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TOP SECRET

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PROJECT CORONA

1. Purpose: Project CORONA contemplates the covert development and subsequent operational use of a short lived reconnaissance satellite from which, at the completion of its mission, a recoverable capsule containing exposed film is separated for return and pick up in a preselected ocean area. Prior to the initiation of this project, the development of such a system had been started by the Air Force as a part of Weapons System 117-L but was officially cancelled early in March. Thus, CORONA involves the picking up and carrying through covertly of a program already undertaken together with technical modifications therein as indicated below.

2. Configurations: Taking advantage of arrangements already made by the Air Force, the basic vehicle for Project CORONA will be a two stage rocket consisting of the same second stage that is being built by Lockheed for WS-117-L with a Thor booster as the first stage (in place of the Atlas booster that will be the first stage of the 117-L vehicle). It is proposed to develop for CORONA two different payloads to be carried by this vehicle, of which one will be the configuration originally adopted by the Air Force and the second will be a more sophisticated configuration developed as a back-up or follow-on to the first.

a. The design of the first configuration provides for a pod containing camera, film, and recoverable capsule to be separated from the second stage rocket and spin stabilized after it is in orbit. The camera has a focal length of six inches and scans as the pod spins. The second configuration will provide for a nonspinning stabilized platform from which a twenty-four inch focal length camera continuously looks downward toward the earth and takes pictures by scanning from side to side.

b. The first configuration has the advantage of using a simpler method of stabilization with which there has been greater experience. More than a month's work has already been done on it. It can be ready for an initial firing before the end of this year whereas the second configuration probably cannot be ready for some three to six months thereafter. Since somewhat less development is required for the first configuration, the technological risk involved in its production is smaller.

NRO, USAF and ONI review(s) completed.

TOP SECRET

-2-

On the other hand, as compared to the second configuration, it has only one-quarter of the focal length and is forced to use fast film which yields grainy photography. This configuration is not expected to have a resolution of better than sixty feet on the ground whereas the second configuration is expected to have a resolution of about twenty feet. Moreover, the second configuration has more opportunity for technical "growth" in the direction of the use of longer focal length cameras and further improvement in resolution.

3. Rationale: Provision for the development of both of these configurations represents a technical change in the program originally launched by the Air Force and will increase its total cost. Nevertheless, it is believed that this procedure is desirable and will constitute a well balanced program. Development of the first configuration will serve two important purposes:

a. It will furnish invaluable experience with the basic vehicle and with operational and recovery techniques.

b. Pending availability of the second configuration, the first (despite limitations on the quality of the photography) will permit the detection of major reconnaissance targets, such as missile sites under construction, or presently unknown communities or major installations in the Soviet far north.

It is proposed that only six units of this configuration be produced and it is estimated that only two or three of these will be successfully orbited and will operate without malfunction. It is only with the availability of the second configuration, however, that this reconnaissance system can be expected to yield significant intelligence on Soviet resources and on the nature and purposes of Soviet installations (as distinct from possible indication of the existence of unsuspected installations). It will probably be desirable to produce twelve to fifteen of the second configuration. These numbers and availability dates for both configurations would support a program of missile firings throughout 1959 at the rate of one a month for the first half of the year and two a month thereafter.

4. Administration: CORONA is being carried out under the authority of the Advanced Research Projects Agency and the Central Intelligence Agency with the support and participation of the U.S. Air Force. ARPA has authorized

TOP SECRET

TOP SECRET

-3-

and will exercise general technical supervision over the development of the vehicle. Detailed supervision of vehicle development is being performed by the Ballistic Missile Division USAF acting as agent for ARPA. The Ballistic Missile Division has also assumed the responsibility for the provision of necessary ground facilities. CIA participates in supervision of the technical development, especially as applied to the actual reconnaissance equipment, is undertaking all procurement that must be handled covertly, and has general responsibility for cover and for the maintenance of security. In the operational phase actual missile launchings will be carried out at Camp Cook by technical staffs of the companies that are building this reconnaissance system. Subject to approval by the appropriate political authorities, the general schedule of launchings will be determined by the availability of vehicles and launching facilities. Specific timing within this schedule will be determined so far as possible on the basis of weather prevailing over target areas. For both cover and control purposes the reporting of weather and the selection of specific firing dates will be done through an already existing CIA channel.

5. Cover and Security: As noted above the initial step taken to place this undertaking on a truly covert basis was the cancellation of the program already started by the Air Force as a part of its WS-117-L development. The cover and security arrangements already made or contemplated are as follows:

a. Subsequent to the ostensible cancellation, extremely limited numbers of individuals in the participating companies were cleared for and advised of procedures to be employed in CORONA. Compartmentation of this project from other activities has been established in a satisfactory manner in all of the companies and an internal cover story has been worked out for use in each company to explain to unwitting company personnel the nature of the compartmented and highly classified work which will be going forward. Generally speaking the personnel actually employed in the design and production of the classified reconnaissance equipment must be witting of its true purpose.

b. Since actual missile firings attract public attention, a cover explanation will be required during the operational phase to explain plausibly the dozen or more launchings that will take place and the recovery operations which will be carried out by the Navy and will involve considerable numbers of Naval personnel. A cover story for certain parts of the developmental work and for some or all of the firings will explain these observable events as parts of a program to

TOP SECRET

TOP SECRET

-4-

conduct experimental space flights with laboratory animals. Partly in support of this cover, but also for their own inherent scientific value, a recovery capsule suitable for carrying an animal and appropriately instrumented will actually be developed and at least three biomedical launchings and recoveries will be attempted. It is planned that when reconnaissance equipment is to be launched, the pod containing it will be substituted for the biomedical pod just before firing and it is believed knowledge of this substitution can be limited to a few witting individuals in the launching crews. As a supplementary cover story it may be possible to explain some of the firings as incidents in a program of nose cone re-entry tests.

c. Great technical ingenuity and carefully worked out procedures will be required to maintain the plausibility of either or both of these cover stories. Although planning is still at an early stage it is believed that they can be supported. It will be highly desirable not only to explain the quite unconcealable firing and recovery activities but also to conceal the fact that the vehicle involved ever enters into orbit, since the suspicion will inevitably arise that any orbiting vehicle is in fact being used for reconnaissance. With this objective in view the possibility of describing the vehicle as a missile rather than a short lived satellite is being studied. If it appears feasible the cover stories will be modified in this fashion.

d. The strictest security control is being maintained over all aspects of CORONA. All communications which reflect the existence of this project are handled within Top Secret procedures. A list of all individuals who are witting of the project is maintained. Individuals are cleared for and made knowledgeable of the project only on a strict need-to-know basis. Additional clearances may be granted only with prior approval from the CIA project office and this authority will not be delegated to any other organization concerned with the project.

6. Procurement: Of the total procurement required for CORONA, as large a proportion as possible will be handled relatively overtly as a part of the WS-117-L and other programs. In accordance with this general plan, both the Thor booster, which is produced by Douglas for a number of military applications and the Lockheed second stage vehicle which (as noted above) is being developed for WS-117-L will simply be allocated from the production schedules for these items that are already in effect and will be procured by the

TOP SECRET

-5-

Air Force. Only the pods containing reconnaissance equipment and the recoverable film cassettes will be procured covertly by the Central Intelligence Agency. Production of only the covert items will be compartmented in the several companies. The responsibility for final assembly will rest with Lockheed and arrangements are being made which will permit Lockheed's production, testing, and the bulk of its check-out activities to be compartmented and securely carried out up to the moment when the reconnaissance pod is substituted for a biomedical or instrumented nose cone payload.

7. Financing: The total cost of six units of the first configuration would be approximately [] dollars, including a rather arbitrary allowance of [] dollars per unit for the booster, second stage vehicle, and costs of launching. [] dollars of these costs, which represent Air Force procurement, would be financed by the Air Force or ARPA in accordance with arrangements for the financing of WS-117-L. The [] dollars to cover the costs of covertly procured items would, it is proposed, be financed by the Central Intelligence Agency subject to the obtaining of funds from the Agency's Reserve.

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IA/P/DCI:RMB:djm (9 Apr 58)
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TOP SECRET