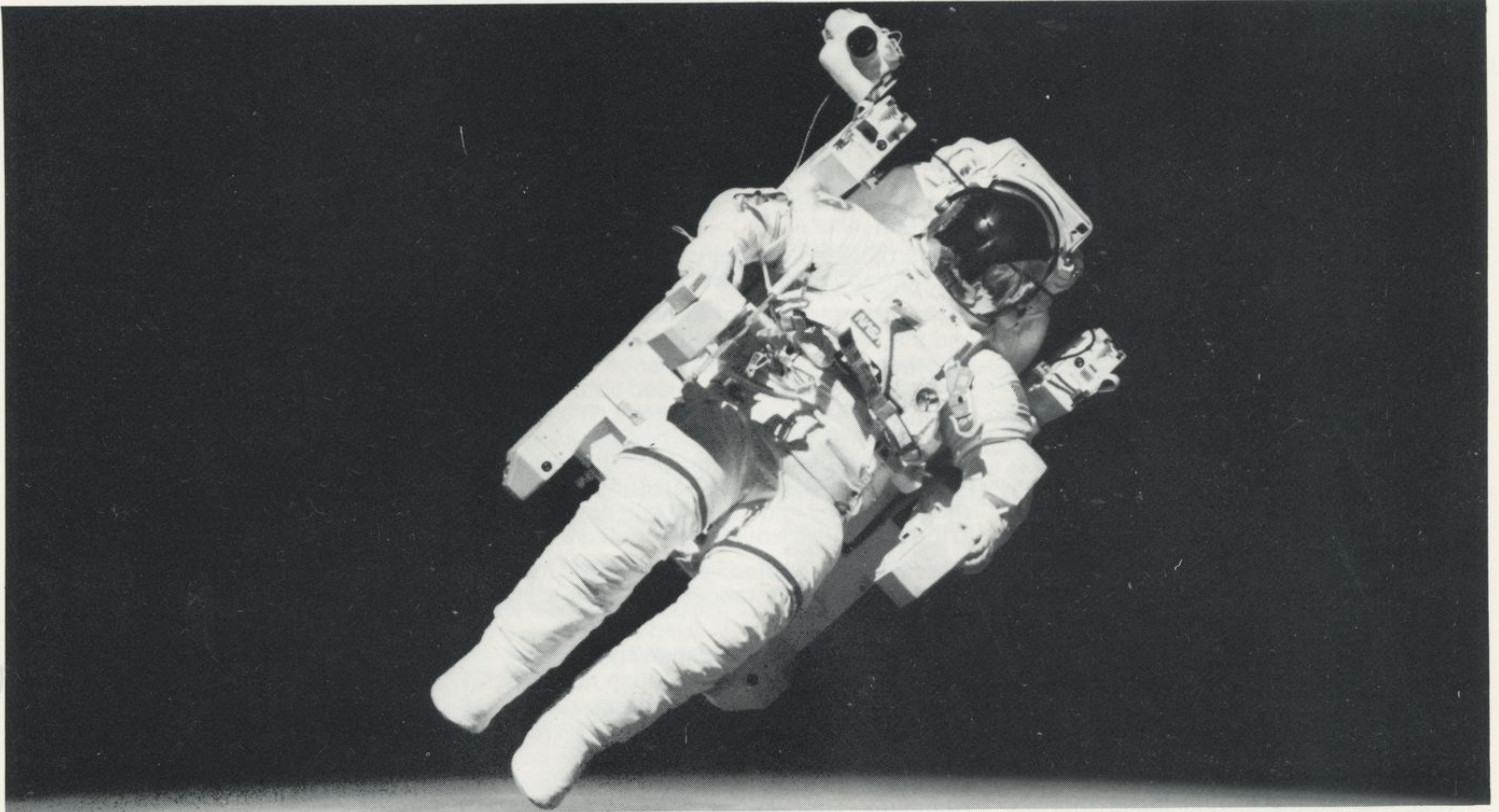


NUMBER 3/1984



Man free in space at last!

"It may have been one small step for Neil, but its a heck of a big leap for me!"

Astronaut Navy Capt. Bruce McCandless (on the cover) used those words when he blazed a new trail through the space frontier in Martin Marietta's Manned Maneuvering Unit (MMU), February 7.

He was alluding to Neil Armstrong's famous quote from when he became the first human to walk on the moon. McCandless left no doubt in the minds of NASA and an awed public that the maiden voyages of the MMUs deserved equal mention in the history of American space exploration. Two onboard MMUs were given extensive first-flight workouts on the recent mission of the Space Shuttle Challenger by McCandless and Army Lt. Col. Robert Stewart.

The dramatic flight tests of the MMU ended 10 years of development and testing by a Denver Aerospace team. NASA believes MMUs will become a valuable new space tool for astronauts, enabling untethered extravehicular activities previously impossible in space. The gas-jet-powered MMU will allow

astronauts to perform a variety of activities outside spacecrafts or space stations, including satellite retrieval and servicing, science investigations, in-space construction, and rescue operations. The MMU will be used on the next Shuttle mission in April to assist in the capture and repair of the malfunctioning Solar Maximum Mission Observatory Satellite (Solar Max).

A verbally animated McCandless had plenty of praise for the flawless performance of the MMU, and maintained a running, often humorous, dialogue with other crew members.

"... We sure got a nice flying machine here," McCandless exclaimed as he moved more than 300 feet away from the orbiter. NASA announced "McCandless and his Manned Maneuvering Unit constitute a separate spacecraft of their own now."

"It's real solid on stability," said McCandless as he started his return flight to the orbiter. When told the orbiter radar was not tracking him as expected because he was not reflective enough,

McCandless quipped: "Maybe I should have eaten some of those cans for breakfast instead of just the food."

As he hovered in the MMU near the orbiter's cabin windows, McCandless peered inside and remarked: "Are you going to want the windows washed or anything while I'm up here?"

On the ground, even Shuttle flight veterans gasped as they watched McCandless move through space with ease and perform various docking maneuvers in the orbiter payload bay.

"It's just like you are on that simulator up there in Denver," McCandless said, referring to the Space Operations Simulator on which he and fellow astronauts have been training for all missions.

Stewart was equally complimentary in his praise of the MMU, exclaiming: "It's really easy to fly... It's a real nice little machine." When McCandless began cutting into Stewart's flying time on the MMU, Stewart told NASA's Capcom: "I want an extension (of my flying time)."

(continued on back page)

Early Titan I Days Recalled on 25th Anniversary of First Launch

Uranus (Heaven) and Gaea (Mother Earth) represented the two principal elements of the universe and, according to classical mythology's view of life, they parented the first family of immortals—the Titans.

This month is the 25th anniversary of the first successful flight of Martin Marietta's Titan I intercontinental ballistic missile (ICBM). That first-generation Titan was successfully launched from Florida's Cape Canaveral February 6, 1959. It became the patriarch of the company's long and successful family line of launch vehicles—from Titan II (now being gradually retired from the U.S. inventory), to Titans IIIA through E, to today's 34D.

"Obviously, there was something to it when 45 guys are still working on Titan and still with the company," said Stanley Albrecht, the man who during Titan I days helped to build up the original Titan crew.

Albrecht, who is now deputy program director for Peacekeeper, was then assistant test conductor responsible for pad control and everything that went on there.

Albrecht recalled, "In those days, things were a lot different. Every day was a new experience. Everything you were doing, you were doing for the first time. So, you had to learn as you went along; you couldn't copy from anyone else."

The former chief at the Titan I pad added, "That was perhaps what made the job then so exciting and rewarding."

Mission Success

Titans continue their record as the world's most reliable expendable launch vehicle (ELV) with the successful launch, January 30, of a Titan 34D from Cape Canaveral, FL. The record is now 123 successes in 126 operational launches for the Titan III/34D series of space boosters. Robert D. Rhodus is in charge of the company's Canaveral Operations, which includes Titan launch activities.

"The biggest challenge for the original Titan team was that we were dealing with new equipment, new people, and new processes. Whenever we had a problem, we didn't have an experience level to refer to, we didn't have some of the systems we have today—such as the MARS system (Martin Marietta Automatic Reporting System) or the mission success organization."

Basically, they only had drawings and schematics to help them troubleshoot in those early stages.

Albrecht also recalled during test countdowns that the team used a sequencer, which is clock similar to a household

alarm. "Every time we went through a countdown we had a timing problem. So, members of the team started carrying jumper cables. That way, if there was a problem with countdown, they could jump the sequencer."

The most rewarding aspect of those early days, according to Albrecht, was "you knew you were developing something that, at that time, the country really needed to keep secure and to protect ourselves."

He also spoke of the competition between the Titan and Atlas crews.

"The Atlas people got to the Cape first, and the Air Force brought the two teams together so we could exchange ideas." He stopped short and chuckled before adding, "The Atlas was very fragile. The first time we invited the Atlas people to our stand, I happened to rap our Titan very hard with my fist. The Atlas people were shocked. They told us if we had done that to their missile it would have dented it."

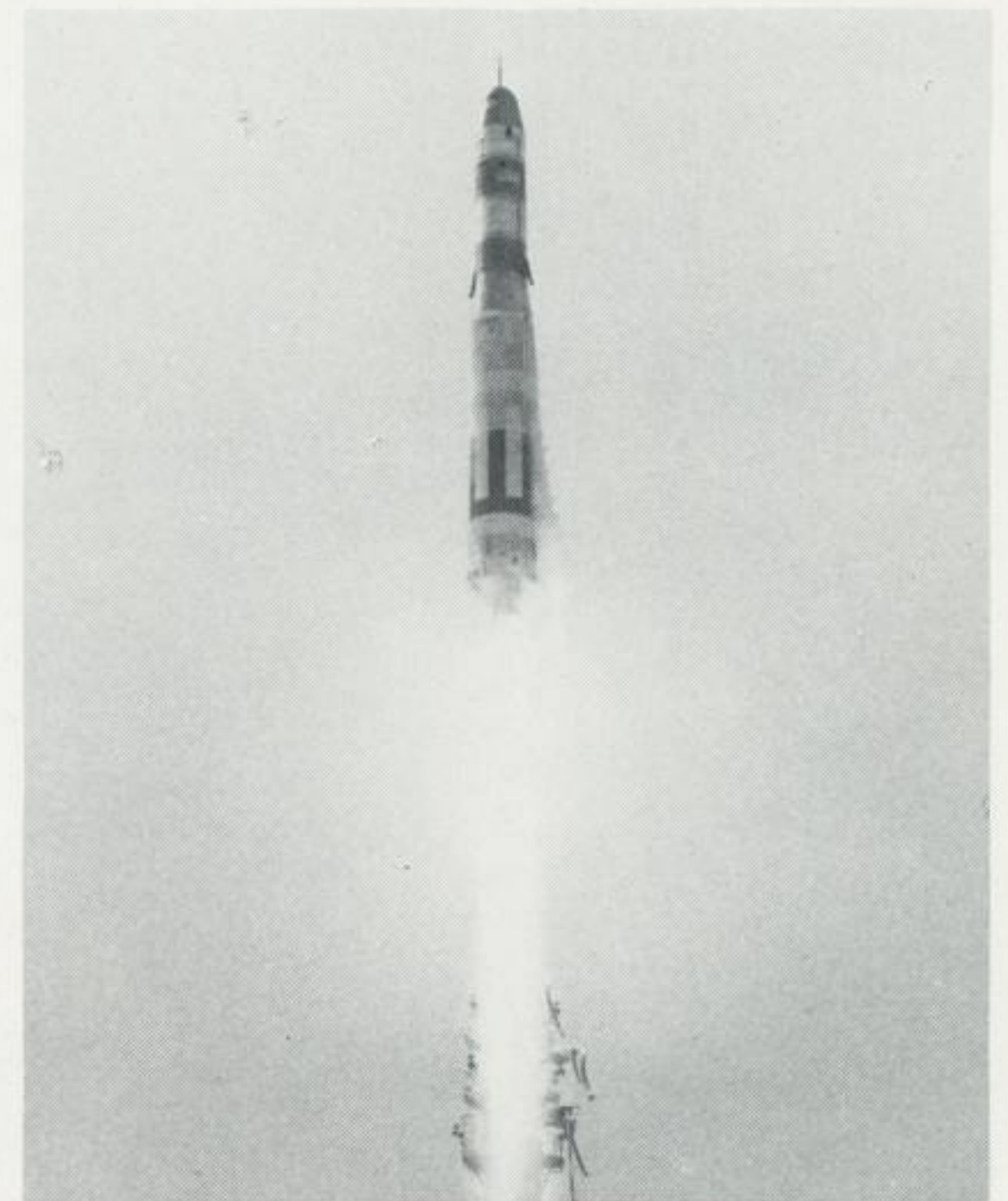
Albrecht also noted considerable differences between media coverage then and now.

"The people at the Cape then knew about a launch, but there wasn't much national coverage. We got about 10 seconds on national TV if we were lucky, and 20 if we had a failure."

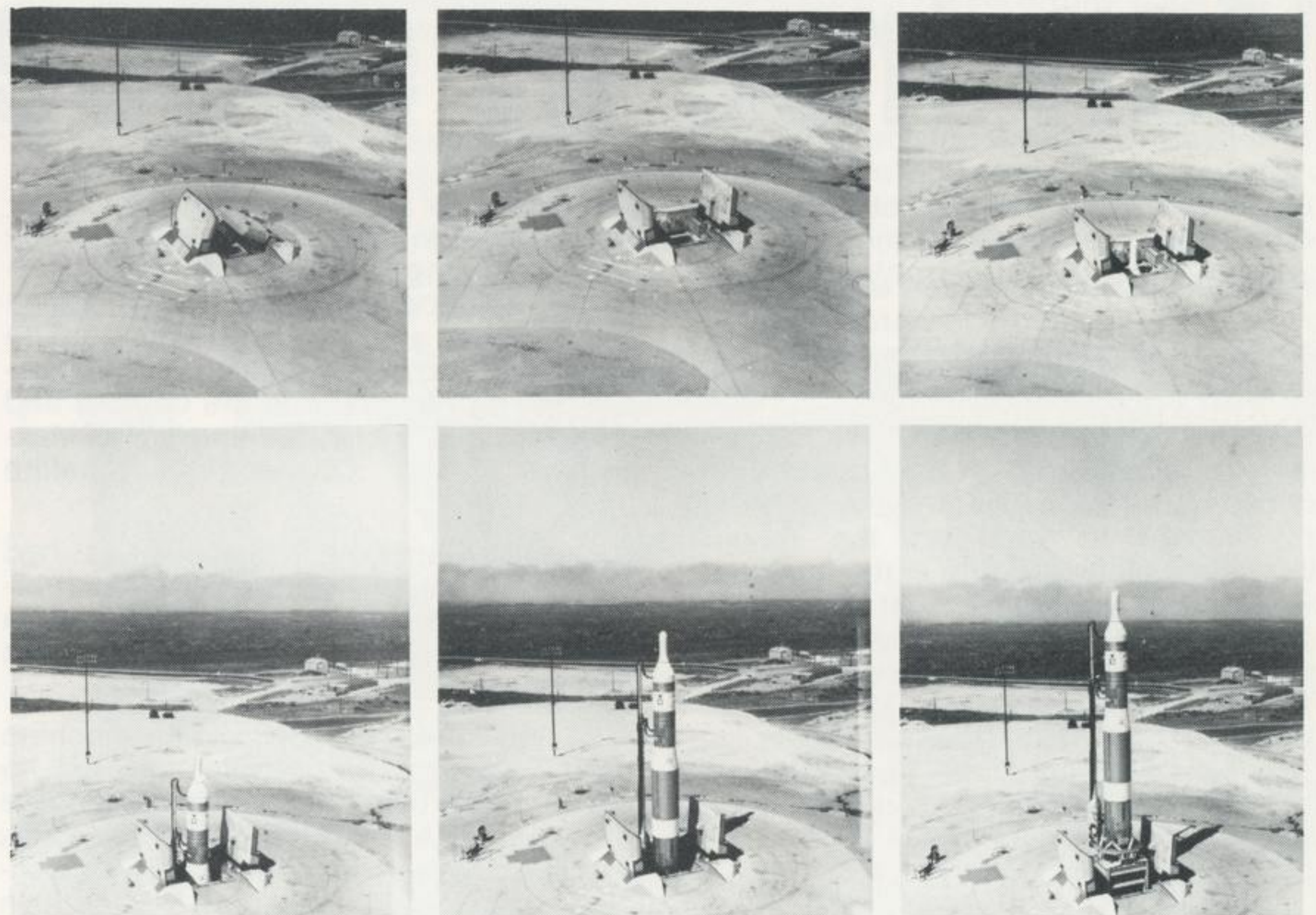
Now Albrecht believes the pendulum has swung the other way, because media has become more sophisticated about aero-

space and defense. Media coverage has increased, too, because the public has started asking more questions.

As for the original crew... Albrecht received a call late last month from Peter B. Teets, vice president and general manager of the Strategic and Launch Systems division, inviting him and his wife to a special dinner at the Cape. It was "a super dinner" with 45 members of the Titan team and films of that first flight 25 years ago.



First Titan I Launch



This sequence of photographs shows how an Air Force Titan I intercontinental ballistic missile is brought from its underground hiding place to launch readiness. In the top row, the massive doors that protect the missile from attacks are opened and the nose of the Martin Marietta-built ICBM appears. In the bottom row, the Titan I rises—its service lines still attached—to a launch-ready position.

Augustine explains Commitment to Excellence Rationale

Denver Aerospace has completed one of its most successful business years ever. The company has an established reputation for a long and effective record of mission successes.

Why would such an organization need a program relating to "excellence," the company's recently launched "Commitment to Excellence" program?

"The reason," said Norman R. Augustine, Denver Aerospace president, "is very simple: if we are to stay ahead of our competition and vie successfully for new business and jobs, we must not only maintain our record of mission success, but we must also continue to reduce the missteps which occur along the way to that ultimate success."

The missteps to which Augustine referred include engineering drawing errors, rework, scrap, administrative errors, programming errors, waivers, "Deviations, and all the other indicators of less than absolute perfection."

"In short, our goal must be to 'do it right the first time—every time.'"

Augustine noted the experiences of many firms that undertook programs similar to

Denver Aerospace's "Commitment to Excellence" program "have been truly remarkable—often resulting in performance levels previously thought to be altogether impossible."

Many "Blue Chip" organizations of American industry involved in programs committed to excellence include IBM, Hewlett-Packard, and General Electric.

"It is interesting that those most involved in this recommitment to absolute perfection tend to be those firms already recognized for their excellence," Augustine said. "We, like they, cannot rest on our laurels."

Augustine stressed, "The government—our principal customer—is addressing what it calls 'the hidden factory' in its source selection deliberations . . . placing emphasis on that part of the 'factory' (including engineering and administration), which is perceived as 'doing it over the second time.'"

"Because of the enormous potential improvement attainable, I personally reviewed data with senior executives of 20 other U.S. firms to learn more about the results which can be achieved."

"The conclusion was that 'quality' means conformance to specifications. Every time. And, that this can best be achieved by seeking absolute perfection and nothing less. In that regard, prevention of errors is the keystone," Augustine said.

An increased emphasis on greater excellence should ultimately ease everyone's workload if, Augustine added, "Each of us can count on the work and materials provided to us being right the first time we receive them. This emphasis on quality obviously does not mean we will disregard cost and schedules. Interestingly, however, most of the evidence from Japan, as well as the U.S., suggests that by demanding greater quality one can actually reduce overall costs."

\$6.8 million RATF construction begins

The Scientific Services and Systems Group of Wylie Laboratories has been awarded a \$6.8 million contract by Denver Aerospace for the turnkey development of a reverberant acoustic test facility (RATF) to be completed at the main plant in April 1985.

Construction of the facility at the Space Simulation Laboratory (SSL) began this week.

The project by the El Segundo-based firm in California will be the first large-scale RATF to integrate radio frequency shielding with high intensity acoustic testing. The test chamber is designed with a cleanroom that meets space operational requirements, and is large enough to accommodate full-scale Space Shuttle payloads in flight configuration. When completed, the project will be the largest technologically sophisticated RATF in the country.

In conclusion, the president remarked that he is frequently asked by the company's customers, "What is Denver Aerospace's policy on quality?"

"My answer is simple: to assure mission success, we will provide our customers with products which meet requirements every time, on time, at the lowest possible cost."

ATC \$684 million contract starts

Capping a 3-year technical and managerial effort by Denver Aerospace, some 50 employees already have started work at Washington, D.C., on the massive modernization and restructuring of the nation's air traffic control, navigation, communication, and auxiliary systems.

Martin Marietta Aerospace was named principal contractor on the \$648 million contract awarded January 31 by the Department of Transportation for the Federal Aviation Administration (FAA).

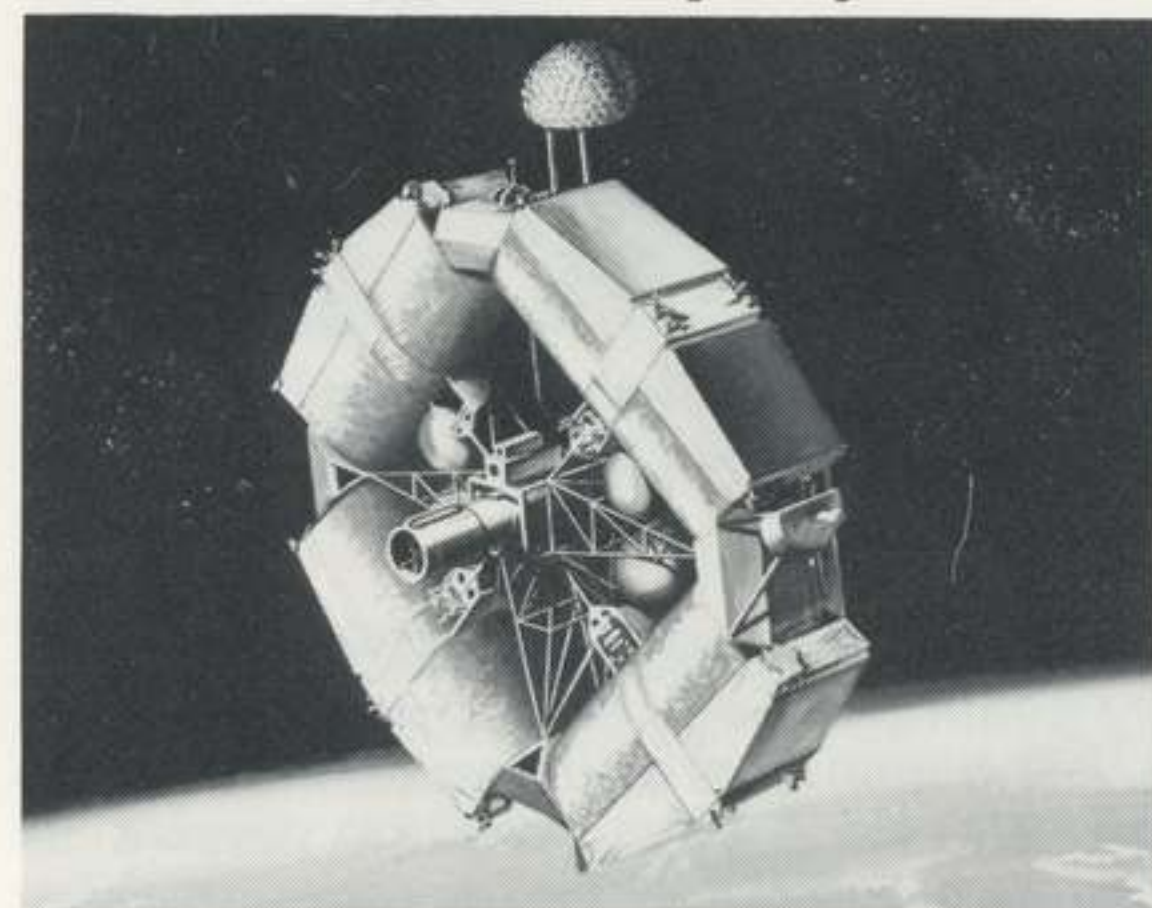
The cost-plus-award-fee contract is for an initial 5 years, but includes options for 2- and 3-year extensions for the Aerospace company's newly formed Air Traffic Control (ATC) Division.

Headquartered at 475 School Street SW, Washington, D.C., the new division is headed by Frederick H. Hudoff, vice president and program manager.

The division was created to assure major components of the FAA's National Airspace System (NAS) plan are properly integrated and installed, and that they work as planned. The NAS plan is a comprehensive blueprint for modernizing air traffic control and airway facility services through the year 2000.

"We are absolutely delighted to have won this tremendously important job," said Thomas G. Pownall, Corporation chairman and chief executive officer. "It is another step in our strategy to move the Corporation further into selected fields of high technology where we have experience and resources to manage complex tasks."

Denver Aerospace delivers OMV definition proposal



Denver Aerospace has submitted a proposal to NASA in which the company describes how it would define the concept of an Orbital Maneuvering Vehicle (OMV).

The OMV is a kind of "smart space tug" that would move satellites and other orbiting objects around hundreds of miles above the Earth.

Fran Bergonz, OMV proposal and project manager, said the proposal was delivered to NASA's Marshall Space Flight Center at Huntsville, AL, February 14. Denver Aerospace has been involved in conceptual definition of an OMV for 2 years.

From the proposals submitted, the Marshall center will select three or more firms to do 1-year parallel definition studies. The contracts are expected to be in the range of \$1.7 to \$1.9 million for each company selected.

"We expect contract awards around the first of July," said Bergonz.

MARTIN MARIETTA NEWS

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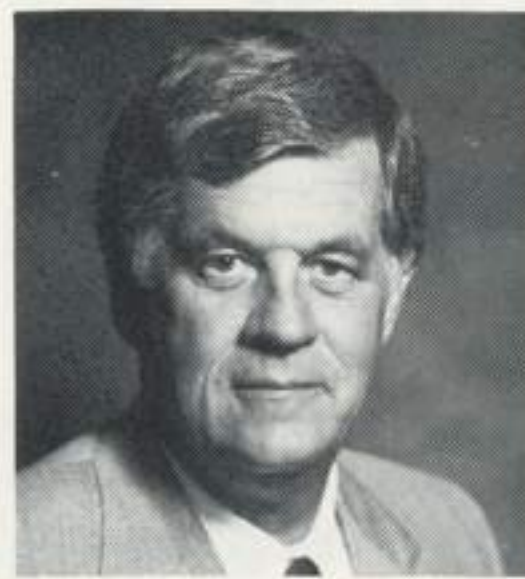
DENVER AEROSPACE
P. O. Box 179—Denver, CO 80201

February 17, 1984

Adamson Named Aerospace Business VP



Adamson



Bennett

Richard G. Adamson, vice president of business operations at Denver Aerospace since 1980, will go to Bethesda, MD, to become vice president of business management for Martin Marietta Aerospace.

Adamson succeeds Marcus C. Bennett, who was elected by the Martin Marietta Board of Directors as vice president of finance for the Corporation.

Simultaneously, it has been announced that David Buchanan has been appointed controller of the Corporation.

Adamson joined Denver Aerospace in 1960. In his new position, he will report to Caleb B. Hurtt, Corporate vice president and president of the Aerospace company.

S&P Upgrades Martin Marietta Preferred

Standard & Poor's (S&P) Corporation has raised the senior long-term debt and preferred stock rating of Martin Marietta Corporation to Single-A from Triple-B; and to Single-A-minus from Triple-B, respectively.

The A2 commercial paper rating is maintained, said a spokesman for the New York-based rating agency.

The action affects about \$768 million of securities.

"The rating changes reflect material improvement in the company's capital structure as well as anticipated continuation of a debt-reduction program over the next 2 years," said the S&P spokesman.

Since the end of 1982, proceeds from the sale of assets and sales of preferred and common equity have reduced total debt to 42 percent of capitalization from more than 60 percent, S&P said.

The rating agency added: "Earnings and cash flow protection measures are expected to improve as a result of a reduced debt burden, the favorable outlook for its aerospace operations, and an economic recovery that should benefit the aluminum and basic products segments."

December PSP Unit Values Announced

Unit values for the Performance Sharing Plan as of December 31, 1983 were: Fund A (indexed equity): 2.3099227155; Fund B (fixed income): 1.8208065186; Fund C (Martin Marietta Stock Fund): 2.2545961648.

Bennett, who has been in the Corporation's financial organization for 25 years, had been the Aerospace company's vice president for business management since 1980. In his new position, he will report to Melvin A. McCubbin, the Corporation's vice president and chief financial officer. He joined Martin Marietta at Orlando, FL, in 1959.

Buchanan, who joined Martin Marietta in 1980, had been director of accounting policies and procedures, and he also will report to McCubbin.

Cook to Head VAFB GSS

J. Richard Cook has been named to succeed Frederick H. Hudoff as director of Denver Aerospace's GSS (ground support systems) project for the Space Shuttle at Vandenberg Air Force Base, CA, according to Peter B. Teets, vice president, Strategic and Launch Systems Division.

Hudoff has been appointed vice president and program manager of Martin Marietta's Air Traffic Control Division at Washington, D.C.



William Leary (with scissors), cuts the ribbon to open a new picnic area near the 13th Street fire station named in his honor at Vandenberg Air Force Base. Assisting him is Maj. Gen. Jack L. Watkins, 1 STRAD commander. Leary, special assistant to the vice president of program requirements for Denver Aerospace, was honored for his 26-year association with Vandenberg and impending retirement. A long-time chairman of the Lompoc Chamber of Commerce's Military Affairs Committee, Leary is a former U.S. Navy commander who was the officer-in-charge at the former 20,000-acre Navy missile facility that now comprises South Vandenberg. He left active duty in 1964 and joined the Martin Marietta Corporation.

Recreation

Photography—Members and prospective members are urged to attend a 7 p.m. meeting Thursday, February 23 of the Platte Canyon Photo Club at DSC-II Room G-50 for a presentation on lighting for "better family and people pictures." A nominating committee will be formed to select officers for 1984. Contact Roy Gearhart, ext 3722, or Bill Privratski, ext 5920, for details on these and future events.

Skiing—Employees and their families are eligible for several ski specials at Arapahoe East ski area. Those include one for beginners, a four-week, and a Friday event. Call 526-9754 for details.

Alpine—The Rocky Mountain Alpine Club (RMAC) plans an intermediate cross-country skiing event limited to 12 persons in the Berthoud Pass area for Sunday, February 19. Contact Brian Gallagher, ext 5399, or 791-2143. The group has also scheduled an overnight snow caving trip for up to eight persons to the Indian Peak Wilderness area for February 25 and 26. Contact Joe Mensch, ext 6248, or 979-0426. RMAC will hold a general membership meeting at 7 p.m. March 2, at 12234 W. Saratoga Avenue, Morrison. The session is open to members, guests, and interested persons. Refreshments, presentations on backpacking, hiking, equipment purchases, and cross-country skiing will be included. Contact Godon Voss, ext 8109 and 973-6512 or Barb Converse, ext 4748 and 989-5212.

1984 Hy-Test Shoemobile Schedule Announced

The Hy-Test Safety Shoemobile, which also offers work clothing, will visit the main plant on the 1st and 3rd Wednesday of each month during 1984.

On those days, the vehicle will be at the I-Building between 8:30—10 a.m., EMF, 11 a.m.—12:30 p.m.; factory north door, 1—2:30 p.m.; and factory south door, 2:30—3:30 p.m.

Personnel Safety also reports that for the main plant 3rd shift the shoemobile will be at the factory south door at 7 a.m. on April 4, July 3, and October 3.

The shoemobile also will visit off-site locations at 5-week intervals according to the following schedule:

SLF: 8:30—10 a.m., February 29, April 5, May 9, June 13, July 19 August 22, September 26, October 31, December 6;
LSC: 10:30—11:30 a.m. on the above dates;
GWC: 12—1 p.m. on the above dates;
DSC: 2—3 p.m., April 5, June 13, August 22 and October 31.

Congressional Directory

EDITOR'S NOTE—The following information is for reference and includes Washington, D.C., and home-state addresses and telephone numbers; committee and subcommittee assignments of each U.S. Senator from Alabama, California, Colorado, Florida, and Louisiana; and each U.S. Representative in those states serving constituents within a 50-mile radius of Denver Aerospace facilities.

ALABAMA DELEGATION

Senator Jeremiah Denton (R)
Suite 510, Bank of Huntsville,
1010 Governor's Drive, Huntsville,
AL 35801, (205) 895-5105; 516
Senate Hart Office Building,
Washington, D.C. 20510, (202)
224-5744.

(1) Judiciary Committee—Subcommittees: security and terrorism, chairman; juvenile justice; separation of powers; (2) Labor and Human Resources Committee—Subcommittees: family and human resources, chairman; aging; education, arts, and humanities; labor; (3) Veterans' Affairs Committee—No subcommittee assignments.

Senator Howell Heflin (D) Cardiff Hotel Building, Main Street, Box 228, Tusculumbia, AL 35674, (205) 381-7060; 728 Senate Hart Office Building, Washington, D.C. 20510, (202) 224-4124.

(1) Agriculture, Nutrition, and Forestry Committee—Subcommittees: agriculture credit and rural electrification; agricultural research and general legislation; soil and water conservation, forestry, and environment; (2) Commerce, Science, and Technology Committee—Subcommittees: merchant marine; science, technology, and space; (3) Judiciary Committee—Subcommittees: administrative practice procedure; courts; immigration and refugee policy.

Representative Ronnie G. Flipppo (D) P.O. Box 6065, Huntsville, AL 35806, (205) 772-0244; 405 Cannon House Office Building, Washington, D.C. 20515, (202) 225-4801.

(1) Ways and Means Committee—Subcommittees: oversight; select revenue measures.

COLORADO DELEGATION

Senator William L. Armstrong (R)
311 Steele Street, No. 103,
Denver, CO 80206, (303) 837-3645;
528 Senate Hart Office Building,
Washington, D.C. 20510, (202)
224-5941.

(1) Banking, Housing, and Urban Affairs Committee—Subcommittees: economic policy; federal credit programs; financial institutions, chairman; international finance and monetary policy; (2) Finance Committee—Subcommittees: international trade; Social Security and income maintenance, chairman; taxation and debt management; (3) Governmental Affairs Committee—Subcommittees: Civil Service; Post Office and general services; international relations; permanent subcommittee on investigations; (4) Budget Committee—No longer subcommittees or task forces.

Senator Gary W. Hart (D) 1735 York Street, Denver, CO 80218, (303) 837-4421; Room S.R. 237, U.S. Senate, Washington, D.C. 20510, (202) 224-5852.

(1) Armed Services Committee—Subcommittees: sea power and force projection; military construction; strategic and theatre nuclear forces; (2) Environment and Public Works Committee—Subcommittees: environmental pollution; nuclear regulation; toxic substances and environmental oversight; (3) Budget Committee—No subcommittees or task forces.

Representative Patricia Schroeder (D) 1767 High Street, Denver, CO 80218, (303) 837-2354; 2410 Rayburn House Office Building, Washington, D.C. 20510, (202) 225-4431.

(1) Armed Services Committee—Subcommittees: military personnel and compensation; research and development; (2) Judiciary Committee—Subcommittees: civil and constitutional rights; courts; civil liberties; administration of justice; (3) Post Office and Civil Service Committee—Subcommittees: civil service, chairwoman; select committee on child, youth, and families.

Representative Timothy E. Wirth (D)
3489 W. 72nd Avenue, No. 12,
Westminster, CO 80030, (303) 234-5200; 2554 Rayburn House Office Building, Washington, D.C. 20515, (202) 225-2161.

(1) Budget Committee—Task forces: energy and technology, chairman; education and employment; (2) Energy and Commerce Committee—Subcommittees: telecommunications, chairman; consumer protection and finance; science and development; (3) Science and Technology Committee.

Representative Kenneth Kramer (R)
10394 W. Chatfield Avenue, No. 104,
Littleton, CO 80217, (303) 973-0397; 240 Cannon House Office Building, Washington, D.C. 20515, (202) 225-4422.

(1) Armed Services Committee—Subcommittees: procurement and military and nuclear systems; ranking minority member on military installations and facilities.

Representative Daniel L. Schaefer (R) 730 W. Hampden Avenue, No. 110, Englewood, CO 80110 (303) 762-8890; 1116 Longworth House Office Building, Washington, D.C. 20515, (202) 225-7882.

(1) Government Operations Committee—Subcommittees: manpower and housing; government activities and transportation; (2) Small Business Committee—Subcommittees: general oversight and economy.

Representative Hank Brown (R) 1015 37th Avenue Court, No. 101-A, Greeley, CO 80634, (303) 352-4112 (Greeley), (303) 837-2092 (Denver); 1510 Longworth Building, Washington, D.C. 20515, (202) 225-4676.

(1) Interior and Insular Affairs Committee—Subcommittees: water and power resources; energy and environment; insular affairs; (2) Standards of Official Conduct Committee.

CALIFORNIA DELEGATION

Senator Alan Cranston (D) 45 Polk Street, San Francisco, CA 94102, (415) 556-8440; 5757 W. Century Boulevard, No. 515, Los Angeles, CA 90045, (213) 642-5086; 247 Senate Russell Office Building, Washington, D.C. 20510, (202) 224-3553.

(1) Banking, Housing, and Urban Affairs Committee—Subcommittees: financial institutions, ranking minority member; economic policy, housing, and urban affairs; rural housing and development, ranking minority member; (2) Foreign Relations Committee—Subcommittees: arms con-

trol, ranking minority member; near eastern and south Asian affairs; east Asian and Pacific affairs; (3) Veterans Committee; (4) Democratic Policy Committee; (5) Democratic Steering Committee.

Senator Pete Wilson (R) 880 Front Street, No. 6-S-9, Federal Building, San Diego, CA 92188, (619) 230-0366; 450 Golden Gate Avenue, Federal Building, San Francisco, CA 94102, (415) 556-4307; 1130 O Street, Federal Building, Fresno, CA 93721, (209) 487-5727; 1100 Wilshire Boulevard, Los Angeles, CA 90024, (213) 209-7543; 613 Senate Russell Office Building, Washington, D.C. 20501, (202) 224-3841.

(1) Armed Services Committee—Subcommittees: preparedness; sea power and force projection; tactical warfare; (2) Agriculture Committee—Subcommittees: soil and water conservation; forestry and environment; agricultural research and general legislation; foreign agricultural policy; (3) Select Committee on Aging.

Representative Robert J. Lagomarsino (R) 814 State Street, Studio 121, Santa Barbara, CA 93101, (805) 963-1708; 2332 Rayburn House Office Building, Washington, D.C. 20510, (202) 225-3601.

(1) House Foreign Affairs Committee—Subcommittees: ranking member of western hemisphere affairs; (2) Interior and Insular Affairs Committee—Subcommittees: ranking minority member of insular affairs; public lands and national parks.

FLORIDA DELEGATION

Senator Lawton Chiles (D) Federal Building, Lakeland, FL 33801, (813) 688-6681; 437 Russell Senate Office Building, Washington, D.C. 20510, (202) 224-5274.

(1) Appropriations Committee—Subcommittees: agriculture and related agencies; defense; labor, health, and human services; education; transportation; (2) Budget Committee—No subcommittee or task forces, ranking minority member; (3) Governmental Affairs Committee—Subcommittees: government efficiency in District of Columbia; information management and regulatory affairs; (4) Special Committee on Aging.

Senator Paula Hawkins (R) P.O. Box 2000, Winter Park, FL 32790, (305) 628-1738; Dirksen Senate Office Building, Washington, D.C. 20510, (202) 224-3041; toll-free hotline: (800) 432-5184.

(1) Agriculture, Nutrition, and Forestry Committee—Subcommittees: agricultural credit and rural electrification; nutrition; (2) Banking, Housing, and Urban Affairs Committee—Subcommittees: housing and urban affairs; securities; consumer affairs; insurance; (3) Labor and Human Resources—Subcommittees: employment and productivity; handicapped; aging.

Representative Bill Nelson (D) 65 E. Nasa Boulevard, Melbourne, FL 32901, (305) 724-1978; 400 South Street, Titusville, FL 32780, (305) 268-1776; 307 Cannon House Office Building, Room 255, Washington, D.C. 20515, (202) 225-3671.

(1) Budget Committee—Task forces: federalism/state-local relations; energy and technology; (2) Space and Technology Committee—Subcommittees: energy development and applications; space science and applications.

LOUISIANA DELEGATION

Senator Russell B. Long (D) 750 Florida Avenue, Room 220, Federal Building, Baton Rouge, LA 70821, (504) 389-0401; 221 Senate Russell Office Building, Washington, D.C. 20510, (202) 224-4623.

(1) Finance Committee—Subcommittees: oversight of the Internal Revenue Service; Social Security and income maintenance programs; taxation and debt management, ranking minority member; (2) Commerce, Science, and Transportation Committee—Subcommittees: Merchant Marine; surface transportation; (3) Joint Committee on Taxation.

Senator J. Bennett Johnston (D)
One American Place, No. 1510,
Baton Rouge, LA 70825, (504) 389-0395; 500 Camp Street, No. 1010,
Hale Boggs Federal Building, New Orleans, LA 70130, (504) 589-2427;
500 Fannin Street, Room 7A12,
Shreveport, LA 71161, (318) 226-5085; 136 Senate Hart Office Building, Washington, D.C. 20510, (202) 224-5824.

(1) Appropriations Committee—Subcommittees: defense; energy and water development (public works); foreign operations; interior; (2) Budget Committee; (3) Energy and Natural Resources Committee—Ranking minority member and *ex officio* member of all subcommittees.

Representative Robert L. Livingston (R) 8201 W. Judge Perez Drive, Room 102, Chalmette, LA 70433, (504) 589-3747; 610 South Street, Room 642, F. Edward Hebert Building, New Orleans, LA 70130, (504) 589-2753; 306 Cannon House Office Building, Washington, D.C. 20515, (202) 225-3015.

(1) Appropriations Committee—Subcommittees: foreign operations; military construction.

Representative Lindy Boggs (D) 500 Camp Street, Room 1012, Hale Boggs Building, New Orleans, LA 70130, (504) 589-2272; 2353 Rayburn House Office Building, Washington, D.C. 20515, (202) 225-6636.

(1) Appropriations Committee—Subcommittees: energy and water development; Housing and Urban Development-Independent Agencies; legislation; (2) Select Committee on Children, Youth, and Families.

Representative W. J. (Billy) Tauzin (D) 4900 Veterans Memorial Boulevard, No. 914, Metairie, LA 70002, (504) 889-2303; 222 Cannon House Office Building, Washington, D.C. 20515, (202) 225-4031.

(1) Energy and Commerce Committee—Subcommittees: commerce, transportation, and tourism; fossil and synthetic fuels; (2) Merchant Marine and Fisheries Committee—Subcommittees: Coast Guard and navigation; fisheries and wildlife conservation and the environment; oceanography; Panama Canal and outer continental shelf.

MMU

(continued from cover)

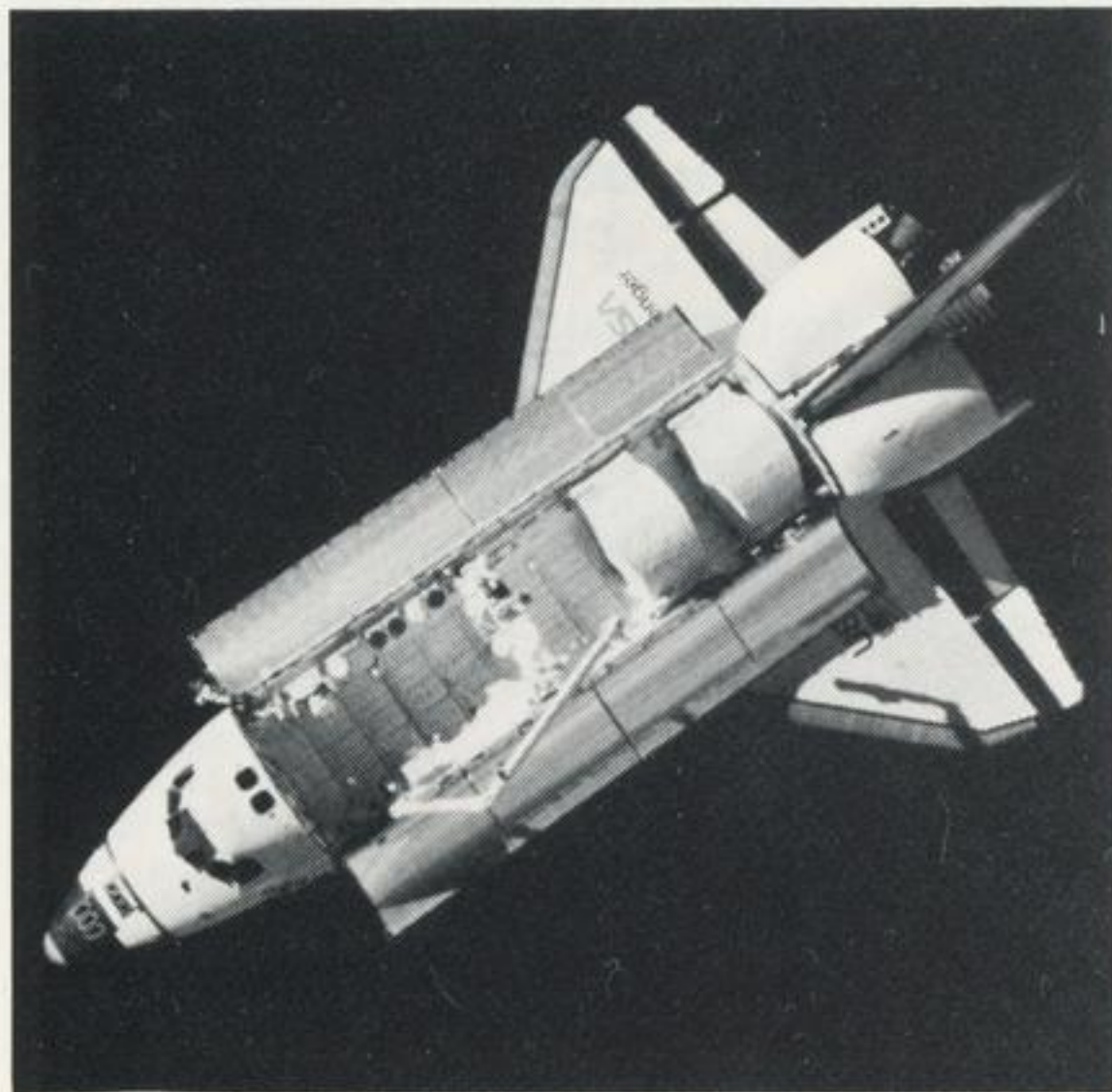
On the second day of MMU flight testing, McCandless and Stewart took a short break to talk with President Ronald Reagan. Reagan told the Challenger crew: "You've really opened a new era for the world in space with this mission. You've shown . . . that man does have the tools to work effectively in space."

In over two days of extravehicular activities (EVA), McCandless and Stewart recorded more than 5 hours of flying time on the two onboard MMUs and reported no problems in performance. The successful tests stimulated elated comments by members of the MMU development and support teams as they were transfixed on live transmissions from space.

"I'm in orbit myself," said W. W. (Bill) Bollendonk, MMU project manager for Martin Marietta in reply to a reporter's question about how he felt after the first flight testing. "The system performed as it was designed," Bollendonk added.

On the first day of EVA, McCandless and Stewart checked out MMU No. 3 and performed 150- and 300-foot translations from the orbiter. Using the trunnion pin attachment device (TPAD) that will be used to lock onto Solar Max in April, both astronauts performed a series of docking maneuvers with pins in the payload bay. The MMU was also recharged during the first EVA. Stewart practiced the procedure for MMU battery replacement.

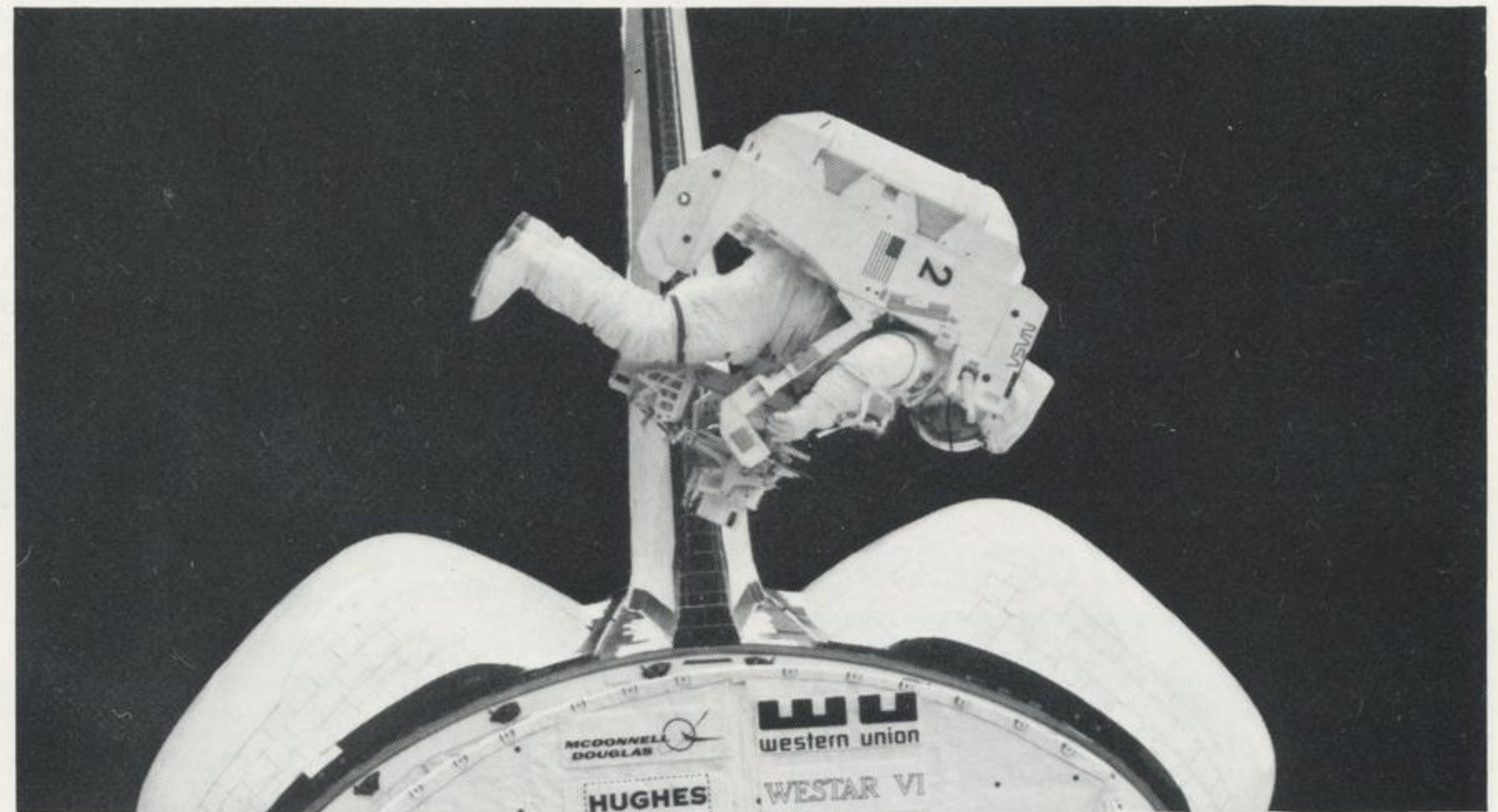
The second day of EVA was altered by the failure of a wrist joint in the Remote Manipulator System (RMS robot arm). It was to spin the Shuttle Pallet Satellite (SPAS) so the astronauts could practice docking with a spinning spacecraft similar to Solar Max. However, the astronauts compensated by performing docking exercises in various approaches, including upside down, relative to the payload bay. MMU No. 2 was tested by both astronauts on the second EVA, then McCandless took the No. 3 unit out again for strenuous engineering evaluations. Almost pushing the MMU to its design limits, McCandless reported the MMU performed flawlessly.



A fixed camera on astronaut Bruce McCandless' helmet record this rare view of the Space Shuttle Challenger some 50 or 60 meters away during his history-making EVA with the MMU.



Mission operations control room personnel at Houston's Johnson Space Center monitor man's first untethered extravehicular activity (EVA) in space.



Astronaut Bruce McCandless is shown moving in to conduct a test involving the trunnion pin attachment device (TPAD) he carries, and the Shuttle pallet satellite, partially visible at the bottom of the picture.

Within hours after Challenger recorded another first, by landing at Kennedy Space Center in Florida, a Martin Marietta flight support crew was on its way to Florida to get the MMUs ready for April's Solar Max repair mission. On that flight,

Mission Specialist George D. Nelson will fly a MMU to Solar Max, dock, and stabilize the spin so that it can be hauled into the Shuttle payload bay for repairs by James D. Van Hoften, another mission specialist.



The crew of the Space Shuttle Challenger playing "space tricks" inside the orbiter while mugging for the camera. Clockwise from the bottom, they are: Vance Brand, commander; Robert Stewart, Bruce McCandless, and Ronald McNair, all mission specialists; and Robert Gibson, pilot.