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STRATEGIC RECONNAISSANCE AND INTELLIGENCE

Development Planning Note #1

The purpose of this paper is to briefly review the background of Air Force thinking in the field of Strategic Reconnaissance and Intelligence operations. Against this background a specific suggestion for a development program will be made.

The Strategic Air Command has two primary tasks. These are:

- (1) The destruction of the Soviet atomic delivery capability. The principal targets are the Soviet long-range air force and the bases and logistic system supporting it.
- (2) The destruction of the Soviet economic, industrial and social fabric. The principal targets are key industrial plants and centers of governmental, economic and political control.

Success in carrying out these two tasks is critically dependent on the ability of the Air Force reconnaissance and intelligence system to:

- (1) Furnish adequate warning of the timing of a Soviet atomic attack on the United States or its Allies.
- (2) Furnish accurate and complete information covering the location and strength of all of the principal combat and logistic elements of the Soviet long-range atomic striking force.
- (3) Furnish accurate and complete information on the character and resilience of the Soviet economic and social system, including detail target information on key industrial complexes and important governmental control centers.
- (4) Furnish information on the character, disposition and capability of the Soviet air defense system.

Since early 1950, the vital importance of adequate reconnaissance and intelligence information on Soviet intentions and capabilities has been better recognized by the Air Force. During this period, several studies were undertaken, with a view toward determining the direction in which research and development efforts should be applied to make the necessary major improvements in our reconnaissance and intelligence capability. Important among these studies were:

- (1) A special study requested by the Secretary of the Air Force (Mr. Fialster) to review force requirements for Strategic Reconnaissance Operations for the period 1954 to 1956.
- (2) The Rosen Hill study undertaken by a special committee of the Air Force Scientific Advisory Board.

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- (3) Development Planning Objective - Reconnaissance and Intelligence Operations, by the Assistant for Development Planning, Deputy Chief of Staff, Development. (This study is in the final stages and should be completed within the next few months.)
- (4) A study of Strategic Reconnaissance and Intelligence Needs by the Director of Intelligence, Headquarters, United States Air Force.

A brief general summary of the principal conclusions of these studies follows (The first three conclusions are applicable to all reconnaissance and intelligence operations, and the last applies primarily to Strategic Reconnaissance and Intelligence operations):

- (1) The air vehicles, in the present production and development programs, will provide a satisfactory array of air vehicles to do the "normal" job of post-D-Day reconnaissance. The bulk of this reconnaissance job can be done satisfactorily by reconnaissance versions of those aircraft and missiles whose primary function is weapons delivery. There is still some question as to whether this broad conclusion applies to the area of close battlefield surveillance; it does apply to all the other areas and would appear to eliminate the requirement of large numbers of specialized "reconnaissance only" vehicles for post-D-Day operations.
- (2) The most fruitful field for new developments in reconnaissance and intelligence is in new types of sensing equipment other than photographic. These generally come under the heading of infra-red, radar and other unique sensing devices developed for the purpose of expanding our all-weather reconnaissance capability and providing a capability for the collection of intelligence on items not subject to normal photography. This is a wide-open field.
- (3) The system for processing the tremendous amount of raw data collected from all reconnaissance and intelligence sources needs a major overhaul. At the present time, it is clear that all intelligence agencies of the government are suffering from an acute case of indigestion in this matter. The DPO study will make a number of specific recommendations in this area. These recommendations will cover organization and training and the application of techniques used in modern computers to mechanize large portions of this job.
- (4) There is an urgent need for the development of pre-D-Day reconnaissance systems. This matter has been bounced around higher levels in Washington for some time. It is, of course, fraught with political and diplomatic implications. There are several projects now underway in this field. Principal among them are Project Gopher, which is well along in development, the development of a super-altitude Canberra at Glenn L. Martin which is now in the study stage, and ultimately the development of the Satellite vehicle. Two other projects in this field have been initiated by ARDC, one with Fairchild and one with Bell.

In the area of this last conclusion, Lockheed might make a real contribution.

The problem of pre-D-day reconnaissance breaks down into two principal categories. These are:

- (1) Broad search operations for covering the whole of the Russian land mass and which are aimed primarily at identifying areas of unusual activity.
- (2) Specific target reconnaissance operations whose primary objective is to gather specific and detailed information concerning individual target areas.

Project Gopher comes under the first category and the super-altitude Canberra under the second category.

The present thinking among Air Force planners is that a specially designed, exceptionally high performance manned aircraft may be a practical vehicle for conducting the reconnaissance operations under the second category above. It is understood that the two study projects at Bell and Fairchild are pointing toward this objective.

Representative characteristics of such an airplane are a radius of action of about 1000 nautical miles, a one-man crew, and a payload somewhere between 500 and 700 pounds within about 15 cubic feet. This payload to consist primarily of special sensing equipment, including cameras. The primary performance objective is extreme altitude - 50,000 to 70,000 feet.

If extreme altitude performance can be realized in a practical aircraft at speeds in the vicinity of Mach 8, it should be capable of avoiding virtually all Russian defenses until about 1960.

To achieve these characteristics in an aircraft which will have a reasonably normal operational life during the period before 1960 will, of course, entail very strenuous efforts and extraordinary procedures, as well as some special design philosophy and associated things which might be done.

- (1) Disregard, where possible, all of the requirements in the current handbook of instructions for Aircraft Designers.
- (2) Work closely with a turbojet engine manufacturer for the production of a small quantity of special engines toward the end of maximum weight reduction and maximum performance at the cost of engine life.
- (3) Eliminate the landing gear.
- (4) Use very low maneuver load factors, possibly as low as 1.5.
- (5) Design for maximum indicated air speeds in the vicinity of 225 knots indicated.

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- (6) Inbound and outbound refueling might be practical.
  - (7) The use of liquid rockets for high altitude climb and/or acceleration might be feasible.

In order that this special aircraft can have a reasonably long and useful life, it is obvious that its development must be greatly accelerated beyond that considered "normal."

The total requirements for such a specialized aircraft should not exceed twenty. Because of the small size of the force required and the characteristics of the airplane, this project will require special handling from the very start, the possibility which takes into account the special nature of the project, as well as the need for a telescoping of development time, would be for an aircraft manufacturer to take on the "complete" project. This would include development, manufacture, maintenance, supply and all operations except flying pilots to be provided by the Air Force. Such an operation should be feasible and should result in telescoping the development time to about half that which is normally expected.

The closest precedent for this type of operation was the "Special P-50 Project" to the European Theatre in 1944-1945. Under this project, P-50's were actually flying in a combat theatre in less than two years from the time the aircraft was first conceived. Of course, this was possible only because these aircraft were produced in experimental tooling and because Lockheed and General Electric furnished key personnel and had considerable control over the problems of maintenance and supply. A similar approach might be used to put the proposed special reconnaissance aircraft into actual operations.

The prospect of the Corporation taking on such a project is extremely interesting. There are, however, a number of possible disadvantages to becoming involved in such a venture:

- (1) The whole project would require the maintenance of a staff of exceptionally high security.
- (2) From the Corporation point of view this would not be a production project. The aircraft involved would probably have to be hand-built, using experimental type tooling.
- (3) It would require the use of a small group of highly competent engineers and technicians who would not be available for the more "normal" operations of the Corporation during the period of the project.
- (4) The Corporation would be committed to the project as long as the vehicles remained either potentially or actually useful for the purpose for which they were designed. The duration of the project could be from six to eight years.

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The advantages of taking on such a project would appear to be primarily:

- (1) The Corporation would be directly contributing to the solution of one of the most vital and difficult problems facing the security agencies of the country today.
- (2) The Corporation would be gaining very considerably in reputation with the Defense Department. This would certainly do no harm in connection with other Company operations.
- (3) The Corporation should acquire an extremely valuable fund of technical information and experience concerning the design, manufacture and operation of an aircraft of exceptional performance, one pushing to the limit the state-of-the-art in all areas.
- (4) A gross income of somewhere between 100 and 200 million dollars could be expected from the project.

I recommend that this matter be further explored from the standpoint of Corporation policy. If Management is interested, I would suggest that the problem be turned over to R. A. Bailey's group for further exploration. Development Planning to work very closely with Bailey in order to make sure that all the work which has been done in this general area will be available to him as background and environmental data. Should the results of the study indicate that a real contribution can be made, I would suggest that a relatively complete proposal be prepared and submitted personally to the Commanding General, ARDC, Chief of Staff of the Air Force, the Secretary of Defense and possibly eventually to the President and the National Security Council.

This matter is an extremely sensitive one from the security standpoint and this paper should be considered in the "eyes only" category.

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