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20 November 1964

MEMORANDUM FOR: Chief, Special Projects Staff
 SUBJECT: Weekly Status Report No. 9 on Project
 FULCRUM.

1. Camera System

a. ITEK - Messrs. Madden, Morser, and Watson brought with them on 19 November the briefing charts, 1/8 scale model of the camera system and pertinent support data for the scheduled briefing on the 24th of the Director, NRO. Current weight estimates for the camera system, including the SI camera and RV takeup unit but exclusive of film load, is 2,232 pounds. Preliminary interface specifications for the main camera, SI camera, and recovery takeup unit were also submitted. Through the use of air bars, the dimensions of a single optical bar are 160 inches long and 49.25 inches in diameter (using a 42 inch diameter spool). The complete camera has thus been shortened to 171 inches long and 110 inches in diameter, minimum center clearance being four inches. In view of the camera system telemetry requirements with their increased demands on the spacecraft contractor and ground telemetry facilities, Itek was given a memorandum from [redacted] asking for additional data in support of their requirements.

b. P. E. - Mr. Rosenau brought with him on 19 November briefing charts on the PE camera configuration and discussed with SPS personnel the current technical status of the system. Although Mr. Rosenau was reluctant to be held to any firm figures at this time (he felt he could improve on them), he did give some resolution data for the PE system as it is currently configured. Nadir figures are 3.9 feet (on axis) to 4.7 feet (full field), under the following conditions:

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1. 50% of the optical design transfer function.
2. 8 micron smear (mean focal plane in both directions)
3. .0008 inches depth of focus.

Other resolution data presented included:

1. 60% of full field under the above conditions is 4.4 feet.
2. 70% of the optical transfer function in orbit is the current objective.
3. 85% of the transfer function (equivalent to 2.3 feet on axis) is considered the maximum limit).

The length of the current system is on the order of 100 inches for the 20° stereo, two-slit configuration. In order to increase this stereo angle and still maintain a 50% overlap between cameras, 26° and 32° coverage would be the next highest stereo angles. PE also provided the following Phase II and Phase III data:

1. Cost of optical glass for 40 launches (with 10% contingency) is estimated to be 1.75 million dollars.
2. Facilities and manpower requirements for Phase II are 94,000 square feet and 450 men respectively.
3. 17 months required for total Phase II operations, including 9 months for optical processing.

c. STL - The second monthly progress report was received and reviewed by SPS personnel. It was generally agreed that, although the theoretical approaches to date have been quite good, increased effort in the future should be directed more toward the intermittent and continuous film transport system.

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2. Spacecraft

LMSC was informed on 20 November that they had not been selected as the spacecraft competition winner. Further studies in evaluating the relative merits of the STL and GE proposals are being continued. In general, GE offered a cheaper system using proven hardware, while STL had designed a more advanced system requiring new hardware and, therefore, a higher overall cost.

3. Recovery System

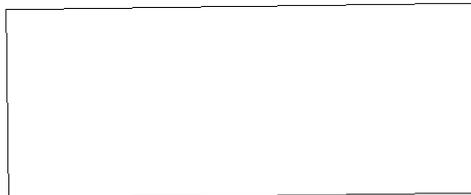
AVCO was informed on 20 November that they had been selected as the winner of the recovery system competition; GE was informed the same day that they had not been selected.

4. Systems Engineering

Because of the delays caused by evaluating the spacecraft and recovery systems proposals, the due date for the launch complex and booster specifications was extended to 30 November.

5. Interface Aspects

Messrs. Maxey and Dirks briefed Dr. Land in Boston on 20 November on the current status of the Project FULCRUM effort.



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