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MEMORANDUM FOR RECORD

24 Oct 1962

SUBJECT: Camera Calibration Case

1. Attached reply by Dr. Charyk to [REDACTED] re nonacceptance of the Army bid to assume responsibility for calibration of certain cameras was discussed with [REDACTED] on 22 October. In the discussion I made the following observations:

a. The Air Force has displayed a remarkable slight-of-hand trick in stating herein that the cameras concerned are "not a cartographic system" as opposed to their stand in the recent Fubini symposium where the same system was a cartographic one.

b. The Army will initiate a study to support our strong feeling that the results produced by the ACIC system are radically inferior to those that could be obtained through the more sophisticated Ballistics Measurements Laboratory facilities.

c. The final SOP attached to Dr. Charyk's letter is precisely as presented to the working group in September, indicating a suspicion of bias.

2. [REDACTED] overall comment on the letter was to observe that the door is apparently closed even though the last paragraphs indicate an intention to keep our capabilities in mind for possible future usage. With respect to the specific points made above [REDACTED] observed that:

a. Point "a" is not exactly true inasmuch as the Charyk letter merely states that the frame camera was not initiated as a cartographic system.

b. With respect to point "b", [REDACTED] pointed out that it is not sufficient to merely prove that the ACIC system would produce results inferior to those obtainable by the Army, but that the ACIC system will not produce "adequate" results.

c. Re point "c", [REDACTED] did not feel that the similarity between the original SOP and the present is important inasmuch as we have to presume that the matter was given unbiased consideration in arriving at the decision.

WORKING PAPERS

[REDACTED]
Chief, SDO, T&E

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In Accordance with E. O. 12958

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OFFICE OF THE UNDER SECRETARY

16 OCT 1962

MEMORANDUM FOR The Assistant Secretary of the Army (R&D)

SUBJECT: Calibration of Stellar/Indexing Camera Subsystem (S/I)

Reference: (75) Department of Army memo, subject: [REDACTED]
[REDACTED] dtd 4 Oct 62

As you know, the small framing camera which has been flown in the CORONA project since early 1962 was not designed as a cartographic collection system. This unit, which has been a secondary mission item within the CORONA project, was included specifically for the purpose of providing additional vehicle orientation information and to serve as an indexing aid to users in the intelligence readout process. Upon establishment of this additional, secondary part of the CORONA configuration, arrangements were made for the calibration of this equipment by use of the resources at the ACIC.

Subsequent to its incorporation into the CORONA project, cartographic personnel of all three services have indicated considerable interest in the modification of this indexing unit to increase its value in cartographic applications. As a result, coincident with certain necessary modification of the basic camera unit to correct earlier design deficiencies, a stellar unit has been added. The meeting to which you refer was held at NPIC on 18 September 1962 for the purpose of discussing the additional calibration requirements imposed by the incorporation of the stellar unit. Subsequent to this meeting, and in accordance with the discussion at the meeting the inclosed S/I calibration SOP has been adopted by the NRO.

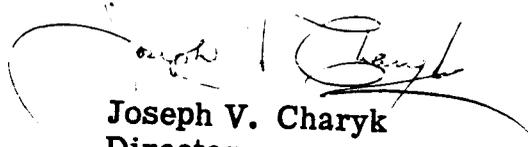
Since the basic calibration arrangements, established prior to such cartographic considerations, are working well, and since the additional calibration measures required by inclusion of the stellar unit can easily be accomplished by utilization of the same resources with

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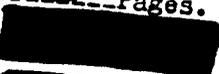
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relatively simple modifications to the existing procedures, and since ACIC has already made such calibration of the first S/I flight article, I can see no particular reason why we should at this stage change to different DOD calibration facilities. However, in the case of future systems designed primarily for cartographic applications, the Army Ballistics Measurement Laboratory will certainly receive full consideration by the NRO in the selection of resources and establishment of procedures to accomplish the necessary calibration.



Joseph V. Charyk
Director
(S) National Reconnaissance Office

Incl
SOP 


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SOP FOR CALIBRATING S/I UNIT

1. ACIC to receive copy of master reseau on glass plates. Itek to provide as soon as possible after accepting from manufacturer.
2. ACIC calibrate and measure reseau and forward data to Itek.
3. Itek calibrate (using goniometer) stellar and frame camera units for principal point, focus, vertical and tangential lens distortion. Enter into camera logs and prepare data sheets.
4. Forward lens calibration to ACIC to compute calibrated, corrected reseau intersections for stellar and frame cameras.
5. ACIC transmit results of Step 4 to Itek for entry into camera log.
6. Itek obtain stellar photos for assembled camera unit. Forward plates to ACIC for component calibration.
7. ACIC forward orientation matrix from component calibration to Itek for entry into camera log.
8. Itek perform camera acceptance test and ship to West Coast.
 - 8.1 Stellar calibration at West Coast if not accomplished on East Coast.
9. After vibration, Itek field reps obtain stellar photo and forward to ACIC for computing.
10. ACIC forward data to West Coast for entry into camera logs.
11. LMSC to include all available calibration data sheets in Master System data book forwarded with film. ACIC to forward any remaining data to NPIC.
12. Updating of camera calibration after receipt of materials through NPIC.

SPECIAL CONDITIONS TO BE FULFILLED:

1. Fiducial marks and correlation light to be exposed during patio test. Frame camera looking in polar direction; stellar to equator, background densities to be sufficient to image reseau.
2. All materials in this SOP will be exchanged by registered mail with recipient being informed by telephone of registered number and date of mailing except for Step 11, which is subject to exchange by Courier only.

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