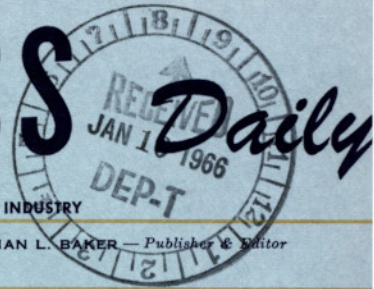


SPACE BUSINESS



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GE PICKS FAIRCHILD-REPUBLIC FOR MOL. The General Electric Company has retained the Republic Aviation division of Fairchild Hiller for technical consultant services on the Air Force **MOL** program. Republic will participate in the planning of the space experiments for the orbiting laboratory program. Republic had originally teamed with General Electric for the competition for the development of **MOL** but lost out when the Air Force selected Douglas as the prime contractor for the canister development and General Electric for the experiments, with the subsystem contracting reopened for competitive bidding (SPACE Daily, Oct. 4).

ADVANCED THOR ORDERED BY AIR FORCE. The Air Force Space Systems Division has ordered development of the new **Long Tank THOR** which, combined with various upper stages, will take over much of the Air Force space booster business at Vandenberg.

The **Long Tank THOR**, expected to succeed the present **Thrust Augmented THOR (TAT--SLV IIC)** consisting of the 172,000-pound thrust liquid **THOR** with three 55,000-pound thrust strap-on solids), will provide increased payload capability by enlarging the volume of the **THOR**'s liquid propellant tanks. Although its total thrust of 330,000 pounds is essentially the same as that for **TAT**, the **Long Tank THOR** will have a burn time of 216 seconds as compared to 146 seconds for **TAT**. This was made possible by extending the **THOR**'s liquid oxygen tank and changing the conical upper section to a straight cylinder of the same diameter as the rest of the airframe. The result is a 20 per cent increase in payload capability over **TAT** (i.e. 3000 pounds in a 100-mile orbit). The new **THOR** booster is approximately 70.5 feet long, compared to 55.9 for previous models. Diameter throughout is eight feet, same as the widest diameter of the standard **THOR** configuration.

The Space Systems Division has purchased twenty-one of the **Long Tank THORs** from Douglas Missile & Space Systems Division. First of the new boosters will be ready next summer. Douglas said the **Long Tank THOR** is expected to be used on "the majority" of AF space programs at Vandenberg.

FCC DECISIONS DUE ON TWO COMSAT QUESTIONS. Resolution of two major issues now before the FCC is expected soon, with the first settlement probably this month. The issues, in the order they will be resolved, are that of who shall own and operate the interface facilities and links for ComSat's ground stations, and that of who constitutes an "authorized user" of ComSat services.

MORE

The interface question was put to the Commission by dissenters from the Commission's decision giving ComSat, under an "interim policy," complete responsibility and control of the three ground stations that will support the Corporation's global satellite systems (SPACE Daily, May 13 & 17). Since each station will require an interface facility to process the station's communications traffic, and since the Commission's decision interpreted the concept of "station" to include that facility (wherever it may be located relative to the central station) plus the lines that link it with the central site, it was to be expected that, in the wake of the decision, the common carriers would protest the broad authority it gave to ComSat.

For example, AT&T and Hawaiian Telephone (SPACE Daily, June 15), quickly followed by GT&E and USITA (SPACE Daily, June 16), argued that the interface facilities and links should be the property and responsibility of carriers like themselves, and that ComSat's domain should be confined to the actual station. They pointed, as one ground for their case, to the duplication that would result if ComSat set up its own links, which necessarily would closely parallel those of the carriers. ComSat has since undercut this particular ground by seeking the links from the carriers: from Hawaiian Telephone for the Honolulu-Paumalu link and from AT&T for the San Francisco-Brewster and New York-Andover links (SPACE Daily, July 14, p. 58) (the initial city in each of the three pairs is the site of the interface facility; the other city is the station site). This move by ComSat was partly in answer to the dissent the FCC decision evoked and was so acknowledged by the Corporation (SPACE Daily, July 7).

Non-Carriers Want To Be Direct Users. The matter of defining an "authorized user" of ComSat services came to the fore when it appeared that ComSat would provide service only to the common carriers, and maybe the Federal Government, thus forcing other possible customers to go to the carriers for that service rather than to ComSat. The Commission opened the question up for discussion early last summer (SPACE Daily, June 21), and the period for debate was subsequently extended twice (SPACE Daily, Oct. 14 and Nov. 24). The deadline for discussion was December 31, and the issue is now in a "pregnant state" of resolution. ComSat has largely sided with the carriers.

VENUS II/III ON COURSE. The Soviet Union says **VENUS II** and **III** spacecraft are on course with all systems functioning normally. Both probes are expected to pass the planet at "the prescribed distance" after **VENUS III**'s course was corrected on December 26 to bring it in closer on its flyby. The Soviets say the correction was made with a "liquid-powered engine." To date a total of 52 communications sessions have been held with the two space probes since their launchings on November 12 and 16.

FOURTH TITAN III-C SHOT SET FOR MID MARCH. The next flight of a **TITAN III-C**, expected to come next month (SPACE Daily, Dec. 13), is now envisioned for mid March. Since the next three shots are to carry **IDCSP** payloads (Initial Defense Communications Satellite Project) (SPACE Daily, Dec. 13), there was talk of holding off on the first of those three and squeezing in another trial **IDCSP** shot like the last. Now, however, such a shot is not considered necessary, and the **IDCSP** plans will be implemented as expected.

NASA ELEVATES TRACKING OFFICE/SOLIDIFIES SEAMANS' ROLE. NASA has elevated the Office of Tracking and Data Acquisition to the Associate Administrator level, on the same footing with the Offices of Manned Space Flight, Space Science and Applications and Advanced Research and Technology. Edmond C. Buckley, formerly director of T&DA, has been promoted to associate administrator for T&DA. At the same time NASA has consolidated the position of Dr. Robert C. Seamans, Jr. by announcing that he will continue permanently to fill his former position of associate administrator (or "general manager") in addition to his new position as deputy administrator.

The offices of administrator, deputy administrator, associate administrator, associate deputy administrator, deputy associate administrator and executive secretary have been combined into one high level directorate to be called the Office of the Administrator. Willis Shapley (Dr. Hugh Dryden's former assistant) will continue to hold the position of associate deputy administrator while Earl D. Hilburn (formerly Seamans' assistant) will continue in his position as deputy associate administrator, only both officials will now assist Seamans in his new dual capacity.

D-1A LAUNCH SLIPS TO FEBRUARY. France's second space shot, that of its **D-1A** satellite (SPACE Daily, Oct. 8 and Nov. 9), will be attempted early next month, not this month, because of technical problems. If the first shot, that of the **A-1A** payload on November 26 (SPACE Daily, Nov. 9 and Dec. 1 & 6), had failed, the upcoming launch would be of **A-1B** rather than **D-1A**. **A-1A** went so well, though, that the launch vehicle, the **DIAMANT**, was considered flight qualified and the **D-1A** was set as the next payload (SPACE Daily, Nov. 30). **D-1A** is a small, experimental satellite with four solar panels and four antennas. The launch will be from the Hammaguir range in Algeria.

MARSHALL AWARDS J-2 UPRATING STUDY

With negotiations at an end (SPACE Daily, Oct. 12), NASA-Marshall has awarded North American Aviation a \$148,000, nine-month study to determine the impact of the improved J-2 engine on the S-II **SATURN V** upper stage. Also, Douglas has been selected for a \$225,000, nine-month study of the impact of the new uprated J-2 on the S-IVB third stage. The J-2 uprating program would increase the power of the engine from 200,000 to 205,000 pounds thrust (SPACE Daily, Oct. 13). The S-II stage uses five of the J-2s, the S-IVB stage uses one of the restartable liquid oxygen/-liquid hydrogen engines. North American is prime contractor for the S-II stage, Douglas for the S-IVB.

The uprated engines, combined with possible modifications in the J-2 to give it greater flexibility and greater simplicity may allow a greater restart capability and more time between starts. The S-II is also being studied as a possible new first stage launch vehicle using the uprated J-2.

Frank Throssell, previously senior project engineer of the Cryogenic Test Group, has been appointed assistant manager of the Liquid Propellant Test Department at Wyle Labs.

BELGIUM DEVELOPS SURVEILLANCE DRONE

As an in-house effort, the MBLE (Manufacture Belge de Lampas et de materiel Electronique), Belgium, has developed a surveillance drone which it hopes to sell to several NATO countries.

The drone, called ESPERVIER, was developed from preliminary studies conducted by Northrop-Ventura. However, the system has been almost completely altered, i.e. all electronics are MBLE's. The structure of the drone is plastic, built by Avions Fairey, Gosselies, Belgium. A piston Mirth engine powers the system. A first prototype was lost after the first flight last year when its parachute failed to open and it crashed into the North Sea. A second prototype is ready for test.

MBLE has been negotiating with Belgian Defense Nationale to get, initially, moral support for the project. MBLE also hopes to get financial support to accelerate the development program.

GIANNINI CONTROLS EXPANDS

Construction has begun on the first module of a new 100,000-square-foot plant in West Caldwell, N.J., to increase the production capacity of the microelectronics assembly operations of the New Jersey Division of Giannini Controls. The present Giannini facility in Fairfield, N.J., will be retained as an engineering and development center.

MARSHALL SPENDS \$1.8 BILLION IN 1966

NASA-Marshall has a budget for fiscal year 1966 in excess of \$1.8 billion, an increase of about \$100 million over FY 1965. Some 90 per cent of these funds will be spent through industry contracts.

During calendar year 1965, Marshall employed 7522 people directly plus 4280 contractor employees working at Redstone Arsenal. The combined payrolls paid to both types of employees is estimated at about \$125.8 million. In addition an estimated 10,000 other contractor workers are employed by contractors in the Huntsville, Ala., area.

Francis J. Kelly Jr. has been named assistant general manager and Saul Padwo marketing manager of Fairchild Hiller's recently formed Electronics and Information Systems Division. Both Kelly and Padwo were with Republic Aviation Corp., which is now a division of Fairchild.

James E. McDougall has been appointed to the newly created position of regional manager for European sales for Lear Siegler's Instrument Division. McDougall was previously district manager of the division's sales office in Sunnyvale, Calif.

Robert W. Byrne has been elected a vice president of General Applied Science Laboratories, a Marquardt subsidiary. Byrne will direct all GASL research activities.

XVII IAF CONGRESS SCHEDULED

The XVIIth International Astronautical Congress, to be held in Madrid, October 10-15, will be chaired by representatives from Belgium, France, Poland, the United States and the Soviet Union.

The list of sessions and session chairmen: Propulsion, Professor A. Jaumotte, Belgium; Astrodynamics, Professor G. N. Duboshin (Commission for Exploration and Use of Outer Space) Moscow; and Professor B. Fraeijs de Veubeke, Belgium; Guidance, Control and Tracking, Dr. Richard H. Battin (MIT), USA; Physical Problems of Re-entry, Professor W. Fiszdon (Institute of Technology), Poland; Systems Design, Dr. William Bollay (Stanford University), USA; Applications Satellites, Professor K. Y. Kondratiev (Leningrad University), USSR; Bioastronautics and Life Support Systems, Professor O. G. Gazenko (Commission for Exploration and Use of Outer Space), USSR, and Dr. E. B. Konecci, USA.

Special sessions: Second Lunar International Laboratory (LIL) Symposium, Dr. Frank J. Malina, France; Third Symposium on Astronautics and Education, Professor M. Lunc, Poland; and Ninth Colloquium on Space Law, Professor E. Pepin, France.

The International Astronautical Federation, symposium sponsor, may be contacted at 250 Rue Saint-Jacques, Paris 5, France.

VELA ATTITUDE/MANEUVERING SYSTEM TESTED

The Air Force has successfully tested the gas-electric vernier velocity and attitude reorientation subsystem on **VELA V** and **VELA VI**, the two most recent nuclear detection satellites, in order to correctly position them in orbit and acquire the correct Sun orientation.

The two **VELA** satellites are in the same circular orbit and are supposed to be opposite each other in orbit. The half-pound thrust vernier velocity subsystem was used to speed up one satellite and to slow down the other satellite in order to place them in proper position. The vernier velocity subsystem uses a nitrogen gas propellant which is resistively heated to expand the gas. The attitude reorientation subsystem (ARS), using a cold gas system, was designed to orient the spin axis of each satellite in relation to the Sun in order to maximize solar power output.

VELA V and **VI**, produced by TRW Systems were launched on July 20. The firing of the gas-electric vernier velocity and attitude reorientation subsystem, accomplished on September 19 and December 14, was the first operational space test of such a system.

James J. Krstansky has been promoted from manager of the Electromagnetic Compatibility Section to assistant director of the Electronics Division at IIT Research Institute. In his new position Krstansky will direct the activities of the Electromagnetic Compatibility and the Communications and Radar sections.

George C. Bornscheuer has been appointed director of Burns and Roe's Washington, D. C. office. Bornscheuer, previously manager of nuclear engineering services, will be responsible for administration of all Washington operations.

UTC TO BUILD NEW 120-INCH STEEL ROCKET CASE

United Technology Center, under a \$263,330 contract from the Air Force Materials Laboratory, will investigate a new method of building large steel rocket cases, and a new metal combination.

The contract calls for fabrication of a 120-inch-diameter, 129-inch long rocket case from HP9-4 nickel alloy steel by means of a new internal roll extrusion process. Work, to be carried out by Republic Steel, Westinghouse and NTW Missile Engineering, is to be completed by December and will include a hydrostatic test of the rocket motor case.

Chief advantage of the high-strength HP9-4 steel is that it does not require final heat treatment. Less expensive tooling is expected to be the principal advantage of internal roll extrusion.

HUGHES AWARDED PHOENIX FOLLOW-ON

The Navy has awarded an increment of \$12 million to Hughes for continued work on the **PHOENIX** air-to-air missile. Funding is from FY '66 appropriations. Approximately \$16 million in FY '66 funding has not been released yet. Contract award is expected next month. The **PHOENIX (AIM-54)**, designed for use on the F-111B fighter, has been undergoing captive flight testing since August. First guided test of the missile is expected soon.

HUMPHREY TO ADDRESS PLANS FOR PROGRESS

Vice President Humphrey will address the Plans for Progress Fourth National Conference in Washington on January 25. More than 700 industry leaders are expected at the two-day conference, which will be held January 24-25 at the Washington Hilton. The conference theme is "Industry's Challenge to Create New Opportunities for Progress." More than 315 major companies are enrolled in the program.

POLARIS UMBILICAL CONNECTOR CONTRACTS AWARDED

ITT Cannon Electronics has received orders amounting to \$252,000 from Lockheed Missiles and Space for umbilical connector assemblies for the **POLARIS** program. Work will be carried out in Phoenix.

William Pinkney Jones has been appointed to the post of manager-intelligence and electronic warfare marketing for Radiation Inc. of Melbourne, Fla. Jones was previously with Microwave Electronics Corp.

Francis I. Sullivan has been appointed division manager-contractual relations for Sylvania Electronic Systems. Sullivan will be responsible for coordinating procurement, subcontracting, contract administration, and negotiation activities at the division's operations in New York City, Buffalo, N. Y., and Mountain View, Calif.

Future Space Business**LAUNCH VEHICLE UTILIZATION ANALYSIS**

The Air Force Space Systems Division is planning an investigation into economic analysis of launch vehicles utilization and development. This investigation is a part of the savings in space operations (SSO) Study effort.

Contact: Headquarters, Space Systems Division, Los Angeles Air Force Station, Air Force Unit Post Office, Los Angeles, Calif. 90045. Attn: Thomas Schaus, SSKB. Due date: Jan. 7.

AMC MISSILE PROGRAMS SUPPORT

The Army Missile Command is preparing to fund an engineering effort as required in "off arsenal" support of a variety of missile programs in the Army inertial guidance and control laboratory. Contact: Commanding General U. S. Army Missile Command Redstone Arsenal, Alabama. Attn: AMSMI-IZD T.R. Moellers, Redstone Arsenal, Alabama 35809. Reference: RFQ AMSMI-IZD-66-65.

SPACE VEHICLE HARDWARE PACKAGING STUDY

NASA-Marshall is funding a study on packaging and preservation of space vehicle hardware. Contact: Purchasing Office, George C. Marshall Space Flight Center, Huntsville, Alabama 35812. Reference: RFQ 1-6-30-32610. Due date: Jan. 24.

TELEMETRY DECOMMUTATION/DISPLAY SYSTEM

The Air Force Western Test Range is funding the design, fabrication, installation, and checkout, and the testing of the universal telemetry decommutation and display system. Contact: Air Force Western Test Range, Range Contracts Office, Vandenberg AFB, Calif. Attn: William A. Smith (WTKKC). Reference: RFP 04-697-66-15Q. Due date: Jan. 8.

MILLIMETRIC WAVE COMMUNICATIONS SYSTEM

The DCA is initiating for the design, fabrication, installation propagation, and communications capability testing of an R&D millimetric wave communications system between locations in the Washington, D. C. area. Contact: Defense Communications Agency, Code 260, Washington, D. C. 20305. Attn: Mr. D. T. Worthington, Area Code 202, Oxford 4-1431. Due date: Jan. 25.

NASA NEGOTIATIONS

Space Defense Corp.--with Washington. for a survey of space developed technology.

DOD CONTRACTS

Army

Western Electric Co., Inc.--\$92,814,791 to an existing contract for **NIKE X** research and development.

Raytheon Co.--\$1,653,097 for maintenance and modification of special tooling and test equipment to support the **HAWK** missile system; and \$4.7 million for FY '66 industrial engineering services for the **HAWK** missile system.

Navy

Vitro Laboratories--\$2,850,992 for a classified subsystem of the **POLARIS** missile.

Motorola, Inc.--\$4,406,018 for guidance and control systems for the **SIDEWINDER** missile.

Raytheon Corp.--\$4,250,830 for guidance and control systems for **SIDEWINDER** missiles.

Air Force

Bell Aerosystems Co.--\$7,700,000 for work on prototype rocket engines.

Western Electric Co.--\$1,500,000 to an existing contract for engineer services for the 49OL communications system.

Philco Corp.--\$1,000,000 to a previous contract for work on a satellite control network.

The Cubic Corp.--\$1,731,761 fixed-price provisioning order against an existing Air Force contract for modification of geodetic survey microwave equipment.

North American Aviation, Inc.--\$1,108,000 to a previous contract for maintenance and repair of **MINUTEMAN** guidance and control equipment.

The Aerojet-General Corp.--\$2,066,537 for maintenance and acceptance testing of **TITAN II** propulsion systems.

General Electric Co.--\$2,000,000 to a previous contract for flight testing of the Maneuvering Ballistic Re-entry Vehicle.

Emerson Electric Co.--\$2,535,000 to a previous contract to provide automatic test equipment for F-111 aircraft and **MINUTEMAN** missile systems.

General Dynamics Corp.--\$1,655,299 for design and fabrication of re-entry vehicle instrumentation and range safety systems.