SPACE *Log*

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February 2 -- **PILOT**, Phase III of the Air Force's **START** (Spacecraft Technology and Advanced Re-entry Tests) program--the phase that involves the manned configuration of the SV-5 space shuttle--has begun. The AFSC Aeronautical Systems Division is about to negotiate with Martin and Northrop for the **PILOT** work.

√ The NASA has requested about $500,000 in the FY 1967 budget to fund the development of Ball Brothers' **ATOM** (**APOLLO** Telescope Orientation Mount) for the **AA** (**APOLLO** Applications) program. One of the "few" long lead time items for the **AA** follow-up program which is being pushed into development this year, **ATOM** is being backed not only for its own potential, but as a partial replacement for the cancelled **AOSO** (Advanced Orbiting Observatory) program, even though the Space Science Board of the National Academy of Sciences has stated flatly that "**ATOM** (is) desirable to supplement **AOSO**, but cannot replace it."

√ Defense Secretary McNamara and British Defense Minister Denis Healey have signed a "Memorandum of Understanding" whereby the United Kingdom will furnish and operate ground stations for support of the DOD's Initial Defense Communications Satellite Project (**IDCSP**).

√ Hughes has successfully conducted the second **SURVEYOR** drop test of the vernier engines and the Radar Altimeter and Doppler Velocity Sensor (**RADVS**) system at Hollomon AFB, New Mexico.

February 3 -- The Soviet Union moves an outstanding stride forward when **LUNA IX**, its sixth attempt to soft land a spacecraft on the lurain, successfully completes its mission.

√ The National Space Club is planning to initiate an annual Goddard Lecture March 15 to honor its namesake and the outstanding space leader chosen to give it.

February 4 -- Television photos, transcribed from **LUNA IX**'s transmissions from the lurain by Jodrell Bank scientists, show a rocky desert interspersed with small pebble features.

√ The size and direction of the **SURVEYOR** lunar soft-lander program may have been placed in doubt by the success of the Soviet's **LUNA IX** spacecraft.

√ NASA-Marshall picks Bendix Systems Division for a three-phase, 10-month study to evaluate several types of vehicles which could be evolved from the **APOLLO** spacecraft for use in transporting astronauts on the lurain.

√ NASA's Office of Space Science and Applications has been reorganized in order to facilitate the use of manned space flight capabilities for the scientific exploration of space.

√ The DOD and NASA have updated their **GEMINI** agreement of January 21, 1963, with a new "Memorandum of Understanding" between the DOD and the NASA concerning the manned space flight programs

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of the two agencies. The new agreement establishes a joint Manned Space Flight Policy Committee with NASA Deputy Administrator Dr. Robert C. Seamans Jr. and DOD Director of Defense Research and Engineering Dr. John S. Foster Jr. as co-chairman.

✓ NASA Administrator James E. Webb says NASA's "stringent" FY '67 budget request endangers a manned lunar landing by the 1970 target date. Webb confirms that the BOB-approved budget contains no funds for any unforeseen emergencies in the NASA program and indicates that this is a great danger to the **APOLLO** program.

February 7 -- North American Aviation, which has for several months been studying the engineering design definition of an **APOLLO** Mapping/Survey (AMS) system which was originally scheduled for implementation as a part of the early **AA** (**APOLLO** Applications) missions with first flight sometime after mid-1969, will now be asked to negotiate with NASA-Houston a contract for integrating this mapping and survey system into the **APOLLO** program.

✓ **LUNA IX** illustrates that the Soviet Union has once again used the simplest and most direct approach for the development of otherwise complex spacecraft systems. The **LUNA IX** system, under development for more than four years and believed demonstrated first with **LUNA IV** early in April 1963, is like its manned spacecraft companions, **VOSTOK/VOSKHOD**, an optimum integration of the sciences of geometry and physics--SPACE Daily report.

February 8 -- The first flight of a lunar soft-lander **SURVEYOR** faces its fifth slippage in five months. Now, a program official confirms, the flight may move from late May to "early June."

✓ The official explanation to NASA's current plans for a possible manned circumlunar flight of **APOLLO** prior to a manned lunar landing, a plan which the Soviet Union is furthering, is that: "The first manned lunar flight which finds itself in the vicinity of the Moon will decide whether or not to land or simply circumnavigate the Moon, "i.e., the "official" announcement of the plan will be made after the decision to do so.

February 9 -- The **MOL** Contract Definition Phase, originally scheduled to be completed on March 28, 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 156-inch solid propellant booster system, given a continued lease on life in the FY '67 budget, 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."

February 10 -- The fifth **SCOUT** re-entry test is successfully conducted from Wallops Island, Virginia, to arc a 210-pound payload 1100 miles downrange at a re-entry speed of 18,000 mph.

February 11 -- Eight firms--Lockheed Missiles & Space, Hydro Space Systems, Booz-Allen Applied Research, RCA-Princeton, Hughes-Space Systems, **GE**, TRW Systems, and Systems Sciences Corp.--respond to NASA-Washington's **RFP** for a six-month feasibility and preliminary design study of a system of data relay satellites to be positioned in synchronous orbits and supported by a network of ground stations.

✓ The Subcommittee on Special Investigations of the House Armed Services Committee issues a report critical of the DOD decision to consolidate Eastern Test Range management services under the AFSC's Missile Test Center at Patrick Air Force Base.

✓ The plan to conduct **MOL** manned launches out of the Western Test Range (WTR) instead of the **TITAN III-C** Integrated Transfer and Launch (ITL) facilities at Cape Kennedy has sparked growing opposition to the plan among Florida Congressmen and Senators.

✓ The third in the recent series of "bootstrap" start tests of the **NERVA** (Nuclear Engine for Rocket Vehicle Applications) engine is successfully held.

February 12 -- The NASA team expected to go to Europe late last month to prepare for the Presidentially announced trip of James Webb departs for a ten-day tour of four European capitals. Dr. George Mueller, associate administrator for manned space flight; Dr. Homer Newell, associate administrator for space science and applications; Arnold Frutkin, assistant administrator for international affairs; and Dr. John Townsend, deputy director of NASA-Goddard, will rendezvous in Bonn, West Germany, Monday morning for several days of talks there before traveling on to London, Paris, and Rome.

February 14 -- D. Brainerd Holmes, former director of the U.S. manned space flight program, says that manned exploration of the Moon should be established as America's next national space goal after the manned lunar landing.

✓ Representative George P. Miller (D-Calif.), Chairman of the House Space Committee, declares that he is "satisfied" that there is no major duplication of effort in the Air Force **MOL** program and NASA's **AA** space program.

✓ The $97,760 **ORAO** (Orbiting Radio Astronomy Observatory) contract awarded by NASA to Thompson Ramo Wooldridge last week calls for a six-month design study of a spacecraft capable of carrying an extendible, one-mile-wide, web-like antenna.

February 15 -- The Goddard Lecture Committee of the National Space Club selects Dr. Robert C. Seamans Jr., deputy administrator of NASA, to present the first Goddard Lecture scheduled for March 15 at the Sheraton-Park hotel in Washington.

✓ A new $1.019 billion cost-plus-incentive-fee contract for development of the Lunar Excursion Module (**LEM**) through 1969 is awarded to Grumman by NASA.

✓ The Army Electronics Command contracts with Hughes for four more Mark IB (AN/MSC-46) ground stations for support of the **IDCSP** (Initial Defense Communications Satellite Project).

February 16 -- The president of Marquardt Corp., prime contractor to the Air Force for development of the **SCRAMJET** (Supersonic Combustion Ramjet), discloses that "composite engines which incorporate rocket power in the **SCRAMJET** module" are under development. The engines will be used for accelerating **SCRAMJET**-powered vehicles to ignition velocity.

√ Major General Benjamin Funk, commander of the AFSC Space Systems Division, says his Division is considering converting the **TITAN III-C**'s second stage motor into a restartable system.

February 17 -- NASA-Washington's Office of Space Science and Applications is investigating the feasibility of a synchronous satellite that would broadcast television programs directly to home receivers. Three companies--Hughes, TRW, and RCA (the old triumvirate of ComSat study contractors)--have outlined proposals informally to OSSA and indicated that such a satellite is technically feasible for deployment and operation by 1970.

√ The critical decision to go ahead with the **APOLLO** Applications (**AA**) program will be made by NASA before May, Dr. George E. Mueller, NASA associate administrator for manned space flight, discloses.

√ **D-1A**, the second French-built, French-launched satellite, is successfully orbited.

February 18 -- Industry studies have concluded that unless a vigorous effort toward initiation of post-**APOLLO** program missions is forthcoming the effects of the continuing war in Vietnam will keep the NASA budget curve dropping until an annual level of $4 billion is reached by 1970.

√ The recent failure of the **AGENA** engine during high altitude tests at the Arnold Engineering Center, Tenn., was due to contamination in the fuel lines and was not due to defects in the basic design.

√ NASA associate administrator for manned space flight George E. Mueller says that the NASA FY 1967 budget will support the currently planned **APOLLO** program "assuming we have no major problems." For example he indicates that a major failure such as the loss of a stage would stretch out the program since the budget contains no funds to cover emergencies.

√ The First Edition of Who's Who in Space, a reference of the nation's outstanding scientific, industry and government space leaders, has been published in Washington, D. C., by Space Publications, Inc.

√ Lockheed Missiles & Space Co. is selected by NASA-Marshall for a comprehensive study aimed at defining an evolutionary set of lunar exploration systems. The systems would be "more extensive" than that envisioned in the proposed **APOLLO** Applications (**AA**) missions currently being considered for use in the early 1970s following manned landing on the Moon.

February 21 -- 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.

February 23 -- Rep. Joseph E. Karth (D-Minn.), chairman of the House Space Sciences and Applications Subcommittee, proposes that NASA should "select **VOYAGER** contractors now and provide enough funds for the work in the "bottleneck areas" instead of putting off the initiation of work and awarding of contracts for a year, as is NASA's present plan. The RFPs Phase B contracts for the capsule portion of the **VOYAGER** will be sent out by NASA in October. NASA plans to provide approximately $2 million in FY '67 and $9 million in FY '68 for the early phase of the **VOYAGER** capsule contracts. Fiscal year 1966 expenditures for the **VOYAGER** spacecraft are estimated at around $3.5 million; the plan for FY '67 provides approximately $0.5 million and plans called for expenditures of about $7 million in FY '68 for the spacecraft contracts.

√ Rep. Ken Heckler (D-W.Va.), chairman of the Subcommittee on Advanced Research and Technology of the House Space Committee, sets the tone of the opening hearing on NASA's FY '67 advanced research and technology budget request by saying: "Personally, I am not satisfied with the depth of NASA's thinking on future goals . . . If we're going to continue to spend five per cent of our national budget on space," NASA has to come up with a national goal to follow the manned lunar landing.

√ Boeing, GE, Hughes, Lockheed, Philco, RCA, and TRW, bid for ComSat's multipurpose satellite.

√ Tentative plans for recovering manned **GEMINI** spacecraft on solid ground have been discarded by NASA. **GEMINI** program manager Charles Mathews says the planned land recovery operation has been scrapped due to the "development time-constraint."

February 24 -- NASA-Houston issues Phase I RFPs to 20 firms for five **APOLLO** lunar surface drills.

√ Rep. Joseph E. Karth (D-Minn.), chairman of the House Subcommittee on Space Science and Applications, probes the wisdom of the objectives of the **MARINER '69** mission. Edgar M. Cortright discloses that the Avco/NASA-Ames Mars probe has been under consideration for the **MARINER '69** mission, that it is within the weight limitations of the **ATLAS/AGENA** launch vehicle, and that Ames has recommended that if it could be funded it should be flown on the mission.

February 25 -- Air Force Space Systems Division gives the go-ahead to United Technology to begin initial development work on the seven-segment solid motors for the **TITAN III-C** which will launch the AF's **MOL** (Manned Orbiting Laboratory).

√ The Defense Department's research and engineering office will approach industry in April or May for proposals for an operational communications satellite system to handle tactical messages between many types of warring units.

√ **SIM**, the (exoatmospheric) Space Interceptor Missile, designed for long range in-space area interceptor defense against sophisticated ballistic missiles, is identified by DOD as the **DM15X2**. It is further identified as a "new extended range **ZEUS**" which is longer and heavier than the present **ZEUS** and employs two solid propellant booster motors.

February 28 -- ComSat files its expected application with the FCC, seeking approval of its planned global commercial satellite system, and therin affirms its intention to deploy the system at the synchronous altitude it has always favored. The system will have four TRW satellites and will be established in 1968.

√ A Center manager will be chosen within the next two months for the **ATOM (APOLLO** Telescope Orientation Mount) program. Edgar M. Cortright, NASA deputy associate administrator for Space Science and Applications, tells the House SSA Subcommittee that NASA-Goddard is a major candidate although NASA-Marshall and some other centers are being considered as possible managers of the program.

√ Astronauts Charles A. Bassett II and Elliott M. See Jr., who were to have piloted NASA's **GEMINI IX** mission this spring, were killed today when their T38 jet trainer crashed into a building while attempting a landing at McDonnell Aircraft Corp., St. Louis.

√ NASA-Marshall has issued requests for quotations on a program to conduct a mission engineering study of electrically-propelled manned planetary vehicles.

√ If a new national goal is not planned for after the manned lunar landing, then according to Dr. Robert C. Seamans Jr., NASA deputy administrator, we can look forward to a decline in current industry operation of 20,000 to 40,000 personnel. There will be a decline in NASA, though not of a parallel nature, which will occur in the parts of the space agency working with contractors. Seamans told the Senate Space Committee that this decrease will begin in 1968 unless a post-**APOLLO** decision is made within the next year.

√ All systems apparently performed successfully as NASA fired its **SATURN 1B** launch vehicle carrying an **APOLLO** spacecraft on a suborbital arc down the Atlantic Missile Range Saturday. The S-1B booster and S-IVB second stage carried the 45,900-pound **APOLLO** (minus **LEM)** some 210 miles into space and then back into the atmosphere, testing the spacecraft's ablative heat shield.