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To: W. H. Edwards

Date: 26 September 1966

Subject: LMSC Offer to Sell Military Mission Simulation System

From: S. M. Tennant

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1. The subject offer has been reviewed by this office. In assessing the desirability of such a purchase on the part of USAF, several factors have been considered. Among these are:

   a) What could be accomplished with this equipment if it were available within the AFSSD complex?

   b) Would all of the equipment offered be needed?

   c) What about the implications of having this equipment at the complex?

   d) What about the costs LMSC has quoted?

   e) How closely will the GE mission simulator parallel this equipment?

   Subsequent paragraphs will discuss these factors in more depth. In summary, however, it is our opinion that there is little basis for justification of the purchase by the government of the LMSC offered equipments.

2. There are several areas of MOL/Dorian interest which could involve simulation activities within the capabilities of the subject equipment. Among these are evaluations of astronaut capabilities for active target indicator detection, scanning of limited areas for target detection, landmark sighting for navigation, and evaluation of breadboard or prototype V/H sensor devices. The extent of in-house simulation activities pertaining to these and other areas of program interest, especially when considered in relation to current and contemplated in-house and contractor simulation activities, would be relatively minimal; thus, it is doubtful that these equipments could be kept busy with a reasonable duty cycle.

3. Even if a capability for more extensive simulation activity within the complex were desired, purchase of all of the equipments offered by LMSC would not be advised. While the simulator table and servo-control console could be utilized, the bulk of the remaining equipments is associated with a TV simulation capability. Recent program activities have indicated the desirability of direct optical viewing for the astronauts, and thus the TV capability is no longer useful.

4. The purchase of the LMSC equipments, even if only the table and servo-control console, implies several additional and continuing expenditures. A direct optics capability would have to be added, with its associated cockpit equipments, test conductor console, scene contrast control, etc. If the analog computer were not purchased from LMSC, one would have to be made available locally. Also, there would probably be a continuing need for technicians to maintain the simulator, to alter its configuration for various runs which may be contemplated, and to fabricate those new components which would surely be required. Such large and continuing expenditures seem incompatible with the anticipated duty cycle. Furthermore, while the relatively minimal simulation efforts conducted in-house to provide initial data on critical problem areas have proved most valuable, simulations of the scope and magnitude which could be accomplished on the subject equipment are probably more appropriately an industry function.

5. The costs quoted by LMSC in their offer have been subjected to only cursory review, and no detailed comments are made. However, LMSC's basis for the costs appears to be their original development costs and reflects no depreciation on the equipment nor the uses to which LMSC has already put this equipment. Considering this and the current market value, it would appear unreasonable for the government to agree to the LMSC suggested figures even if a purchase were contemplated.

6. Discussions have been held with Mr. D. McGhee relative to the capabilities of the GE development simulator soon to be available. This simulator, incorporating two eyepieces (each having separate 70mm motion picture stimulus material), is being configured with respect to the present baseline concept of initial acquisition with the scope and subsequent tracking through the main optics. Its configuration could be modified, however, to incorporate target indicator detection static simulations, as well as a limited amount of scan simulation, and of course would have to become part of the baseline program. With more extensive modifications, a capability for V/H sensor evaluation might be imparted to this simulation equipment; if not, the LMSC simulation equipment may be of interest to MOL contractors, and it is suggested that this proposal be forwarded to them for evaluation. In any case,

the acquisition of the LMSC equipment by the Air Force would provide little, if any, increase in overall program simulation capability.

7. In summary, the substantial capital and operating expenditures associated with the purchase of the LMSC equipment do not appear justifiable on the basis of the foreseeable amount of in-house simulation work or the added simulation capabilities the equipment would provide. As the program progresses, the contractors will be developing new simulators which will tend to reduce the need for an in-house capability. Based on these and other factors, it is recommended that the LMSC equipment not be purchased.

S. M. Tennant

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cc: B. P. Leonard/W. F. Sampson
S. S. Strong/G. D. McGhee