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18 December 1964

MEMORANDUM FOR: Chief, Special Projects Staff

SUBJECT: Weekly Status Report No. 13 on Project FULCRUM

1. Camera System

A. ITEK - Messrs. Maxey, Dirks, [redacted], [redacted], McDonald, and Dr. Scott attended a detailed project review on 14 and 15 December at Itek. In addition to reviewing system investigations, designs, system performance predictions, and TT&C requirements, long-lead commitments for Phase II and scheduling for the remainder of Phase I were discussed. A tour of the brassboard assembly area and camera system mark-up area was also conducted. Dr. Wheelon had been given a similar tour on the 14th. Progress within the extremely compressed Phase I schedule appeared to be satisfactory, the revised estimated date of completion for the brassboard feasibility testing being 5 February.

Mr. Morser informed [redacted] by phone on 18 December that technical results from the 20" effective diameter, 1" thick, aspheric plate tests being performed at Itek on a F/2 system for the Air Force will be made available for inclusion in the FULCRUM 1 February report. Because of the similarity to the FULCRUM aspheric, it was decided that Itek should proceed with the fabrication of a 3/4" thick plate with final testing to be completed by 12 February.

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The second aspheric plate ordered as part of the FULCRUM program will be fabricated as a 1/2" element with an anticipated completion date about the end of February. Mr. Morser also commented that the 7" film provided by EK had ripples in it and that Don Adams of EK was being contacted.

B. P.E. - Messrs. Dirks and [] attended a program review at P.E. on 16 December. The technical session covered a review of system specifications, optical design, IMC, performance predictions, structural analysis, electronic and control equipment, and film transport breadboard with its associated tests. Plans for the Phase I final reports were discussed, along with a review of the current scheduling, manpower, and costs. A tour of the optical fabrication and tests facilities was also conducted. Progress, in general, was quite good, and some useful ideas applicable to the Itek design also were obtained.

C. STL - A number of critical security clearances for Mr. Reeves' project came through this week, and thus work should continue on schedule.

D. RCA - Mr. Dirks and [] are scheduled to visit RCA on 19 December to check on progress to date.

2. Spacecraft

Up-dated PRELIMINARY SPACECRAFT SPECIFICATIONS were forwarded to G.E. on 14 December. Mr. Hood and Mr. Chamberlain brought with them on 18 December the G.E. proposal for Phase IB spacecraft continuation, covering a ten-week effort at \$199,537. The work statement and program milestones schedule were discussed with Mr. Dirks and [] and were agreed on.

Dr. Wheelon discussed with Dr. Paige of G.E. on 18 December the areas of possible conflict with a similar Air Force-funded spacecraft effort concurrently being developed under Mr. Cowles' purview.

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3. Recovery System

Attempts were made to schedule a briefing for Mr. Cahow on the current recovery operations this week, but due to the transfer of the briefing will have to be rescheduled. AVCO submitted an approximate \$149,000 cost estimate to cover the revised work statement agreed on 11 December.

4. Systems Engineering

Mr. Crowley discussed with SEAC personnel on 18 December future systems engineering aspects of the program. STL decided, ^{with} Mr. Crowley's approval, that Dr. Chalmers would be assigned to head up all aspects of the SEAC effort. Under "Elements of Phase I Support" would come programs, project engineering, and analytical studies, the latter including current launch vehicle and launch complex studies. Specific additional efforts on the STL programmer and the attitude control system proposed by STL would be undertaken, along with vulnerability studies. Work on the programmer will include an estimate of the cost to finish final development, with a look at increased redundancy for increased reliability.

Mr. Frank is scheduled to meet with SPS personnel on 22 December to discuss the results of his visits on 11 and 16 December to The Martin Company in Denver and the effects of these visits on STL's Titan II and Titan III studies.

5. Interface Aspects

An ad hoc interface aspects meeting is scheduled for 23 December at Itek. Thermal and attitude control interface between the spacecraft and camera systems will be started in the morning, and recovery vehicle take-up spool orientation will be discussed in the afternoon.

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