

~~TOP SECRET~~
DEPARTMENT OF THE AIR FORCE
WASHINGTON

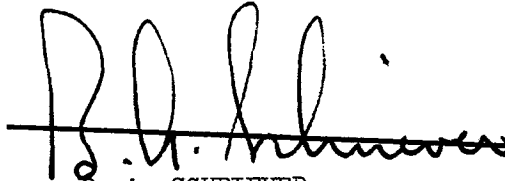
OFFICE OF THE SECRETARY

4 JAN 1966

MEMORANDUM FOR THE SECRETARY OF THE AIR FORCE

SUBJECT: Manned Orbiting Laboratory Monthly Status
Report *for December*

The attached Status Report on the Manned Orbiting Laboratory (MOL) Program covers activities through December 31, 1965, and is submitted in accordance with the December 18, 1965 instructions from the Office of the Secretary.



B. A. SCHRIEVER
General, USAF
Director, MOL Program

1 Atch
a/s

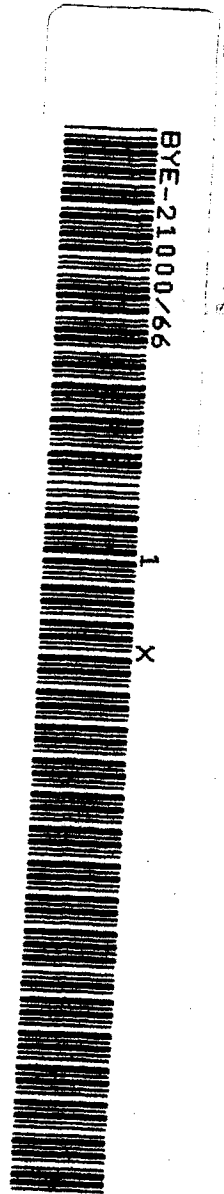
DORIAN

Page 1 of 11 pages
Copy 1 of 9 copies
SAFSL BYE 21000-66

HANDLE VIA BYEMAN SYSTEM ONLY

EXCLUDED FROM AUTOMATIC REGRADING;
DOD DIR 5200.10 DOES NOT APPLY

~~TOP SECRET~~



~~TOP SECRET~~

I. PROBLEMS

A. Manned/Unmanned Considerations

The results of the manned/unmanned studies directed by DNRO in September 1965 were presented to Air Force MOL/DORIAN management (SAF-SIA and SAF-SP) on December 14 and 15. The studies show that:

1. The in-line optical system configuration is preferable to the "dump-truck" configuration. Although GE felt that the "dump-truck" version had advantages over the in-line version, technical discussions at the meeting with Eastman Kodak and Aerospace concluded the in-line configuration to be preferred.

2. Automatic alignment, automatic tracking, automatic focus adjustment, V/h sensing, and across-the-format image motion compensation for the DORIAN sensor are feasible. Eastman Kodak considered that full automation of the system was not a major technical problem.

3. The fully-automated DORIAN sensor can be expected to yield a slightly degraded mission resolution of about [REDACTED] in the unmanned mode.

4. A weight reduction program will be necessary to fit the fully-automated DORIAN system into the payload weight allocation for the manned orbiting vehicle.

5. Eastman Kodak asserted that the first set of flight-qualified optics will not be available before late 1969, and a January 1970 flight date is the earliest that optics availability can support.

In summary, sensor technology will support the manned/unmanned system design, and the unmanned mode resolution will approach that of the manned mode. Incorporation of automatic features into the manned

DORIAN

HANDLE VIA BYEMAN SYSTEM ONLY

Page 2 of 11 pages
Copy 1 of 9 copies
SAFSL BYE 21000-66

~~TOP SECRET~~

~~TOP SECRET~~

vehicle will engender some weight reduction problems. Availability of flight optics will pace the launch schedule for MOL Flight No. 4.

B. Funding

After receipt of information in late November that the FY 1967 DoD budget for MOL was established at \$150 million, a series of funding exercises and discussions were conducted with the Office of the Secretary of the Air Force and the office of the DDR&E, OSD. These resulted in several alternatives for MOL Program schedules and budgets being proposed to the Secretary of Defense for his consideration. The following is a recap of the alternatives that were proposed:

1. Memo to Secretary of Defense from Secretary of the Air Force dated December 4, 1965, recommended a six-month slip of the first manned flight until April 1969 with a reduced FY 1967 budget requirement of \$294 million. A second alternative of a 9 to 12 month slip was suggested with a FY 1967 minimum budget requirement of approximately \$230 million, below which effectiveness of contractor effort would be impaired because a stop-start effort of some contractors would probably be required to stay within funding limitations.

2. About December 9, Dr. Foster, DDR&E, discussed with the Secretary of Defense the possibility of increasing the \$150 million MOL FY 1967 budget. Dr. Foster was provided with three proposed program alternatives representing a 3, 6, and 12-month slip in the current program with FY 1967 budget requirements of \$374, 280 and 220 million respectively. It is understood that Secretary McNamara felt that, with a reported delay

DORIAN

Page 3 of 11 pages
Copy 1 of 9 copies
SAFSL BYE 21000-66

HANDLE VIA BYEMAN SYSTEM ONLY

~~TOP SECRET~~

~~TOP SECRET~~

in the development and availability of the flight optics, a continuation of the MOL Program at the FY 1966 level of funding (\$150 million) was appropriate.

3. On December 16, the Secretary of the Air Force was provided with a talking paper which: (a) reviewed the requirement for the attainment of a [REDACTED] resolution photographic capability which can be provided by the MOL system; and, (b) presented what were considered to be realistic lead time and fund requirements of a balanced program for a manned October 1969 flight date of flight-qualified optics. Also considered was the possibility of a January 1970 flight date. The October 1969 manned all-up flight represents a 9-month slip in the current program and was estimated to require \$250 million of FY 1967 funds at a total 7-flight program cost of \$1.658 billion. The January 1970 flight schedule was estimated to require \$230 million of FY 1967 funds at essentially the same total program cost.

4. On December 23, Dr. Foster, DDR&E, met with Mr. Vance, Deputy Secretary of Defense, to obtain favorable consideration for increasing the MOL FY 1967 budget. A cost exercise had been provided to Dr. Foster showing a FY 1967 fund requirement of \$237 million to support an October 1969 flight-qualified optics manned flight date. It is our understanding that Mr. Vance's question about technical and schedule aspects of the program were satisfactorily answered and he was sympathetic to the request for additional money for the FY 1967 budget. However, he did not agree to increase the present FY 1967 budget, but stated orally that he would support a requirement for additional money

DORIAN

Page 4 of 11 pages
Copy 1 of 9 copies
SAFSL BYE 21000-66

HANDLE VIA BYEMAN SYSTEM ONLY

~~TOP SECRET~~

~~TOP SECRET~~

in a FY 1967 supplemental budget necessary to advance the MOL Program at a reasonable technological pace.

As a result of the above efforts, it is felt that favorable recognition has been obtained in OSD for the need to support the MOL Program at a higher level of effort for FY 1967 than the \$150 million budget would allow.

The Air Force has received the following Five-Year Force Structure and Financial Plan from OSD:

| <u>FYFS&FP (Millions)</u> | | | | | | |
|-------------------------------|-------------|-------------|-------------|-------------|-------------|--------------|
| <u>Prior Years</u> | <u>FY67</u> | <u>FY68</u> | <u>FY69</u> | <u>FY70</u> | <u>FY71</u> | <u>TOTAL</u> |
| 196.5 | 150 | 450 | 400 | 330 | 200 | 1726.5 |

This funding structure takes into account the present 7-flight program, but increases the total program cost which DDR&E believed to be underestimated.

II. CHANGE PAST MONTH

A. The MOL Monthly Status Report for November 1965 indicated a potentially unsatisfactory situation at GE(MSD), and indicated that the Director, MOL intended to conduct an investigation of the matter. In a memorandum dated December 27, 1965, the Director, MOL advised the Secretary of the Air Force that in view of existing uncertainties in MOL funding, and in response to the recommendations of Generals Berg and Martin, the determination of the need for a survey of GE(MSD) will be deferred until after completion of MOL Phase I.

B. An amended version of the MOL information plan submitted to Secretary McNamara on August 24 was approved on December 16 after State

DORIAN

Page 5 of 11 pages
Copy 1 of 9 copies
SAFSL BYE 21000-66

HANDLE VIA BYEMAN SYSTEM ONLY

~~TOP SECRET~~

~~TOP SECRET~~

Department, NASA and USIA coordination. The plan makes SAF-OI responsible for implementation but retains policy approval authority in OASD/PA, which is also responsible for close coordination with State on all MOL public affairs matters. The plan incorporates the interim policy guidance of discouraging public speeches and requiring prior DoD approval for public statements and proposed news releases. It also requires preparation of annexes to cover such things as contract award announcements, selection of additional pilots, test launches and other program milestones.

C. The MOL Program Office has received for review a proposed plan for acquisition of facilities and long-lead Aerospace Support Equipment (ASE) to support the DORIAN effort at Eastman Kodak. Total estimated package value is \$32.5 million, of which \$7.784 million is required in FY 1966.

D. Action has been initiated requesting an increase in the Air Force FY 1967 Military Construction budget of \$4.1 million to cover additional costs of the Initial Launch Capability (ILC) at WTR for the Titan III/MOL configuration. This increase was caused by several significant changes which have occurred since completion in April 1965 of the definition phase for the ILC. \$18 million was authorized and funded in FY 1966 for construction of an ILC designed for a Titan III with standard payload fairing. MOL-related changes include:

1. the decision to proceed with early MOL launches from WTR;
2. a decision to use 7-segment solid rockets, increased Stage I tank length, and other booster changes.

DORIAN

Page 6 of 11 pages
Copy 1 of 9 copies
SAFSL BYE 21000-66

HANDLE VIA BYEMAN SYSTEM ONLY

~~TOP SECRET~~

~~TOP SECRET~~

E. Dr. Welsh and Dr. Konecci of the National Aeronautics and Space Council were briefed at DORIAN level on December 23 on the status of the MOL Program.

F. A MOL Program Management Review was conducted at the MOL Systems Office, Los Angeles Air Force Station, on 20 December. Dr. Foster and Mr. Fink, DDR&E, and Dr. Flax and Mr. Ross, SAF-RD, were the key attendees in addition to the Director, MOL and Director, SAF-SP and selected representatives of their offices. Discussed at that time were the following items with the decisions and actions relative to each:

Manned/Unmanned Capability

Dr. Leonard and Mr. Tennant of Aerospace Corporation summarized the results of the Manned/Unmanned technical studies which had been reviewed with the concerned contractors on December 14 and 15. As a result, the manned/unmanned configuration is being established as baseline. The general performance and design requirements specification is being revised and all contractors are being directed accordingly. An in-house study is being initiated to determine how the excess weight available in the unmanned configuration can be effectively utilized to improve the overall unmanned performance. The baseline optical system will be the in-line Ross corrector configuration and the dump truck configuration dropped. However, some study effort will continue on the dump truck technology for purposes of defining requirements and for possible application as a second generation system.

MOL Program Schedule

A discussion of the Eastman Kodak preliminary estimate of the availability of the first qualified flight optics by October 1969

HANDLE VIA BYEMAN SYSTEM ONLY

DORIAN

~~TOP SECRET~~

Page 7 of 11 pages
Copy 1 of 9 copies
SAFSL BYE 21000-66

~~TOP SECRET~~

revealed that Eastman Kodak was probably conservative by three months. General Martin, SAF-SP, stated that his organization had not yet validated this sensor schedule slippage but would do so in early January. The MOL Program schedule will be extended to minimize the impact of MOL expenditures on the FY 1967 budget. Phase IB will be extended to May 1, 1966 with commencement of Phase II activities by September 1, 1966. Long lead development effort associated with this payload, booster, and IIC will be continued on a controlled basis as required.

Program Funding

In a discussion of the MOL funding requirements it was recognized that the funding requirements presented were only rough estimates without benefit of the contractors' Phase I cost proposals. It was agreed, however, that the above schedules and activities could be accomplished during the last part of FY 1966 and FY 1967 within a total FY 1967 budget of \$237 million plus the residual of unprogrammed FY 1966 funds. Program planning will be accomplished in such a manner to allow a shift to an even longer program stretchout if only \$150 million FY 1967 funds are provided.

MOL Flight Test Vehicle Requirements

In order to provide for the required development of the manned/unmanned MOL system capability it was agreed that at least two additional flight test vehicles should be added to the present 7-flight test vehicle program. For planning purposes, a minimum of two additional flights will be added to current program and these additional vehicles

DORIAN

Page 8 of 11 pages
Copy 1 of 9 copies
SAFSL BYE 21000-66

HANDLE VIA BYEMAN SYSTEM ONLY

~~TOP SECRET~~

~~TOP SECRET~~

are not to be designated as manned or unmanned at this time.

III. CURRENT STATUS

A. Subcontracts

On December 20, the Douglas Company informed the MOL Systems Office that the Pratt and Whitney Division of United Aircraft Corporation was the successful bidder for the MOL Power Supply Subsystem. GE was the only other competitor, Allis-Chalmers having declined. With this selection, all major subsystem suppliers have been identified, with the exception of the Data Management System source. Selection of a Data Management System contractor from among RCA, IBM, Raytheon, Honeywell, Univac, Autonetics, and GE is in process at this time.

B. Insertion Ships

The third meeting of the Joint Committee on NASA and MOL Instrumentation Ship Requirements was held on December 2, to continue studying the joint use of T-2-type instrumentation ships for both Apollo and MOL. It was concluded at this meeting that T-2 support for MOL is not available, based on the NASA position presented to the Committee that the Apollo program must have considerable launch flexibility and should not be subjected to constraints imposed by other programs for ship support. NRD has not yet made any recommendations on alternate means of meeting the MOL requirements for an insertion ship south of Vandenberg AFB during each MOL launch.

C. Launch Pad Modifications, CKAFS

On November 19, a contract was awarded in the amount of \$567,000 for alterations to Launch Complex 40, Cape Kennedy AFS, to support the

DORIAN

Page 9 of 11 pages
Copy 1 of 9 copies
SAFSL BYE 21000-66

HANDLE VIA BYEMAN SYSTEM ONLY

~~TOP SECRET~~

~~TOP SECRET~~

MOL Heat Shield Qualification launch and construction is now in progress. Scheduled completion date is April 15, 1966. This date is compatible with MOL requirements.

D. Funding Procedures

A memorandum of agreement regarding MOL Black Financial Procedures was approved by Director, NRO and Director, MOL on November 4, 1965. A companion paper for white financial procedures has been prepared, reviewed by interested individuals, and forwarded for approval.

E. MOL Aerospace Research Pilots

Eight officers have been selected and assigned to the MOL Systems Office to be trained and utilized as flight crews in the MOL Program. Action has been initiated to select the remaining twelve crew members for MOL to round out the total requirement of twenty MOL Aerospace Research Pilots. A central screening action was performed at Randolph AFB Personnel Center during November of over 500 applicants for astronaut duty with NASA and/or MOL. Early this month, the board forwarded to Headquarters, USAF a list of 100 nominees in general order of merit for astronaut duty. From this list the Chief of Staff, USAF nominated sixteen to NASA and twenty-five to Director, MOL for further processing and final selection. Selection of the remaining MOL Aerospace Research Pilots is expected to be completed by April 1, 1966.

IV. FORECAST FOR FUTURE

A. By mid-January, the MOL Program Office will submit for approval a request for release of approximately \$40 million of deferred FY 1966 funds, to cover program activity during the third and fourth quarters of FY 1966.

DORIAN

HANDLE VIA BYEMAN SYSTEM ONLY

Page 10 of 11 pages
Copy 1 of 9 copies
SAFSL BYE 21000-66

~~TOP SECRET~~

~~TOP SECRET~~

B. As the Congress reconvenes for the 1966 session, attention is expected to focus sharply on the military space programs, and upon DOD-NASA relationships. Six Congressional committees have indicated an interest in the MOL Program.

C. Formal changes to MOL Phase I contracts to reflect a manned/unmanned system baseline configuration and a revised program schedule will be issued as soon as circumstances permit.

D. Eastman Kodak Company has indicated that the earliest possible flight date for the DORIAN payload is January 1970. During the next month, the rationale for the January 1970 date will be examined in detail by the MOL Systems Office and SAF-SP in order to determine definitively whether or not an earlier schedule date is feasible. The formal EKC proposal for development of the MOL payload is due in late February 1966.

V. DUE DATE FOR NEXT STATUS REPORT

Next monthly MOL Program Status Report to be submitted February 7, 1966.

DORIAN

Page 11 of 11 pages
Copy 1 of 9 copies
SAFSL BYE 21000-66

HANDLE VIA BYEMAN SYSTEM ONLY

~~TOP SECRET~~