RAR-A-7

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August 13, 1969

MEMORANDUM FOR JCS, DEPUTY DIRECTOR FOR RECONNAISSANCE

SUBJECT: TAGBOARD Operational Mission

The TAGBOARD System has reached the stage of development where it has completed all major test objectives. Therefore, the National Reconnaissance Office (NRO) recommends a limited operational mission for the TAGBOARD System in September 1969 over Southern China or North Korea. As outlined in the TAGBOARD Operational Concept, it is proposed the mission be directed by the Joint Chiefs of Staff with SAC executing the approved mission. The mission would be limited only in the sense that Program D will maintain the technical responsibility for the system, and will make the technical "Go/No Go" launch decision for the drone.

The TAGBOARD System will supplement satellite operations by providing relatively large scale photography over specific objectives, and complement conventional aircraft by providing an unmanned alternative which destroys itself in the event of abort over enemy territory. Vehicle survivability analysis studies indicate the highest probability of survival [redacted] for the drone against hostile defensive actions on the proposed mission.

Request you prepare the necessary documentation for mission approval by the 303 Committee. Program D furnished the attached background information and will provide any further assistance you might require.

SIGNED

JOHN L. MC LUCAS

1 Attachment
TAGBOARD Background

~~TOP SECRET~~ TAGBOARD

WORKING COPY

TAGBOARD BACKGROUND

System Description

TAGBOARD is an advanced reconnaissance system designed to provide detailed photo reconnaissance coverage of hostile territories. The system is composed of the D-21 high performance drone which is air launched from a B-52H aircraft. The system is presently located at Beale AFB, California. The world-wide capabilities of the system are made possible by the 3,000 nautical mile range of the D-21 drone and the B-52H extended carryout with in-flight refueling.

Following air launch from the B-52H, the D-21B is accelerated to Mach 3.3 and an altitude of 80,000 feet by a solid propellant booster rocket. The expended booster is then jettisoned and the D-21B commences a 3,000 nautical mile cruise over a course which is pre-programmed in the inertial guidance system at Mach 3.3 and at altitudes between 80,000 and 95,000 feet. At the end of the pre-determined course a controlled descent is made to a lower altitude where the hatch containing the camera and other high value items is ejected. The hatch payload is then decelerated and lowered by a parachute system to an altitude where an air retrieval is executed by JC-130 aircraft. The drone destroys itself by an explosive charge after the payload hatch has been ejected.

A 24-inch focal length, F5.6 lens camera provides the D-21 reconnaissance capability. The camera may be operated in one of two modes. The first (Mode 3) allows the camera to expose a photographic swath 16 NM wide and 3,900 NM in length. When operated in the second position (Mode 5), the camera will expose a swath 28 NM wide and 3,000 NM long. Design resolution is two feet at nadir. In-flight data is recorded on the film which consists of latitude, longitude, time, oblique position, and exposure number.

Test Status

The TAGBOARD System underwent a detailed program review and systems analysis in November 1968. Since that time there have been four TAGBOARD drone test flights. Three of the four flights were successful, range distances (from launch to hatch eject) of 3,026 NM, 3,044 NM, and 3,011 NM were flown respectively. The drones flew at nominal altitudes between 80,000 and 95,000 feet and speeds between 3.27 and 3.31 Mach. The hatch was recovered by JC-130's in each flight and photographs were available for analysis. In the last flight, which occurred on July 10, 1969, resolution was measured at 1'7" to 3'4" across line of flight and 1'7" to 3'2"

in line of flight from resolution targets placed in the Hawaiian Islands chain. The unsuccessful test flight took place on February 11, 1969. The drone's flight control system failed after 161 NM of flight due to problems in the autopilot and the drone was destroyed in flight.

Production Status

Presently there are three fully instrumented (telemetry system) drones available for flight. In addition to the three fully instrumented drones, nineteen other drones are available either in storage or the final stages of production. Sufficient cameras are available for use in each of the drones.

Justification

Following reasons are used to support the recommendation for an operational mission:

1. A need exists for the type of high-resolution photographic coverage which the TAGBOARD System will provide.

2. The mission can be considered an extremely low risk reconnaissance operation. The drone will be launched from the B-52 and the hatch will be recovered by JC-130 well outside of hostile radar detection lines. In case of drone malfunction while over hostile territory, a pressure (altitude) actuated destruct system would automatically destroy the drone thereby preventing it from falling into hostile hands.

3. The mission will test the TAGBOARD System's full operational capability under a hostile environment. The operational concept including launch, execution, recovery, photo processing and intelligence dissemination would be evaluated and SAC's and the 6594th Test Group's Operational Plans would be fully exercised.

4. Valuable engineering data would be obtained from the drone's systems. The drone is fully instrumented, TM System, and would transmit data during approximately the first ten minutes of the flight after which it is turned off automatically. The drone can also be destroyed by command during initial flight stages if malfunction is detected by the launch control officer in the B-52. The TM signal is turned on again to assist in the recovery phase.

5. The proposed mission will test hostile defensive reactions against the TAGBOARD drone. The results of threat radar detection analysis show that with the drone's operating speed and altitude and

small mean Radar Cross Section [redacted] for a mission over Southern China or North Korea. However, the results indicate the small mean RCS provides a sufficient target for the estimated threat radars to detect a penetration.

6. The proposed mission would be economical in the sense that useful intelligence data would be gathered for the drone expended compared to another test flight and use of a drone over resolution targets in PMR.

7. The mission would provide a comparison of the TAGBOARD System with other aeronautical reconnaissance systems currently in use.

8. Both the drone contractor (Lockheed) and the payload contractor (Hycon) have expressed their confidence in the technical capability of the TAGBOARD System to perform the proposed mission.