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Satellite Intelligence Requirements

Reference USIB 33-6/8 "Transmittal of Intelligence Requirements for Satellite Reconnaissance Systems of which SAMOS is an example (Satellite Intelligence Requirements Committee Paper) 5 July 1960.

1. Since the preparation of USIB 33.6/8 the intelligence community has acquired considerable experience in and the use of overhead reconnaissance vehicles and in the selection of targets for these vehicles. On the basis of this experience we believe that the intelligence community will continue to have requirements for a variety of manned aircraft and satellite reconnaissance vehicles. The purpose of this paper is to state intelligence requirements that appear to be best suited for collection by satellite reconnaissance. An annex is addressed to requirements for reconnaissance by manned aircraft when those systems seem most appropriate to satisfy intelligence needs.

2. At present our operational inventory contains one satellite photographic reconnaissance system - the CORONA-M. This system has demonstrated its value as an intelligence collection platform but it represents early technology and can improve.

3. The success of the CORONA-M has been achieved largely because it is able to acquire photographic coverage of large land areas on each mission, because its performance has not been hampered by enemy countermeasures and because its use is not politically objectionable within the U. S. Its

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invulnerability is not a permanent advantage and immediate steps must be taken to protect the vehicle. The principal disadvantage of CORONA-M is its rather gross ground resolution capability (on the order of 10 to 15 feet), sufficient to identify large installations and objects but not to permit accurate measurements. Its other disadvantages are its inability to produce intelligence during darkness or through cloud cover and its slow reaction time in relation to intelligence indication needs. Research and development should be directed toward correcting these deficiencies.

Philosophy for Producing Satellite Follow-on Systems

4. As stated above, there are requirements for systems to improve the quality of present satellite reconnaissance. The new systems should appear in orderly sequence and should be directed toward specifically fulfilling the requirements in paragraphs 7 through 24. However, both the USIB's total intelligence requirements and its judgments concerning the use of satellite vehicles in various situations naturally will be subject to change. These changes may result from new intelligence problems that arise, the experience gained with new and improved reconnaissance systems, or alterations in the relative value of satellite reconnaissance versus other forms of collection. Therefore, it is important that USIB be consulted from time to time in order that changing intelligence needs may be reflected in research and development.

5. It must be recognized that in developing new systems conflicts may arise between the various stated needs. These conflicts should be brought to the attention of USIB so that it may exercise its judgment concerning the extent

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to which technical factors may affect its requirements. For example, a system designed to improve ground resolution may achieve this by sacrificing area coverage or other performance factors; in which case, USIB should determine before the new system is adopted whether or not the anticipated results, taking into account the sacrifice, actually will be responsive to highest priority requirements. Finally, untried systems should not be allowed to interfere with existing capabilities by competing for boosters or fixed range facilities; neither should proven operational systems be discontinued nor a reduction in their launch rate occur until the follow-on systems have achieved demonstrated reliability and acceptable performance.

6. In order to maximize the benefits from satellite reconnaissance systems, the intelligence community will continue to submit through the COMOR detailed substantive requirements as appropriate to plan individual missions. These requirements will be tailored to fit the systems in use at the time and will also be addressed to systematic photointerpretation and reporting of missions so that intelligence feed-back is assured.

Requirements for Follow-on Satellite Reconnaissance Systems

7. We divide future requirements for satellite reconnaissance into four basic missions:

a. Search [redacted] Series B

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b. Indications/surveillance

c. Technical intelligence

d. Geodesy and mapping

Search Mission

8. The present CORONA-M (perhaps in conjunction with its immediate follow-on, the CORONA-J) is providing ground resolution on the order of 10-15 feet and is capable of obtaining continuous daytime photography, in black and white and in stereo, which covers a ground swath about 200 miles wide. We feel that the most urgent improvement needed in this program is to make the satellite invulnerable to anti-satellite blind firing and to jamming. This requirement will probably become increasingly urgent in 1963.

9. The next major improvement in search system performance should be to achieve a ground resolution on the order of 5 feet with the swath width remaining at about 200 miles. There is very little benefit in building systems with intermediate resolution (i.e. between the present 10-15 feet and 5 feet) for the search mission. We recognize, however, that this requirement may not actually be achieved by the first system reaching full operational status and that additional modification may be necessary.

10. Also we believe that in 1964 the search vehicle should be made invulnerable to anti-ballistic missile interdiction based on acquisition

[redacted] Series B
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and destruction during a single pass over an anti-ballistic missile site and not based on blind firing using previous orbital data. At the same time the system should retain its ground resolution and coverage capabilities.

11. If the Soviet Union were to adopt a program for camouflage of missile sites and other militarily important installations in order to avoid detection by overhead reconnaissance, it could begin to neutralize our reconnaissance programs during 1964. Consequently, there are urgent requirements for development of a multisensor search system using color, infra red, radar and ultra violet photography for use in 1964. However, this system should provide ground resolution of about 15 feet and should attempt to maintain the 200 mile swath width.

12. Improvement of the multisensor vehicle should continue to 1965 and beyond with the objective of attaining 5 foot ground resolution.

13. Experience since the inception of the CORONA program has furnished a basis for determining the frequency of coverage needed to satisfy our hightest priority requirements. We believe the launch schedule for search vehicles should provide potential coverage of defined and unknown target areas at 10-day intervals. However, it is recognized that the present daylight-only capability of CORONA missions cannot usefully be employed at 10-day intervals during winter months when weather and light conditions are adverse. Therefore, we recommend search coverage at 15-day intervals [redacted]

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during November through March until a multisensor search vehicle becomes operational.

Indications/Surveillance Mission

14. Our present need for an indications/surveillance satellite system is a stand-by capability to launch at six hour notice a CORONA vehicle capable of sustained coverage over several days but with film recovery made possible any time after 24 hours. This vehicle should be pre-programmed against a limited number of COMOR targets which are related to the intentions of the Soviet Union to go to war. The programming should be accomplished in such a manner as to sample various types of indicators, and as many as possible, during each day's orbits. This capability should include provision for prompt replacement of vehicles launched and a means for these vehicles to take priority over other firings in the U. S. satellite schedule. We believe that three vehicles per year should satisfy the requirement for this system.

15. As in the case of the search system discussed above, there are immediate requirements to protect this system from anti-satellite blind firing interdiction (1963), to improve resolution to 5 feet while maintaining the 200 mile swath width (1964), and to provide anti-ballistic missile invulnerability (1964).

16. Also in 1964 the system, while maintaining 5 foot resolution, should be capable of yielding timely indications intelligence via electronic data

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link every one to three hours.

17. The indications/surveillance satellite with data link should be augmented, by radar, infra-red, color and ultra violet photography as soon after 1965 as possible.

18. This system should be improved with the objective of providing during the 1966-68 time frame, before the Soviet Union has developed a hardened ICBM system adequate to destroy our retaliatory force in a surprise attack, constant surveillance of the Soviet Bloc and other key areas of the world with readout at 40 minute intervals. This system, when perfected, will replace the search capability discussed above (paragraphs 8-13) and will also satisfy any military requirements for a bomb damage assessment capability.

Technical Intelligence Mission

19. Our technical intelligence inventory includes two satellite systems which are to become operational in 1963. (Specific System performance figures follow).

20. There is an immediate requirement for a satellite system which can produce one foot resolution and which is protected against anti-satellite blind firing to be part of our reconnaissance inventory. This type of vehicle should be launched on a mission-by-mission basis at the request of the intelligence community. However, for planning purposes sufficient vehicles

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should be provided to achieve launches at monthly intervals. If such a system yields valuable results, we will probably wish to increase the launch frequency.

21. As in the cases of the search and indications/surveillance systems, we believe that the technical intelligence satellite should be protected against anti-ballistic missile destruction and that it likewise should have a multisensor capability by 1965.

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