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13 November 1964

MEMORANDUM FOR: Chief, Special Projects Staff

SUBJECT: Weekly Status Report No. 8 on Project FULCRUM

1. Camera System

a. ITEK - Several TM's of interest were prepared during this week:

TM 72 - Components of Image Velocity - Contains cross-track and forward image motion values applicable to the "Twin 60's" system.

TM 89 - Thermal Analysis of Platen Film Drum - Points out there will be main support structural distortion resulting from an approximate 20°F end-to-end temperature change and film drum distortion resulting from an approximate 3°F end-to-end temperature change.

TM 92 - T No. Determination and Exposure Time Calculation - The t no. for the 603 system is 3.44. The exposure time as a function of solar altitude is also plotted.

TM 95 - Thermal Consideration in Spool Torquers - Because the desired torquers for the brassboard unit could not be delivered in time, off-the-shelf units will be employed. The thermal design of these units is not good but acceptable for air operation and limited operation in a vacuum.

TM 97 - Film Flatness Test Procedure - Describes the test procedure intended for the measurement of film speed and tension. No actual measurement of slippage is described.

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A memorandum from Itek discussing the need for continuation of the camera design study between Phase I and Phase II was submitted. Another memorandum containing budgetary estimates and long-lead Phase II items was submitted. A total of \$673,000 during November, December, and January included long-lead optical elements, optical fabrication and test equipment, and A and E environmental test facility costs. Itek provided us with a copy of a budget study for the proposed environmental lab and optical fabrication, assembly, and test facility to be added on to Itek's current Lexington facility. Construction scheduling for a negotiated contract was 17 to 19 months from go-ahead and 24½ months for ^{complete} bidding. Cost estimates were on the order of two and one-half million dollars.

b. P. E. - A document summarizing breadboard activities was prepared.

c. STL - [] attended the meeting on 10 November at STL. The shortage of mechanical design personnel due to clearance problems has been alleviated by assigning to the film transport study program cleared personnel from the systems research division of STL who had been working on the SC proposals. The fluid damping analysis has been completed; detailed block diagrams have been prepared for five of the most promising control systems; various methods have been investigated for moving the film from the supply to the takeup reel; and a list of methods to induce disturbances into the film drive system for evaluation purposes has been prepared.

2. Spacecraft

^{a visit to} Each of the spacecraft competitors, ^{including} along with a visit to their manufacturing and production facilities, was accomplished by the SPS evaluation team this week. Specifically, STL was visited on 9 November, LMSC on 11 November, and GE on 14 November.

3. Recovery Systems

The SPS evaluation team visited GE on 12 November and AVCO on 13 November and discussed the cost, management, and technical aspects of their proposals and also visited their manufacturing and production facilities.

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4. Systems Engineering

Discussions were held with Messrs. Frank and Grady on 10 November on their work on launch complex and booster specifications. Launch geography at the Point Arguello launch area appears to be at a premium, and STL intends to do additional work in relating their launch complex layout with an area to the east of current launching facilities. Spacecraft design will affect the launch trajectory, particularly the maximum aerodynamic heating considerations. Loading and wind shear studies have been made, and future efforts will be directed towards minimizing the "beef-up" to the Titan II structure.

5. Interface Aspects

A memorandum from Dr. Wheelon was sent on 10 November asking the Director, NRO, to schedule a day during the week of 16 November for a progress report on the FULCRUM program.

[Redacted]

Distribution:

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