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January 18, 1964

MEMORANDUM FOR DIRECTOR, SPACE RESEARCH & ENGINEERING
SUBJECT: Manned Orbital Program

This is in response to your memorandum of December 11, 1963 on the above subject and presents the Air Force plan for initiating the MOL program. Additional details of the plan are included in the attachment, and have already been briefed to Dr. Hall and other members of your staff.

The proposed MOL management organization at the Space Systems Division will be based on a system program office having responsibility for the MOL, the TITAN III and the Gemini B programs and including a NASA field office subject to arrangements with NASA. The system program office would be headed by a deputy commander of SSD. The reporting channels for this office and the higher echelon management structure are still under study, with particular regard to the requirements for application of DOD Directive S-5200.13 "Security Policy for Military Space Programs" and other direction contained in your memorandum. Additional information on the proposed management structure will be forwarded to you separately.

In order to help assure adequate consideration of the experiments to be performed in the MOL, it is proposed to initiate the OSS studies with emphasis on Phases I, II and III which include: analysis of military mission models; delineation of technical requirements; definition of experiments and equipments; test planning; and definition of vehicle parametric criteria. Phase IV, which originally covered preliminary MOL system configuration, will be deleted and vehicle configuration considered only to the degree necessary to assist in the conduct of the other phases. Adjusted work statements will be negotiated in the light of the above reduction in total program scope. Release of \$1.0 of deferred funds for the OSS studies is requested.

A pre-program definition study will be conducted in-house by SSD with the assistance of the Aerospace Corporation. This study will include definition of experiments and will utilize results derived from Phases I, II and III of the OSS study as

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available. To supplement this effort, test and experimental program studies will be conducted in-house and by contractors to be competitively selected. The cost of the contractor studies will be \$500,000. In addition, certain classified studies to be conducted by selected contractors at a cost of \$750,000 will be initiated.

Program definition studies for the Gemini B by the McDonnell Aircraft Company at an estimated cost of \$3.5 million and for the TITAN IIIC by the Martin Marietta Corporation at a total cost of \$1.5 million will be contracted for on a sole source basis. These studies with McDonnell Aircraft Company and Martin-Marietta Aircraft Corporation will include such interface and system integration studies as can most expeditiously be carried out by the respective contractors in addition to efforts specifically related to their respective vehicles.

The SSD study resulted in a recommendation that contracting for Gemini "B" by the Air Force be directly with the McDonnell Aircraft Corporation rather than through NASA. NASA, on the other hand, believes the contracting should be through NASA. The study further recommended resolution of this problem at the AFSC IMSC level. My preliminary discussions with Dr. Mueller, Dr. Seamans, and Admiral Boone have indicated an unwillingness to go along with this approach; their feeling is that agreement on this matter should be reached between NASA and DOD at the highest management level. It is therefore requested that you undertake to arrive at an agreement regarding Gemini "B" contracting with the NASA management. An appropriate means of developing the pertinent factors bearing on this question on a mutually acceptable basis would be by means of an MSC/SSD working group. This group could report its findings, including specific areas of agreement and disagreement, to DOD and NASA management for final resolution.

Following completion of the pre-program definition studies and upon accumulation of sufficient data from the experiment definition studies and tests, the MOL program definition study would be initiated based on a competition at an estimated cost of \$910 million. In the pre-program definition phase, consideration will be given to the relative advantages and disadvantages of conducting the program definition phase competitively with two contractors or with a single contractor selected competitively. Results of the MOL pre-program definition studies and recommended

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work statement and plan for the program definition phase will be presented to you prior to initiation of MOL program definition.

The existing plan for Gemini experiments to be performed during NASA flights has been re-examined with a view to increasing applicability to the MOL. However, because of the extremely tight schedule and the limitations of weight and space, no significant changes could be identified at this time. It is believed, however, that the experience gained in the Gemini experiments will be of considerable value for the MOL program.

In order to meet the requirement that the one-man Gemini and the Apollo modification be studied to determine whether either of these can meet the MOL objectives, it is planned to contract on a sole source basis with the McDonnell Aircraft Corporation and the North American Aviation Corporation for the Gemini and Apollo studies respectively. The estimated total cost of these studies is \$350,000. In view of this planned action, the North American Aviation Corporation will be removed from its position with respect to the OSS competition.

Further study is required before a specific reorientation of the ASSET program to meet the technical requirements to support an advanced ferry vehicle development can be completed. As regards the use of ASSET for Gemini B tests, we propose to make a comparative evaluation of an ASSET test with a larger scale TITAN IIIC test which could be conducted during the TITAN IIIC development program. Upon completion of these studies a plan for reorientation and extension of the ASSET program will be forwarded. None of the other actions discussed in this memorandum are contingent upon the ASSET program redirection at this time.

A summary of estimated costs for the pre-program definition and program definition phases is as follows:

	<u>\$ Millions</u>
Gemini "B" and Interface Definition	3.50
TITAN IIIC and Interface Definition	1.50
Experiment Definition Studies and Tests	.50
Classified Experiment Definition	.75
Study of One-Man Gemini and Apollo	.35
MOL Program Definition	9.00
Aerospace Corp. - SE/TD	2.00
TOTAL	<u>\$ 17.60</u>
OSS Studies	\$ 1.00

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To permit immediate initiation of the MDL program your approval of this plan and the release of \$10 million of FY 64 emergency funds are requested.

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Alexander H. Flax
Assistant Secretary
Research and Development

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