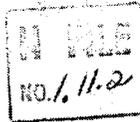


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USIB-D-41.13/12
(COMOR-D-13/17)
31 July 1964
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UNITED STATES INTELLIGENCE BOARD

MEMORANDUM FOR THE UNITED STATES INTELLIGENCE BOARD

SUBJECT : Long-Range Requirements for Satellite
Photographic Collection

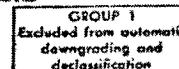
REFERENCE : USIB-D-41.13/11 (COMOR-D-13/16),
27 July 1964, Limited Distribution

1. At the United States Intelligence Board (USIB) meeting on 29 July, in restricted session with Dr. McMillan, Director, National Reconnaissance Office (D/NRO) present, the Chairman, Committee on Overhead Reconnaissance (COMOR) opened this subject by explaining that in the recommendation in paragraph 7. a. (1) of the reference, COMOR did not presume to judge the suitability of any particular system in meeting USIB requirements for an advanced satellite search system. Likewise in paragraph 7. a. (2), although the specifications appeared to point to the G-3, Mr. Reber stated COMOR was not endorsing any system, but was looking for a resolution of [redacted] or better, and if feasible, a swath width as wide as possible, accuracy in pointing the camera and continuous coverage stereo. He noted that in paragraph 5, COMOR had also concluded that those improvements in resolution and reliability that could be made in the KH-4 and KH-7 without impending development of the two systems mentioned above should be effected. The Chairman, COMOR, also stated that although COMOR had not yet made a formal recommendation to the Board, his Committee preferred the KH-7 to the KH-4 as a crisis standby and that the KH-6 might serve as a supplement thereto.

2. The DIA member, referring to paragraph 6 of the COMOR Conclusions and Recommendations, stated he did not think COMOR had given adequate

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consideration to the USIB directive regarding the need for an interim search system like the LANYARD. General Carroll noted that there was a requirement for coverage of targets KH-4 could not detect and for which the swath width of KH-7 was too narrow, and urged USIB not to drop consideration of the KH-6 (LANYARD) as an intelligence collection system against certain targets. The Chairman agreed that this was an important point and stated he would like NRO and COMOR to study the feasibility of running one or two KH-6 missions with orbits worked out to give maximum coverage of China near the end of this year when the weather will improve. Mr. McCone said he felt this might prove to be a useful input to our intelligence inventory. The D/NRO stated that after the last Board meeting he had initiated a technical and cost study, as well as an informal targeting study on how many KH-6 missions would be required to obtain coverage of South China. While he had nothing at present to report on the targeting study, Dr. McMillan reported that it appeared the first flight with the existing payload could be ready about 4 months after the decision was made to go ahead. The D/NRO added that he had not yet looked into all factors involved, and there would be some costs directly associated with the project. He said that THOR and AGENA boosters already in the program as standbys could be used to orbit the KH-6s but noted that this would deplete the reserve of standby vehicles. Dr. McMillan stated that we have 5 complete KH-6 payloads in storage and the removal from storage and utilization did not present severe technical problems. In response to a question by the Chairman regarding how many missions would be required [redacted] of the NRO Staff, stated that the number required would depend primarily on the weather. Although the study was not yet completed, [redacted] estimated it would probably take 3 or 4 missions at the time of the year proposed. The D/NRO stated the study would be completed by next week. In response to questions by Admiral Taylor as to the possibility of R&D conflict between the improved search system and the high resolution system, and the timing involved, the D/NRO replied that there was no conflict in priorities, there was no problem as to "state of the art" in developing the search system as recommended by COMOR, and the development cycle for the high resolution system which would be about 2 1/4 years after initiation of

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payload design, or the latter part of 1966. Mr. McCone suggested that in view of Dr. Fubini's statements last week regarding availability of funds, it appeared questionable whether priorities for the development stage were important. The D/NRO replied that he felt it was a matter of convincing Secretary McNamara of the requirement, as the Secretary of Defense had told him repeatedly not to stint on this program.

3. The Chairman stated that after considerable thought on the matter, he believed the positions developed by COMOR were logical and understandable. He said he understood and was fully sympathetic to the Defense Department responsibilities and desire for the highest possible resolution in order to produce the best technical estimates on Soviet weapons systems. On the other hand, Mr. McCone said he recognized the high priority placed by CIA analysts on the broad view of Soviet progress which could better be answered by broad coverage. The Chairman stated he was not going to try to resolve this apparent problem as he believed we needed both capabilities. Although new heavier boosters may help, Mr. McCone recognized serious problems incident to development of both systems. He said consultants had pointed out areas of serious doubt in the new CIA-proposed search system. G-3 also has development problems, including those surrounding the use of the largest (48 inches) mirror employed to date. The Chairman pointed out that only when research and development is completed can we prove or disprove their capabilities and approve a "go ahead" on either or both of these systems.

4. Mr. McCone then reviewed the substance of a letter he had written to Deputy Secretary of Defense Vance on 23 July in which he had recommended certain steps be taken to improve or develop GAMBIT, GAMBIT-3, the CIA concept for a higher resolution search system, and alternative high resolution spotting and search systems in anticipation of the availability of the TITAN III booster. Specifically, Mr. McCone had recommended research and development work on G-3 and the CIA concept over the next six months as a basis for further decisions. The Chairman stated that if the Board generally agreed to

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this procedure, he would meet with the Secretary of Defense and arrive at definite decisions on how to proceed. Mr. McCone said he was particularly interested in the effect TITAN III might have on future satellite reconnaissance systems. He then requested the D/NRO to make a study regarding the potential of TITAN III in improvement of satellite reconnaissance systems currently under consideration. The DIA member said he subscribed to the Chairman's proposal as he believed it necessary and appropriate that the Board state firm requirements for collection systems. Mr. McCone noted that having stated intelligence requirements, the problem of how to fulfill it was beyond the province and competence of USIB.

5. The D/NRO stated that it was very helpful to have firm statements of current USIB requirements. He agreed that study was needed on the use of TITAN III, and noted that a fair amount of analysis had already been done on its use. Dr. McMillan pointed out, however, that the information on the use of TITAN III for general search is not up to date, while studies on its use in connection with a high resolution pointing system are more current. In this connection he said that at the present state of the art [REDACTED] resolution pointing system would not require the full weight carrying capacity of TITAN III. The D/NRO emphasized that there were critical technical problems involved in the development of such a very high resolution system and mentioned two:

- a. The large (100 inch) mirror, which would require extremely fine finishing, and which would experience to a higher degree, all of the problems the Chairman had pointed out in discussing the 48 inch mirror in G-3.
- b. Much development needed for a suitable target tracking device not based on a timed flight schedule. He noted that this second problem is technically easier than the mirror problem mentioned above.

The D/NRO said that although he was not prepared to discuss development

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problems incident to the general search requirements which incorporate resolution [REDACTED] with a broad swath, he believed such a system would require the full payload capacity of TITAN III.

6. The CIA member, in connection with the discussion of the weight carrying capacity of the TITAN, raised the possibility of eventually using a man to point the camera. Dr. McMillan said studies along this line were being conducted by NRO. It appeared that a man could do the job, but the unmanned system should do almost as well and did not require the 8,000 pound additional capacity required to support manned flight and was not involved with manned recovery problems.

7. The Deputy Director, Science and Technology, CIA, asked whether, in view of Board interest in high resolution, our requirements should stop at [REDACTED]. The Chairman suggested that an effort be made to find out what this improvement would cost before we go further, as he was becoming increasingly allergic to expressions of requirements which did not bear a price tag. Mr. McCone indicated there may be a lower limit to resolution [REDACTED] beyond which atmospheric phenomena may be a controlling factor. Dr. Wheelon explained that the CIA general search proposal which was pegged to the use of TITAN II had the problem of moving film fast enough. He said that faster films being worked on by Eastman for G-3 might help the problem by cutting down exposure time.

8. In response to a question from the Chairman regarding the status of NRO efforts to resolve G-3 problems, the D/NRO stated that specific efforts were currently being made to bring the resolution down to that requested, through a design contract to Eastman for the system which includes the structure to be orbited. He said that the present schedule calls for the fabrication of full size mirrors from two sets of materials by February 1965. Smaller mirrors to test materials were expected this fall. Dr. McMillan said that environmental test of the mirrors would be less complicated than similar tests for the complete camera, and that money was included in the Eastman contract for the construction of a test facility.

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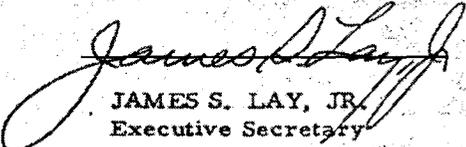
7. USIB further discussion USIB:

a. Approved as guidance to NRO the COMOR Conclusions and Recommendations contained in Tab B of USIB-D-41.13/11, subject to the deletion of the priority statement in subparagraph 7.b., and the reservations expressed by the Chairman and the DIA member concerning the COMOR Conclusions regarding LANYARD in paragraph 6.

b. Noted the DCI's review of the substance of a letter to Secretary Vance recommending certain steps to improve or develop GAMBIT, GAMBIT-the CIA concept for a new and improved search system, and alternative high resolution spotting and search systems in anticipation of the availability of TITAN III, with which USIB expressed general agreement.

c. Requested that NRO report at the next regular USIB meeting on the results of the NRO feasibility study to conduct one or two KH-6 missions giving maximum coverage over China near the end of this year.

d. Noted that the D/NRO would have studies on the use of TITAN I for both general search and pointing systems brought up to date and presented to USIB.


JAMES S. LAY, JR.
Executive Secretary

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