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5 March 1965

MEMORANDUM FOR: Chief of Projects

SUBJECT: Weekly Status Report No. 24 on Project FULCRUM

1. Camera System

A. ITEK - A twix was transmitted to Itek on 27 February extending their current contract until such time as rap-up proceedings could be clarified. Messrs. Madden, Morser, and Lilley visited Headquarters on 2 March to discuss the status of breadboard and brassboard testing, optical fabrication, and final reports preparation. A twix was sent to them on 3 March summarizing this decisions. The main points of the twix were the stopping of all brassboard experimental work, the packaging and crating of all FULCRUM hardware, and the incremental submission of reports and operating instructions as fast as they could be completed. [redacted], Mr. Meehan, Mr. McNamara, and Mr. McDonald participated at Itek in planning the rap up of the Itek contract. Mr. McMahon and [redacted] visited Itek on 5 March to make sure that Itek personnel were being phased out as their services no longer became necessary. Of the 134 people assigned as of 1 March, 39 have been released as of 5 March, 52 are scheduled for release on 12 March, and everyone will have been released by 31 March.

B. P.E. - Messrs. MacLeish, Babish, and Rosenau visited Headquarters on 5 March and were given by Mr. Dirks essentially the same FULCRUM briefing presented to the Evaluation Panel. The remainder of the day was spent with becoming familiar with the FULCRUM files, and copies of all available Itek's final reports were given to them to take back with them. Dr. Scott completed his tour with the Project Office on 5 March, and it is hoped that his project experience will be useful in bringing P.E. rapidly up to speed. A twix authorizing extension of the current FULCRUM contract through 30 April for an amount not to exceed $60,000 per month was transmitted to P.E. on 1 March.

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C. STL - In view of a possible film transport modification under a P.E. payload contract, no pressure from the Project Office is being exerted on STL to rap up their February report.

D. RCA - A revised work statement was transmitted to RCA on 4 March for their consideration. A summary of the essential aspects of the work statement is as follows:

Task 1 - Design and fabricate brassboard - the performance design goal of this non-rotating brassboard should be film velocity control so that low frequency components of film velocity errors contribute no more than one micron of smear in the forward direction and two microns of smear in the scan direction at exposure time of 1.6 milliseconds. Focus error budget for flatness at the platten is $\pm$ 0.0002 inches. Brassboard hardware and design report due after 4 months.

Task 2 - Plan and conduct brassboard test program - the test program to be conducted both in ambient pressure and under simulated operational conditions should accurately measure:

(1) Absolute film velocity
(2) Film velocity variation over all frequencies of interest
(3) Response of film velocity to simulated optical bar rotational variations
(4) Film flatness at exposure slit
(5) Film tracking and IMC motion
(6) Film damage
(7) Film flatness.

Deliverables are a test plan and instrumentation requirements report due after two months and a final report covering test results.

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Task 3 - Conduct design studies of alternate film handling configuration based on the sheet-fed idea - a summary report is due after two months.

Task 4 - Conduct preliminary design of prototype system - This preliminary design, to be instituted at the completion of Task 3 will include a detailed sub-system definition, along with careful, weight, power and performance estimates. The preliminary design report will be due after four months.

Task 5 - Conduct preliminary studies of film transfer and re-entry vehicle packaging technique - A detailed analysis will be conducted leading to recommendations on techniques to be used for transferring the film from the camera to the recovery system and for packaging the film sheets inside the recovery vehicle. Report covering this analysis is due after three months.

2. Spacecraft

A twix extending the current contract at the present level of effort for the month of March was transmitted to G.E. on 1 March. A proposed work statement covering this time period was transmitted to Headquarters on 5 March. Cost estimate covering the 11 work areas amounted to $140,000.

3. Recovery System

Mr. Carlson of Avco telephoned the Project Office on 1 March that he had from $20,000 to $30,000 available from the February effort, and Mr. McMahon authorized him to charge against that money during March. A twix subsequently went out on the same day authorizing an extension to the current contract at the present level of effort for the month of March. Avco's March work statement was delivered to Mr. [redacted] on 5 March, and it essentially consisted of a continuation of the studies leading towards additional refinements to the referenced design.

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System studies, configuration studies, design studies, and support studies described were directed toward reliability improvement and cost and weight reduction. An estimated cost of $140,000 was proposed to cover this effort.

4. Systems Engineering

A twix extending the current SEAC contract through 31 March for an amount not to exceed $120,000 was transmitted on 1 March. Work effort for this time period is to be concentrated on validating the Titan II orbital injection weights, completion of the operational requirements document, preparation of suggested work statements for the associate contractors, and other tasks to be assigned. Mr. Grady met with Mr. Dirks and Dr. Garwin, who is preparing the technical report for the Evaluation Panel, on the evening of 5 March. Mr. Grady succeeded in convincing Dr. Garwin that the orbital injection weights presented to the Panel were correct ones for the Titan II as modified and flown along our revised trajectory.

5. Interface Aspects

Dr. Wheelon and Mr. Blake visited P.E., Avco, and STL (and plan to visit G.E.) and discussed with top management at each of the companies the strong position the Agency was currently in in view of recent discussions between Mr. McCone and Mr. McNamara.

Dr. Wheelon and Mr. Blake presented to Mr. McCone on 27 February the results of their study on the 120° scan angle "requirement" investigation, undertaken as a result of Itek's complaint on this specific subject.

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