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29 January 1965

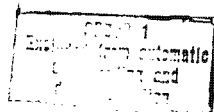
MEMORANDUM FOR: Chief, Special Projects Staff

SUBJECT: Weekly Status Report No. 19 on Project  
FULCRUM.1. Camera System

A. ITEK -- An outline of the work statement covering tasks to be accomplished by Itek during February and March was submitted by twix on 25 January. Mr. Crowley telephoned Mr. Morser his general concurrence and added under the facilities study task a look at a completely separate facility. This was modified by twix on 28 January by the Project Office to insure that Itek provide a work statement program to cover February and March but with a meaningful termination on 28 February.

A request was submitted on 27 January for authorization to proceed with a re-work program for the folding mirror, involving re-annealment if required and re-coating with final testing to be completed by 31 March. This request was approved on 28 January.

Because there was some confusion concerning the brass-board testing objectives and schedule, the 28 January twix summarized the need for two data runs, The first at normal atmospheric pressure and the second at either vacuum conditions or at normal atmospheric pressure depending upon the results of the first run. It was specifically pointed out that the completion

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date by 15 February was imperative. Mr. Madden responded on 29 January that he was in agreement with the test objectives and schedule, but that inclusion of the IMC experiment could not be accomplished in either data run because the film drum mechanism would have to be dismantled for approximately one week. The results from several initial feasibility tests this week have been quite encouraging. Specifically, the servo synch accuracy between the optical bar and the film drum rotating at 160 inches per second but without film was better than .04% the first time measurements were taken. Encoder outputs with film moving by the platen at 100 inches per second, but with the optical bar not rotating, revealed accuracies better than .01%. Good imagery was evident and the results of the Dr. A. tests are currently being analyzed. The results of the testing of the air bar breadboard in vacuum revealed that the gas <sup>flow rate</sup> ~~vacuum~~ was more than needed.

B. P. E. -- Mr. Rosenau met with [redacted] on 26 January to discuss future FULCRUM tasking at P. E. He was informed that \$60,000 would be allocated to P. E. to cover work through the month of February. Under these costs and schedule limitations, tentative agreement on a work statement was reached, the details of which were twixed to the Project Office on 28 January. The proposed five tasks will include:

- 1) Examination and analysis of existing cer-vit (zero expansion material) samples;
- 2) Feasibility study and mockup of the "Figure 8" dynamic system for one camera;
- 3) A small effort involving the completion of the film position analysis when supported by two rollers in the platen <sup>area</sup>;
- 4) An examination of the film flutter observed in the vacuum operation of the air bar;
- 5) Further study on the autofocus concept.

C. STL -- Mr. Crowley and Dr. Scott met with Mr. Reeves on 27 January to review essentially the results of the STL film transport contract.

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D. RCA -- Funding at a \$150,000 level for RCA to cover continued analysis on the "sheet feed" approach to film handling has been approved.

## 2. Spacecraft

Mr. Hood visited the Project Office on 26 January to discuss with Mr. Crowley some deficiencies in the project management at G. E. and with [ ] to discuss a tentative work statement to cover the \$140,000 contract extension for the month of February. The need for a close technical look at the structural interface between the spacecraft and the truss mounting for the payload was agreed on. The electric power requirements for the payload in both the spacecraft and the RV will be further definitized. Specification preparation for the Marquardt drag makeup engine will be undertaken at G. E. in anticipation of a 1 March go-ahead on Phase II. Further design on the attitude control system will be accomplished, with particular attention to the control and guard deadbands for the fine and course modes of operation. Thermal interfacing with both payload and RV associate contractors will also be pursued during the month of February.

\$100,000 has been authorized for the alternate spacecraft and vulnerability studies for the month of February.

## 3. Recovery System

Dr. Berninger was informed on 26 January that \$140,000 had been allocated to Avco for continued studies on the RV design through the month of February. A work statement covering this effort would be discussed at the Project Office on 2 February and would include a further look at the subsonic Discoverer configuration, Avco having been informed on 25 January that the CG location flown on operation Discoverers was the same as that described in the wind tunnel data. Visits to Edwards Air Force Base for a closer look at the operation recovery modes are imperative.

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4. Systems Engineering

Dr. DeLauer of STL and Mr. Rauth, Vice President of Martin in charge of the Denver plant, visited Mr. Maxey on 26 January to discuss booster aspects of the FULCRUM program.

Messrs. Maxey, Crowley, and Dirks discussed with STL top management future SEAC aspects of the FULCRUM program on 29 January at STL. The Technical Evaluation Report on the <sup>satellite</sup> payload launch system was received this week and contains the results of the back-up studies used to prepare earlier reports on the launch complex associated AVE (Aerospace Vehicle Equipment), AGE, and booster vehicle equipment. Also delivered this week was a preliminary spacecraft assembly check-out plan.

5. Interface Aspects

Messrs. Dirks and Vehrenkamp, of SEAC, visited Itek on 26 January to discuss camera thermal problems.

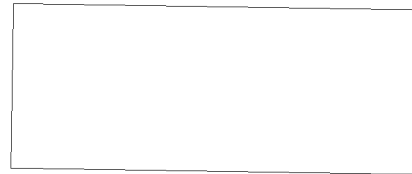
Messrs. Matson and Strawn of G. E. visited Itek on 28 January to discuss electrical interface problems with particular attention to electrical power. While there appeared to be general agreement on programmer and TT&C items, the requirement for negative voltage to the payload in the RV and the various transient loads results in no firm agreement. Further analysis by both contractors was agreed to prior to the next scheduled interface meeting at G. E. on 5 February.

Dr. Wheelon and members of the Project Office briefed Mr. McCone and General Carter on 27 January on several satellite reconnaissance problems including the reasons why CIA must continue sustaining the FULCRUM program. At the conclusion of the briefing Mr. McCone directed General Carter to propose at this week's EXCOM meeting of the NRO that 1.3 million dollars be allocated to sustain the FULCRUM program for the month of February (instead of the \$610,000 amount

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offered by the NRO staff) and to be willing to commit 1.1 million dollars for the month of March if a Phase II go-ahead was not forthcoming on 1 March. In addition, General Carter was to notify members of the EXCOM that a committee of senior technical experts would be formed late in February to review the results of the camera feasibility tests and other technical aspects of the program and to make their recommendations regarding the continuation of the FULCRUM program. At the EXCOM meeting General Carter was offered only the \$610,000 (which would allow continuation of the Itek effort only) and thereupon General Carter said that CIA would fund the entire 1.3 million.



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