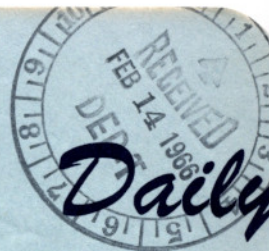


SPACE BUSINESS



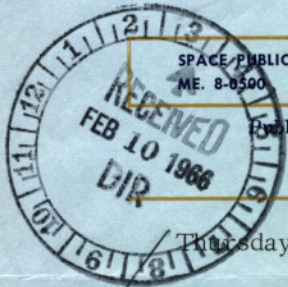
FIRST DAILY MANAGEMENT NEWS SERVICE FOR THE MISSILE / SPACE INDUSTRY

SPACE PUBLICATIONS, INC.
ME. 8-0590 ME. 8-1577

WASHINGTON, D. C.
Cable: SPACE

NORMAN L. BAKER — Publisher & Editor
TWX: 202 — 965-0765 (SPACE - WASHINGTON)

Published five times a week by Space Publications, Inc., at 1341 G St., N.W., Washington, D. C. 20005
Subscription rates: \$175.00 for one year, \$110.00 for six months, \$20.00 for one month.
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Thursday, February 10, 1966

Vol. 24, No. 28

MOL CDP EXTENDED. The **MOL** Contract Definition Phase, originally scheduled to be completed on March 28 (SPACE Daily Oct. 26), has been extended to May 1. This delay in finishing the Phase IB of the RFP will probably delay the award of the Phase II contract (hardware procurement) until July or August, and is attributed to the inability to decide on the type of work to be done.

The attitude of "realism" which **MOL** planners are being forced to adopt has made them recognize not only that **MOL** will have to be delayed an additional year (SPACE Daily, Jan. 19), but highlights the development problems of the larger scale "experiments" to be carried and the 30-day life support system.

MARK 1 PENAIID TO AUGMENT MINUTEMAN III. The negotiations between the AFSC Ballistic Systems Division and Avco/RAD for work on the Mark 1 penetration aid (SPACE Daily, Jan. 31) has resulted in a \$21 million letter contract that calls for the Mark 1 to be compatible with the **MINUTEMAN III** missile (SPACE Daily, Jan. 25). The 28-month development and test program will include flight tests at White Sands and Vandenberg. RAD program director is Henry Tereshkow.

156 TAGGED STARBOOSTER. The 156-inch solid propellant booster system, given a continued lease on life in the FY '67 budget (SPACE Daily, Jan. 31), has been tagged as the **STARBOOSTER**. Starring roles recommended by Lockheed Propulsion include 72 variations of the basic **SATURN V** which "could be assembled to handle any foreseeable space assignments." This capability includes thrust necessary to orbit any payload up to 350,000 pounds. As a "Multi-Purpose" vehicle, **STARBOOSTER** is believed to be ideal for space rescue missions. With the **TITAN III**, two three-segment 156 boosters as strap-ons could orbit a 20-ton payload (SPACE Daily, Feb. 4, '65).

FR-1B TO BE HELD. Plans for a first quarter launch of the **FR-1B** (SPACE Daily, Dec. 17), the second French satellite scheduled to be sent into space by NASA, have been changed, and, in fact, the satellite may never get into space. France's initial NASA-launched satellite, the **FR-1A** (SPACE Daily, Dec. 7 & 8), has been so successful that additional data to be gathered by the **FR-1B** back-up will probably not be needed. In any event, the decision to launch **FR-1B** or not will not come before June when France will have processed and evaluated **FR-1A** data.

ABC SATELLITE DECISION PUT OFF AGAIN. FCC labor pains to deliver the long expected ruling on ABC's request for communications satellite authority are likely to continue for the duration of this month. Set to be rendered yesterday (SPACE Daily, Feb. 7), the decision may come next week but will probably wait until the 23rd. The FCC explains that more time is necessary to allow "all the special interests to have their say." (ComSat repeated its position last week: SPACE Daily, Feb. 7.)

The decision was originally due around Christmas last year (SPACE Daily, Oct. 29), then the plan was to announce a deferment of the decision on December 1 (SPACE Daily, Nov. 24). The deferment, however, was deferred (SPACE Daily, Dec. 2) and then abandoned in favor of an unannounced stretchout for further deliberation (SPACE Daily, Dec. 20). ABC filed its application last fall (SPACE Daily, Sept. 22).

The underlying difficulty in bringing the decision to life is the seriousness of it. If ABC is granted the right it wants, a precedent will be set for an undoubtedly large and diverse number of organizations that would like to own and operate a communications satellite for special domestic use and that would probably be most encouraged to seek permission to do so if ABC gets the green light.

The Commission would not be having such trouble if the question were only whether ABC is qualified to own and control a space payload. The question, however, is whether any entity besides ComSat has the right to own a communications satellite, and ComSat has insisted from the beginning (SPACE Daily, May 27) that the answer is absolutely "No." If the Commission says "Yes," the scope of ComSat's jurisdiction will shrink substantially and the marketplace will embrace for the first time more than one vendor. Given satellite authority, companies like ABC would be more lost customers than competitors of ComSat, of course, but an affirmative decision could at least create the contingency of a competing company in the area of domestic communications services--a contingency that does not now exist.

When ABC disclosed its intention to petition the FCC and to give one satellite channel free for educational TV use (SPACE Daily, May 18), ComSat proposed its own national TV satellite to serve the commercial television networks (SPACE Daily, June 1). No takers responded, and the proposal was put on the shelf until recently when it reappeared as the Corporation's "Multipurpose" satellite (SPACE Daily, Jan. 3, p. 1), the RFPs for which are due this weekend.

AVCO CONTINUES DEFENDER DISCRIMINATION STUDY. Funds for a two-year extension of a Project DEFENDER re-entry physics study have been given to Avco-Everett Research Laboratory by the Army Missile Command. AERL's program is designed to develop methods for picking out ballistic missile warheads from their decoys and chaff by analysis of field observations of ballistic missile re-entries. The study is concerned with wakes and boundary layer and the chemistry and radiation from air and ablative impurities. The extension contract is for \$1.9 million.

J. R. Silverman and **H. H. Hawes** have been elected vice presidents of LTV Aerospace Corp. Silverman was previously controller of the LTV Vought Aeronautics Division and Hawes was director of materiel.

ELDO TO DISCUSS EUROPA 1 FUNDING MARCH 29. Ambassador Renzo Carrobio di Corrobio, Secretary General of the European Launcher Development Organization (ELDO), addressing the UK's House of Commons, said that ELDO will probably hold an intergovernmental meeting beginning March 29 in order to reach a funding agreement for its initial vehicle, **EUROPA 1** (SPACE Daily, Jan. 13).

The Secretary General told the House of Commons that political hesitation concerning the launch vehicle's future could result in general disenchantment among Europe's engineers and scientists and their subsequent departure for other countries.

The fate of **EUROPA 1** is expected to affect the development of more advanced configurations (SPACE Daily, Jan. 20 & 21). **EUROPA 1** is designated the **ELDO A** configuration, and under consideration are designs A2 (called AS), B1, B2, and C. The B2, which could orbit direct-broadcast communications satellites, could be operational by 1975, and the B1 could be operational by 1973. The March conference could also arrange support for the B1 and B2 configurations. The German Minister for Scientific Research has stated that West Germany is prepared to share in the funding of the **ELDO B** program.

AVCO CONTINUES LORV/RVIP ANALYSIS. Air Force Ballistic Systems Division is negotiating with Avco/RAD for continuation of data critique and analysis of flight data obtained from **LORV** (Low Observable Re-entry Vehicle)/**RVIP** (Re-entry Vehicle Instrumentation Program) flights. The programs are part of the AF **ABRES** (Advanced Ballistic Re-Entry Systems) re-entry/penetration aids development program, for which Avco/RAD is negotiating Phase IA (SPACE Daily, Dec. 20). In addition to vehicle planning and analysis, Phase IA calls for ground tests, design, development, fabrication, delivery and flight testing analysis for the program. Avco was awarded a \$550,000 **LORV** follow-on R&D contract last fall (SPACE Daily, Sept. 28).

NEW ABRES SUPPORT CONTRACTS ISSUED. Atlantic Research and General Dynamics/Convair have been awarded Ballistic Systems Division contracts, totaling \$3,413,500, for support of the **ABRES** (Advanced Ballistic Re-Entry Systems) program and other re-entry and anti-missile programs.

ARC received an initial increment of \$300,000 to a \$14 million contract for manufacture and launch of 36 additional **ATHENA** missiles in support of **ABRES**, while GD/C will provide modification services for 23 **ATLAS** missiles to be used for **ABRES** and other programs. The General Dynamics contract totals \$3,113,500. GD/C recently received \$1,622,299 from the BSD for 35 **ABRES** Instrumentation Range Safety Systems (**AIRSS**) (SPACE Daily, Jan. 10).

COMSAT URGES SEMINAR TO DISCUSS TV SATELLITE. ComSat has invited ABC, CBS, NBC, NET, Sports Network, and the common carriers to a seminar to discuss the distribution of commercial television signals by satellite to points in the fifty States and Puerto Rico. ComSat is procuring a Multipurpose Satellite for such distribution (see ABC story in this issue, page 247). No date has been set for the seminar.

EUROPEAN SPACE SYMPOSIUM MAY 23-25

Sixth European Symposium on Space Technology will be held at Brighton, England, May 23-25, under the sponsorship of the British Interplanetary Society.

Many of the papers that will be presented at the meeting will reflect the growing European interest for joint development of space projects with the United States, especially in regard to space transporters and recoverable boosters. Papers will be from the United Kingdom, France, West Germany and Italy as well as from the United States.

Enquiries to L. J. Carter, Executive Secretary, BIS, 12 Bessborough Gardens, London, SW. 1, England.

VELA KICK MOTOR PERFORMANCE VERIFIED

Hercules Powder has compiled statistics on the performance of its orbital injection motor for the **VELA** nuclear detection satellites, and the results show that the difference between calculated and actual thrust was always under one-half of one per cent. The highest deviation among the six **VELAs** was plus .45 per cent and the lowest was minus .04, while the mean deviation was plus .07.

The **VELA** motor is the Hercules BE-3, a 214-pound, solid-fueled unit 32.6 inches long and 18.25 inches wide (tank diameter). The **VELAs** were orbited in pairs--the first in October of 1963, the second in July of '64, and the third last July. TRW is prime **VELA** contractor.

AIA MATERIEL MANAGEMENT COMMITTEE OFFICERS NAMED

Walter R. Graalman, director of materiel for Martin, has been elected chairman of the Aerospace Industries Association's Materiel Management Committee, and H. H. Hawes Jr., corporate director of materiel, Ling-Temco-Vought, has been named vice chairman. The committee is responsible for initiating coordination between industry and government in the areas of subcontract management, purchasing, inventory and requirements control, warehousing, small business and labor surplus area subcontracting, price and cost analysis, and information on supplier patent and rights in data problems.

RCA BEGINS EXPANSION OF COMPUTER FACILITY

The Radio Corporation of America has begun construction of a \$3 million addition to its computer production plant in Palm Beach, Fla. The expansion will increase the facility's manufacturing and engineering floor space from 176,000 square feet to more than 300,000 square feet, and is expected to boost RCA's total computer production in 1966 to 75 per cent above last year's peak output.

John D. Couturie has been appointed executive assistant to Lawrence A. Hyland, vice president and general manager of Hughes Aircraft. Couturie was formerly assistant treasurer and assistant director of finance.

Hugh A. McCloskey, formerly with Kollsman Instrument, has been appointed assistant to the president of Maxson Electronics.

NASA-CAMBRIDGE MAN/COMPUTER INTERFACE RESEARCH

NASA-Cambridge has invited 12 companies to submit proposals for an investigation and determination of the proper man/computer roles in the execution of the navigation and guidance functions for future manned space flights. The problem of the optimum man/computer system configuration can be considered as a four-stage process: 1) the functions to be performed, 2) task allocation, 3) determination of information requirements, and 4) the method of presenting such information which will facilitate human judgments and decisions.

The following firms are on the Center's original source list: Autonetics, Franklin Institute Research Laboratories, General Dynamics/Convair, GE, General Precision-Aerospace Group, Honeywell-Systems & Research Division, Hughes-Aerospace Group, IBM Federal Systems, Kollsman Instrument, McDonnell, Planning Research, and TRW Systems Group. Bids are due for ERC/R&D 66-254 on March 3.

SPACE HYDROCARBON STUDY PROPOSED

Spectroscopic studies indicate that dust particles which give a reddening effect to stars are actually various compounds of hydrogen carbon and nitrogen instead of ice and graphite as believed in the past, Electro-Optical Systems says. If this is correct, it would mean hydrocarbons, the compounds of life, do not evolve solely on Earth, but are present elsewhere in our galaxy and perhaps in other galaxies.

EOS said it will conduct further spectroscopic experiments on the interstellar dust. An experiment in space is under consideration to validate the findings. EOS built the Project **LUSTER** payload which was launched in November to gather particles of space dust. The successful probe is being studied in various laboratories, with a preliminary report expected by mid-April.

TALLY DIRECTORS PROPOSE TWO-FOR-ONE SPLIT

The board of directors of Tally Corp. (Seattle, Wash.) has proposed a two-for-one split of the company's common stock, increasing the authorized common shares from 2,250,000 to 4,500,000. Stockholders of record March 1 will be entitled to vote on the proposal at the company's annual meeting to be held April 6.

FALLING SPHERE EXPERIMENT SUCCESSFUL

NASA-Wallops has successfully completed two "falling sphere" experiments designed to yield data on the density of the air at various altitudes. A **NIKE-CAJUN** rocket was fired into the atmosphere and at 55 miles altitude, two 26-inch aluminum coated mylar plastic spheres were ejected and inflated by capsules of isopentane gas. The spheres drifted upward as high as 100 miles then began to descend. Radar tracking of the slowly drifting spheres yielded the data on atmospheric density.

MINUTEMAN MODERNIZATION CONTRACT TO BOEING

An \$8 million Air Force contract for modernization of **MINUTEMAN** missiles at Whiteman AFB, Mo., has been awarded to Boeing.

COMSAT'S SAMPSON LOOKS AT GLOBAL SYSTEM

George Sampson, ComSat vice president for operations, confirms the SPACE Daily report (Jan. 31) that the Corporation's global system will be synchronous and says the system will offer unlimited potential to its international users. He also observes that present estimates of communications traffic in the first half of the next decade indicate that the system will more than handle it.

"There will be no limitation on the type of traffic that can be sent via the (global) satellite," says Sampson, and once the system "is deployed, the entrance fee for a world communications capability will be the price of a ground station." He points out that ComSat estimates that 1200 satellite voice channels will be needed in 1970 and 2900 in 1975. Thus, the three-satellite system, with a total of 3600 channels, will be fully able to meet the demand well into the next decade.

Sampson further notes that the costs to the user will be relatively economical. "The satellite itself," he says, "... costs a few million dollars. The booster (costs) ... something over three million dollars. . . . I think (these numbers) are indicative of some of the potential that satellite technology brings to the communications business. A few million dollars for some 1200 channels (global satellite capacity) has important rate connotations."

COMPUTER APPLICATIONS FILES FOR STOCK REGISTRATION

Computer Applications (New York, N. Y.) has filed a statement with the Securities and Exchange Commission seeking registration of 11,968 outstanding shares of common stock. The present holders of the stock have the option of periodically offering the shares for public sale on the American Stock Exchange at prices then prevailing (\$25 per share maximum).

ITEK EARNINGS UP 26 PER CENT

Itek's sales for 1965 reached \$60.4 million, up 40 per cent from FY 1964's \$43 million, while profits climbed 26 per cent from \$1,236,000 to \$1,563,000. Beginning in 1965, Itek began reporting results of its operations on a calendar-year basis. The company's fiscal year previously closed on September 30, making necessary a three-month change-over period of October through December 1964. Sales for the three-month period were \$12,978,815 and earnings totaled \$341,490.

BROWN ENGINEERING EARNINGS UP 22 PER CENT

Brown Engineering's sales for 1965 were \$45,302,418, up seven per cent from last year's \$42,381,754, while earnings rose 22 per cent for the period (from \$924,641 to \$1,134,484). President Milton K. Cummings attributes the company's record-breaking earnings figure to a three-fold increase in Brown's sales to other space firms. These sales made up 24 per cent of the company's total business volume in 1965, whereas they represented only eight per cent in 1964.

Samuel R. McConoughey has been named manager of a newly formed integrated military proposal group within the Military Marketing Directorate of Page Communications.

LTV AEROSPACE STOCKHOLDERS APPROVE STOCK ACTIONS

The stockholders of LTV Aerospace, a subsidiary of Ling-Temco-Vought, have approved the following actions, which were recommended by the company's board of directors last month (SPACE Daily, Jan. 24): 1) a 2-1/2-for-one stock split, 2) adoption of an eighty-cent annual cash dividend policy for each share of publicly-held common stock after the split, and 3) a reclassification of the common shares held by the parent company into a new non-dividend Class B common stock. Also approved was a change in the subsidiary's Qualified Stock Option Plan, increasing to a maximum of 185,620 the number of shares to be reserved for options following the stock split.

For its first full year of operation as a publicly-owned corporation, earnings of \$3,564,000 were recorded on sales of \$195,262,000, equivalent to \$2.96 per share on the 1,203,796 common shares outstanding at the end of 1965.

GCA ESTABLISHES AEROPHYSICS DEPARTMENT

GCA Technology Division has established an Aerophysics Department to conduct studies in missile re-entry physics and radiation measurement in the upper atmosphere and space including solar x-ray and particle emissions. Carl A. Accardo, previously manager of the Division's Re-entry Vehicle Program, has been named to head the new department.

ECOLOGICAL TECHNOLOGY SYMPOSIUM: FEB. 14-15

The National Cybernetics Foundation will hold a two-day symposium on "Ecological Technology--Space, Earth, Sea" at the Museum of History and Technology in Washington, D.C., on the 14th and 15th of next week. The meeting will consider the possible use of space and scientific technology to help solve social problems. The scheduled speakers are A. G. Anderson of General Dynamics, A. A. Bacher of the Interior Department, Dr. Leonard Bongers of Martin, Dr. Alan Cassell of Clarkson College of Technology, Vernon Collins of NASA-Langley, Dr. B. D. Culver of Aerojet-General, Dr. Michael DeDuca of NASA, Dr. Robert Gafford of Beckman Instrument, Ted Hayes of NASA-Houston, Dr. Eugene Konecci of the National Space Council, Dr. Henry van Loon of Manchester Center, Vernon MacKenzie of the HEW Department, Dr. Americo Petrocelli of General Dynamics, Dr. Norman Roth of RCA-Whirlpool, Dr. Karl Schaefer of the U. S. Submarine Medical Center, and Dr. Lee Weinberger of HEW.

Ray R. Eppert, Burroughs president, has been named chairman of the board and chief executive officer. Succeeding Eppert as president is Ray W. Macdonald who has been executive vice president since March 1964.

Dr. Bruno Wahl has been appointed as Douglas' corporate scientific and technical representative in Bonn, West Germany. Wahl was formerly deputy chief of the plasma-dynamics branch of the Missile & Space Systems Division's fluid physics department.

James D. Bowen has been named manager of Raytheon's Sorensen Operation. Bowen, formerly marketing manager, will be responsible for all activities of the Operation.

Future Space Business**ADAPTIVE COMPUTER TECHNIQUES/COMPONENTS STUDY**

NASA-Marshall is planning to fund an investigation of adaptive computer techniques and components. It is estimated that the period of performance will be six months for Phase A and six months for Phase B.

Contact: Purchasing Office, Marshall Space Flight Center, NASA, Huntsville, Ala. 35812. Reference: RFQ 1-6-70-00124. Due date: Mar. 7.

DOD NEGOTIATIONS

Veda, Inc., Ann Arbor, Mich.--with Naval Air Development Center for a study of the **PHOENIX** missile system flight test program.

Martin-Marietta Corp.--with the Air Force Systems Engineering Group for research on ultraviolet reconnaissance techniques.

Bendix Corp., York Div.--with Harry Diamond Labs. for a procurement under the **CHAPARRAL** program.

NASA NEGOTIATIONS

Douglas Aircraft Co., Astropower Laboratory--with Cambridge for a continuation of a study of space cabin atmosphere contaminant measurement techniques.

Systems Sciences Corp.--with Washington for research and analytical studies of communication navigating systems.

American Science and Engineering Inc.--with Washington for an analysis of celestial x-ray data.

DOD CONTRACTS**Army**

International Telephone & Telegraph Corp.--\$56,293 for additional research study on satellite communications involving multiple access techniques.

Stanford Research Institute--\$22,328 for additional effort in support of Project **DAZZLE** re-entry physics program.

NASA CONTRACTS**Marshall**

Hayes International Corp.--\$80,412 for experimental hypervelocity impact research study.