DRAFT

MEMORANDUM FOR : Director, National Reconnaissance Office

SUBJECT : Improvement of CORONA/M

REFERENCE : Memo for DD/R, CIA, dated 7 January 1963, same subject

1. I heartily concur in continuing the effort to improve the CORONA/M product and have instructed [redacted] as a member of the Configuration Control Board, to keep pressure on the contractors toward this objective. Also, the evaluation team (including the contractors) which comes to NPIC and reviews each mission to determine problems and take remedial actions was established with the objective of progressive product improvement. A review of the Itek proposal of 31 December 1962 leaves the impression that it was prepared as though much of the work was not going on and the other industry team members were not involved. Itek has also been reluctant to use the proposed Technical Directive route for introducing changes and improvements into the system in spite of the fact that they have been encouraged to use this procedure.

2. In answer to the Itek proposal, I submit the following comments:

Item I - The first titanium scan arm/drum assembly has been qualified by Itek and two flight configurations are due for delivery by the end of January 1963. In addition to this development, LMSC has been working on the passive inflight thermal control through paint pattern studies and we have had at least one flight with temperature

read out on TM Link 2 which showed no substantial change in temperatures on the operational side of the orbit where we had no previous data. Also, the design limits of the camera compartment of 70° ± 10 have been biased toward the warm side at 80° ± 10 as a result of studies which showed our best results were when we were running hot.

Item II The proposal mentions that limited investigation has been conducted to determine the feasibility of using additional rollers at the scan head to more accurately and firmly define the film plane. The Configuration Control Board has been monitoring this testing and expecting a design proposal (TD) to permit incorporation of needed rollers. The problem is in interference with scan arm operation and film transport mechanisms. Itek has been working on this problem for some time.

Item III - Exposure control devices have been discussed since the beginning of the program, however, our success to date with pre-programmed on-off points in relationship to fixed slit have given such good results with very high reliability that we have been reluctant to complicate the system with an automatic device. Such a device would have to be fail-safe. Also, LMSC has already proposed a TD to incorporate a light measuring device in the vehicle to record light levels actually received at the skin line. This is a reasonable first step toward exposure control. I recommend that Itek submit a TD on this item.

Item IV - The proposal does not discuss "active weight control" in any detail. The monthly SETD meetings have covered weight reduction programs on a general basis, especially with regard to "J"

and LANYARD. Specific details of what is being proposed is required before comments can be made on this section.

Item V - Samples of Eastman's ultra thin base materials have been given to Itek for testing only. The tests showed that for the stellar/index cameras, the film handling characteristics were satisfactory. Eastman would not even promise the limited quantities of this material for use in the S/I units. They make no commitments at all for large quantities suitable for the panoramic instruments in the forseeable future. Incidentally, Itek based its proposal for TAGBOARD coverage on the same unavailable "ultra-thin base" film.

Item VI - The state-of-the-art in V/H sensors is being pursued under the OXCART program. Unless Itek can be much more specific on this item, I suggest we follow the developments on other systems. Also, [redacted] informs me that LMSC has a company funded program with [redacted] on this subject.

Item VII - The design and production of an M-prime camera seems to fall in the same general time period where we could have just as well procured an M-2. (40 inch, scaled-up model.)

2. In summary, I feel that Items I and II are already underway. If Itek needs more funding or support on these developments a TD can be issued. Itek should submit a proposed TD on Item III. I recommend that Items IV through VII not be approved as proposed.

[redacted]