.1 billion. The contracts have been awarded Denver Aerospace by the Air Force, NASA, Department of Energy, and other military services.

The AFPRO organization somewhat parallels the Denver Aerospace organization. The divisions under Colonel Haug and his deputy, Lt. Col. Edgar L. Hull, are mangement support, headed by Richard Henry; subcontract management, Capt. Herbert Watkins; industrial materiel management, Ned Kelley;manufacturing operations, Maj. Gerald Young; contract administration, Carl R. Kennemer; quality assurance Russell Beland; engineering and program support, Maj. Daniel Kelleher; and safety, Robert Kinnison.

"The staff is always available to its counterparts in Martin Marietta," Colonel Haug said. "We have a good working relationship partly because of the contractor's open and honest communication policy. We talk about problems as soon as they surface and attempt to solve them quickly."

As an example of working with the contractor, AFPRO staff members attend Denver Aerospace safety meetings and accompany the Martin Marietta safety staff in facilities inspections.

Colonel Haug has 118 people in his detachment, nine of them Air Force officers and 109 of then civilian employees. Except for Colonel Haug's and Lieutenant Colonel Hull's positions, none of the positions are permanently set aside for Air Force officers. "Our positions are assigned by skill specialties, not necessarily by military or civilian classification," said Colonel Haug.

Colonel Haug, who has a master's degree in public administration from Auburn University, has been on active duty since 1959. He is a graduate of the Education with Industry program and the Air Command and Staff College. He was a faculty instructor at that college for three years. His military assignments have included a wide range of staff officer and procurement positions, including a tour with the Office of the Inspector General. While

Col. Kenneth G. Haug

Lt. Col. Edgar L. Hull

with the IG office, he inspected the AFPRO here. He was assigned as the Air Force plant representative here in September 1980.

Lieutenant Colonel Hull has been on active duty since 1963. He has a master's degree in business administration from Northeastern University. He has held a variety of procurement and contract administration assignments. From 1971 to 1975 he was assigned to Lowry Air Force Base, first as an instructor in the contract management course, later as chief of officer training courses there, and finally was chief of the procurement training division at Lowry. He returned to Denver in May 1980 for his current assignment.

Vice president named for business development

Peter B. Teets has been named vice president for business development according to an announcement by C. B. Hurtt, Denver Aerospace peresident.

He was appointed executive director of business development in October 1980. Previously, he was director of space systems.

The new vice president's responsibilities include program development and marketing for current and new business areas, strategic business planning, and protocol.

Hudoff named GSS director

Fred H. Hudoff has been named director of the Space Shuttle ground support services project at Vandenberg Air Force Base. He succeeds Robert D. Rhodus who becomes director for Shuttle integration and operations reporting to Hudoff.

Hudoff has been strategic systems director for command and information systems in Denver. He has been with Martin Marietta since 1959 and has been associated with the Titan, Skylab, and Viking programs.

Recreation

Soccer—The Martin Marietta soccer club will hold its annual recruiting meeting at 4:30 pm February 18 in the engineering presentations room. All employees interested in playing in an adult league are invited. For information call J. Bob Michaud, ext.4870.

Bowling—The Martin Marietta master's bowling tournament was held January 10, 11, and 17. Winners: Ervin Geilbert, master's champion; Bernard D. Winslow, master's runner-up; Floyd Teiffel, high three-games series (719), and high game (279). Geilbert and Winslow won the right to compete in the 21st annual Denver master championship tournament.

Running—The Waterton Sheepherders will sponser an eight-race 1981 Spring handicap series beginning February 19. The first race will be a scratch start to determine handicaps for new runners. Start time for all races on the paved out-and-back course is 4:30 pm. The series concludes June 11. For information, call Glen F. Griesz, ext. 3749, or Thomas E. Bailey, ext. 1806.

Fitness—Women can have fun and shape up to music with Patti Brown, RN, YMCA certified fitness instructor. The eight-week program begins February 16 in the second floor cafeteria. Classes will be held Monday and Wednesday, from 4:10 pm to 5:00 pm or from 5:00 pm to 5:50 pm. Cost is $12.00. Call Lori Sharp, ext. 6750, to register.

Travel—The Martin Marietta 1981 travel brochure is available in information racks and at the recreation office.

Tax forms—Federal and Colorado income tax forms are available at four locations. See Lori Sharp, engineering 125B; Lucy Winka, South Lincoln facility; Kay Shuey, DSC200; Tricia Merek, building 6060 Greenwood Commons.

Fishing—Entry forms are available at the recreation office for the annual employee fishing contest sponsored by the National Industrial Recreation Association and the American Fishing Tackle Manufacturers Association. The contest began January 1 and ends October 31.

Space business exciting: Adams

"I happen to believe that space is the most exciting business around," said L. J. Adams, Martin Marietta Aerospace president, in a recent talk to the Alabama section of the American Institute of Aeronautics and Astronautics. "I also happen to believe that it has the potential of bringing more long-term benefits to mankind than any other business endeavor."

Speaking on "The next ten years in space," Adams said, "Of course, our entire 10-year space effort is dependent on a dependable space transportation system. I firmly believe that it is vital to the nation's future in both civilian and Department of Defense space activities in continuation of our current and near-future space priorities.

"In the somewhat longer term," said Adams, "it will provide a basis to establish economical, reusable platforms for continued research and exploration of space and will be the basis for building true operational capabilities."

He also said Space Shuttle will provide a new plateau of space capability for national defense.

In his talk he outlined the role Martin Marietta Aerospace expects to play in the growing space program. Sumarizing the programs chosen for investment of Martin Marietta resources and/or where there has been NASA contract support, Adams listed:

Next key planetary program: Venus orbiting imaging radar (VOIR).

L. J. Adams
President
Martin Marietta
Aerospace

Key science program: origins of plasma in Earth's neighborhood (OPEN).

Key application program: upper atmosphere research satellite (UARS).

Instrument development: space telescope faint object spectrometer; Galileo nephelometer; Galileo atmosphere structure instrument; and Shuttle feature identification and location experiment.

Future space transportation system and orbital operations: Shuttle derived vehicles study; tethered satellite system; man maneuvering unit; satellite servicing studies; modular propulsion system; teleoperator activities; large space structures; and robotics for space handling, assembly, and maintenance.

"What does all this mean in company investment?" Adams asked. "For those programs which are not yet under development contract, it means almost $20 million in independent research and development and bid and proposal funds in 1981 alone, and an even higher amount in capital expenditures for related facilities, laboratories, and equipment. That's a lot of money, but then we have a lot of convictions of the future of the NASA and DOD space programs. As hard-headed businessmen, we believe it will be money well spent for the nation and our own company."

A come-from-behind tournament victory earned the 1980 chess championship for Anthony R. Rael. He has been playing chess 10 years and at one time was the lowest rated chess club player. In the tourney, he overcame an early round loss to work his way up to a final round victory over Richard L. Pickerell. Lewis E. Dorough finished second; Pickerell was third; Roy Diaz, fourth; and Gary McKee, fifth.

Management club officers elected

The Kennedy Space Center/Canaveral Martin Marietta management club recently elected its 1981 officers. New officers are Kenneth R. Shipe, president; Melodie de Guibert, vice president; Beverly J. Jordan, secretary; and Arthur P. White, treasurer. The 1981 directors are John C. Harris, James H. Mathena, Frederick C. Marshall, Eddie L. Roberts, Carl K. Welton, and Gene L. Wyckoff.

Club objectives are to provide the opportunity for growth of its members in management skills and to promote a professional spirit. The goals are accomplished through educational activities, association with other professionals, and an exchange of ideas.

The club is open to all exempt salaried employees and represents all Martin Marietta programs in the Brevard County area. This year's membership goal is 200.

NASA adds $66.5 million to tank contract

The NASA Marshall Space Flight Center, Huntsville, Alabama, has amended a contract with the Michoud division to add or modify tooling needed to increase the division's production rate to 24 external tanks a year.

The amendment adds $66.5 million to the existing external tank design and development contract. The new and modified tooling will be in place at the facility by December 1982.

The external tank is 154 feet long and 27.5 feet in diameter. It is the only element of the Space Shuttle that is not reusable. At ignition it contains 1.3 million pounds of oxidizer and 224,000 pounds of liquid hydrogen fuel which are supplied under pressure to the airplane-like orbiter's three powerful main engines during liftoff and ascent. When the main engines shut down about eight and one-half minutes after launch, the external tank is jettisoned, enters the Earth's atmosphere, breaks up, and impacts in a remote ocean area.

Two are named Michoud directors

Richard J. Masi has been named director of business operations and Herbert DeBorde has been named director of management information systems at the Michoud divsion.

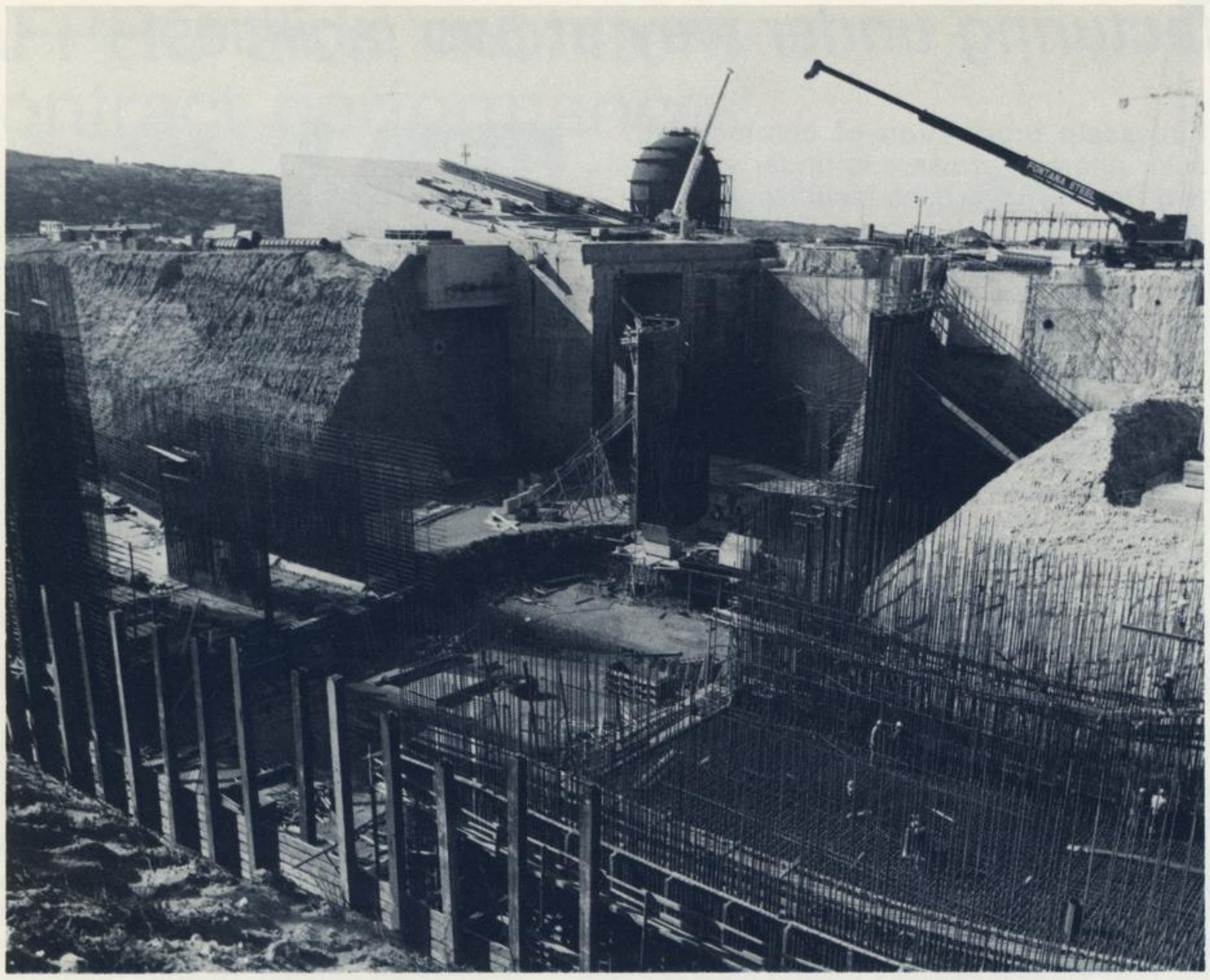
Masi succeeds William P.Ewig who has been named executive director for operations planning and materiel at Baltimore Aerospace.

In his new position, Masi reports to Kenneth P. Timmons, Michoud vice president and general manager. His responsibilities include finance, contract administration and legal, and management information systems.

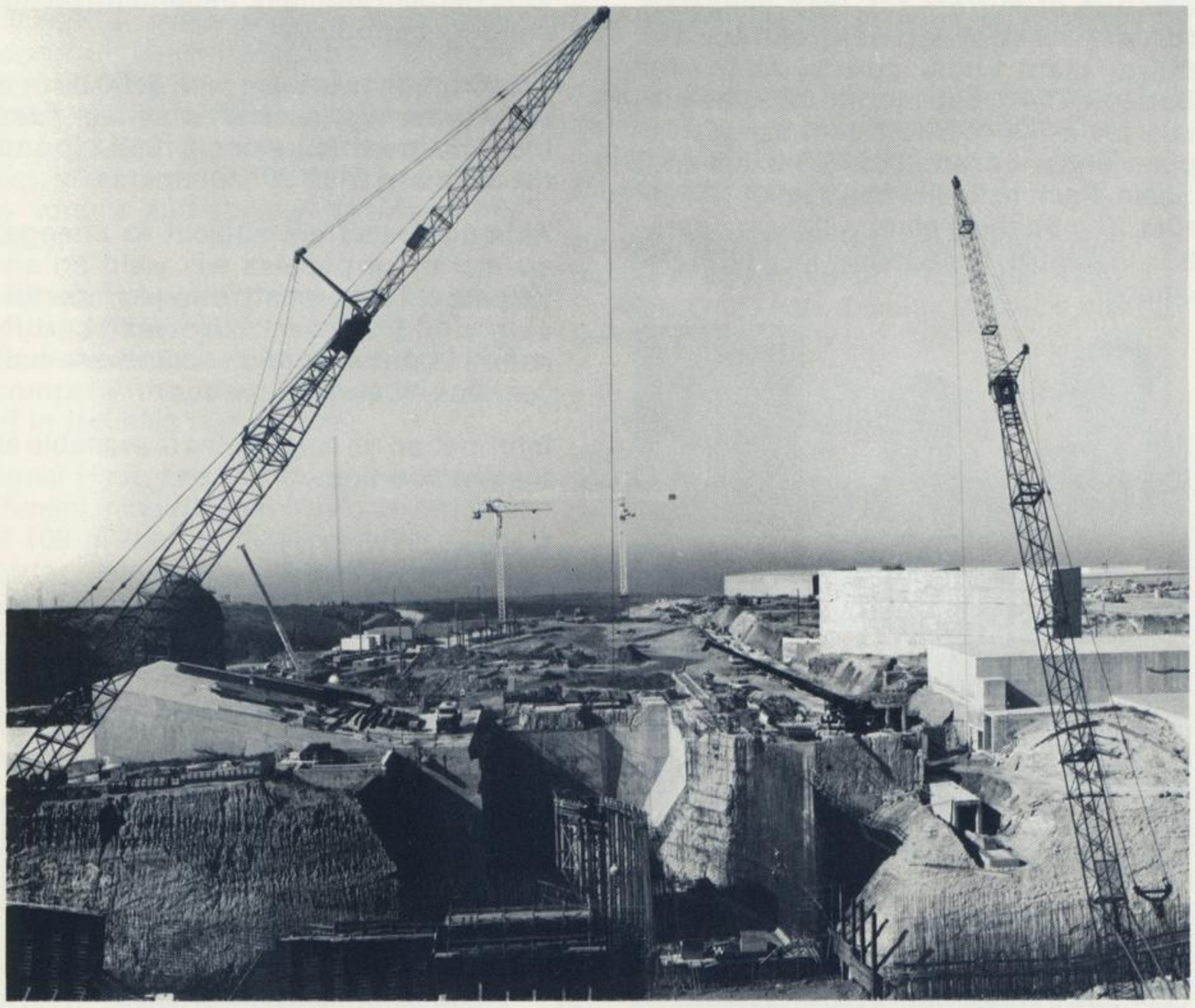
DeBorde will be responsible for computer services, management systems, and presentations/graphics.

Masi graduated from the U.S. Merchant Marine Academy with a bachelor's degree in marine engineering. He also received a master's degree in business administration from the University of Connecticut. He has spent the past two years as Denver Aerospace assistant controller.

DeBorde graduated from Georgia Tech with a bachelor's degree in electrical engineering. He was previously at Martin Marietta corporate headquarters in Bethesda. He has wide experience in all areas of manufacturing.



Looking southwest from the base of the mobile tower at space launch complex six (SLC-6) at Vandenberg Air Force Base, progress on modification of the flame duct for Space Shuttle is apparent. At the center of the photograph is the original SLC-6 flame duct built for the manned orbiting laboratory (MOL) a decade ago. Two additional ducts–leading out the right and left of the photograph–are being built for Shuttle's solid rocket boosters. The original duct will exhaust the main engines. In the center background is a nearly completed cryogenic vessel.



A crane's eye view looking west and out to sea from the mobile service tower shows work at space launch complex six (SLC-6) at Vandenberg Air Force Base. In the foregraound are flame ducts and launch mount construction.In the Background, work begins on the payload preparation room. Original SLC-6 concrete structures can be seen in the foreground, including the flame duct on the left.

External tank is tested with super-cold propellants

At Kennedy Space Center (KSC), external tank operations personnel have completed a major milestone for Space Shuttle launch. The Shuttle's external tank was loaded with its super-cold propellants for the first time January 22 and 24.

The two-part test was conducted on separate days for safety reasons.First, 380,000 gallons of liquid hydrogen were loaded into the hydrogen tank and a simulated countdown to launch was performed. The liquid propellant was then drained back into its storage tank. The same procedure was followed two days later with 143,000 gallons of liquid oxygen and the oxygen tank.

"The success of the test, including the operation of our software, was the result of many reviews and simulated tests we have performed," said Thomas C. Wirth, director of external tank operations at KSC. "Our people have been putting in long hours to insure everything would work as planned."

KSC personnel used this test to prove the compatibility of all systems, check the thermal qualitites of the external tank, and verify the software procedures.

An inspection showed that during test, some of the external tank's insulation came unglued from the tank's surface near the forward attach point for the orbiter. The insulation will be repaired after the flight readiness firing February 16.

The external tank will be filled with its liquid propellants twice more—for the 20-second test firing of the orbiter's three main engines, and in April for the launch.

Space Shuttle launch pad construction continues

Work to modify and refurbish the original manned orbiting facility launch site, space launch complex six (SLC-6), at Vandenberg Air Force Base for use by the Department of Defense space transportation system has changed the site dramatically. The mobile service tower and the flame exhaust duct are the only recognizable elements remaining.

Under construction are a new launch mount, two giant flame ducts, two cryogenic containers, an access tower, payload preparation room, and a payload changeout room. For the launch control center, adjacent to the launch pad existing two-story structure also rem ing from the MOL construction is being modified and expanded.

Launch pad construction should be completed in late 1982, with launch control center completion in mid-1981.