

~~SECRET~~



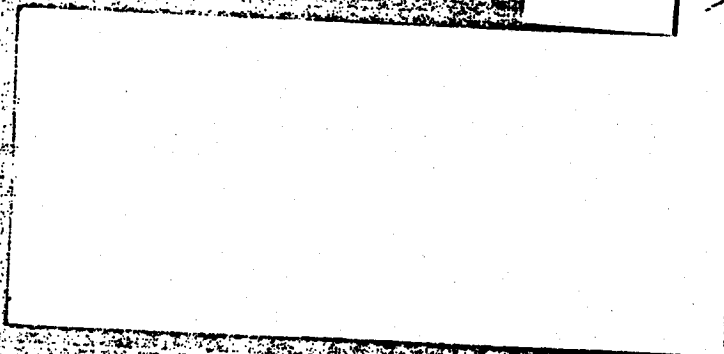
NOFORN

RETURN TO  
OFFICE

RETURN TO  
Historical Research Division  
ASI/HQA  
Maxwell AFB, AL 36112

Handwritten: 1954  
Stamp: 30 OCT 1989

WESTERN  
DEVELOPMENT  
DIVISION



development  
plan

HEADQUARTERS  
AIR  
RESEARCH  
AND  
DEVELOPMENT  
COMMAND



NOFORN

~~SECRET~~

Handwritten: 0092-0394

30 OCT 1969

NOFORN

**SECRET**

*Handwritten initials*

WESTERN DEVELOPMENT DIVISION  
HEADQUARTERS  
AIR RESEARCH AND DEVELOPMENT CENTER

Director Aerospace ARTIN: Air Maxwell AFB, Alabama	R. 117 L 2 APR 1956 F243,8636-39
---	--

WS 117 L

ADVANCED  
RECONNAISSANCE  
SYSTEM

REVIEW ON 31 DEC 2006

REVIEW ON 31 Dec 2006

DEVELOPMENT PLAN

RETURN TO  
HISTORIAN'S OFFICE  
AFBMD

Copy No. 40 of 100 Copies

EXCLUDED FROM AUTOMATIC  
REGRADING; DOD DIR. 5200.10  
DOES NOT APPLY

2 April 1956

EXCLUDED FROM AUTOMATIC  
REGRADING; DOD DIR. 5200.10

SPECIAL HANDLING REQUIRED  
NOT RELEASABLE TO FOREIGN  
NATIONALS

RECEIVED BY AM

NOFORN

**SECRET**

3-6806-34  
00920394

[Redacted area]

**ADVANCED RECONNAISSANCE VEHICLE**

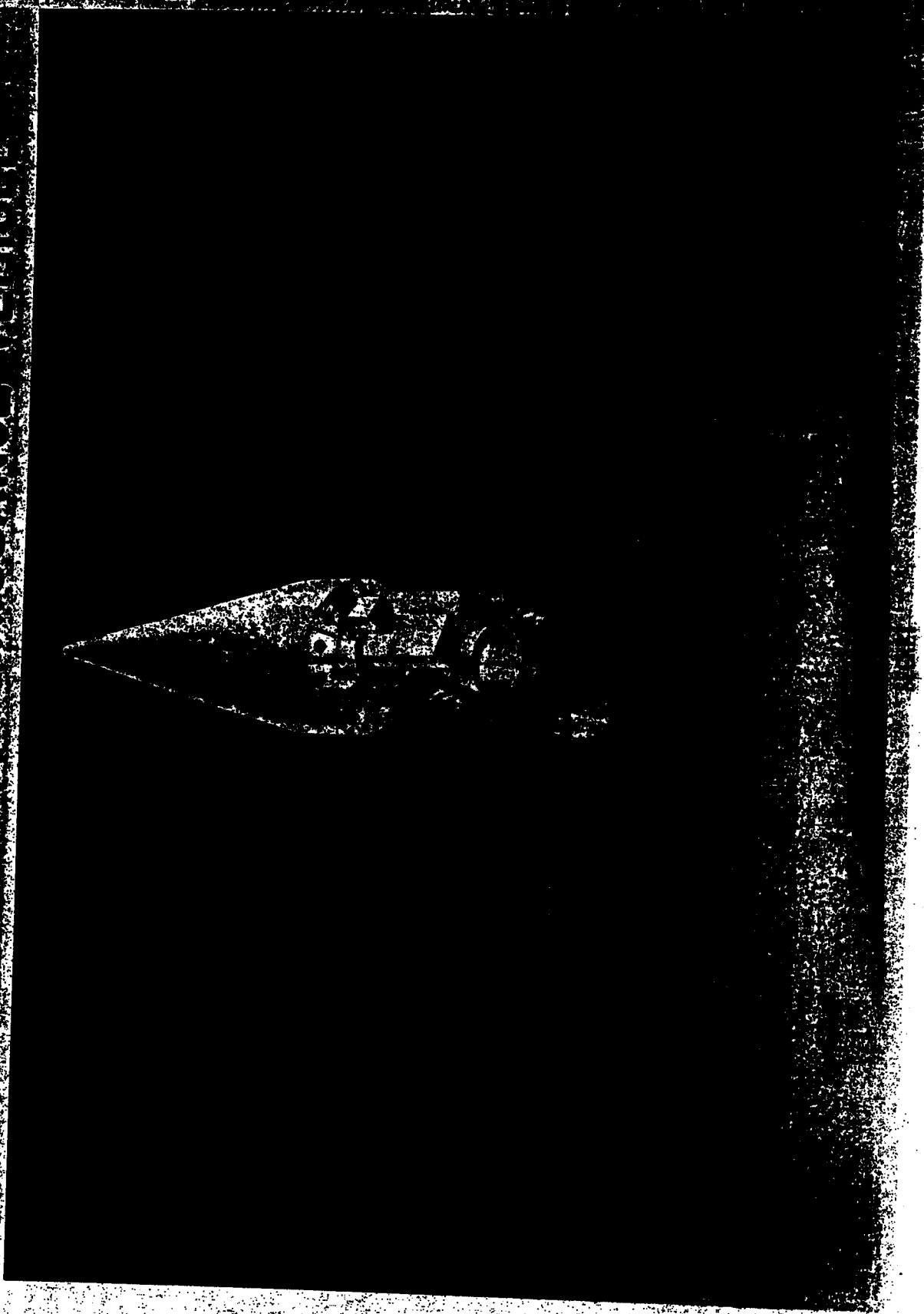


Fig. 1



**SECRET**

WD-56-00832 **NOFORN**

**SECRET NOFORN**

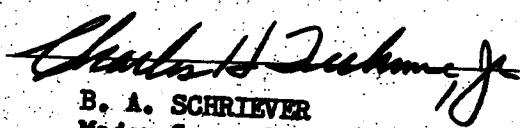
30 OCT 1989

WESTERN DEVELOPMENT DIVISION  
HEADQUARTERS  
AIR RESEARCH AND DEVELOPMENT COMMAND

2 April 1956

FOREWORD

1. Atomic and hydrogen weapons of enormous destructive power, carried by jet bombers and supersonic missiles, have vastly increased the importance of surprise in modern warfare. Indeed, it is difficult to visualize how an aggressor could achieve true victory except by an overwhelming, unexpected attack. With such surprise, the chances for success are, however, excellent. Unfortunately, the capability for surprise attack rests almost exclusively with secretive, aggressive nations. (CONFIDENTIAL)
2. These facts give extreme importance to any intelligence-gathering system which promises to significantly reduce the ability of possible enemies to launch a surprise attack against the United States.-- WS 117L is such a system. It makes use of an artificial satellite, circling the earth continuously high above the sensible atmosphere, as a platform from which to gather intelligence regarding activities of potential enemies. (SECRET)
3. Air Force study of satellite vehicles dates from 1946, when a study by the Rand group indicated the technical feasibility of such vehicles. These studies have been extended to cover the question of military utility. The Rand Corporation, in 1954, concluded that the greatest military value lay in reconnaissance. Extensive further investigation has shown beyond reasonable doubt that: (1) critical components could be developed to function as required, and (2) these components could be integrated into a workable and practical system. (SECRET)
4. An appropriate development approach has been determined, and the cost of development estimated in considerable detail. Contributions from other programs have effected a tremendous reduction in satellite costs. In particular, the WS 107A program promises to effectively solve the greatest single problem, namely, securing the required orbiting velocity of some 25,000 feet per second. These reductions now leave little doubt that the military worth of a satellite reconnaissance system will amply justify its cost. (SECRET)
5. The studies of the past ten years and related developments from other programs have been integrated into the development plan presented on the following pages. (UNCLASSIFIED)
6. It is strongly recommended that this plan be accepted and development authorized immediately at high priority. (CONFIDENTIAL)

  
B. A. SCHRIEVER  
Major General, USAF  
Commander

**SECRET NOFORN**

~~CONFIDENTIAL~~

WS 117L DEVELOPMENT PLAN

2 April 1956

TABLE OF CONTENTS

	<u>Pages</u>
Title Page	
Foreword	1
Table of Contents	iii
Introduction	iv
DD Form 613	v,vi,vii
<b>Tabs</b>	B-1 thru B-12
Tab 1 - General Design Specifications	
Tab 2 - Schedules	C-1 thru C-16
Tab 3 - Test	D-1, D-2
Tab 4 - Facilities	E-1 thru E-4
Tab 5 - Program Cost Estimates	F-1 thru F-18
<b>Figures</b>	G-1
Fig. 1 - Advanced Reconnaissance Vehicle	
Fig. 2 - Satellite Vehicle Trajectory	11
Fig. 3 - Satellite Orbit Schematic	B-5
Fig. 4 - Payload on Orbit with Degraded SM-65C Booster Performance	B-6
Fig. 5 - Pioneer Satellite Vehicle	C-4a
Fig. 6 - WS 117L Ground Stations	C-8a
Fig. 7 - WS 117L Intelligence Center	C-10a C-14a

~~CONFIDENTIAL~~

~~SECRET~~

WS 117L DEVELOPMENT PLAN

2 April 1956

INTRODUCTION

The Air Force is culminating some ten years of study to determine the military utility of a man-made satellite. In 1946 the newly created RAND group was asked by the Air Force to determine the feasibility of placing a man-made satellite on orbit. On the basis of the propulsion technology at that time, RAND's reply to this request was that such an operation would be feasible. There was, however, no determination made of the military usefulness of such a satellite. RAND continued the studies and completed their "Feedback" report, as it became known, in the spring of 1954. They concluded that the conduct of visual and/or electronic reconnaissance is the most promising military use for an early un-manned satellite vehicle, and their final report included a suggested minimum pioneer visual reconnaissance system. (SECRET)

Based upon the conclusions reached in the "Feedback" program, the Air Force has been carrying on an extensive study program aimed at determining the magnitude and direction to be taken on a Development Program for a Reconnaissance System utilizing a satellite as a platform for collecting intelligence information. This extensive study by the Air Force was divided into two primary objectives: first, to establish that critical components of this satellite reconnaissance system would in fact be attainable to perform the functions for which they were intended; second, to ascertain if these components could be successfully integrated into a working reconnaissance system. (SECRET)

To accomplish the first of the two objectives, a program of separate tasks aimed at determining and advancing the state of the art as required was initiated. RAND, having recognized that critical areas exist, had initiated studies to investigate these areas and to solve the associated problems. The Air Force continued RAND's work and extended it to investigate other critical areas as they were determined to exist. As an example, one of the critical items is that of providing sufficient auxiliary power. Studies were initiated and are still under way to determine the feasibility and best method of providing sufficient power aboard the satellite to operate the reconnaissance equipment. Nuclear reactors to be used as a heat source in the generation of electrical power are being studied, as well as the possibility of utilizing the sun as a source of auxiliary power. (SECRET)

Studies have been under way to determine the best method of providing basic inertial guidance and attitude control for the vehicle. The problems associated with the reconnaissance packages themselves have been given maximum attention over the past several years. These include both the problem of the visual reconnaissance using television and film and radiation or ferret reconnaissance techniques. The associated problems of radiation damage from the nuclear reactor and the problem of component reliability under long un-attended operation in the satellite's environment also have been studied. Not overlooked have been the problems of acquisition and tracking of an orbital vehicle and the command equipment necessary for use with such a vehicle. (SECRET)

~~SECRET~~

~~SECRET~~

WS 117L DEVELOPMENT PLAN

Introduction (cont'd)

2 April 1956

The manifold problem relating to the capability of an intelligence agency to utilize the vast amount of intelligence information which is potentially available from this type of system has also been considered. When one considers that a single satellite vehicle of the type described in the "Feedback" report may be capable of producing up to a hundred thousand pictures daily and when one further considers that utilizing such vehicles for surveillance could possibly require numbers of vehicles to be operating simultaneously, one can quickly see that this information would swamp all heretofore known or considered means for processing intelligence information. It has been recognized that the development of such a system would encompass practically every field of science known to the Air Force, industry, and the scientific community in general. The best competence available in these various fields has been fully utilized during these studies. Participating in these studies have been the laboratories and research agencies of the Wright Air Development Center, Rome Air Development Center, and Air Force Cambridge Research Center, and through these agencies the individual study tasks have been functioning either in industry, under contract to the Air Force, or as individual and discrete technical studies "in the house" of the laboratories. (SECRET)

The second major objective (the problem of integrating the various components both space-borne and ground-based into a workable reconnaissance system) has been attacked. (SECRET)

In the spring of 1955, design study proposals were solicited from selected contractors from industry. The number of sources solicited was limited by the consideration of maintaining a secure program throughout the design and development phase. This is a reconnaissance system involving the launching of a vehicle into orbit for the ultimate purpose of collection and dissemination of intelligence information. Therefore, the problem of providing an airframe and engines did not need to be the sole guide to the type of contractors to be solicited. These solicited were the Lockheed Aircraft Corporation, the Radio Corporation of America, the Glenn L. Martin Company and Bell Telephone Laboratories. It will be recognized that there were ostensibly two airframe manufacturers and two electronic manufacturers. The Bell Telephone Laboratories declined to submit a proposal. (SECRET)

Since the middle of June of last year, the other three contractors have been proceeding with Design Studies. These contractors have studied the entire system. The objective of their studies has been to determine whether a military intelligence system aimed at satisfying the national intelligence requirements of the future can be foreseen at this time with sufficient definitude to indicate full scale development, and to establish the direction and magnitude of the technical programs needed to realize this development. The system was designated to have co-missions: first, it was to provide physiographic pioneer and surveillance coverage of the

~~SECRET~~

~~SECRET~~

WS 117L DEVELOPMENT PLAN

Introduction (cont'd)

2 April 1956

USSR and its companions; and, second, it was to be capable of providing and maintaining continuous and comprehensive surveillance of the electronic activities of the Soviet Russia. Involved would be a test program utilizing a satellite vehicle. (SECRET)

These design studies have culminated in three separate and distinct development plans prepared by the three design study contractors. From these design studies, and from the vast amount of information that has been obtained from the state of the art studies, has evolved the Weapon System 117L Development Plan. (SECRET)

~~SECRET~~



~~CONFIDENTIAL~~  
~~SECRET~~  
SECURITY CLASSIFICATION

RDB PROJECT CARD		TYPE OF REPORT		REPORTS CONTROL SYMBOL DD-RDB(A)48													
1. PROJECT TITLE (UNCLASSIFIED) ADVANCED RECONNAISSANCE WEAPON SYSTEM 117L		2. SECURITY		3. PROJECT NUMBER WS 117L													
		4. INDEX NUMBER		5. REPORT DATE 2 April 1956													
6. BASIC FIELD OR SUBJECT Strategic Air Warfare		7. SUBFIELD OR SUBJECT SUBGROUP		7A. TECH. OBJ.													
8. COMIZANT AGENCY Air Research and Development Command		12. CONTRACTOR AND/OR LABORATORY		CONTRACT/W.O. NO.													
9. DIRECTING AGENCY Hq. ARDC Western Development Division																	
OFFICE SYMBOL	TELEPHONE NO.																
10. REQUESTING AGENCY Hq USAF		13. RELATED PROJECTS WS 107A WS 438L WS 315A		17. EST. COMPL. DATES													
11. PARTICIPATION, COORDINATION, INTEREST <table style="width: 100%; border: none;"> <tr><td>USAF</td><td>USN</td></tr> <tr><td>AMC-P</td><td>CNO-I</td></tr> <tr><td>AFGC-P</td><td>USA</td></tr> <tr><td>ATC-P</td><td>C/S-I</td></tr> <tr><td>SAC-C</td><td>Other</td></tr> <tr><td>ADC-C</td><td>CIA-I</td></tr> </table>				USAF	USN	AMC-P	CNO-I	AFGC-P	USA	ATC-P	C/S-I	SAC-C	Other	ADC-C	CIA-I	14. DATE APPROVED	
		USAF	USN														
AMC-P	CNO-I																
AFGC-P	USA																
ATC-P	C/S-I																
SAC-C	Other																
ADC-C	CIA-I																
		15. PRIORITY 1A		16.													
		18. FY		FISCAL EST. (M \$)													
19.																	
20. REQUIREMENT AND/OR JUSTIFICATION  <p>The Advanced Reconnaissance System described in this development plan is designed to fulfill the military requirement outlined in General Operational Requirements. (80) SA-2C dated 11 March 1955 and System Requirement 5 dated 17 October 1955, stated in the latter document as follows:</p> <p>"Provide continuous (visual, electronic, or other) coverage of the USSR and satellite nations, for surveillance purposes. Timeliness of receipt of the intelligence information is essential, with daily reconnaissance coverage at high resolution the ideal. In consideration of the requirement for earliest availability of the Advanced Reconnaissance System, the engineering progression and Air Force acceptance should be from the lesser to the greater resolution."</p> <p>The types of intelligence required, in order of priority are:</p> <ol style="list-style-type: none"> <li>1. Strategic Warning;</li> <li>2. Enemy Military Forces in Being;</li> <li>3. Enemy Military Stockpiles of Thermonuclear-Atomic Weapons;</li> <li>4. Enemy Logistics Capabilities;</li> <li>5. Enemy Industrial War Capabilities.</li> </ol>																	
22. RDB		5N	CN	IC & P													
				X	I												
				C													

~~SECRET~~

DD Form 613 (cont'd)

WS 117L DEVELOPMENT PLAN

2 April 1956

Improved knowledge of potential enemy capabilities and intentions in the above areas will greatly improve our abilities to conduct peacetime negotiations, to plan our defenses, and to use our weapons if the necessity arises. (SECRET)

Information on the existence, deployment, and location of all targets will allow for the preparation of more complete strike data and thereby improve the capability of strategic bombardment. (SECRET)

Ferret data will make possible the advanced development of suitable countermeasures. (SECRET)

Knowledge of the disposition and nature of defenses will enhance penetration probabilities. (SECRET)

Technological data acquired can be used in the proper orientation of U. S. Weapon Systems (both defense and offense) and possibly for their improvement. (SECRET)

Evidence of enemy intention to wage war will provide much needed lead time for mobilization of forces, dispersal of weapons and population and an increased capability for detection of attack. (SECRET)

Specific warning of overt acts, such as attacks under way, will allow for activation of defenses and counterblows (i.e. WS 107A), and will materially improve chances for survival after an initial attack. (SECRET)

As a secondary requirement, the USAF has required the provision of a satellite vehicle of greater payload potential than the Vanguard for scientific purposes. (SECRET)

~~SECRET~~

~~SECRET~~

WS 117L DEVELOPMENT PLAN

DD Form 613 (cont'd)

2 April 1956

21a. Military Characteristics

Operational vehicles will be launched from an appropriate location in United States territory. An ICBM will supply the primary propulsion. (See Figure 2). The ICBM booster will fall away on burnout, and an internal power-plant in the orbiting nose section will supply the remaining propulsion required (4-8000 ft./sec.). The vehicle will ascend to an altitude of about 300 miles, where a substantially circular orbit will be established. Internal controls will then erect the vehicle to the proper attitude. The most common orbits will pass within a few degrees of the poles. When the vehicle approaches an area of interest, an internal timer will start the sensing equipment. (See Figure 3). The signals will be received and stored on photographic film, magnetic or electrostatic tape, or some other appropriate medium. (SECRET)

The vehicle will continue around the earth, and when within range of a ground receiving station, will begin to transmit the recorded data. The data will be received, processed and transmitted to the using agencies. (SECRET)

The vehicle will then begin its next cycle. These revolutions will be repeated at approximately 90 minute intervals. Because the orbit is essentially fixed in space, while the earth rotates inside it, successive passes over the earth's surface will be displaced by approximately 22-1/2 degrees. This offsetting will permit a single vehicle to view the entire earth in a total time period which depends on the width of swath observed. Useful operation will be terminated either when air drag slows the vehicle to where it plunges into dense atmosphere, when the electrical power supply is exhausted, or when failure of equipment takes place. Expected useful life for later systems will be in excess of a year. (SECRET)

The orbiting satellite vehicles of WS 117L will be equipped with devices for sensing and relaying to the ground reconnaissance information in the radio, infrared, and visible regions of the radiant energy spectrum. The data will be received at a rate that will permit coverage of the entire Soviet bloc by a single vehicle as frequently as once every eight days. (SECRET)

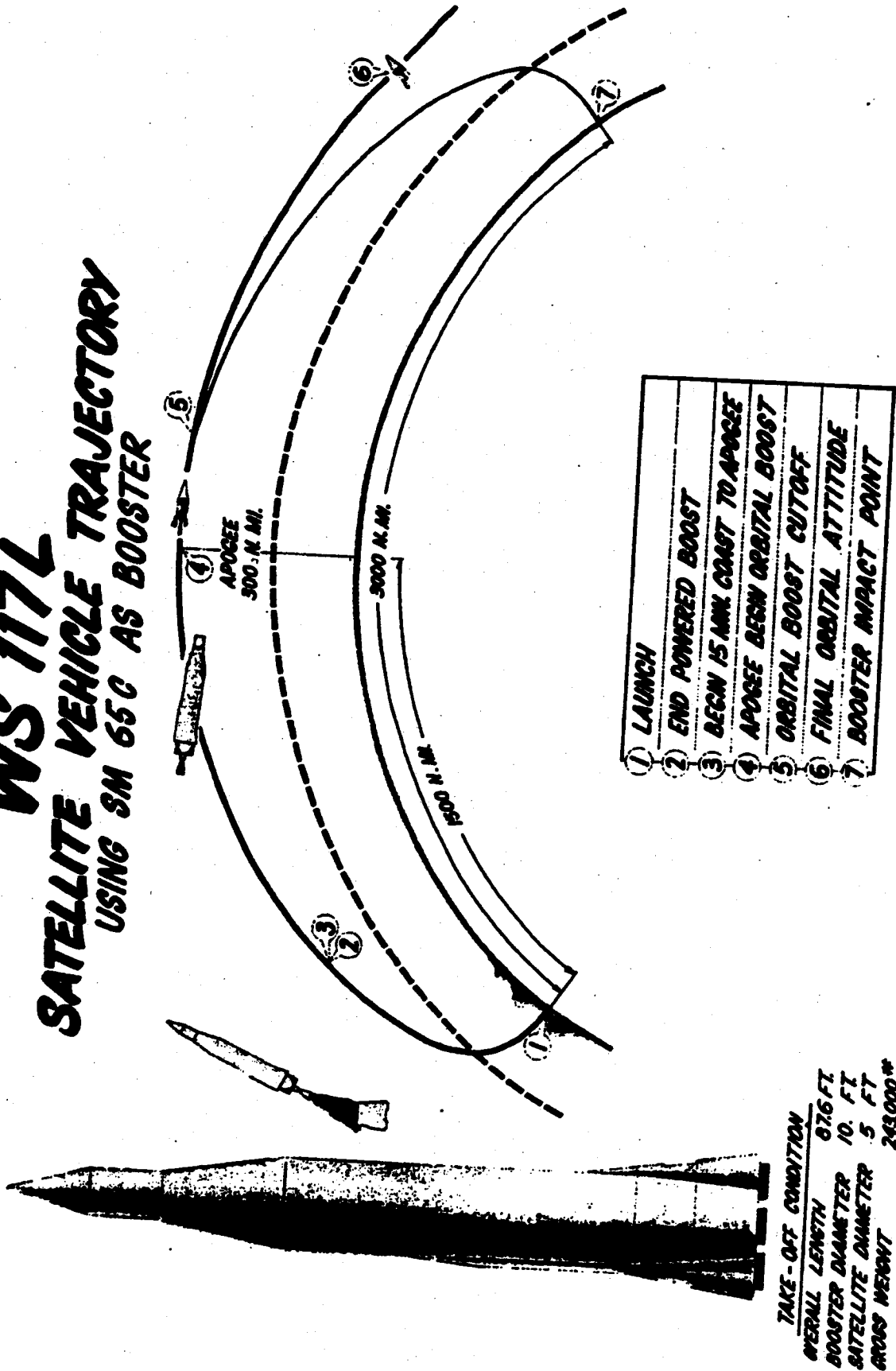
It is expected that the equipment will permit the following:

- Pioneer terrain and mapping coverage;
- Collection of world-wide cloud cover and other weather data;
- Detection of new and hitherto unknown targets and verification of known targets;
- Determination of electronic signal characteristics;
- Location of targets and defenses;
- Collection of data on technological improvements;
- Evaluation of military and industrial strength;
- Monitoring of electronic emissions;
- Surveillance of enemy build-up indications;
- Warning of attacks under way or pending;
- Assessment of high-yield weapons' damage;
- Reconnoitering of military movements. (SECRET)

~~SECRET~~

~~SECRET~~

# WS 117L SATELLITE VEHICLE TRAJECTORY USING SM 65C AS BOOSTER



~~SECRET~~

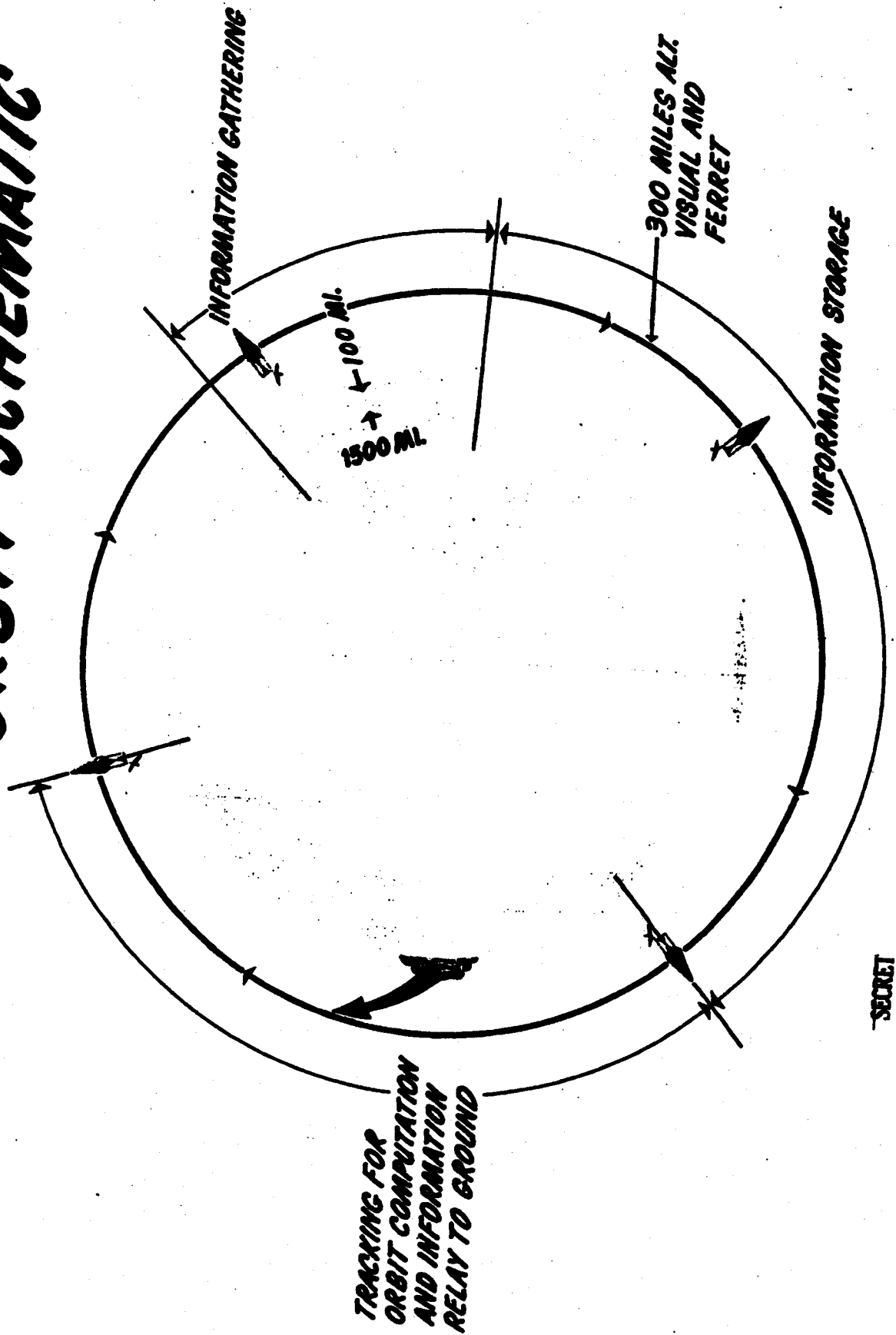
WD-56-00832

Fig. 2  
Page B-5

WD-56-00832

# SATELLITE ORBIT SCHEMATIC

~~SECRET~~



~~SECRET~~

Fig. 3  
Page B-6

WD-56-00832

~~SECRET~~

WS 117L DEVELOPMENT PLAN

DD Form 613 (cont'd)

2 April 1956

The programs have been chosen and phased to meet two major development objectives:

1. Optimize the development of the operational Advanced Reconnaissance Systems in terms of the best balance between early availability, effectiveness in performing the intelligence mission, and over-all economy in terms of manpower and funds. (~~SECRET~~)
2. Provide a stepwise series of reconnaissance systems capable of collecting significant visual and ferret intelligence of high priority at the earliest dates. (~~SECRET~~)

Program I: Early flights will have as their primary objectives: establishing feasibility of orbital operation and collecting basic environmental data relating to the satellite operation. Also, there will be imposed the additional objective of ARS component testing and collection of geophysical data of interest to the scientific community in general. (~~SECRET~~)

Program II: This program is designed to yield a Pioneer Visual Reconnaissance with a capability of mapping physiographic features at a ground resolution of 100 feet and a locational accuracy of one-half mile. Physical recovery of exposed film may be attempted if this procedure shows promise of providing early information. (~~SECRET~~)

Program III: This program will be a Pioneer Ferret System capable of providing frequency density information over Russia and Red China in the range from 50 mc/s to greater than 18,000 mc/s. Emission sources operating above 1000 mc/s will be located to within 60 miles. (~~SECRET~~)

Program IV: This program covers the development of a large scale photographic function with a ground resolution of about 20 feet. (~~SECRET~~)

Program V: This program leads to the advanced Ferret System that allows for a more accurate determination of signal characteristics in CW as well as pulsed signals. Less than fifty mile uncertainty is anticipated in the location of an isolated signal. (~~SECRET~~)

Program VI: Program VI leads to development of a continuous visual surveillance system at ground resolutions of 20 feet or better, using high resolution television with video recording or with direct transmission; film cameras with protection from nuclear radiation using shielding or bolatype vehicles, to separate the APV and film, as used with solar APV's; and phototape or some other system with a temporary, reusable image storage medium. (~~SECRET~~)

Program VII: Program VII is designed to yield an infrared early warning system to afford continuous detection of aircraft and ICBM's. (~~SECRET~~)

~~SECRET~~

~~SECRET~~

WS 117L DEVELOPMENT PLAN

DD Form 613 (cont'd)

2 April 1956

Program VIII: Program VIII consists of the development of a surveillance type ferret as well as other specialized electronic reconnaissance systems. (SECRET)

Technical Aspects

In view of the urgency of the program, it is considered mandatory that there be concurrent research and development of both the satellite-borne and ground-based subsystems to insure maximum military utility and system reliability. To realize these ends, alternate technical tasks and state of the art investigations will have to be made simultaneously until a specific method is proven. (SECRET)

It is apparent that in order to satisfy the requirement for an early flight demonstration, it will be necessary to make use of existing components of predictable reliability. The development of the ARS is tailored to make maximum use of equipments, in existence or under development for other systems, which are applicable. (SECRET)

The contractors' design studies and cognizant agencies within ARDC have determined the feasibility of utilizing other equipment within the military inventory. Some examples are:

1. Use of a WS 107A vehicle (See Figure 2) will fulfill the major portion of the ARS propulsion requirement. An SM-65C (later SM-68) will be used as the ARS booster on a minimum interference basis.
2. The all-inertial guidance subsystem of WS 315A and a tactical bombing inertial system scheduled to be available in time to be utilized in the WS 117L flight test program. Components from these systems can be utilized with a minimum of modification in the design and construction of a complete all-inertial ascent guidance system for WS 117L.
3. Valuable environmental data will be secured through Air Force Cambridge Research Center and other agencies. Requirements for geophysical-environmental data will be placed against the Vanguard program.
4. Acquisition and tracking radar equipment (i.e. AN/FPS-16), under development within other systems, can be used for the ARS applications in the appropriate time period with minor modifications.
5. For the early orbital testing of the ARS vehicle, the engineering of Convair SM-65C Launch Facilities can be adapted, with minor modifications, to fulfill ARS requirements. This will gain time toward satisfying the ARS mission, and provide additional flexibility in both programs in that engineering-wise the launch requirements are similar. (SECRET)

~~SECRET~~

~~SECRET~~

WS 117L DEVELOPMENT PLAN

DD Form 613 (cont'd)

2 April 1956

21c. - SUBSYSTEMS

1. Spaceframe: The vehicle subsystem will consist of the spaceframe structure of the satellite final stage together with the mating details of satellite and booster stages and including tankage design. The approach will be to design the vehicle structure to be compatible with the other subsystems and to serve as a complete structural framework for them. (SECRET)
2. Propulsion: For the pioneer systems, the Project Vanguard engine will be used and for the Advanced System a development program will be prosecuted as outlined in the General Design Specification. (UNCLASSIFIED)
3. Auxiliary Power: It is proposed to use silver-zinc primary batteries for pioneer vehicles and test systems. The development of a Nuclear APV and also solar batteries will be initiated for the advanced systems. As a back-up and also as a possible replacement for batteries, a chemical open-cycle APV may be developed. (UNCLASSIFIED)
4. Guidance and Control: In carrying out the development of this system, maximum possible use will be made of existing capabilities evolved by previously sponsored Government research and development in the inertial field. Because of differing requirements, no guidance system currently under development will be satisfactory for guidance of the WS 117L vehicle. A single all-inertial system in the orbiting section appears to be the most promising approach.
5. Visual Reconnaissance: The visual reconnaissance system will be capable of:
  - (1). Detecting and locating physiographic features of terrain, population centers, airfields, harbors and transportation nets (the Pioneer Systems will be designed to detect objects of 100 foot dimensions and the Advanced Systems approximately 20 feet);
  - (2). Performing weather reconnaissance with a sector width of not less than 800 miles. (SECRET)
6. Electronic Reconnaissance: Three electronic reconnaissance systems will be developed, providing progressively greater frequency coverage as more powerful vehicle power supply systems become available. The final goal is a coverage of 40-40000 mcs. with accurate measurements of the usual signal parameters of interest to analysts. (CONFIDENTIAL)
7. Infrared Surveillance: An infrared surveillance system for the satellite promises to provide early warning against attack by manned aircraft and ballistic missiles. It is proposed to conduct an intensive feasibility study in regard to the use of infrared in a satellite; the prosecution of

~~SECRET~~



~~SECRET~~

WS 117L DEVELOPMENT PLAN

DD Form 613 (cont'd)

2 April 1956

21c - SUBSYSTEMS (cont'd)

7. Infrared Surveillance (cont'd)

any associated development program will be contingent on the outcome of the study. For planning purposes, however, this development plan includes all cost and related data covering the development and testing of an infrared surveillance version of the satellite. (SECRET)

8. Ground-Space Communications:

This subsystem consists of all vehicular and ground electronic equipment required for acquisition, tracking, command, programming, ground-space data links, timing, telemetering and orbit computations. (CONFIDENTIAL)

The vehicular equipment includes the beacon-transponder, including "lost bird" beacon facilities, the command receiver and associated time sequencing programmer, the reconnaissance data transmitter, an accurate vehicle time standard, a telemetering encoder and transmitter, and destruct circuits. (CONFIDENTIAL)

The ground sites will be appropriately located to provide adequate coverage and data readout time for both the test and operational phases of the program. The following equipment will be included at each site: (UNCLASSIFIED)

1. Tracking radar with acquisition features, command transmitter, data receiving and recording equipment, data communication links to the WS 117L Intelligence Center telemetering receiving facilities, and a supplementary orbital computer. (SECRET)

2. A master computer will be located at the WS 117L Intelligence Center. (UNCLASSIFIED)

9. Data Processing and Intelligence Dissemination:

The data processing and intelligence dissemination subsystem, located in the WS 117L Intelligence Center, will be capable of the functions necessary to insure intelligence and weather information in a form that provides a clear, adequate basis for human analysis and command decision. The end item will be a highly automatic, integrated subsystem which provides equipment for the processing of visual, ferret and infrared data into intelligence information for use by intelligence and command activities. (SECRET)

The functional areas necessary to insure construction and availability of information consist of conversion, extraction, indexing, storage, display and dissemination. These will provide intelligence information in the form, frequency and quantity desired by various users. They will become tasks under the Ground Data Handling project and be discussed more in detail under the General Design Specifications, Tab 1. (CONFIDENTIAL)

~~SECRET~~

~~SECRET~~

WS 117L DEVELOPMENT PLAN

DD Form 613 (cont'd)

2 April 1956

21c. - SUBSYSTEMS (cont'd)

9. Data Processing and Intelligence Dissemination (cont'd)

Operational development of this subsystem will be oriented towards compatibility with, and maximum utilization of, equipment under development for System 438L - USAF Intelligence Data Handling System, (UNCLASSIFIED)

10. Ground Support and Training:

This subsystem involves the manpower, equipment, and appropriate facilities (not peculiar to specific operation or check-out of other subsystems) to test and launch the ARS Orbiting Stage-ICBM-boosted combination; also, all training required to provide capable personnel for all phases of the ARS operations. (SECRET)

Facilities and equipment will be required at the ICBM Captive Test and Launch Areas during early WS 117L flight testing. To eliminate mutual interferences between the ICBM and ARS programs, a separate ARS launch complex appears desirable. (SECRET)

11. Flight Test

Requirement:

The flight test program will provide vehicles, equipment and instrumentation for development of flight testing of the Advanced Reconnaissance System.

In general, test vehicles used will be those developed for other purposes, or will be logical steps leading to the provision of suitable vehicles for the reconnaissance systems. The subsystem will:

1. Obtain geophysical environmental information;
2. Serve as a test bed for ARS subsystem components;
3. Measure performance characteristics of reconnaissance equipment;
4. Test techniques for preparation, launching, tracking and data transmission from a satellite. (SECRET)

Vehicles:

Four basic vehicle types will be used, each of which has as its purpose the provision of a vehicle for the evaluation of specific problem areas.

Vehicle components and functions will be tested and geophysical environmental data obtained from a non-orbiting vehicle of limited range and flight duration, such as the Aerobee.

~~SECRET~~