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17 September 1960

MEMORANDUM FOR : Deputy Chief, Development Branch, DPD-DD/T

SUBJECT : Trip Report - [redacted]

1. A series of trips were made over the period of the last week on the CORONA project. These trips are consolidated herein for the sake of expediency.

2. Second Design Review For The C-6l Program - A meeting was held at FJSC on 7 September with the CCB, [redacted] as well as the Contractors involved, in attendance. The following items were discussed:

a. Tension - A breadboard model has been fabricated of a hub drive and radius sensing arm for film tension on the supply spool. A variable spring clutch will be used for drag. Also, a close loop servo system for tension sensing has been designed but not tested; however, it is apparent that this type of device would cost power and be more complicated. It was recommended that an open loop servo be used in conjunction with radius sensing to maintain tension throughout the torquer meters. For safety's sake, bobbler or dancer rollers will be tested with this system. These can easily be removed if it is determined that they are not required. Tension sensing will be for take up as well as for supply. Metering rollers will be located outside of the shaw rollers.

b. Overrunning Clutch - This item was suggested by [redacted] in his original recommendations; however, Itek has now performed a comprehensive study with the conclusion that this clutch would not be advantageous without a major redesign of the film transport system. After careful consideration, [redacted] concurred in the recommendation that the overrunning clutch not be included in the C-6l program.

e. V/H Programmer - A decision on incorporating a change to the V/H programmer can not be made until a conclusion has been reached concerning the increased altitude proposal. A decision is due by the next week. Another interesting capability in conjunction with the programmer was discussed. A possibility exists, providing we control from the North Pole area, to vary the initiation point for any given pass by ground command.

d. Digital Clock - Apparently, a typographical error had occurred in the specification for the C-61 clock, since the requirement was more stringent than that for the "A" program. The prime was inferred that we wanted a good clock, especially in light of the lack of reliability in the present digitote; however, the requirement for "C" does not exceed the requirement for "A". A capability exists to annotate the timing marks with a double pip at the precise instant of time back with the dial reading. [redacted] felt that this would assist PIC in read-out.

e. Instrument Weight - The weight change for the C-61 will be somewhat less than +17½ pounds. The "C" prime weighs 105 pounds. Therefore, it is estimated that the C-61 will be approximately 122 pounds.

f. Main Plate - A main plate with ½ honeycomb and a star insert was tested by Itek for 36 minutes without failure. This is twice the requirement of the specification, therefore, we feel that the 1/8 inch honeycomb with the star insert will be an extremely reliable structure.

g. Work Statement - PCIC brought up the problem that a work statement from Itek has not been provided. They are quite anxious to receive this definitized work statement. Itek promised to get it out before the next meeting.

h. Footage Counter - LMED and Colonel Murphy have expressed a desire to have a film footage counter included as a requirement in the C-61. This item will be studied and a proposal made at the next meeting.

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1. Delivery - The first qualified unit scheduled for delivery is 1 March 1961, then one every two weeks. This looks difficult to PCE unless they are given an enlarged scope to acquire more people and facilities. Realistically, one every three to four weeks would be more the case under the present arrangement. LMSD remained an extra day to discuss scheduling with Itek and PCE. This item will also be discussed at the next meeting. Captain Johnson stated that from a MSD standpoint, two launches per month were realistic for most months in light of the improved weather launching capabilities at Vandenberg AFB.

2. Status Review - The next meeting is tentatively scheduled for 7 October.

3. Itek Proposal for C[a] Prism - Captain Johnson and I visited Itek on 8 September to review a proposal concerning a substitute instrument for the C-61 time period. This proposal is actually a product improved C[a] prism as originally submitted by Itek for 1961. They have continued within the company to design and fabricate an improved instrument for the existing configuration. Engineering drawings have all been released, parts (with the exception of the lens which will be delivered on the 8th of October) are available for assembly starting 12 September. Itek first unit will be totally assembled for engineering tests by the 15th of October. Re-lapping is expected to take about two weeks. Itek first unit is not minimum weight, and has no tertiary system (although provisions will be made for their installation) since it has been fabricated on the white skin. It is estimated that the total weight of the final flight item will be in the vicinity of 90 pounds and require a peak power load of 3 amps in comparison with the C[a] prism peak of 50 amps. Itek is preparing to start fabrication of a qualification unit immediately with qualification testing completed by mid-February and a final flight unit ready by 1 April. The more interesting features of this system are as follows:

a. Lens - "Petzval" type with a film flattener at the focal plane. This is a relatively simple lens to fabricate, since it [redacted] in cost. Most significant is the fact that this lens will be 24 inch f/3.5. This lens, is therefore, roughly twice as fast as the present f/5.

b. Shutter - Shutter speeds will be variable between 1/200 and 1/1000 of a second.

c. Resolution - Dynamic resolution capabilities of this system should, conservatively, produce 175 lines per millimeter. This means that the relatively slow fine grain SO 243 film could be used during a goodly portion of the summer. Eastman Kodak is now putting this fine grain base on polyester material for another program. This fine grain film could not be used with the present KS system on "C" prime and C-41.

d. Discussion - Captain Johnson and I were both very impressed with this proposal due to the obvious advantages in acquiring a significant increase in information content. Recommend consideration of this system for the 1961 time period. I have discussed this instrument with [redacted] and he is also very favorably impressed. He would prefer to visit Itek and review the drawings and discuss details with Mr. Walls before he made a final commitment. He is standing by to make a trip to Itek for this purpose next week.

4. Loading of 3010 - I monitored the loading of the next mission at Vandenberg AFB. LMSD is now occupying their new "L" Building and this facility is a tremendous improvement. Loading was normally however, a new procedure for filling the gas bottles by allowing additional time periods for stabilization delayed the start of our operations till after midnight. I feel that the human element of fatigue may begin to creep into this operation when long delays are incurred. Therefore, for the next shot the loading of the gas bottles will be initiated at least 12 hours earlier.

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Major USAF

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