

SPACE BUSINESS



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NORMAN L. BAKER — Publisher & Editor
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KARTH PROPOSES OAO/OGO/BIOS CUT. Rep. Joseph E. Karth (D-Minn.), chairman of the House Space Sciences and Applications Subcommittee, has suggested the possibility that some flights of the **OAO**, **OGO**, and **BIOS** satellite programs be cut and the experiments included on future **AA** (**APOLLO** Applications) flights in the same manner as **AOSO**'s experiments. This confirms the earlier report by **SPACE Daily** (Dec. 20) which explained that space legislators had reasoned that the **AOSO** cancellation cast reasonable doubts on the continuing priority for the other observatory programs. NASA's current plans call for the experiments of the cancelled **AOSO** program to be carried by the **APOLLO** Telescope Orientation Mount (**ATOM**) on the Manned Solar Observatory Missions of the **AA** (**SPACE Daily**, Jan. 24 & 25).

Edgar M. Cortright, NASA deputy associate administrator (Office of Space Sciences and Applications), told the subcommittee that \$172 million will have been spent on the **OAO** program by the end of FY 1966 and that the total program of five flights, less launch vehicle costs, will run at least \$254 million. Karth questioned whether some of the claimed advantages of manned flights, which have been presented to justify including the **AOSO** experiments in the **AA** flights, could also be made for the **OAO** program.

Cortright indicated that the **OSO** program may be improved and extended in order to cover the gap in the solar physics program caused by the cancellation of **AOSO**. Probable improvements to **OSO** would include a polar launch capability from the Western Test Range in order to achieve a Sun-synchronous orbit and improvements in the attitude stabilization system in order to improve **OSO**'s pointing capability.

MOL For OAO/OSO Experiments Draws Interest. The subcommittee also indicated interest in the possibility of including physics and astronomy experiments on the Air Force **MOL** flights. Cortright answered that there are problems involved in trying to mix unclassified scientific experiments with DOD activities. He told **SPACE Daily** that DOD/NASA cooperation on the planned **MOL** program is satisfactory and that according to the information he has received the first **MOL** flights are filled and therefore no opportunities exist for flying **OSSA** experiments on these early flights. Cortright went on to say that he feels the problems of secrecy are not insurmountable if the inclusion of some NASA experiments on **MOL** missions should be contemplated.

Interest was also shown in NASA's meteorological satellite program and ESSA's **TOSS** (**TIROS** Operational Satellite System). Rep. Weston E. Vivian (D-Mich.) made a "statement of support" for the program indicating the tremendous funds which could be saved from a number of sources if a reliable system of weather prediction could be developed.

KARTH TO PROBE NASA PROGRAM REQUIREMENTS. The first round in Rep. Joseph E. Karth's evaluation of NASA space sciences budget for FY '67 (see above) highlighted the determination and intent of Karth to broaden his subcommittee's annual probe into the planning responsibilities of that segment of NASA, as well as the usual consideration of the basic budget requests.

Karth has issued a warning that his group will no longer consider it adequate just to sit as audience to a presentation of spending plans but hereafter will demand that NASA justify its priorities on the basis of acceptable requirements. He believes that Congress should take on a more active role in the establishment of project priorities.

AOSO, more than any other program, has provided the catalyst for this more aggressive posture. **AOSO** was a program which NASA sought with high priority and determination in last year's budget but when the first budget guidelines were handed down by the Administration it was one of the first programs to go (SPACE Daily, June 21 & Dec. 16).

CONGRESSMAN URGES AF DIRECTION FOR EARTH-ORBIT PROGRAMS. Rep. John W. Wydler (R-N.Y.), a member of the House Space Committee, has called on the National Space Council to take steps to give the Air Force direction of all United States manned Earth-orbit programs.

In a letter to Dr. Edward C. Welsh, Executive Secretary of the Space Council, Wydler said America could not afford a duplication of effort such as NASA's **APOLLO** Applications (**AA**) and the Air Force's Manned Orbiting Laboratory (**MOL**) programs. "Action must be taken now or by 1970 the DOD will be conducting **MOL** experiments and the NASA will be conducting **AA** experiments in Earth-orbit which are essentially the same. I am aware the on-board experiments may differ but I cannot justify different launching rockets, different launching facilities, different tracking facilities, and different personnel. The cost is too great." For "the security of our nation, the manned Earth-orbiting program must be placed under military direction and control," Wydler said.

Opposes California MOL Base. The New York Congressman also questioned Air Force plans to launch **MOL** from California's Western Test Range. (See SPACE Daily, June 17, '64 and Feb. 14, 17 & 21, '66.) He asked the Space Council to find out why the Air Force doesn't use existing launch facilities at Cape Kennedy instead of building "a duplicating set" at Vandenberg AFB, California. He said the AF contention that the polar orbits it plans would take its rockets over Miami if **MOL** were launched from Kennedy is not meaningful. He pointed out that NASA plans to fly similar missions with larger rockets.

A second possibility proposed by Wydler: "Rather than build entirely new facilities in California, an auxiliary launching site could be chosen on the East Coast. The eastern end of Long Island near Montauk Point would be ideal." He pointed out that the New York site would also allow the use of "existing tracking, control and communications systems at Houston and not require a new, duplicating set in California, as proposed by the Air Force."

Backs APOLLO Over GEMINI For Earth-Orbit Missions. In a third area, the Congressman said the Air Force should not use a **GEMINI** vehicle for its **MOL** but switch to the more advanced and versatile **APOLLO** capsule. He said by 1970 the **GEMINI**

will be obsolete. But he pointed out that the Grumman-built and **APOLLO** Lunar Excursion Module (**LEM**) "could be modified to make a superior manned-Earth-orbiting vehicle . . . Some might be available but more could be ordered as needed."

Representative Wydler urged the Space Council to study the problem and "make immediate recommendations to the President." He added: "We must stop competing with ourselves and planning duplicate programs. I want us to be first in space, but I don't think we can afford to be both first and second."

MOL EXPERIMENT PACT TO SPACE-GENERAL. AF Research and Technology Division, Wright Patterson AFB, has awarded a \$184,000 contract to Space-General for **MOL** (Manned Orbiting Laboratory) Experiment S-6.

BRITAIN CONSIDERS LANCE PURCHASE. The British Government is giving indications that it may be interested in ordering a "**LANCE**-type" missile from the United States. **LANCE**, built by Ling-Temco-Vought is a highly mobile division support system. It has a nuclear capability and a range of 3-30 miles. The missile is slated to replace **HONEST JOHN** and **LACROSSE**, and is being studied for use from shipboard (SPACE Daily, Oct. 11 & Jan. 25).

AIR-AUGMENTED ROCKET THRUST STUDY. Air Force Flight Test Center will award a follow-on contract to Martin-Denver for an analytical and experimental investigation of air-augmented rockets to determine thrust, minus drag. Work is part of Martin's AF-sponsored **RENE** (Rocket Engine Nozzle Ejector) program, under which the company is building several full-scale missile models for research on air-augmented rockets (SPACE Daily, Oct. 4). AF is also seeking propellants for the air-augmented program (SPACE Daily, Feb. 4).

OGO-VI EXPERIMENTS SELECTED. Twenty-five scientific experiments have been selected for inclusion on **OGO-F**, which if launched successfully in 1968, will become **OGO VI** (Orbiting Geophysical Observatory), by NASA. The 215 pounds of instrumentation will make correlative experiments of a number of near-Earth space phenomena at a time of increased solar activity. The information will include data on characteristics of the Earth's outer atmosphere; ultraviolet emissions from the atmosphere and space; characteristics of the auroral zones; the Earth's magnetic field; whistlers and very low frequency radio noise; and solar and galactic cosmic rays.

EMERSON AWARDED PACEMAKER/APOLLO CONTRACT. NASA-Langley is negotiating with Emerson Electric for fabrication of four panels of thermo-lag ablaters to be tested on the **PACEMAKER 1** suborbital flight expected late this year. Purpose of the **PACEMAKER 1** is to in-flight test ablation materials for **APOLLO**.

SATURN IB COUNTDOWN UNDERWAY. The 52-1/2 hour countdown for the first flight test of the **SATURN IB** rocket got underway at Cape Kennedy early Monday. The **IB**, with an **APOLLO** capsule aboard, is scheduled for launch at 7:45 a.m. today.

AIRLINES MEETING TOMORROW TO DISCUSS AIR TRAFFIC SATELLITE. About five airlines are meeting tomorrow and Friday to begin formulating their policy on the service to be sought from ComSat's Air Traffic satellite (SPACE Daily, Jan. 12). With the FAA backing the airline industry in its search for an early air-to-ground communications capability, the airlines are now feeling the need to establish definitive requirements as to the nature of that capability.

FIRST SURVEYOR DELIVERED/LAUNCH DATE SET. The first flight model of **SURVEYOR** has been delivered to General Dynamics (SPACE Daily, Feb. 9). The spacecraft will be mated with the **CENTAUR** upper stage next week.

TWO DIVISIONS FORMED FROM AVCO/RAD

The increasing scope of Avco's research and development work has made it necessary to form two new divisions out of the previous Research and Advanced Development Division under the overall management of the newly organized Missiles, Space and Electronics Group to be headed by group vice president E. D. Kenna. They are the Missile Systems Division and Space Systems Division. Also included is the Cincinnati, Ohio, Electronics Division.

James R. Dempsey, formerly president of General Dynamics/Convair, has joined Avco as vice president of the group and deputy to Kenna. Dr. J. A. Kyger, formerly vice president and deputy general manager of Avco/RAD, will assume the position of vice president and chief scientist of the group. Other group staff executives reporting to Kenna are Joseph S. Bartos, vice president for corporate systems management, and Dr. M. B. T. George, vice president-plans and programs.

The chief operating executives of the division are: Dr. R. W. Detra, formerly vice president and assistant general manager for missile systems, appointed vice president and general manager of the Missile Systems Division; Dr. Charles J. Burton, formerly a vice president of the Defense and Industrial Products Group, appointed vice president and general manager of the Space Systems Division. With the Space Division will be the group's Research and Technology Laboratories, which will remain under the direction of vice president Dr. Murray E. Malin. O. E. Bassett will continue as vice president and general manager of the Electronics Division.

MARK 12 PENAID CONTRACT AWARDED

The Air Force Ballistics Systems Division has concluded negotiations (SPACE Daily, Feb. 14) and awarded a \$7.1 million initial increment to a \$40 million contract to GE for the design, development and evaluation of a Mark 12 penetration aid system.

COSMOS 109 Orbited. The 109th **COSMOS** was sent into orbit early Saturday, Feb. 19, from Baykonur. This, the third **COSMOS** experiment of the month, was injected into an orbit of 129/191 miles and a period of 89.5 minutes.

NIKE X Target Launched from WTR to Kwajalein. The 6595th Aerospace Test Wing launched an **ATLAS ICBM** from Vandenberg AFB early Saturday, Feb. 19, in support of the **NIKE X** anti-missile missile development program.

MOCK LURAIN MISSION UNDERWAY FOR NASA

Two NASA-Marshall engineers will begin today a two-to-three-week stay in a simulated lunar shelter vehicle at the Honeywell plant in Minneapolis to help study "manned system criteria for extraterrestrial vehicles." Three basic questions are guiding the experiment: What are the functional relationships between each subject's physiological responses to his tasks and the time he takes to perform those tasks? How can each subject improve his task proficiency? And how should lunar shelters be designed to allow best crew performance?

The simulated shelter is a 10-foot-long cylinder with a 7-foot diameter that gives an interior ceiling of just over five feet. Inside are the ingress-egress compartment (air lock), the cockpit, and the work-sleep area. The men will wear underwear or space suits according to the task to be done. Medical measurements will be telemetered to monitors rather than carried via wires. Body weight, food and water consumption, and waste product volume will be measured continuously. The dehydrated food used will be moisturized with a special gun. Some tasks will be performed outside the shelter.

The men are Michael Vaccaro, 38, deputy chief of the design integration and criteria branch of the vehicle systems division of Marshall's Propulsion and Vehicle Engineering Laboratory, and Haydon Grubbs Jr., 34, chief of the branch's bioastronautics section. They will not be told when the test will end to avoid being motivated to make an "end spurt" toward completion of their tasks. Although the test environment will not be a vacuum, their space suits will be fully pressurized for certain tasks. They will have up to one and a half hours of free time each day.

ARC REORGANIZES LAB ADMINISTRATIVE ACTIVITIES

Atlantic Research has made four new appointments in its reorganization of its Principal Laboratories' administrative activities. Wilbur H. Smith, formerly head of the Administrative Operations Department, has been appointed to the new position of real estate manager. Appointed as new assistant general manager-services was Ezra T. Rockwell, formerly manager of industrial administration. Hunt Martin has been appointed manager of the newly established Facilities Department, and James O. Harmon has been named to the new post of manager-Services Department. Martin was formerly director of engineering for Parkwood Inc. of Washington, D. C., and Harmon was with the Budd Co. (McLean, Va.).

BOEING TO CONTINUE APOLLO ANALYTICAL MODEL WORK

NASA-Houston is negotiating with Boeing for continuation of its program to derive analytical model representations of the **APOLLO** spacecraft and its launch vehicles.

A. L. (Art) Hubbard, the founder of Lockheed Missiles & Space's Santa Cruz Test Base facility, has been promoted to assistant general manager-ANTELOPE-A3 Program.

Charles Elkind has been appointed as communications manager and Stanley Evans as manager of legislative relations for the Western Electronic Manufacturers Association (WEMA).

BRITAIN TO CUT DEFENSE BUDGET WITH F-111

British defense spending plans, to be announced today in a white paper, are expected to show that procurement of F-111 fighter-bombers from General Dynamics will help realize Prime Minister Wilson's goal of leveling off defense expenditures at \$5.6 billion by 1969. By shifting his country's dependence from naval forces to nuclear-armed air forces, Wilson hopes to prepare the English defensive capability for the 1970s. At least fifty F-111s will probably be purchased. The \$5.6 billion figure is the amount put out during 1964 for defense.

FOURTH CORALIE TEST SUCCESSFUL

The fourth ground test of the **CORALIE** second stage, set for late January (SPACE Daily, Jan. 21) but postponed to February 3 (SPACE Daily, Feb. 2), was finally conducted last Wednesday at the LRBA (Laboratoire de Recherches Balistiques et Aerodynamiques) plant in Vernon. The 96-second firing was successful. **CORALIE** will be used on the **EUROPA 1**, the initial launch vehicle of the European Launcher Development Organization (ELDO), which is meeting March 29 to discuss the vehicle's funding and development problems (SPACE Daily, Feb. 18).

CSC COMPLETES GEONAUTICS ACQUISITION

Computer Sciences Corp. has completed the acquisition of Geonautics Inc. (Washington, D. C.) through the transaction of 9017 shares of CSC capital stock. The offer, which expired February 10, was contingent upon acceptance by holders of 90 per cent of Geonautics shares outstanding (SPACE Daily, Jan. 26). Geonautics will be operated as a part of System Sciences Corp., a wholly owned subsidiary of CSC located in Falls Church, Va.

CURTISS-WRIGHT SALES/EARNINGS DOWN

Curtiss-Wright had earnings of \$8,774,632, including a special tax credit of \$782,552, on sales of \$148,328,561 for 1965. Both figures were down slightly from those for 1964, when the company recorded earnings of \$8,913,988 on sales of \$157,334,756.

GE AWARDED NIKE-X MAR CONTRACT

Bell Telephone Laboratories has awarded a \$23.4 million contract to General Electric for the design, development, fabrication and installation of radar beam forming and steering (BFS) equipment which forms a part of the receiver for the **NIKE-X** system's multi-function array radar (MAR).

Daniel R. Bannister, vice president of Dynalectron Corp. and manager of its Aerospace Operations Division, has been appointed vice president-operations in charge of the company's six operating divisions.

Future Space Business

WALLEYE SURVEILLANCE TEST STATIONS

The Navy Purchasing Office is requesting bids for the necessary labor and material to design, fabricate, assemble and install from two to three surveillance test stations for testing and failure diagnosis of the guidance and control sections--Mk 27, Mod O and Mk 4, Mod O--subassemblies of the **WALLEYE** weapon, Mk 1, Mod O.

The integrated test station will provide the proper electrical, optical, and mechanical inputs to the guidance and control sections to permit quality evaluation of those sections either individually or together as a complete weapon.

Contact: Officer in Charge, U. S. Navy Purchasing Office, 929 S. Broadway, Metropolitan Station, P.O. Box 5090, Los Angeles, Calif. 90055, Attn: Code OS16. Reference: RFP 56039A. Due date: Mar. 3.

SOLAR PROBE FLUID CONTROL SYSTEM REQUIREMENTS

NASA-Cambridge has invited the following companies to submit proposals for a program to establish design criteria for a fluid control system for a solar probe: Aviation Electric Ltd. (Montreal, Canada); Bendix Research Laboratories; Bowles Engineering (Silver Spring, Md.); Douglas Missile & Space Systems; GE; General Precision-Aerospace; Giannini Controls, Astromechanics Research Division; Honeywell; Lockheed Missiles & Space; Martin-Natick; Vickers-Aerospace; and Sperry Utah. Bids are due for RFP R&D 66-264 on March 14.

NASA has two solar probes under consideration, the **SUNSHINE** and the **SUNBLAZER** (SPACE Daily, July 27, '64 & Jan. 27).

BUWEPS MISSILE RESEARCH REQUEST

BuWeps is issuing RFQs to six companies--GE, Sperry Gyroscope, Westinghouse, Autonetics, Hughes and Northrop Norair--for research in air-to-surface ordnance, air-to-surface missiles, air-to-air missiles, and avionics systems.

Contact: Bureau of Naval Weapons, Washington, D.C., Attn: C/N 0845-66. Reference: BuWeps Synopsis No. 421-66. Due date: Mar. 3.

LASER COMMUNICATIONS ACQUISITION/TRACKING SYSTEM

The Army is planning to fund a feasibility study for the design and development of an exploratory development model of an acquisition and tracking system for laser communications. The object of this study is the design and construction of a full duplex digital laser communication system incorporating acquisition and tracking facilities so that remotely located laser terminals can maintain communication with one another.

Contact: Procurement Division, Procurement & Production Directorate, Fort Monmouth, N. J., Attn: John J. Drum, AMSEL-PP CM-CA7. Reference: Solicitation No. AMC(E) 28-043-66-00856(N). Due date: Apr. 17.

UNDERGROUND NUCLEAR TEST DETECTION

The AFSC is planning to contract for analytical and technical services in support

MORE

UNDERGROUND NUCLEAR TEST DETECTION -Contd

of a field test of on-site inspection for the detection of underground nuclear tests. These tests are to be conducted by Project Cloud Gap (a joint U.S. Arms Control and Disarmament Agency and DOD project) and are a part of a research program which is investigating means of verifying compliance with proposed Arms Control and Disarmament measures.

Contact: Headquarters, Air Force Systems Command, Special Contracts Office, Andrews Air Force Base, Washington, D. C. 20331. Due date: Mar. 8.

NASA NEGOTIATIONS

Superior Engineering Co.--with Goddard for increased requirements of the rocket grenade payloads under an existing contract.

Watkins-Johnson Co.--with Electronics Research Center for study of active millimeter and submillimeter circuit techniques.

R. G. Le Tourneau--with Langley for **SCOUT** transporter fourth stage cradle modification kits.

Radio Corp. of America--with Marshall for logistics support for **SATURN** ground computer systems.

NASA CONTRACTS

Lewis

Navy BuWeps Ordnance Lab.--\$30,000 for determining radiative properties of hydrogen gas.

United Aircraft Corp.--\$82,359 for **CENTAUR** Phase 2 guidance system study.

General Dynamics/Convair--\$1 million for **ATLAS** launch services.

Lockheed Aircraft Corp., Missiles and Space Div.--\$147,406 for **OAO-B** and **OAO-2** program definition.

Lockheed Aircraft Corp., Missiles and Space Div.--\$304,079 for **ATS** program definition.

USAF Systems Command, Space Systems Div.--\$500,000 for **ATLAS** SLV-3C boosters.

Texaco Experiment--\$148,618 for improved ablative materials.

Marshall

TRW--\$55,300 for accelerator modification equipment.

General Electric/Missile & Space Systems--\$39,500 for study of optimum soft landing equipment.