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National Aeronautics and Space Administration
Washington 25, D. C.

M-C G 8115.252

Oct 11, 1963

Dr. Alexander H. Flax
Assistant Secretary of the Air Force
(Research and Development)
The Pentagon
Washington, D. C.

Dear Dr. Flax:

The Department of Defense had indicated certain reservations regarding the second phase of the Manned Orbital Research Laboratory study as originally proposed by NASA. This phase called for an optimization of selected concepts and a preliminary design culminating in a systems specification on the Manned Orbital Laboratory system. The particular objection of the DOD was against the preliminary design (Phase IIb) prior to the completion of the Air Force Orbital Space Station study which would define the military requirements.

In the enclosure we are submitting a revised version of the task description of Phase IIa of the Manned Orbital Research Laboratory study for your reconsideration within the scope of the DOD-NASA Coordination Agreement. This study is directed toward a more refined definition of the MORL system to lay a broad foundation for a versatile space laboratory in such a way as to allow for later incorporation of a wide variety of experimental requirements. Thus the NASA MORL Phase IIa study when carried out during the coming months in parallel with the DOD OSS studies will make it possible for a merging of the two with a minimum of delay. This will facilitate the early initiation of a preliminary design phase which would accommodate the requirements of both the DOD and the NASA. We, therefore, believe that the proposed Phase IIa study is in the best interest of both agencies.

Sincerely yours,

/t/s/ George E. Mueller
Deputy Associate Administrator
for Manned Space Flight

Enclosure

c: Admiral W. F. Boone (Ret)
MAF - General Ritland

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1. STUDY TITLE:

Optimization of a Manned Orbital Research Laboratory (MORL)

2. STUDY OBJECTIVE:

Optimization and refinement of system elements and operational plans of preferred (MORL) system concept(s).

3. STUDY MANAGERS:

Headquarters OMSF: C. A. Huebner, Manned Satellite System Studies
Center LRC : W. H. Gardner
Contractor : To be selected

4. ESTIMATED COST (in thousands)

\$1,200,000 (48 man-years) FY 1964 funds

5. DESCRIPTION OF STUDY:

This task represents Phase II(a) of the study program aimed at defining a small Manned Orbital Laboratory (MOL) system. In Phase I (981-15-10-00) candidate system concepts were compared relative to practicability, reliability, cost and timing. A preferred major system concept(s) is being selected from these comparisons on the basis of non-interference with Apollo, minimum additional development and capability of accomplishing mission objectives.

In the proposed Phase II(a), system elements within the preferred concept are to be refined. If a single major system concept is not resolved in phase I, it may be desirable to reconfigure a new concept from several contenders. Phase II(a) is aimed at the selection of major subsystems such as docking system, artificial g system, data handling system, etc., and will incorporate results of the modified Gemini and Apollo Ferry studies (981-15-31-03) and (981-15-06-00) respectively currently underway. The proposed study will be responsive to updated mission objectives being generated in Phase I, in the current Biomedical and Human Factors Study (981-15-09-00) and by in-house panels and working groups evaluating potential civilian MOL uses. Refined program costs and schedules for the selected system concept are to be derived from operations analyses based on refined mission profiles to be generated in the current mission definition studies.

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A broad look at subsystem integration is planned utilizing inputs from such current studies as Nuclear Isotope Power (22-71-710-701-08) and Integrated Life Support System (23-770-127-53-01-02).

Soft mockups will be used to facilitate general studies of experimental and subsystem integration. Specific problem areas requiring advanced technology or system integration studies or tests will be defined.

This study phase will provide information on a technical plan, schedule and resources requirements, which after incorporation of the requirements of other agencies, will facilitate the preparation of a project proposal.

The following anticipated phase II(b) preliminary design study, will be aimed at further concept refinements such as detailed definition of subsystems and integration of specific experiments and should pave the way for preparation of a system specification should an MOL project prove attractive. That phase will be covered by a separate task description to be submitted at a later date.

5. DURATION OF STUDY:

Six months.