11 Jan 62

MEMORANDUM FOR RECORD

SUBJECT: Simplified 66" System (SSD black code word: LANYARD)

1. A discussion was held with Discoverer project officer on the status of their study of using the simplified E-5 as a Thor-launched reconnaissance vehicle. The proposed method of procurement would be that the CIA would contract for the payload from Itek and the recovery vehicle from GE. SSD would be responsible for the Thor and Agena and [redacted] would have a black SETD contract with Lockheed. The current status is as follows:

a. It appears that it is completely feasible to use a Thor Agena D as the vehicle to launch the 66" focal length simplified E-5. The vehicle will probably be a two-day capable system. There would be about 40 lbs of film (system limitations are 20 lbs per day due to camera limitations) with a payload weight of 735 lbs. There would be utilized at apogee two ulage rockets to aid in obtaining the desired orbit parameters.

b. As currently planned, vehicle would be injected into orbit at perigee which would be about 20°N. latitude. The perigee would be 100 N. M. and the eccentricity would be .022. This results in an average photo altitude of approximately 140 miles. The inclination angles will be the same as for the MURAL program.

c. The Fairchild timer would be used and not the command programmer. The Fairchild timer characteristics will be:

(1) A smaller number of V/H ramps; however, there would be adequate number for mission parameters desired.

(2) Due to the lower altitude and higher resolution, a yaw correction is required. There is now no yaw correction on the Fairchild timer. IMC is corrected for forward velocity only. For this vehicle an average yaw setting for each orbit would be put on to the timer tape prior to launch.

(3) The 5-position roll capability would be maintained except that only one of the five positions would be available per pass.

(4) The inclination angles will be the same as for the M program. From a strictly vehicle standpoint using both the Thor and Agena for doglegs, it appears that the optimum, from standpoint of vehicle only, inclination is about 69 degrees.

[redacted]

[redacted]

[redacted]

(5) This system will include life boat.

(6) The 101B velocity meter would be used to help establish orbit parameters.

d. The payload characteristics that look to be feasible are that at 130 N. M. and 100 lines/mm that a ground resolution of 4 ft will be possible. It is proposed that Itek and LMSC jointly design the payload structure, that LMSC will fabricate the payload structure and ship to Boston, where Itek would then mate payload with the structure and the payload system would be accepted at Boston, the accepted payload would be shipped to LMSC where it would be mated with the capsule and system checked and accepted, then shipped to base for launch.

e. The current schedule, based on an immediate go ahead, would be for first payload delivery on 22 August 62 and one per month subsequent to August, for a total of five payloads. This would result in the first launch in about December of 1962. This payload and vehicle would be completely interchangeable with C, A, and M. It is estimated that an R-45 day notice would be required. This longer period is required for system checkout.

f. The real problem in providing enough vehicles is the long lead Rocketdyne engine. There is a very real problem now to provide appropriate number of Thors during CY 62 and if it is planned that there will be CY 63 Thor deliveries some immediate action will be required on obtaining the Rocketdyne engines. There will exist at the end of CY 62, under current plans, one Thor (from 1025) and two spare Agena B's (assuming Agena D is successful). Should the M program slip during CY 62 and/or should the last six M's shown on the schedule not actually be flown, then adequate vehicles will be available to fly this program.

g. Since the major pieces for all five of the 66" cameras are essentially on hand it appears that the following is a reasonable fund estimate:

LMSC [redacted] qual unit plus 5 flights units

Itek [redacted] R&D, qualification, test, [redacted] for R&D, qual and test and delivery of first unit) (The remainder ((4)) would be fixed price at approximately [redacted] each.)

[redacted]

[redacted]

If the current schedule were amended to fly five 66" systems in place of five M systems it appears that a cost of something like [redacted] would provide this capability assuming that we use the vehicles already scheduled.

2. In addition to the above, Col Battle feels that it is very important that he bring up for consideration one more time the Thorad. In addition to a number of other capabilities it would provide a six-day life for the 66" system. Col Battle estimates that we can get a fixed price contract to provide a Thorad capability plus mod to 4 pads and 5 booster kits for [redacted] He further estimates that we could use booster planned for 1025 and one of the spare Agena B's and launch this system with payload in November 1962. He estimates that the mod kits for follow-on Thorads would be of the order of [redacted] each. In addition, Col Battle will present a product improved version of the MURAL system which probably will be a 40" f 2.5 system.

[redacted]
Major, USAF
SAFMS

[redacted]