AF MANUAL 50 - 12



Ground Observers' Guide

DEPARTMENT OF THE AIR FORCE

#25

AF MANUAL 50-12

Ground Observers' Guide



DEPARTMENT OF THE AIR FORCE

DEPARTMENT OF THE AIR FORCE
WASHINGTON, 1 November 1951

Foreword

1. **Purpose and Scope.** This manual is published for the information and guidance of the civilian Ground Observers in the Air Defense System. It provides a complete description of their duties and responsibilities.

2. **Contents.** The first part of this manual explains the operation of the Air Defense System and specifies the reporting procedures to be followed by Ground Observers. The second part of this manual includes the illustrations and other data required for aircraft identification.

3. **Changes to Manual.** Changes in reporting procedures of aircraft identification data will be promulgated by new pages which will be published and distributed as required. When such new pages are received, they should be inserted in the manual in addition to or as replacements for the existing pages as directed.

BY ORDER OF THE SECRETARY OF THE AIR FORCE:

HOYT S. VANDENBERG
Chief of Staff, United States Air Force

OFFICIAL:
K. E. THIEBAUD
Colonel, USAF
Air Adjutant General

DISTRIBUTION:

ZONE OF INTERIOR

Headquarters USAF 50
Major Air Commands 10
Except Air Defense Command (for distribution of one copy to each Ground Observer) 795,000
Subordinate Air Commands 10
Services — MATS & AMC 10
Bases 10

OVERSEAS

Major Air Commands 10
Subordinate Air Commands 10
Bases 10

This manual contains no copyright material.

Contents

PAGE ONE
THE ROLE YOU PLAY

PAGE THREE
THE AIR DEFENSE SYSTEM

PAGE FIVE
THE ORGANIZATIONAL SET-UP

PAGE NINE
ADMINISTRATION
OF THE OBSERVATION POST

PAGE ELEVEN
OPERATIONAL INSTRUCTIONS

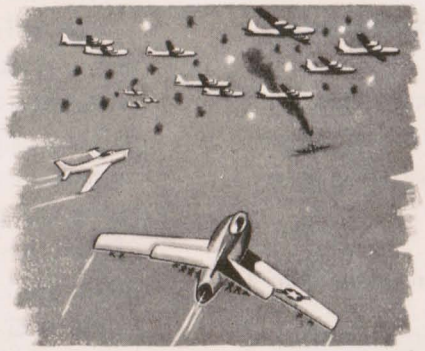
PAGE TWENTY THREE
AIRCRAFT IDENTIFICATION

- Single-Motored Aircraft
- Bi-Motored Aircraft
- Multi-Motored Aircraft
- Single-Jet Aircraft
- Multi-Jet Aircraft
- Recognition Features



. . . . *the role you play*

We are in a dangerous position. In a period of international strife and lawlessness, we stand as the bulwark of freedom. Every would-be aggressor knows that he can't get by unless he defeats us first, for twice already—in two world wars—the tide of aggression has been turned by the weight of our industrial production. The next time, an aggressor will certainly try to eliminate us first. He will strike first at our production plants and at the people who man them. What's worse, he can do it!



For the first time in our history, a potential enemy has the power to make sudden, devastating attacks on any part of our country. The broad seas which have protected us up to now have been cancelled out by fast, long range planes; and the huge forces formerly required for singnificant damage have been made unnecessary by the atomic bomb. A single plane carrying an atomic bomb can now wipe out an entire city. It is a dangerous situation.

Of course, the fact that we can hit him far harder than he can hit us should stop any enemy. We have far more atomic bombs; we have great fleets of mighty bombers; we have fast, efficient fighters; and every day we are producing more and better planes and bombs. Yet the enemy might decide to make the desperate gamble. If he does, he will try to catch us unprepared and strike such a devastating first blow that we cannot recuperate in time. We must make sure, therefore, that we can ward off his blow and come back immediately with terrific power. How can we do it?

There is little probability of turning back an enemy air attack completely. However, if we have adequate warning, we can destroy or turn back a large number of his bombers and reduce considerably the losses that the rest might cause. The big problem is adequate warning.

To provide such warning, we have set up many radar stations and are continually enlarging and improving our radar









warning system. Still, radar has a limited range, and we cannot have complete radar coverage. There are bound to be many gaps in our radar networks through which whole flights of enemy aircraft could enter undetected and strike unexpectedly. To stand constant guard at those cracks in our armor, we must have alert, conscientious, and capable lookouts. That is where you come in.

You and hundreds of thousands of other Ground Observers throughout the country will be the eyes of the country. Your reports may constitute the first warning of an enemy approach. The Aircraft Flash message you send in may put into motion forces that will save a whole city from destruction. At the very least, your reports will help keep track of the enemy's planes so that the attack against them can be started and the targets in their path can be warned.

Observer on Duty



This will not prevent completely the destruction and death that an enemy might cause, but it can help reduce our losses tremendously. With sufficient warning, we might be able to reduce our possible losses by as much as 50 percent. Even a 10 percent difference in losses may spell the difference between defeat and victory. Your reports, therefore, and those of the other Ground Observers throughout the country, will play a vital role in our security.

You will get no pay for the job. It might often be tiresome and seemingly useless. You can take pride, though, in the fact that you are an important part of our air defense forces, and you will have great satisfaction in knowing that you are contributing significantly to the safety of the country.

In preparing for your job, study this manual carefully. It explains every aspect of your job and will help you be a more efficient member of your country's defense team. Keep it up to date by inserting revision sheets as they are given to you. Carry it along with you, and refer to it frequently.

. . . . *the air defense system*

The Observation Post of which you are a member is one of the basic units of our air defense system. The other basic units are:



The Early Warning Radar stations, which are also on the lookout for enemy planes, but search by electrical rather than by visual means;



The Ground Controlled Intercept (GCI) radar stations, which follow the course of enemy aircraft by radar and direct our fighter airplanes to the proper position and altitude to attack enemy aircraft; and



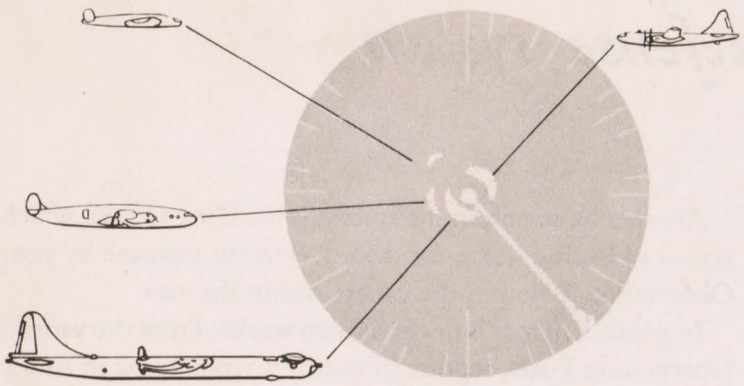
The Fighter Intercept Aircraft bases, where our fighter planes stand ready to take off and attack approaching enemy aircraft.

Another basic unit in the system is the Filter Center, which acts as a clearing house for the information reported by your Observation Post and the others within the area.

In general, here is how the system works: From the various Observation Posts, reports of enemy aircraft come in to the Filter Center. There, the information is put together, and the course and position of the enemy aircraft are determined. These are plotted on a map and followed up as more reports come in. In this way, the number, type, course, altitude, and position of the enemy aircraft are kept track of constantly

Filter Center Plotting Board





and their probable targets are determined. Meanwhile, the Filter Center notifies the appropriate Ground Controlled Intercept radar station of the type, number, and location of the enemy aircraft in its area. At the same time, the Early Warning Radar stations are scanning the skies; locating and tracking any enemy aircraft within the range of their radar beams; and sending appropriate information to the Ground Controlled Intercept radar station. Thus, information on hostile planes flows into the GCI radar station through two parallel pipe lines — from the Observation Posts via the Filter Centers and from the Early Warning radar stations. On the basis of this information, the appropriate Fighter Intercept Aircraft bases are called into action, and they send up their fighter planes to attack the enemy. These fighter planes are controlled by the GCI radar station, which follows both our own and the enemy aircraft by radar and directs our fighter planes to the best position for attack on the enemy aircraft.

It is a proved and tested system. In one form or another it was used in China, Great Britain, and the United States during the last war. In the United States, of course, the system did not have to cope with enemy aircraft, and its effectiveness was not really tested. In Great Britain, and China, however, the system certainly was given a trial by fire, and it worked.

Of course, their problems were a little different from ours. In China, they had only a fragmentary communication system and had to use many primitive facilities. Thus, their warnings were transmitted by a variety of means, ranging from paper balloons and smoke signals to telephone and radio equipment. In England, the communication was entirely by private telephone, for the area to be defended was small. Therefore, while our air defense system is basically of the same type as those previously used, it is different in detail. We know, though, that it is good.

It was tested in September 1949 in a trial run known as Operation Lookout. This test showed that a Ground Observer Corps, using the experience we and our allies have gained, is capable of tracking modern planes for intercept purposes and of furnishing adequate information for identification. The few weaknesses which this trial revealed have been corrected in the present system. We can feel confident, therefore, that if we put our system completely into effect, we will have good protection.

. . . . *the organizational set-up*

The Ground Observer Corps works under the joint control of the civil authorities and the United States Air Force. The civil authorities are responsible for the *administration* of the Ground Observer Corps, taking care of such things as personnel, records, and the like. The Air Force is responsible for the *tactical operation* of the Ground Observer Corps, that is, its specific defense operations, including training, reporting procedures, and the like.

In each state, the organization of the Ground Observer Corps is the responsibility of the state authorities. Under their governors, most of the states have created departments for the purpose of carrying out the civil defense mission. While these departments are not all alike, they all follow the same general plan of organization. Under this plan, the governor appoints a state director of civil defense, who, in turn, appoints a director for Ground Observer Corps activities. This director enlists the cooperation of the county governments, coordinates between counties, and exercises the necessary direction at the state level. For each county or district, he generally appoints a Ground Observer Corps coordination officer. Normally, this is an individual who has direct knowledge of the population centers and the responsible personnel available in the county or district.

To localize control further, the county coordination officer usually appoints an area supervisor for each area within the county or district, depending on geographical and other conditions. The area supervisor is responsible for the activation and organization of Ground Observer posts under his control. Within the area of his jurisdiction, the area supervisor sets up a number of Ground Observer posts (like the one you're in) and appoints a post supervisor to be responsible for the operation of each one. Thus, the supervisor of your post operates under the supervision of the area supervisor and receives his orders for the administration of



the post from him. The area supervisor follows the directions of the county or district coordination officer, who, in turn, carries out the policies of the state director.

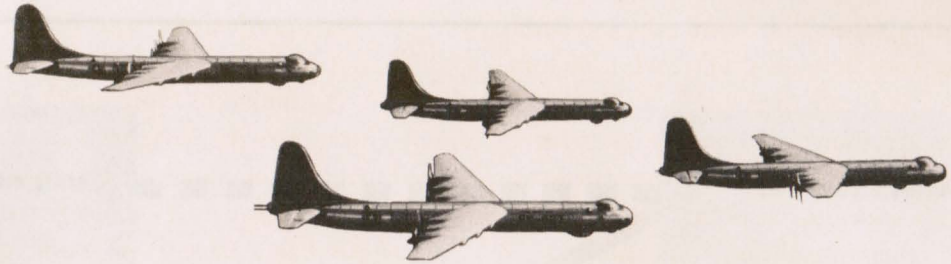
With this type of set-up, there is a continuous chain of command from top to bottom. Each unit is closely tied into the system, and there is a coordinated policy for the whole organization. Yet, sufficient control and responsibility are delegated down the line to permit modifications required by local conditions.

On the military side, there is a similar type of set-up. The responsibility for defending the United States against enemy air attack has been assigned to the United States Air Force. Within the Air Force, this responsibility has been assigned specifically to the Air Defense Command, with headquarters at Ent Air Force Base, Colorado Springs, Colorado. It is from this headquarters that all orders governing air defense are issued.

To make for more direct control and more efficient operation, the Air Defense Command has set up three separate Air Forces based on geographic divisions of the country — the Eastern Air Defense Force, with Headquarters at Stewart Air Force Base, New York; the Central Air Defense Force, with Headquarters in Kansas City, Missouri; and the Western Air Defense Force, with Headquarters at Hamilton Air Force Base, California.

Each of these defense forces has the planes, personnel, and equipment necessary to protect its area of responsibility. These are located at strategic points under the immediate control of tactical commands known as Air Divisions (Defense). Each Air Division (Defense) operates a number of

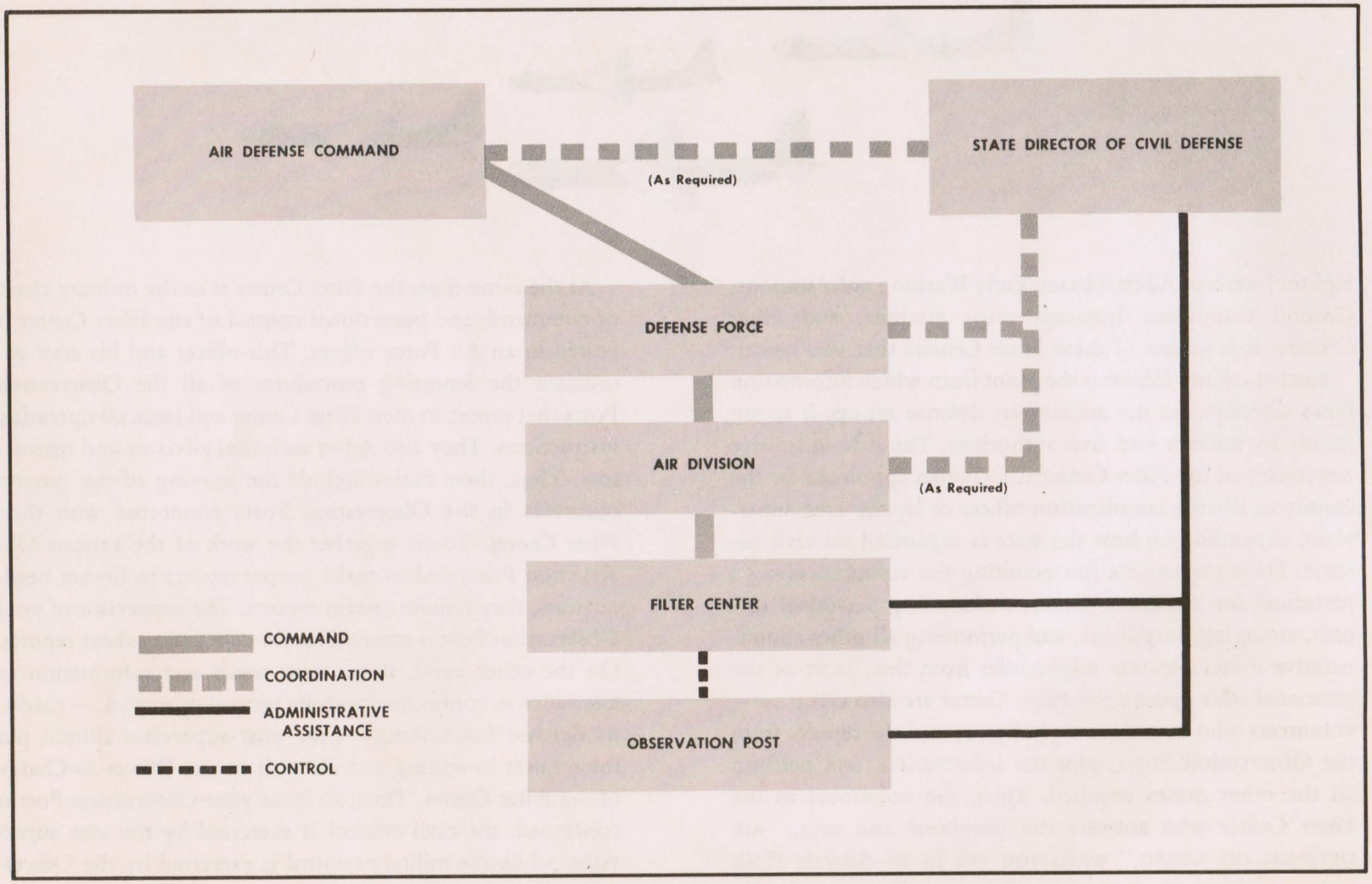




Fighter Intercept Aircraft bases, Early Warning radar stations, Ground Controlled Intercept radar stations, and Filter Centers. It is to one of these Filter Centers that you report.

Since the Filter Center is the point from which information flows directly into the military air defense set-up, it is run jointly by military and civil authorities. The Administrative Supervisor of the Filter Center is a civilian appointed by the county or district coordination officer or by the area supervisor, depending on how the state is organized for civil defense. He is responsible for recruiting the volunteer civilian personnel for the Filter Center, maintaining personnel records, arranging duty shifts, and performing all other administrative duties. As you might infer from this, most of the personnel who operate the Filter Center are also civilians — volunteers who man the telephones, record the reports from the Observation Posts, plot the information, and perform all the other duties required. Thus, the individual in the Filter Center who answers the telephone and says, "AIR DEFENSE, GO AHEAD," when you call in an Aircraft Flash message is a civilian volunteer like yourself.

At the same time, the Filter Center is in the military chain of command, and operational control of the Filter Center is vested in an Air Force officer. This officer and his staff coordinate the reporting procedures of all the Observation Posts that report to their Filter Center and issue all operating instructions. They also act as technical advisors and instructors. Thus, their duties include the training of the ground observers in the Observation Posts connected with their Filter Center. To tie together the work of the various Observation Posts and to make proper reports to higher headquarters, they require certain reports. The supervisor of your Observation Post is responsible for submitting these reports. On the other hand, if the post needs any information or assistance in connection with its tactical operation — that is, its defense functioning — the post supervisor should put the request in writing and direct it to the Officer-in-Charge of the Filter Center. Thus, so far as your Observation Post is concerned, the civil control is exercised by the area supervisor, while the military control is exercised by the Officer-in-Charge of the Filter Center.



Control of the Ground Observer Corp

. . . . *administration of the observation post*

The "top man" in the Observation Post is the Observation Post Supervisor. He supervises all the operations of the post and is responsible for its effective functioning, both to his immediate civil supervisor and to the Officer-in-Charge of the Filter Center.

More specifically, the Observation Post Supervisor has the following duties:

1. He must maintain close coordination with all the agencies governing the operation of his post.

2. He must make sure that his post operates efficiently in accordance with the directives of his immediate superior in the civil chain of command and with those of the Officer-in-Charge of the Filter Center.

3. Personally, or through a subordinate, he must administer all phases of the operation of the post, including maintenance of records, duty schedules, maintenance of equipment, instructional classes for untrained observers, security measures, personnel recruiting, and all other activities necessary for the efficient operation of the post.

4. He must call the attention of the proper military or civil authorities (normally by written correspondence) to problems which require their study or assistance.

5. He must maintain close liaison with local organizations and agencies which can be helpful to the post in the performance of its mission.

6. He must call all the meetings of the post necessary for instruction or other purposes.

7. He must screen all applicants for duty in the Observation Post as required by higher authorities.

8. He must make sure that all the observers in his post are qualified to perform their duties as indicated in later sections of this manual.

The Observation Post Supervisor thus has the responsibility for the successful operation of the post. He must, therefore, completely familiarize himself and his subordinates with the requirements essential for the proper accomplishment of the post mission. To help him carry out his duties, he appoints a Chief Observer, who performs such duties as the Supervisor directs. These may be any of the functions just listed as the duties of the Observation Post Supervisor. Generally, the Chief Observer handles the instruction of new observers, the scheduling of duty shifts, the maintenance of the post equipment and property and of such records as the Observation Post Supervisor requires. In short, he serves in behalf of the Supervisor to insure the smooth and efficient operation of the post.

If the requirements warrant, the Chief Observer may appoint Assistant Chief Observers to act for him in the performance of his various duties. At some Observation Posts, for example, the Assistant Chief Observers are assigned

specific duties, such as recruiting, publicity, scheduling hours of duty, organization of meetings and classes, and procurement of supplies. Naturally, these assignments are made according to the individual's professional background or his natural ability to perform the specific duty.

This brings us to the key position in the whole set-up — that of the individual Ground Observer. It is to help this individual Ground Observer perform his duties that the whole organization just described has been established. As stated by the National Security Resources Board, "Civil defense rests on the principle of self protection by the individual, extended to include mutual self protection on the part of groups and communities."

The individuals who fill the positions of Ground Observers are volunteers. They are drawn from all walks of life and include men and women from both the farms and the cities who volunteer their time to spot and report the movement of aircraft. In fact, any loyal American can be a Ground Observer if he has the following qualifications:

1. Normal hearing (but hearing aids are permissible).
2. Normal eyesight or corrected to normal when wearing glasses.
3. Ability to speak clearly and distinctly so that the Aircraft Flash message can be accurately received at the Filter Center.
4. Ability to exercise good judgment and make proper decisions.
5. Definite loyalty to the United States which can be checked by a personal clearance.

Individuals who do not meet the qualifications listed in items 1, 2, and 3 may still act as observers if they serve with a qualified observer. Such persons are eligible for all the awards that can be earned in the performance of Observation Post duty.

The detailed and specific duties of an observer and the way he should perform them are described in the next section of the manual. In general, an observer must:

1. Attend training sessions designed to qualify him to fulfill his assigned duties.
2. Cover his assigned shift at the Observation Post as directed by the Chief Observer.
3. Report all aircraft properly as directed by the Filter Center.
4. Maintain an Observation Post log, including duty shifts, visitors roster, and any unusual happenings not requiring a report to the Filter Center as explained on page 22.
5. Perform the duties directed by the Post Supervisor or Chief Observer in maintaining the Observation Post and the equipment assigned to it.

When you become a qualified Ground Observer, you will be entitled to wear the Observer's insignia shown on the opposite page. As you will notice, there are five types of insignia, differing only in the arcs about the centerpiece, for the various personnel of the Observation Post and Filter Center.

In addition to the insignia, it is planned to have several types of medal awards for meritorious service.

. . . . *operational instructions*

The effectiveness of the entire ground observer system is based on the speed and accuracy of your reporting as a Ground Observer. It is essential, therefore, that your report be precise, be strictly in accordance with the standard reporting procedure as outlined in the following pages of the manual, and be stated clearly and concisely. To accomplish these purposes fully, you will have to study your operational instructions carefully and know them so thoroughly that you adhere to them automatically.

The entire contents and sequence of your report are indicated in the Aircraft Flash Message Form No. 6-3 as shown on the following page. Note that the form indicates some preliminary statements that you make and then lists the items of information required for each report; namely, number of aircraft; type of aircraft; altitute of aircraft; time delay in reporting; code name of Observation Post; direction of aircraft from Observation Post; distance of aircraft from Observation Post; direction aircraft are flying; and special remarks. In the columns for each of these items, you will note some explanation of the type of statement you make for each. While these are quite clear, each of the items will be taken up in later pages of this manual and explained more fully. First, however, let us consider the overall conditions of your reporting.



AIRCRAFT FLASH MESSAGE FORM NO. 6-3

PAGE NUMBER: 1 OBSERVATION POST CODE NAME: FOX (NAME) NAN (NAME) 53 (NUMBER) BLACK (COLOR) DATE: 10 OCT 51 (DAY)(MONTH)(YEAR)

CALL YOUR TELEPHONE OPERATOR AND SAY: *"AIRCRAFT FLASH"*: BROOKSIDE 3-7824 (GIVE TELEPHONE OPR. YOUR TELEPHONE EXCHANGE AND NUMBER)

OPERATOR WILL CONNECT YOU WITH YOUR AIR DEFENSE FILTER CENTER.

WHEN THE AIR DEFENSE OPERATOR ANSWERS AND SAYS: *"AIR DEFENSE, GO AHEAD PLEASE,"*

YOU SAY: *"AIRCRAFT FLASH,"* AND CONTINUE MESSAGE YOU HAVE CHECKED ON FORM BELOW, IN ORDER INDICATED.

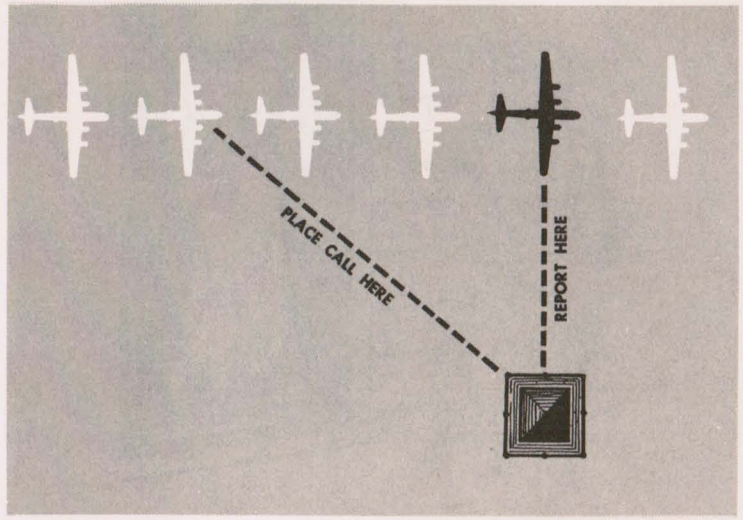
	1	2	3	4	5	6	7	8	9
	NUMBER OF AIRCRAFT	TYPE OF AIRCRAFT	ALTITUDE OF AIRCRAFT	TIME DELAY IN REPORTING	CODE NAME OF O. P.	DIRECTION OF AIRCRAFT FROM O. P.	DISTANCE OF AIRCRAFT FROM O. P.	DIRECTION AIRCRAFT ARE FLYING	SPECIAL REMARKS
	ONE FEW MANY UNKNOWN	SINGLE MOTOR BI-MOTOR MULTI-MOTOR SINGLE-JET MULTI-JET UNKNOWN	VERY LOW LOW HIGH VERY HIGH UNKNOWN	REPORT DELAY TO NEAREST MINUTE. SAY: "DELAY ___ MINUTES," OR IF LESS THAN THIRTY SECONDS, SAY: "NO DELAY"	SEE TOP CENTER OF PAGE		RECORD TO NEAREST MILE		EXAMPLES: HOSTILE AIRCRAFT, BLIMP, HELICOPTER, AIRCRAFT IN COMBAT OR DISTRESS, ETC.
						OR "OVERHEAD" (ALL AIRCRAFT WITHIN 1/2 MILE OF THE O. P.)		SAY: "FLYING" THEN GIVE DIRECTION	
1.	F	MJ	VH	NO	FNS3B	S	2	W	
2.									
3.									
4.									
5.									
6.									
7.									
8.									
9.									
10.									
11.									
12.									
13.									
14.									
15.									
16.									
17.									
18.									
19.									
20.									

Aircraft Message Form 6-3

THE AREA YOU COVER — that is, the reporting area of the Observation Post — will be assigned to your post as an area of responsibility by the Officer-in-Charge of your Filter Center. Your post will report only those aircraft that come within this designated area. You must therefore be thoroughly familiar with the limits of this reporting area. (Of course, if you are in doubt as to whether an airplane is within the reporting area of your post, you will report the airplane.) You must also know the distance to the various landmarks in your area so that you will be able to tell fairly accurately how far from your post the aircraft is flying, as required in Item 7 of the Aircraft Flash Message Form No. 6-3.

THE AIRPLANE FLIGHTS YOU SHOULD REPORT will be designated by the Filter Center. Thus, for example, you will not report airplanes obviously taking off or landing at an authorized airport unless ordered to do so by the Filter Center. Similarly, you will not report small, private airplanes unless you are directed to do so. However, you must realize that the orders governing the aircraft to be reported may change at any time, depending on the tactical situation. Keep up to date on such orders.

THE TIME AT WHICH YOU REPORT is also important. Because of the speed of modern aircraft, it is highly desirable that you report an airplane at the time that it passes the point nearest your Observation Post. In the first place, that is when you get the best view of the airplane and can make the best report. In the second place, good timing helps the Filter Center make the best position plot.



You should, therefore, place the Aircraft Flash call to the Filter Center at such time that you will be telling the Air Defense Operator the position of the plane when it is at a point nearest your post. Obviously, it will require considerable experience to determine exactly how far ahead to place the call, and you might miss it occasionally because of misjudgment or a delay in the call. When that happens, you still report the plane as passing the nearest point to your post, but you indicate the time delay involved, as explained later in connection with Item 4 of the Aircraft Flash Message form. This will enable the Filter Center to establish the approximate location of the airplane at the time the Aircraft Flash Message is received at the Filter Center.



Since delays are dangerous and since the Observation Post telephone is the only one authorized to report Aircraft Flash Messages, it should be a private line if possible. If it is necessary to use a party line, you should get the cooperation of the others on the line to give Aircraft Flash Messages the necessary priority over routine personal calls.

If, for one reason or another, there are unnecessary delays between your Post and your local telephone operator, one of the officials of your Post should discuss it with the local telephone company representative. All other problems in communications should be directed to your Filter Center.

THE PROCEDURE for reporting a flight of aircraft in a designated area of your Observation Post is a simple one. However, you must be sure to follow it *exactly* so that there will be no possible confusion. It can best be carried out by two ground observers working together, but if that is not possible, one observer can handle the job.

Upon observing an airplane which, in your judgment, will pass through the area of responsibility of your Observation Post, one observer should begin to fill out the information required on the Aircraft Flash Message Form No. 6-3. The other observer should call the local telephone operator and say, "AIRCRAFT FLASH," then give the telephone number of your Observation Post.

When the telephone operator receives your call, she will connect you immediately over specified telephone circuits to the Air Defense Filter Center. By this time, the first observer should have completed filling in the necessary information on Form 6-3. The other observer can then use the completed form in giving the information to the Filter Center.

When the Air Defense Filter Center answers the Aircraft Flash call and says, "AIR DEFENSE, GO AHEAD," you say "AIRCRAFT FLASH," and report the information you have entered on the Form 6-3 in the order indicated. Speak clearly and distinctly, with an even tone, directly into the telephone. Be accurate and calm, and report each item in its sequence without deviation.

When you complete the message as specified in the following pages, the Filter Center operator will say, "CHECK, THANK YOU." Hang up at once to clear the line for other reports. Be sure, though, not to hang up until the Air Defense

Filter Center has released you with the statement, "CHECK, THANK YOU."

THE ITEMS included in the report have been carefully analysed and selected so that individually they provide a definite portion of the information required, and collectively give a complete picture to the Filter Center. Only Item 9 is for non-specific information. Use it only when necessary. If there is no information that should be reported in Item 9, do not say anything for that item. For the other items, however, if there is no information available, state "UNKNOWN."

ITEM 1 REPRESENTS THE NUMBER OF AIRCRAFT.

Report a single airplane flying independently of a formation, or an airplane flying alone in a definite area, as "ONE."

Report a flight of two to ten airplanes (inclusive) as "FEW" and not as an exact number.

Report a formation of eleven or more airplanes as "MANY." Do not attempt to count the number if there are that many for it will take extra time, and the exact number is not required at the Filter Center.

If you can see the airplanes themselves clearly, the problem of judging the number is, of course, simple. If you can see only their vapor trails, it is hard to tell how many there are. If you cannot see them but can only hear them, the problem of numbers is even more difficult. In these cases, try to use the information you learn from pages 23 to 26 in the Aircraft Identification section of this manual. Do not guess the number. If you cannot make an accurate estimate, report Item 1 as "UNKNOWN."

ITEM 2 REPRESENTS TYPE OF AIRCRAFT.

Report type of aircraft as follows:

Propeller driven aircraft with one motor as..... "SINGLE MOTOR."



Propeller driven aircraft with two motors as..... "BI-MOTOR."



Propeller driven aircraft with three or more motors as..... "MULTI-MOTOR."
(Pronounce MULTI as *mult*-eye.)



Jet propelled aircraft with one jet—in the fuselage—as..... "SINGLE JET."

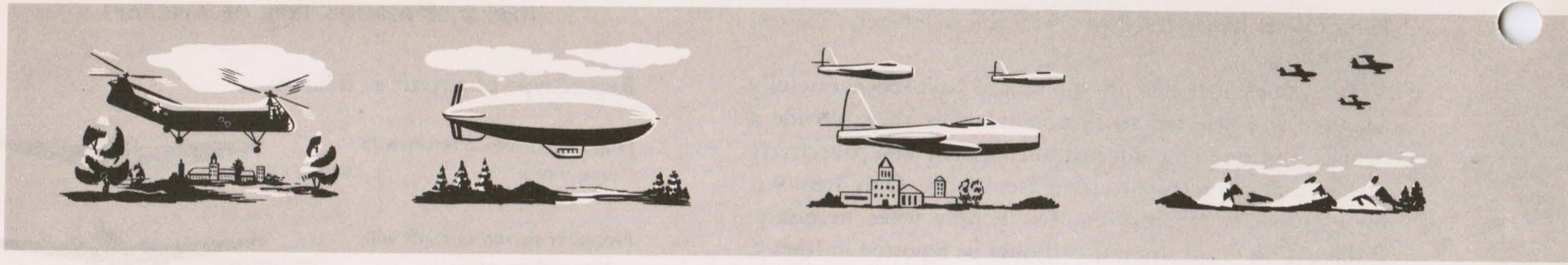


Jet propelled aircraft with two or more visible jet propulsion units—normally installed on the wings—as.... "MULTI-JET."
(Pronounce MULTI as *mult*-eye.)



If an aircraft uses both propeller and jet propulsion units, report it as a propeller driven aircraft. Thus, you would report a B-36 using six propeller and four jet units as..... "MULTI-MOTOR."





If you see any other types of aircraft not included in the categories of propeller driven or jet propelled aircraft, report them under Item 9 — special remarks. Thus, if you saw a single-motored helicopter, you would say "SINGLE MOTOR" under Item 2; then when you get to Item 9, you would say "HELICOPTER." Or, if you saw a two-motored blimp, you would report "BI-MOTOR" under Item 2; and, then, when you get to Item 9, you would say "BLIMP."

To a certain extent, you will be able to tell the type of aircraft even when you can't see the airplane itself. From the vapor trails it leaves and from the sounds it makes, you can often tell much, as explained in the aircraft identification section, pages 23 to 26. Whatever you do report under this item, however, be sure it is right. *Do not guess!* If you cannot count the motors or identify the type of aircraft, report it as "UNKNOWN."

The identification section relies on the accuracy of the observation to assist in the proper identification of the aircraft. If your report is incorrect, it may make the identification section believe that this is a new flight not previously reported and it will confuse the filter operation at the Filter Center. Therefore, if you are not positive in your observation as to the type of aircraft, report Item 2 as "UNKNOWN." You will never be wrong in saying unknown, but you will be wrong in guessing.

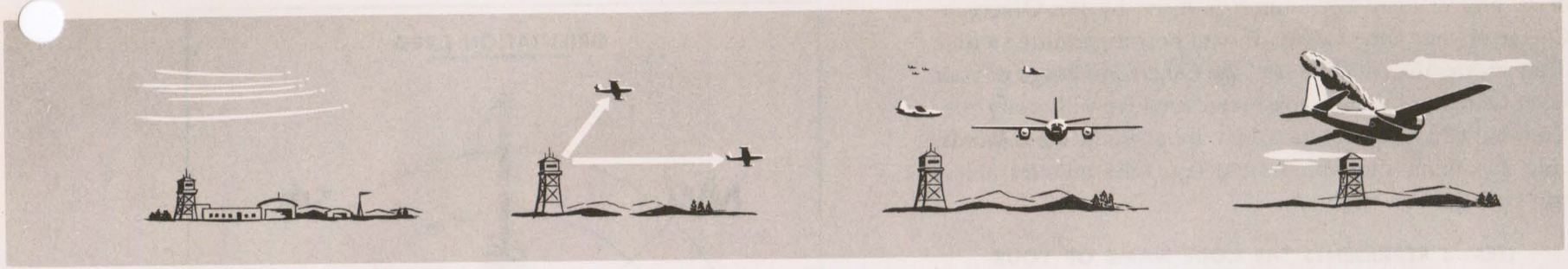
ITEM 3 REPRESENTS ALTITUDE.

In reporting this item, use your experience in observing objects and points with a known altitude.

When the airplanes are under a thousand feet — that is, when they are just above buildings, trees, and ground — report them as "VERY LOW."

When the planes are at an altitude of 1000 to 5000 feet — that is, when they are considerably above the buildings but you can see their details, such as windows and identification markings — report them as "LOW."

Report planes that are at altitudes from 5000 to 15,000 feet — when you cannot make out details such as windows and identification markings — as "HIGH."



If the planes are barely visible, or if they cannot be seen at all but are merely heard indistinctly, or produce vapor trails, report them as "VERY HIGH."

Note, though, that this altitude is based on the elevation of the Observation Post and not on sea level. Most civilian aircraft fly within the categories of "LOW" and "HIGH." Tactical military aircraft of the modern propeller and jet driven types normally operate above 15,000 feet, and thus normally are "VERY HIGH."

Here, again, if you are not certain of the altitude, report Item 3 as "UNKNOWN."

ITEM 4 REPRESENTS TIME DELAY IN REPORTING.

This item represents the time between the moment the plane is at the point being reported for it in Items 6 and 7 of the Aircraft Flash Message and the moment that the Air Defense Filter Operator answers, "AIR DEFENSE, GO AHEAD."

The purpose of this item is to let the Filter Center know that the plane is not now (at the time of reporting) at the point being given in Items 6 and 7, but passed there so many minutes before — the number of minutes being those reported as Item 4.

Compute this time delay to the nearest minute. Thus, if the delay is less than 30 seconds, report Item 4 as "NO DELAY." If it is more than 30 seconds but less than 1½ minutes, report is as "DELAY 1 MINUTE." If is is more than 1½ minutes but less than 2½ minutes, report it as "DELAY 2 MINUTES," and so on.

If your Aircraft Flash report is delayed longer than 4½ minutes, do not complete the call to the Filter Center, but cancel it and enter the report in your log book with the notation, "Not reported, excessive delay."

Sometimes, though, the maximum allowable time delay will be greater than 4½ minutes, depending on the proximity of your post to a vital target area, the number of other Observation Posts in the area, the extent of the reporting area of your post, and the communication facilities connecting your post with the Filter Center. The decision to allow a time

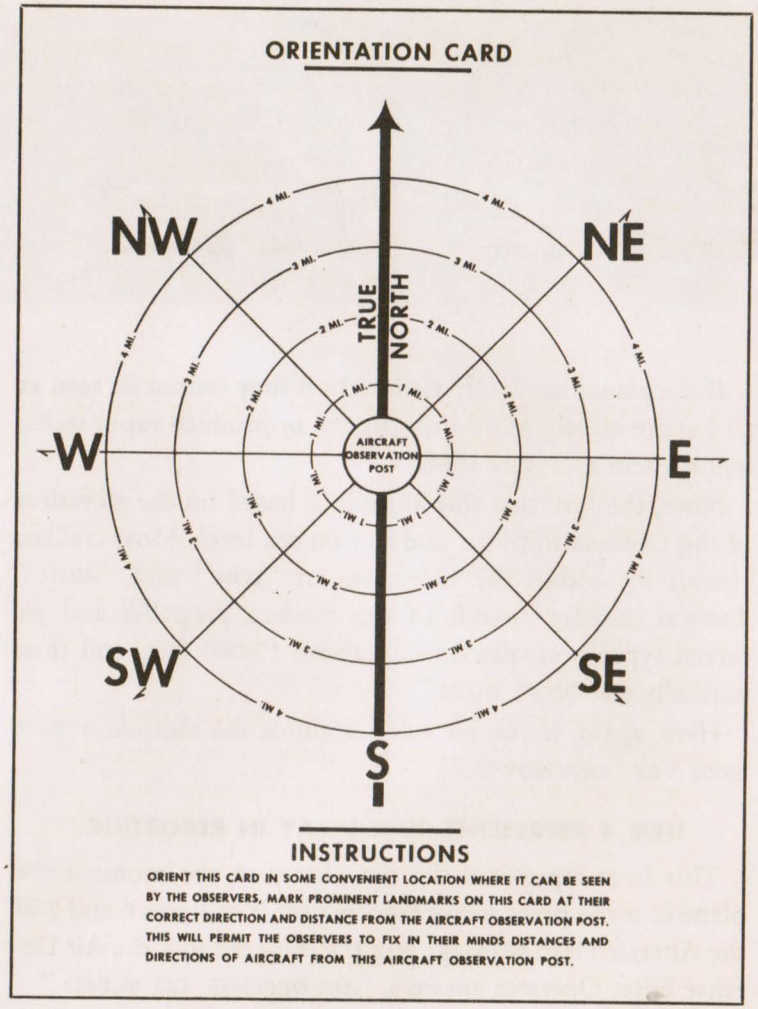
delay greater than 4½ minutes is made by the Officer-in-Charge of your Filter Center. If your post is permitted a time delay greater than 4½ minutes, the Officer-in-Charge of your Filter Center or his authorized representative will notify you. You don't have to question him about it. In other words, your maximum allowable time delay is 4½ minutes unless you are otherwise notified.

ITEM 5 REPRESENTS THE CODE NAME OF YOUR OBSERVATION POST.

The code name of your Observation Post identifies the location of your post. Like a street address, it gives the exact location of your post on the geographic grid (mapping system of the area used by the Filter Center). Each word in it plays a part in locating your post, and any omission or error will cause your report to be plotted incorrectly. Therefore, report the code name in its entirety, for example, FOX NAN THREE FIVE BLACK. State the numbers in your code name separately, for example, THREE FIVE — not thirty-five. In fact, you should pronounce each of the words in the code name very clearly and distinctly to insure correct receipt at the Filter Center.

ITEM 6 REPRESENTS THE DIRECTION OF AIRCRAFT FROM YOUR OBSERVATION POST.

In reporting Item 6, use only the eight points of the compass as shown on your Observation Post Orientation Card, namely, NORTH, NORTHEAST, EAST, SOUTHEAST, SOUTH, SOUTHWEST, WEST, AND NORTHWEST. Do not say "NORTH



Orientation Card

OF POST" or "SOUTHWEST OF POST." Eliminate the unnecessary words, and just give the direction, for example, "NORTH" or "SOUTHWEST." To be sure of giving the proper direction, familiarize yourself with the direction of various landmarks from your post as shown on your Observation Post Orientation Card. If there are any doubts in your mind at any time about the direction, refer to the card again to make sure.

If a plane passes within ½ mile of your post, report is as "OVERHEAD." In that case, the word "OVERHEAD" will be the report both for Item 6 and Item 7.

ITEM 7 REPRESENTS DISTANCE OF AIRCRAFT FROM OBSERVATION POST.

For this item you need experience and ability in estimating distance. To a large extent, relating the location of the airplane to an established landmark which is at a known distance from your Observation Post will help you considerably in determining distance. If you identify the plane, its relative size will also help you in judging its distance from the post. For your guidance in this matter, the aircraft identification section of this manual contains illustrations showing how the various airplanes appear at different distances from you.

If the aircraft is within ½ mile of the Observation Post, report it as "OVERHEAD." This will be a combined report both for Item 6 and for Item 7, as previously explained. If the aircraft is further than ½ mile away, report its distance to the nearest mile.

ITEM 8 REPRESENTS THE DIRECTION OF FLIGHT.

Report the direction in which the aircraft is flying according to the eight points of the compass as outlined under Item 6. To prevent possible confusion at the Filter Center, give your report for this item as "FLYING SOUTHWEST "or "FLYING NORTH." If an aircraft is circling within the reporting area of the Observation Post, report it only when it leaves the area in an established line of flight. If the airplane changes direction after you have completed the Aircraft Flash Message, you need make no further report, for it will be reported by the next Observation Post in its line of flight. If you keep on reporting unnecessarily the planes that are circling, taking off, landing, etc., in your area, it will overload the communication facilities and the plotters' equipment at the Filter Center. Where your Observation Post has to cover an especially large area, however, you may get special instructions as to your requirements for reporting aircraft. If you get such instructions, of course, you should follow them.

ITEM 9 REPRESENTS SPECIAL REMARKS.

Use this final item of the Aircraft Flash Message form to report information which should be included but is not covered in the first eight items of the report. If, for example, the aircraft you report is an unconventional type — say a blimp or a helicopter — report that information under Item 9. Use Item 9 also to report special emergency situations. If you see an aircraft in distress — for example, on fire or otherwise in damaged condition — report this information under Item 9 of the Aircraft Flash Message Form. If you see an airplane engaged in action that seems to be hostile — for example, dropping paratroopers or strafing the road — report this information under Item 9. In fact, if you observe

any unusual circumstances that you feel might be important, report them under this item.

Do not use Item 9, however, unless you have special information that is to be reported to the Filter Center. If you have nothing to report under this item, just don't say anything for it. DO NOT SAY "UNKNOWN."

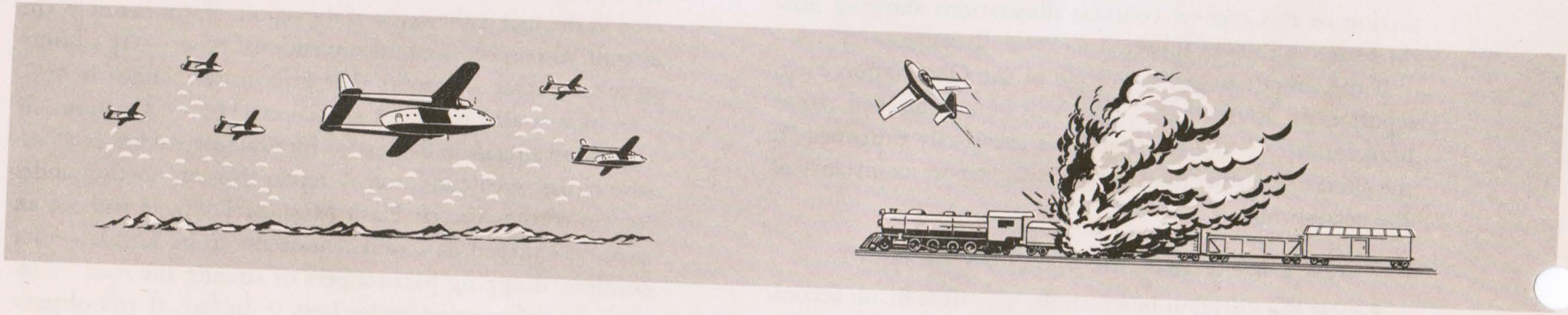
AFTER COMPLETING THE REPORT, keep your telephone connection until you are released by the statement "CHECK, THANK YOU." Don't hang up until you are released, for the Filter Center may have to ask you for additional information to enable it to take proper action on your report.

THE COMPLETE AIRCRAFT FLASH REPORT should be delivered to the Filter Center operator in precisely the same sequence as the items are listed here. If any item of the message (other than Item 9) is unknown, state it as "UNKNOWN" in your report. If the aircraft you are reporting is passing within ½ mile of the Observation Post, you may combine Items 6 and 7 into a single item and report is as "OVERHEAD."

Read your report directly from the Form 6-3, and say it in a definite cadence for clarity. Follow the telephone procedure as outlined in this manual, speaking directly into the transmitter. Do not speak rapidly — remember that the Filter Center operator must record your information on the Filter Board.

To see how the procedure works, consider the following situation as an EXAMPLE:

Suppose you observe some airplanes entering the designated area of responsibility of your Observation Post. Taking into account their speed and direction of flight, and using past experience as to normal time delay in the call (as explained on page 17), you wait an appropriate period, call your operator, and state, for example, "AIRCRAFT FLASH BROOKSIDE 37824." The local operator will connect you with your Filter Center, which will answer by saying, "AIR DEFENSE, GO AHEAD." Suppose, now, that you had determined that there were three 4-engined jet airplanes directly south of your post flying westwardly at a very high altitude. At this

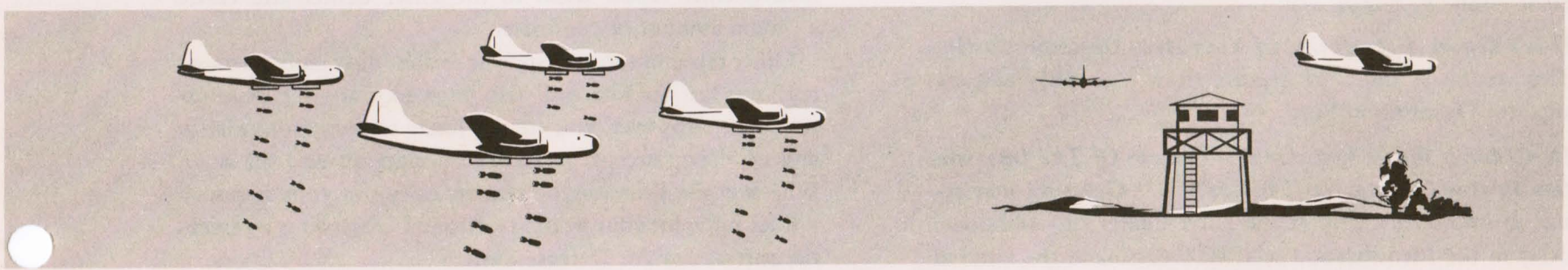


time, the airplanes should have reached a point at the nearest distance to your post that their line of flight will permit. When the Filter Center Operator states, "AIR DEFENSE, GO AHEAD," you say, "AIRCRAFT FLASH — FEW — MULTI-JET — VERY HIGH — NO DELAY — FOX NAN THREE FIVE BLACK — SOUTH — TWO — FLYING WEST." (Each dash indicates a slight pause. This will mean that the entire message should take 10 to 15 seconds. The Filter Center Operator will then ask for a repeat on any item he has failed to receive by saying, "SAY AGAIN ITEM . ." For example, he might say, "SAY AGAIN ITEM 3." To reply, you would say, "ITEM 3 — VERY HIGH."

When the Filter Center has received your information correctly, the operator will say, "CHECK, THANK YOU." You will immediately hang up your telephone to clear the line for additional reports from other Observation Posts.

If there are more than one type of aircraft (see Item 2, Flash Message Form), flying within the area of responsibility of your Observation Post, or if aircraft of the same type are not flying in formation, report them by using *subsequent* Aircraft Flash Messages. It may also happen that a second airplane enters your reporting area while you are in communication with the Filter Center reporting the flight of another aircraft. If any of these things occur, do not place a new call from your Observation Post. Instead, add a *subsequent report* to your first message. That is, when you have completed reporting the first airplane, you say, "I HAVE ANOTHER MESSAGE FOR YOU." Be sure to make the statement, "I HAVE ANOTHER MESSAGE FOR YOU," before the Filter Center Operator says, "CHECK, THANK YOU." If necessary, the Filter Operator will say "WAIT"; when the plotting of your initial report is completed, the Filter Operator will say, "GO AHEAD, PLEASE." Then you say, "AIRCRAFT FLASH, etc." giving all the items for the second Aircraft Flash Message.

Use this type of sequence in reporting more than one flight of aircraft whenever necessary, but use it with discretion. When you are in doubt, or when you do not have your Aircraft Flash Message form completed for the subse-



quent report, be sure to terminate your conversation. Never hold the Filter Center Operator on the line under these circumstances. You are not only tying up communication facilities from your Post to the Filter Center — you are trying up the Filter Center Operator as well. Hang up and place a new Aircraft Flash Message indicating the proper time delay, as explained under Item 4.

In addition to being careful about this item, here are some other important "DON'TS" you should observe.

Don't Report The Column Heading Of The Aircraft Flash Message Form 6-3. Just give the items in their proper sequence and timing; for example, say, "AIRCRAFT FLASH — FEW — MULTI-JET — VERY HIGH — ONE MINUTE DELAY — FOX NAN THREE FIVE BLACK — OVERHEAD — FLYING SOUTH."

Don't Wait For A Confirmation Of Receipt For Each Column. At the end of the Flash Message, the Filter Center Operator will ask for a repeat on any item not understood by saying, "SAY AGAIN ITEM . . ." If all is received properly, the Filter Center Operator will confirm the report by the statement, "CHECK, THANK YOU."

Don't Report Aircraft Out Of Your Area Of Responsibility. This results in duplicate reports from your post and the adjacent Observation Post.

Don't Guess When You Are Not Certain Of The Information In Any Column. Say "UNKNOWN." Guessing may result in improper action at the Filter Center and additional delay in the Identification section. Guessing is the same as false reporting.

Don't Delay A Report By Waiting To Secure Information In Any Column Of The Flash Message Form. This will result in a delay which may prevent an interception of a hostile aircraft by our Intercept Fighters, since they may be relying on your information to give them the current location of the hostile aircraft.

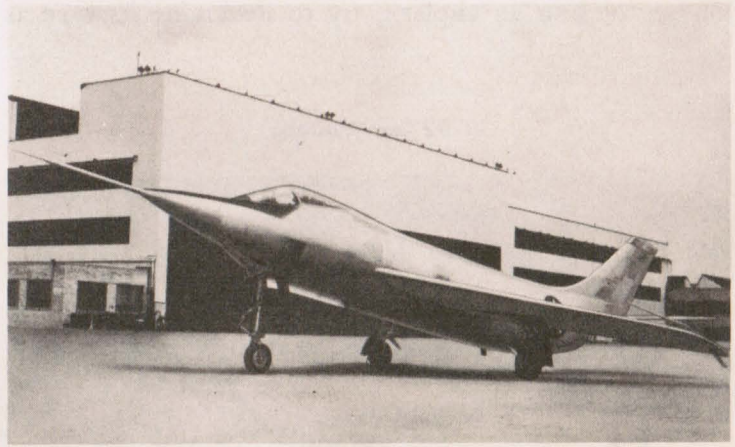
Besides observing and reporting aircraft, your duties will include also the responsibility for keeping a record, or log, of your observations. This will be a relatively easy task, for your Aircraft Flash Message Form No. 6-3 can well serve this purpose. By just adding the date at the top of the form and by recording the time of each observation in the margin to the right of Column 9, you can make your Aircraft Flash Message Form No. 6-3 a most useful log of your observations. For any special remarks or comments, you can use Column 9. However, if such special remarks or comments are not of the type that should be reported to the Filter Center as part of your report, do not write them in until after you have completed your call. Otherwise, you might inadvertently report them to the Filter Center and create a certain amount of confusion.

Other types of records, such as diaries, duty shifts, personnel lists, and the like, will also be needed at your Observation Post. However, you are not likely to be responsible for any of these, except, probably, to sign on and off duty. Whatever the situation, be sure to carry out your responsibilities fully, for your work as a Ground Observer is an essential part of our Air Defense System.

. . . *aircraft identification*

Recognizing airplanes is just like recognizing people. When you barely know a person, especially if you see him infrequently, you have to look very closely to recognize him. Often you can't do it even then. However, when you know a person well, you can recognize him at a considerable distance, even before you can make out any one of his features. It is the same with airplanes. Of course, in the Aircraft Flash Message you do not report airplanes by their specific designations — like F-86 or C-47. Your Aircraft Flash Message requires only that you determine whether the airplane is a single motor, bi-motor, multi-motor, single jet, or multi-jet. Still, even that can be quite a difficult job when the airplane is pretty far away and you are not familiar with the particular plane. Determination of altitude for Item 3 and distance for Item 7 is also more difficult if you are not well acquainted with the airplane you are observing. To determine the information for these items quickly and accurately, therefore, you must be thoroughly familiar with the various types of aircraft and their appearance at various altitudes and distances. That's why this section on aircraft identification has been included here.

The airplanes pictured here have been divided into five classes according to type as reported in Item 2 — namely, single motor, bi-motor, multi-motor, single jet, and multi-jet. Each class has been further divided into groups according to appearance; thus, within the bi-motored class, the bi-motored bombers have been grouped together, and the bi-motored transports have been grouped together. Within each group the airplanes that look most nearly alike have been placed together on the same page. This arrangement will make it quite easy for you to find the data for any airplane on the basis of its appearance.



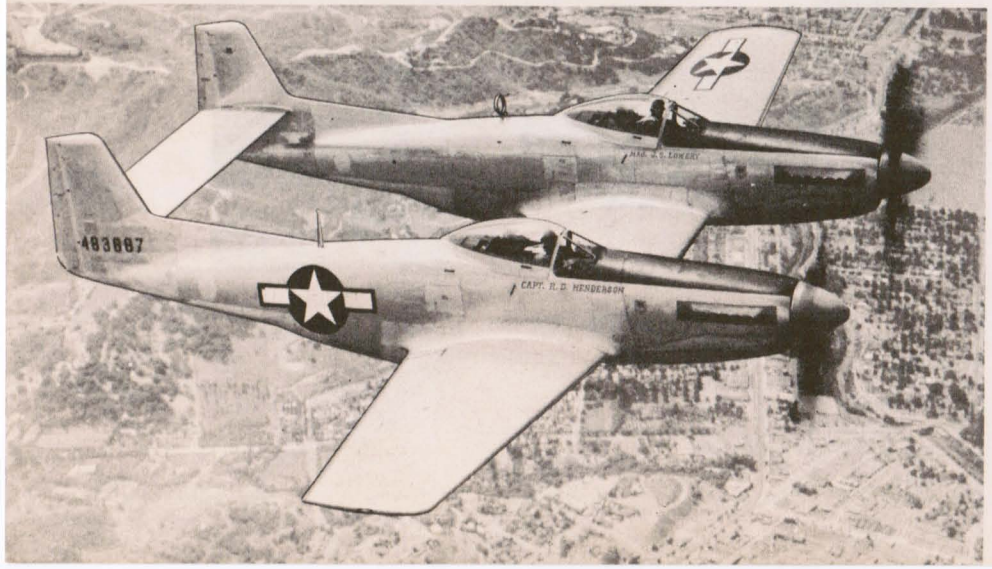
XF3H-1 Demon

Besides the pictures, the Aircraft Identification section includes a variety of other data for each of the various groups of airplanes. Each page in this section shows how the planes pictured on the page appear in silhouette from various angles. (While the silhouettes shown are of only one of the airplanes pictured, they are characteristic of all, for all the airplanes on the page closely resemble each other.) This section also shows the comparative size of the airplanes at various distances, and their size as compared with other types of airplanes. These pages also include measurements and other information about the airplanes so that you can learn to know them well.

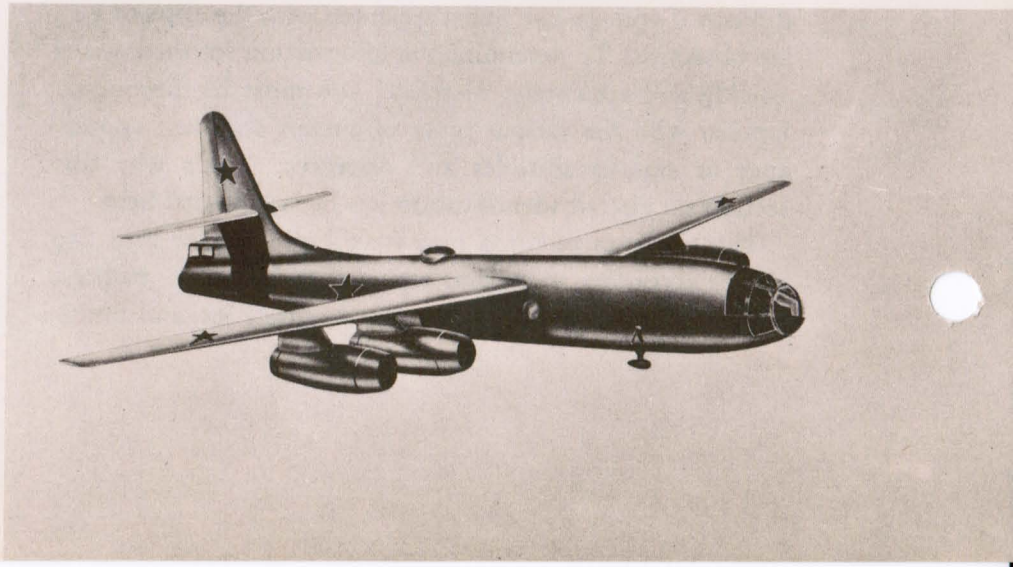
You can make best use of this material and prepare yourself for your duties as Ground Observer by practicing aircraft recognition every time you have a chance. Whenever you see or hear an airplane, try to determine its type as required for Item 2 of the Aircraft Flash Message Report. Look up the airplane in the Aircraft Identification section here to double check your identification and to learn about other characteristics of the plane. In this way, you will gradually familiarize yourself with the various aircraft and learn to tell at a considerable distance whether they are single motor, bi-motor, multi-motor, single jet, or multi-jet. By referring to the comparative size diagrams on the proper page, and by checking against landmarks a known distance away, you will improve your judgment of distance and altitude and will gradually become an expert.

Incidentally, don't use field glasses in your observation to determine altitude and distance, for the magnification produced by the field glasses is quite likely to mislead you. There is no objection to your use of field glasses to help you determine the type of airplane, but in judging altitude and

F-82 Twin Mustang



Russian Iliushin Jet Bomber



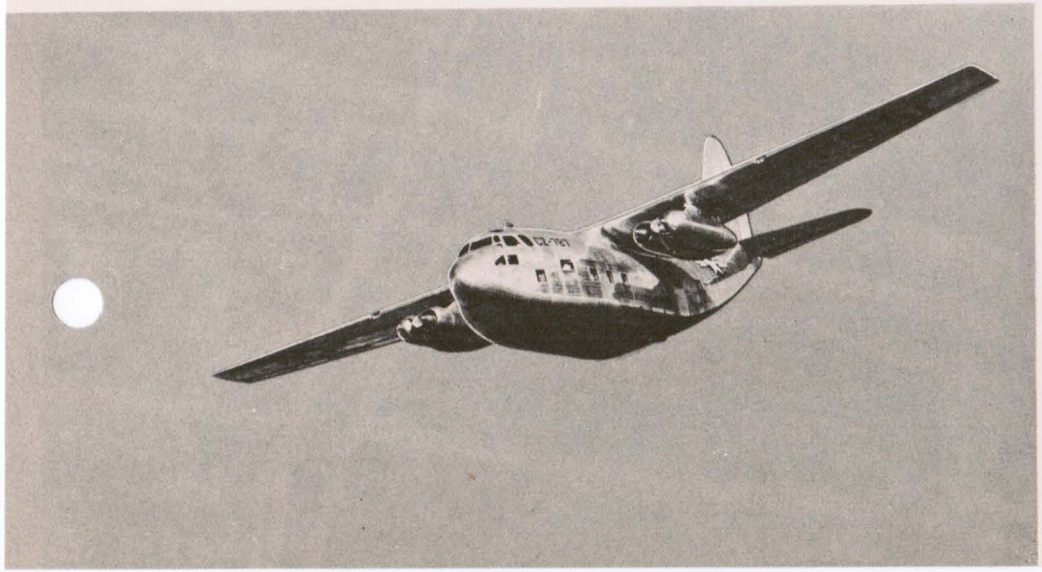
distance, you must depend on your eyes alone.

Sometimes, of course, you will not be able to see the airplane at all. Because of the extremely high altitudes at which modern aircraft fly, it is possible for them to be invisible, even when they are directly overhead. In such cases, there are other ways of making a determination of the information necessary for the Aircraft Flash Message Report.

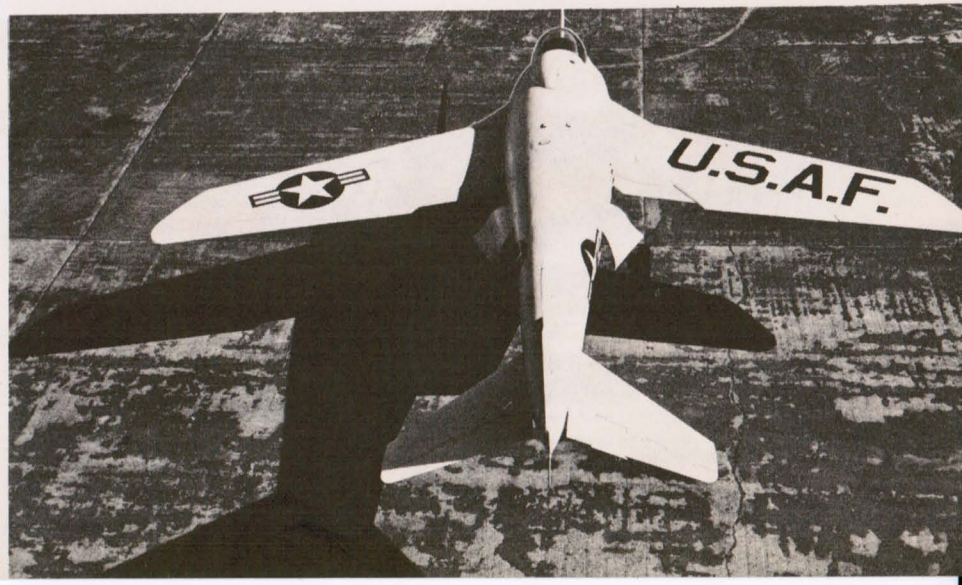
For one thing, there is the matter of how the airplane sounds. Though this is not a reliable method, there are people who can often distinguish pretty well on the basis of sound between jet and propeller driven aircraft and between single motor, bi-motor, and multi-motor aircraft. Again, it is probably more a matter of practice than anything. else. Therefore, it would be well for you to practice trying to recognize type of aircraft by sound alone, then checking by sight. You will make a great many errors at first, but it is quite possible that after considerable practice, you can become quite proficient at it.

Naturally, no one can give you a definite description of how the various types of aircraft sound. In general, though, you may use the following overall differentiation as a first guide. The sound of single-motored airplanes is normally steady in frequency (pitch) and relatively steady in intensity. The sound of bi-motored airplanes is usually steady in frequency but varying in intensity. In addition, there is a sort of beat note (throbbing) effect. This beat note, if your ears are sharply attuned for it, may also help you distinguish between a bi-motored airplane and two single-motored airplanes flying together. In multi-motor airplanes, this beat note becomes a sort of steady drone of relatively high intensity. Our only six-motored airplane — the B-36 — has a characteristic oscillating beat frequency, which is quite

XC-123A



X-5

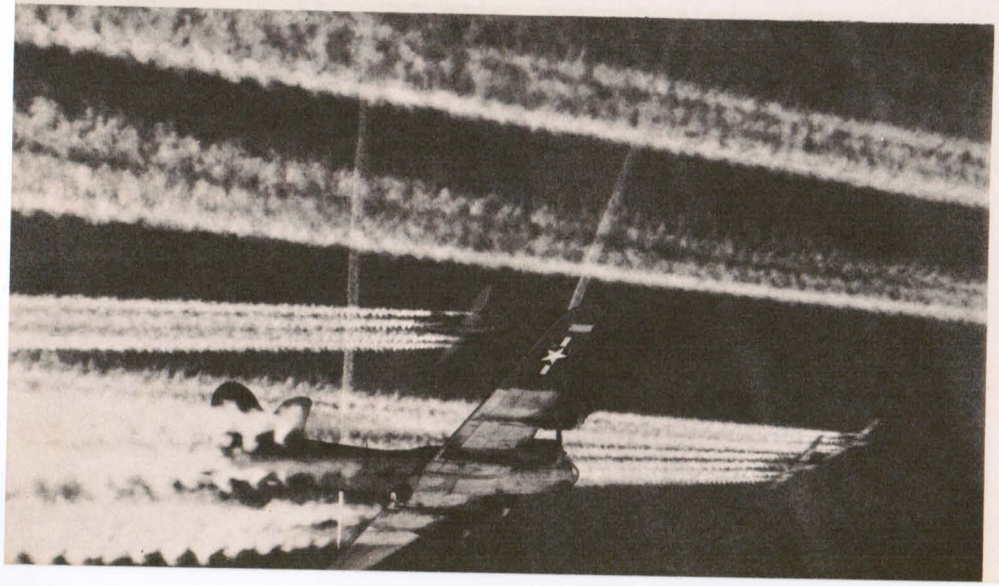


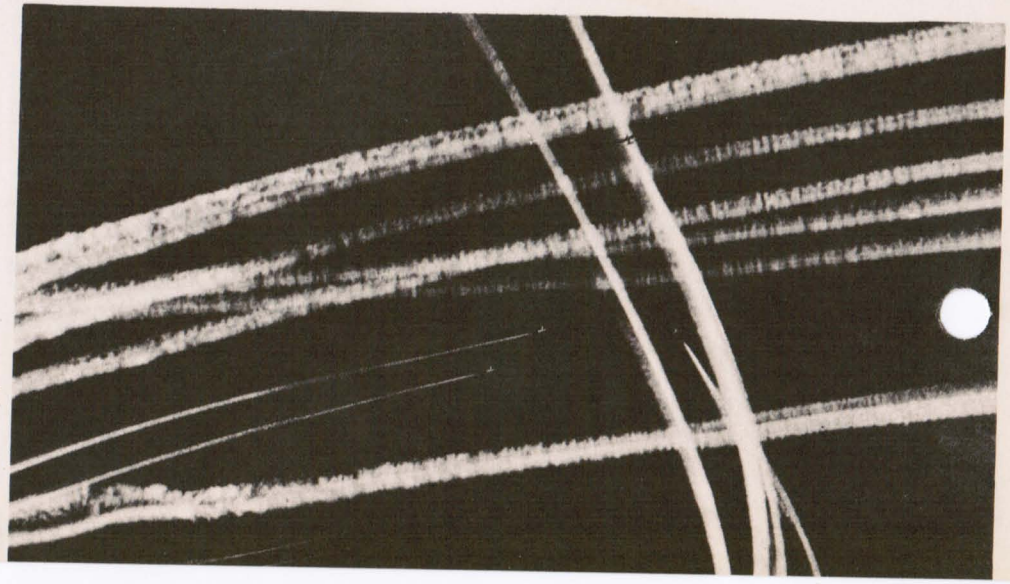
easy to distinguish once you become familiar with it. The jets make a different type of sound which is characteristic of them and is readily recognizable if you are familiar with them. In fact, in all the cases it is a matter of thorough familiarity that can be achieved only by endless practice. It will be interesting to you to try to become proficient in recognition by sound, but don't become discouraged if you can't achieve this. Most people can't.

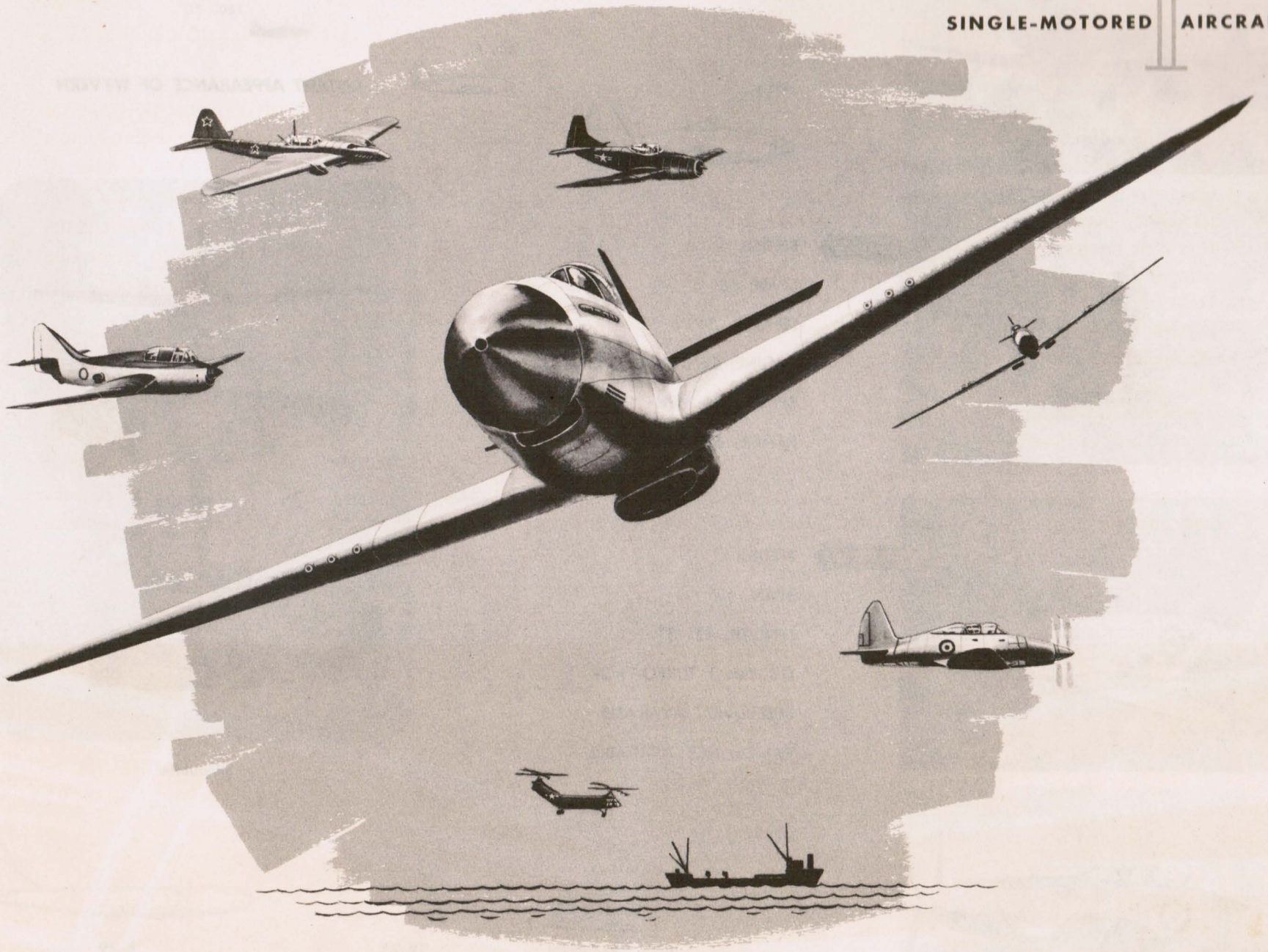
A more reliable method of recognition when you can't see the airplane itself is recognition by vapor trails. At very high altitudes each propulsion unit of an airplane produces a separate and distinct vapor trail. Consequently, if you see a vapor trail in the sky, you will know right away that the airplane making that trail is at a very high altitude. That's one item for your Aircraft Flash Message form. Another item that vapor trails will tell you with a good amount of reliability when you learn to observe them correctly is the number of propulsion units on the airplane. By counting the number of vapor trails, you can tell quite definitely how many propulsion units the airplane has. The number of vapor trails and their groupings can also give you a good clue as to the number of aircraft as required for Item 1 in the Aircraft Flash Message Report. Of course, if there is a formation of planes and the vapor trails intermingle, the job becomes considerably more difficult.

All in all, then, there are a number of ways by which you can determine the information required for your Aircraft Flash Message Report. For maximum efficiency, though, every one of them requires that you know airplanes so well that you can determine the information required for your report almost automatically. There is no short cut to such knowledge. The only way you can achieve it is by constant practice.

Vapor Trails of Single-Motored Fighters and Four Motored Bombers

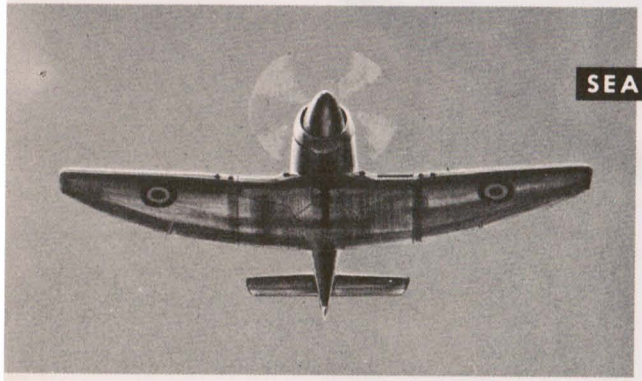






SINGLE-MOTORED AIRCRAFT





SEA FURY

BRITISH

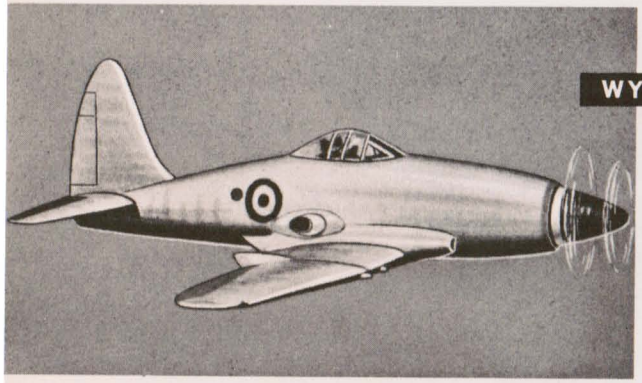
SPAN: 38′ 5″

LENGTH: 34′ 6″

ENGINE: CENTAURUS 18

SPEED: 425 MPH

RANGE: 678 MILES



WYVERN

BRITISH

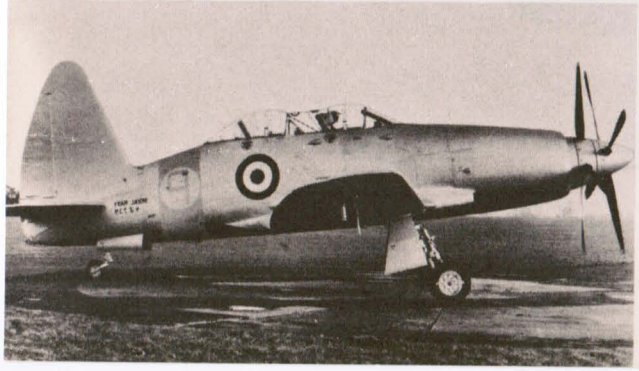
SPAN: 44′

LENGTH: 42′ 3″

ENGINE: 1 TURBO-PROP

SPEED: NOT AVAILABLE

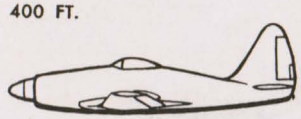
RANGE: NOT AVAILABLE



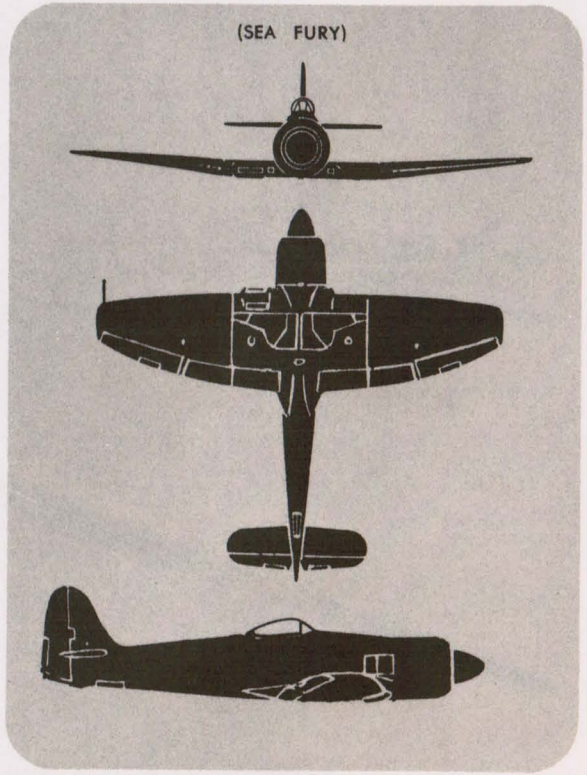
1600 FT.

800 FT.

400 FT.



DISTANT APPEARANCE OF WYVERN



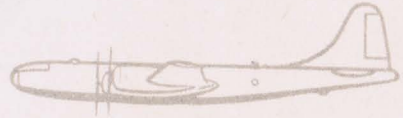
Silhouette



WYVERN



TB-25



B-29

COMPARATIVE SIZE OF WYVERN

SINGLE-MOTORED AIRCRAFT

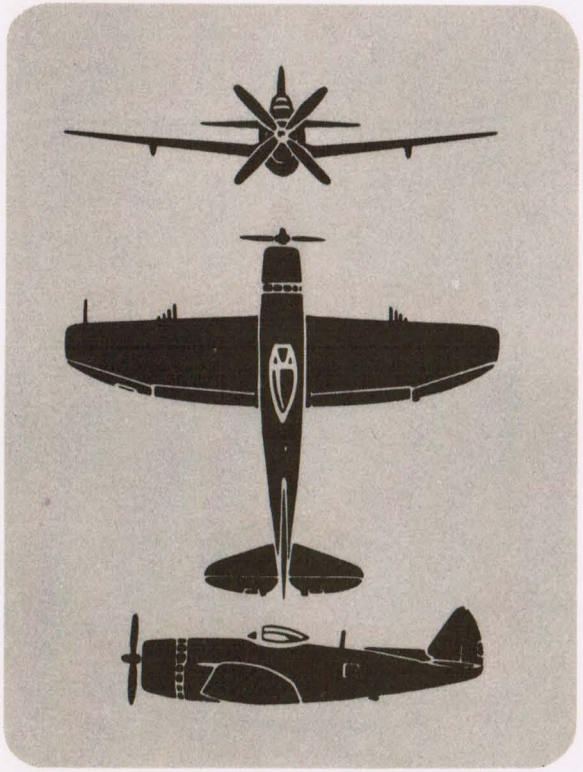




DISTANT APPEARANCE OF F-47







Silhouette

UNITED STATES **F-47**

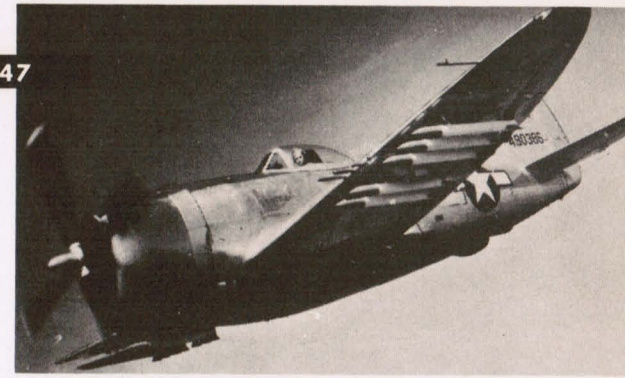
SPAN: 42′ 6″

LENGTH: 30′ 1″

ENGINE: P-W R-2800

SPEED: 450 MPH

RANGE: 1,100 MILES



UNITED STATES **F4U**

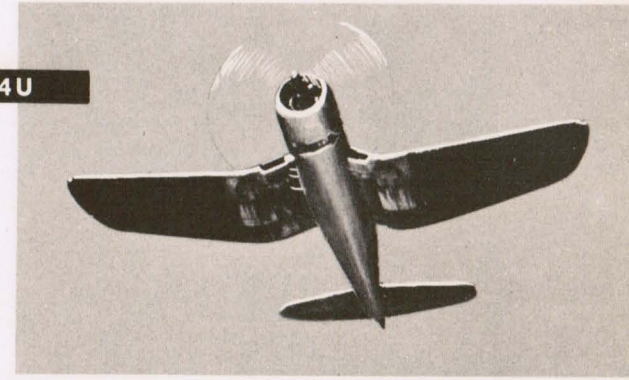
SPAN: 41′

LENGTH: 33′ 3″

ENGINE: P-W R-2800

SPEED: 460 MPH

RANGE: 1,368 MILES





F-47

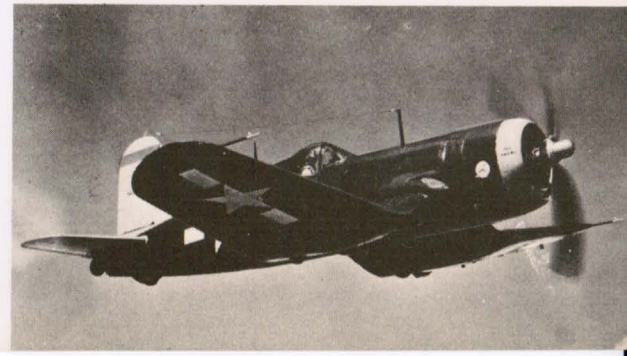


TB-25

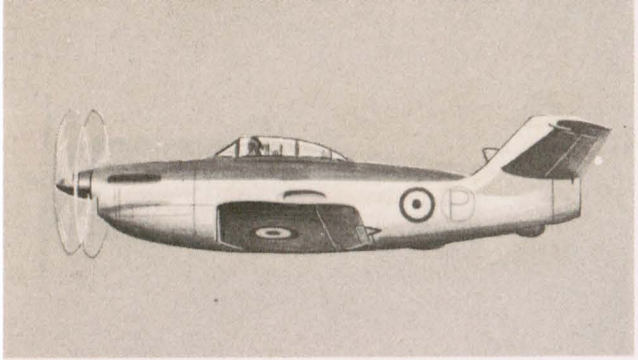


B-29

COMPARATIVE SIZE OF F-47



SINGLE-MOTORED AIRCRAFT



1600 FT.



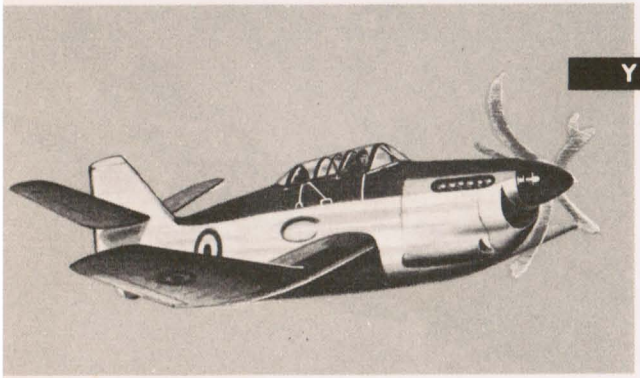
800 FT.



400 FT.



DISTANT APPEARANCE OF FAIREY 17



YA5

BRITISH

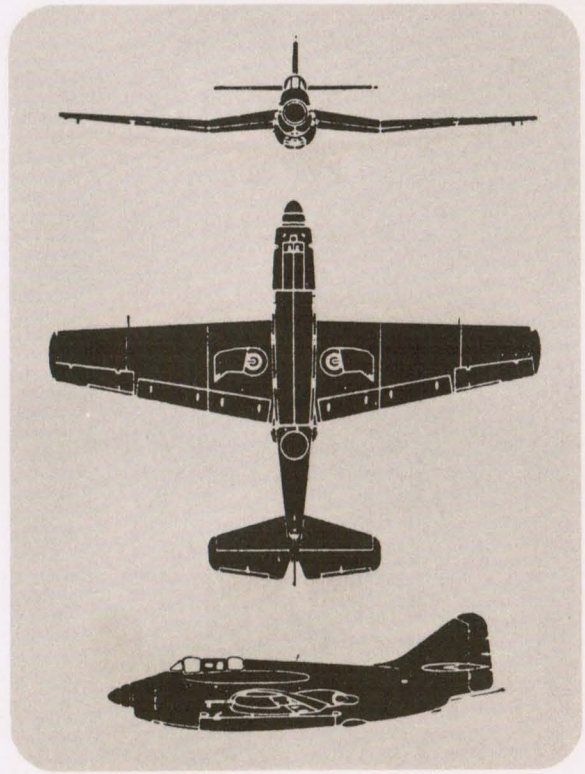
SPAN: NOT AVAILABLE

LENGTH: NOT AVAILABLE

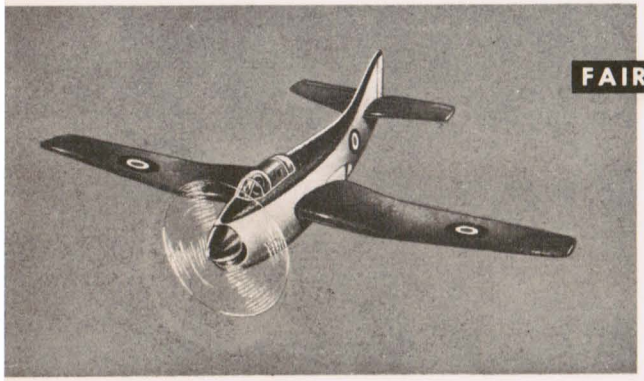
ENGINE: ROLLS-ROYCE GRIFFON

SPEED: NOT AVAILABLE

RANGE: NOT AVAILABLE



Silhouette



FAIREY 17

BRITISH

SPAN: NOT AVAILABLE

LENGTH: NOT AVAILABLE

ENGINE: DOUBLE MAMBA

SPEED: NOT AVAILABLE

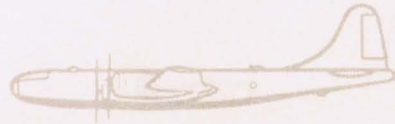
RANGE: NOT AVAILABLE





FAIREY 17

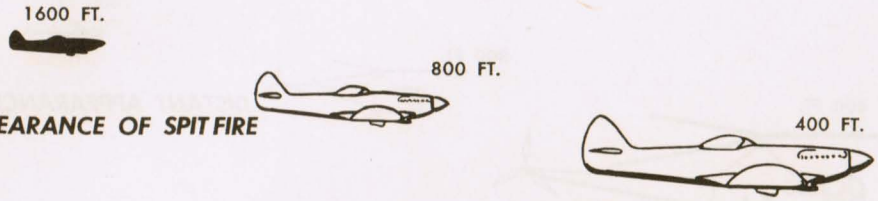
TB-25



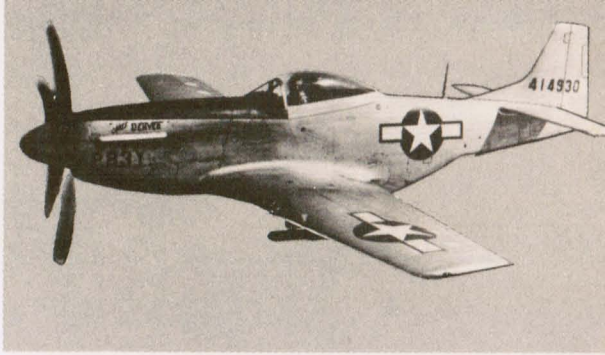
B-29

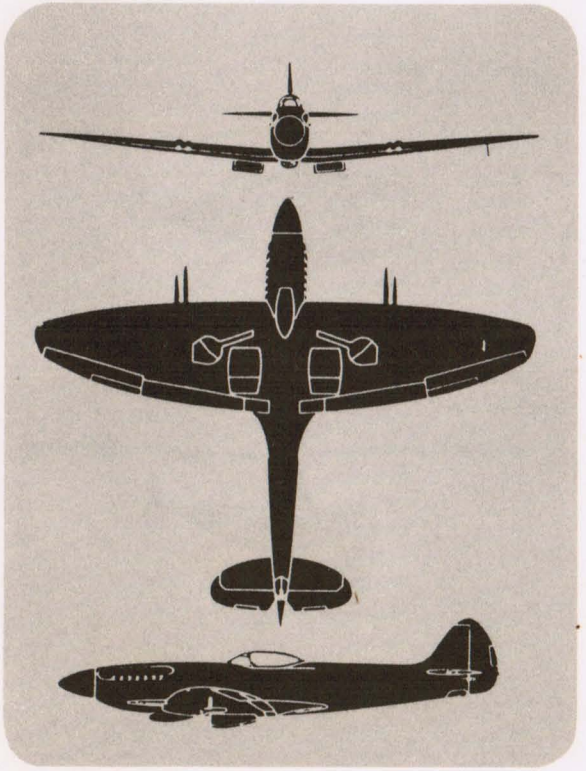
COMPARATIVE SIZE OF FAIREY 17

SINGLE-MOTORED AIRCRAFT



DISTANT APPEARANCE OF SPITFIRE





Silhouette

UNITED STATES **F-51**

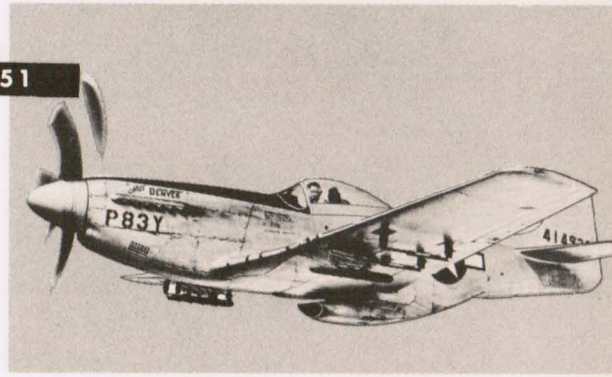
SPAN: 37′

LENGTH: 33′ 4″

ENGINES: PACKARD V1650

SPEED: OVER 450 M.P.H.

RANGE: OVER 950 MILES COMB. RAD.



BRITISH **SPITFIRE**

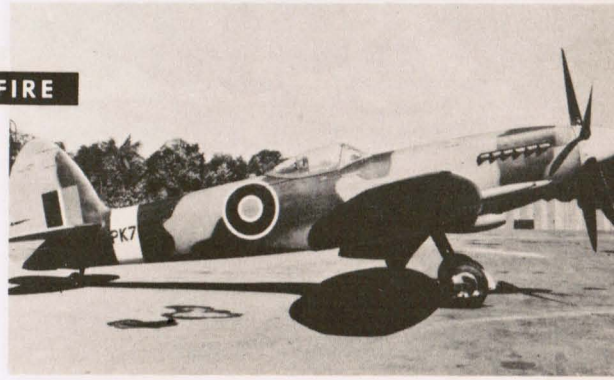
SPAN: 36′ 11″

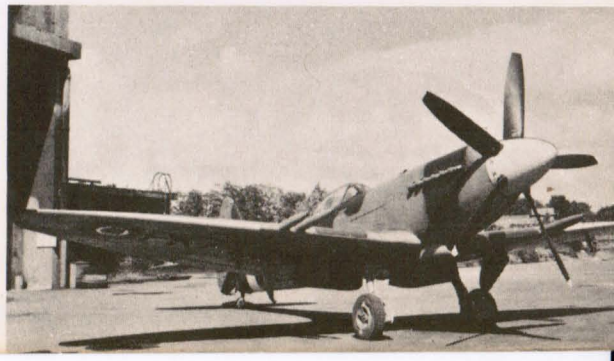
LENGTH: 32′ 11″

ENGINE: GRIFFON 61

SPEED: 449 MPH

RANGE: 966 MILES







SPITFIRE TB-25 B-29

COMPARATIVE SIZE OF SPITFIRE

SINGLE-MOTORED AIRCRAFT





H03S

UNITED STATES

SPAN: 48′

LENGTH: 51′

ENGINE: P-W R-985

SPEED: 105 M.P.H.

RANGE: 180 MILES



HTL

UNITED STATES

SPAN: 35′ 2″

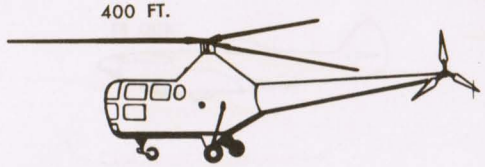
LENGTH: 41′ 3″

ENGINE: AIR COOLED

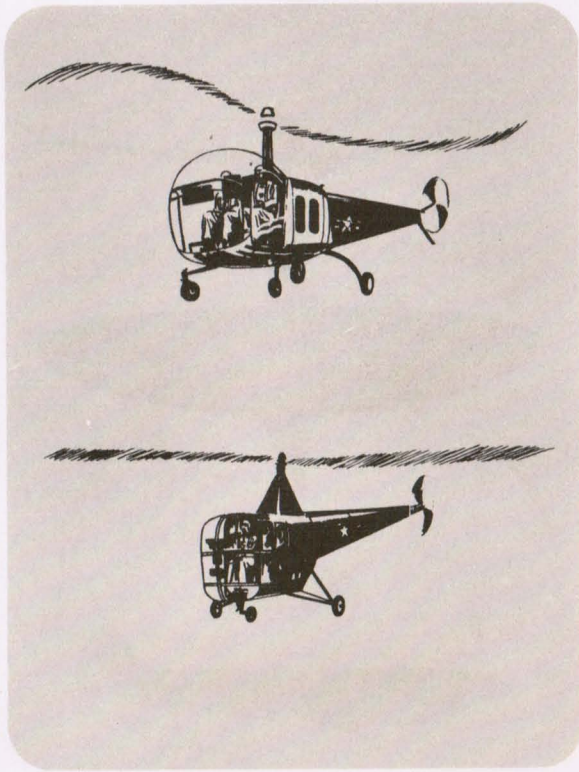
SPEED: 100 M.P.H.

RANGE: 90 MILES COMB. RAD.





DISTANT APPEARANCE OF H03S

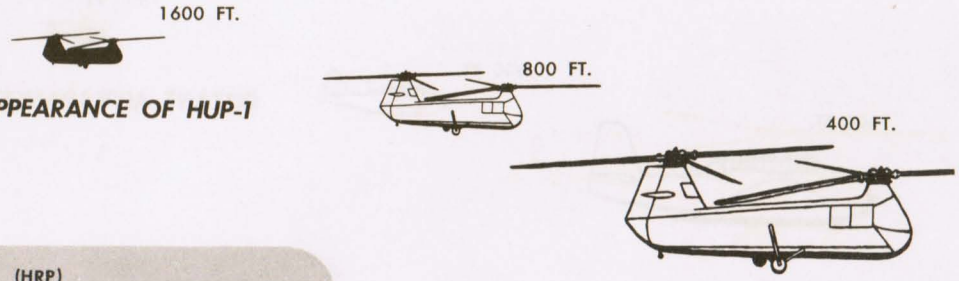


Silhouette



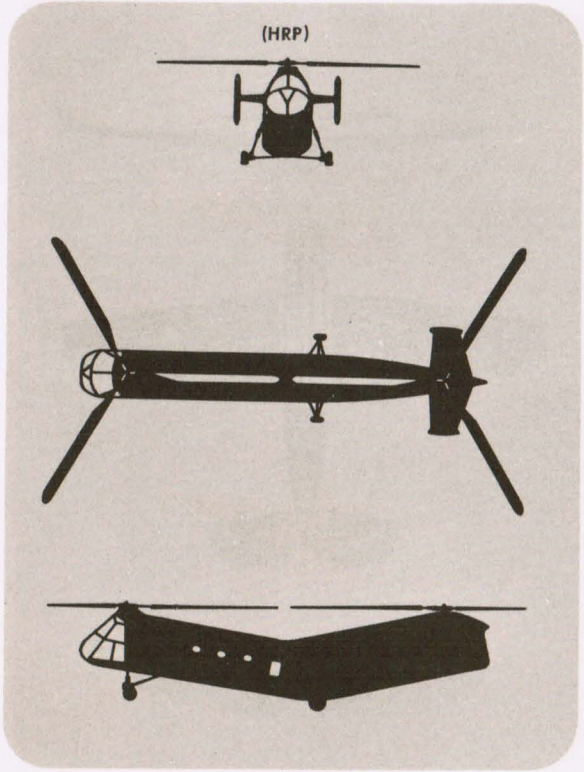
COMPARATIVE SIZE OF H03S

SINGLE-MOTORED AIRCRAFT



DISTANT APPEARANCE OF HUP-1





Silhouette

UNITED STATES **HUP-1**

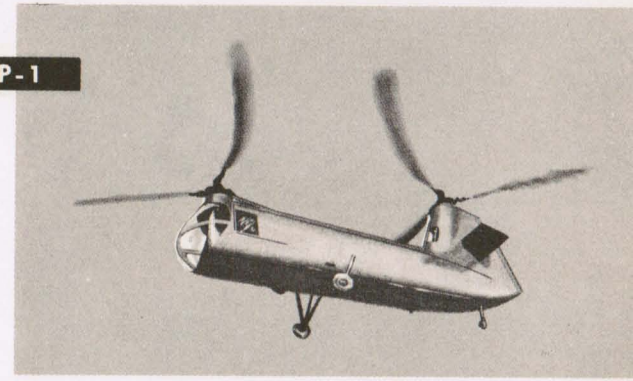
SPAN: 35′

LENGTH: 31′ 10″

ENGINE: CONTINENTAL R-975

SPEED: OVER 115 M.P.H.

RANGE: OVER 170 MILES



UNITED STATES **HRP**

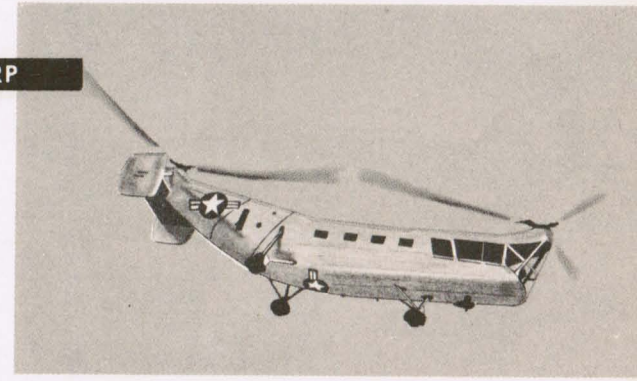
SPAN: (ROTOR) 41′

LENGTH: 48′

ENGINE: P-W R-1340

SPEED: 100 MPH

RANGE: 140 MILES



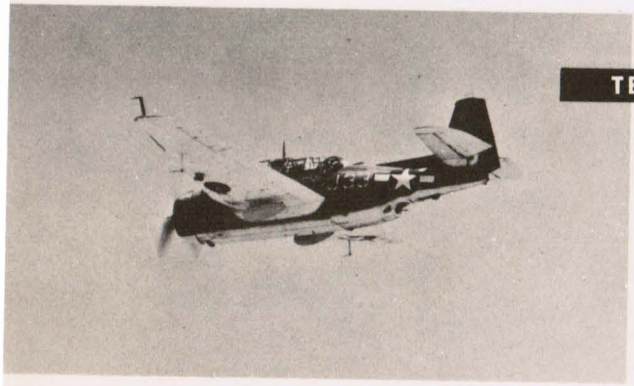


COMPARATIVE SIZE OF HUP-1



SINGLE-MOTORED AIRCRAFT





TBM

UNITED STATES

SPAN: 54′ 2″

LENGTH: 41′

ENGINE: WRIGHT R-2600

SPEED: OVER 225 M.P.H.

RANGE: OVER 750 MILES COMB. RAD.



SB2C

UNITED STATES

SPAN: 49′ 8″

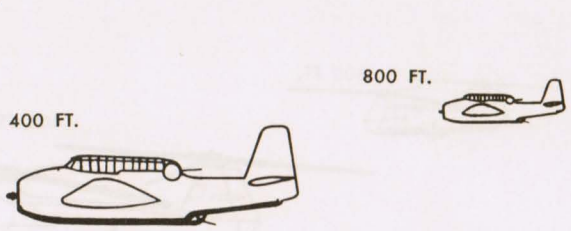
LENGTH: 36′ 8″

ENGINE: WRIGHT R-2600

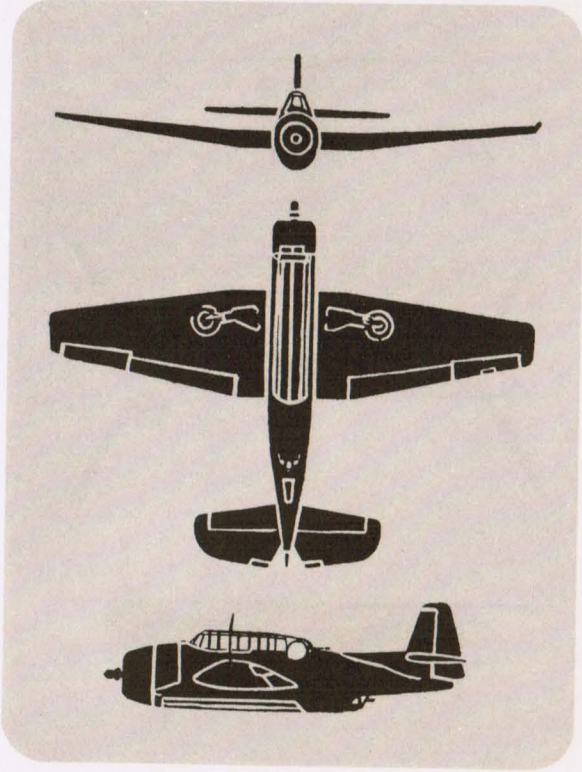
SPEED: OVER 250 M.P.H.

RANGE: OVER 1000 MILES





DISTANT APPEARANCE OF TBM

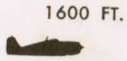


Silhouette



COMPARATIVE SIZE OF TBM

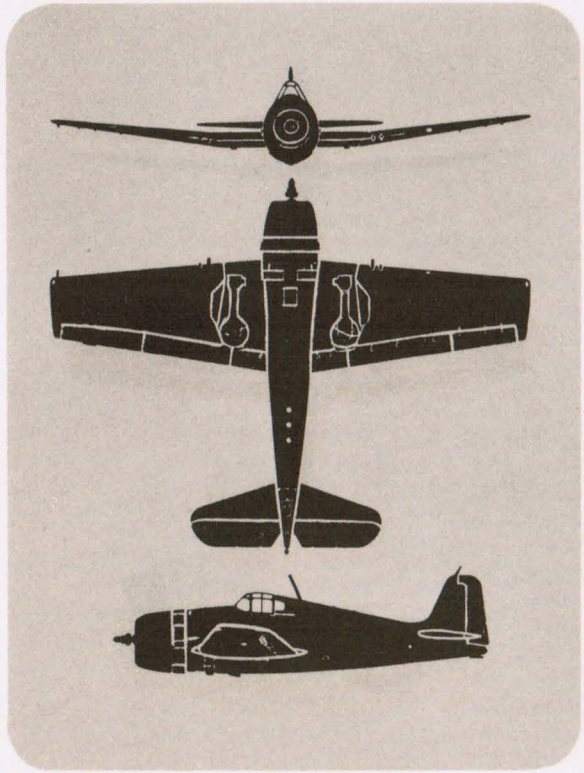
SINGLE-MOTORED AIRCRAFT







DISTANT APPEARANCE OF F6F



Silhouette



F8F

UNITED STATES

SPAN: 35′ 6″

LENGTH: 27′ 8″

ENGINE: P-W R-2800

SPEED: OVER 400 M.P.H.

RANGE: OVER 1200 MILES



F6F

UNITED STATES

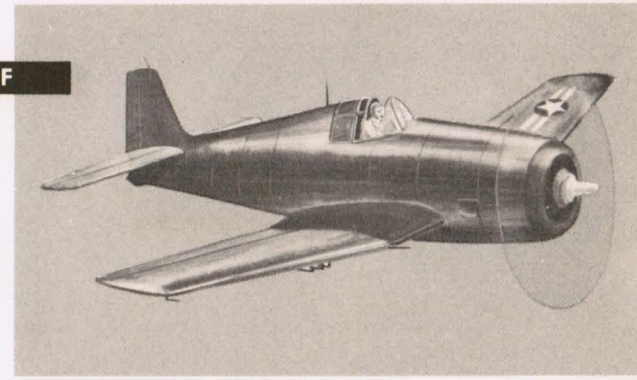
SPAN: 42′ 10″

LENGTH: 33′ 7″

ENGINE: P-W R-2800

SPEED: OVER 375 M.P.H.

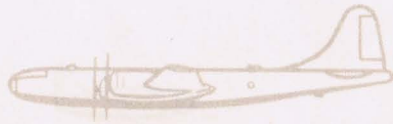
RANGE: OVER 1100 MILES





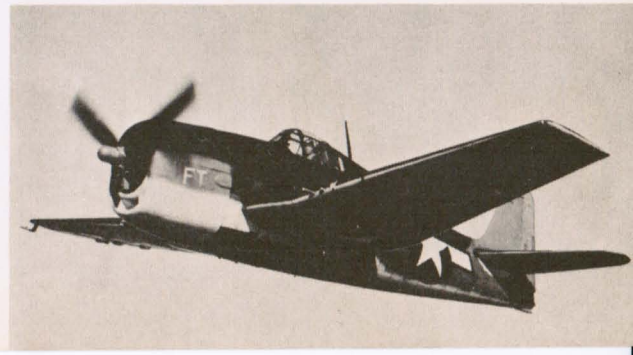
F6F

TB-25



B-29

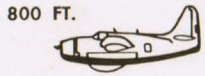
COMPARATIVE SIZE OF F6F



SINGLE-MOTORED AIRCRAFT

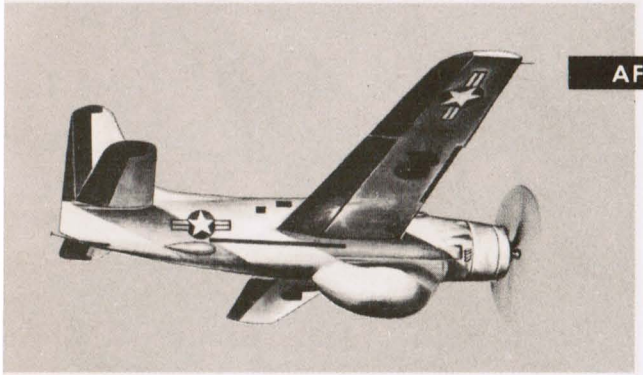








DISTANT APPEARANCE OF AF-2W



AF-2W

UNITED STATES

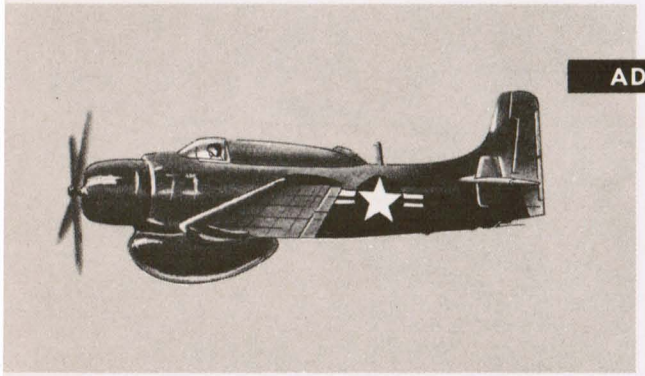
SPAN: 60′

LENGTH: 43′

ENGINE: P-W R-2800 — 34W

SPEED: NOT AVAILABLE

RANGE: NOT AVAILABLE



AD-3W

UNITED STATES

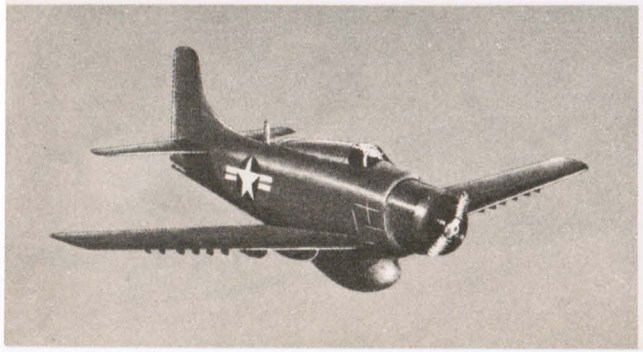
SPAN: 50′

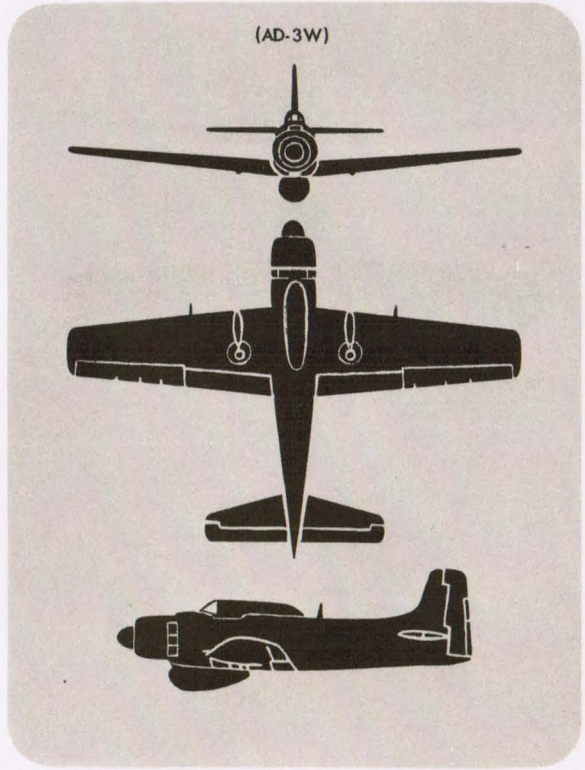
LENGTH: 39′ 3″

ENGINE: WRIGHT R-3350-24

SPEED: NOT AVAILABLE

RANGE: OVER 1500 MILES





Silhouette



AF-2W

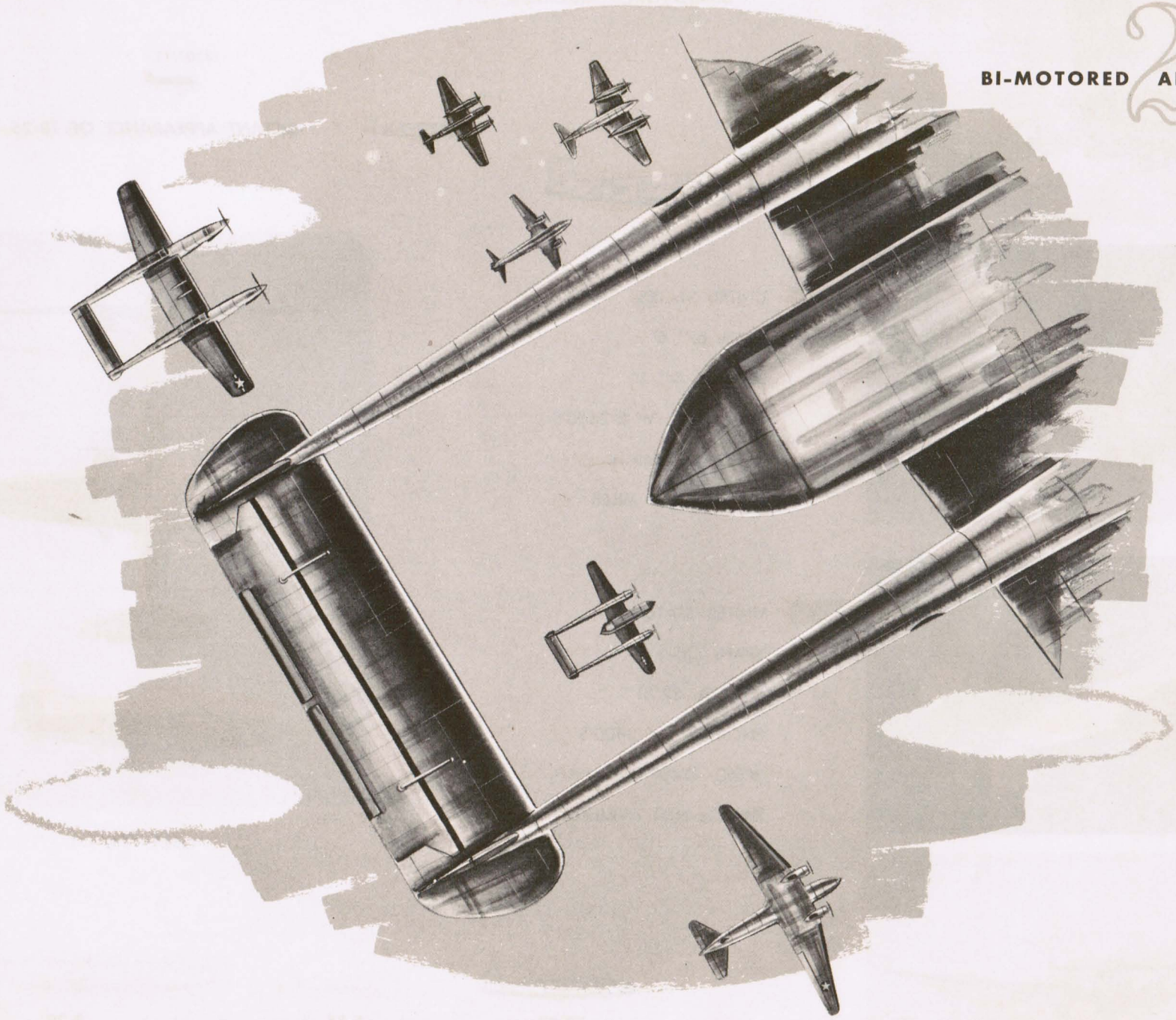


TB-25



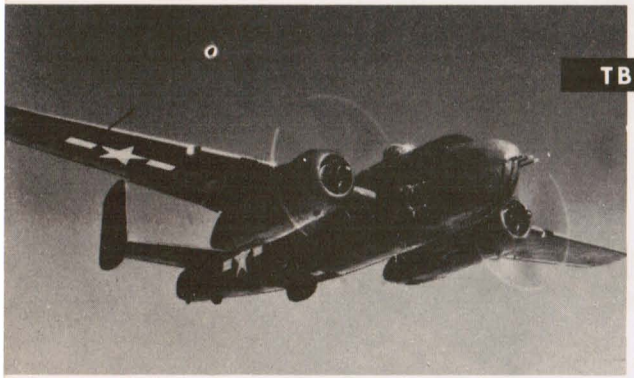
B-29

COMPARATIVE SIZE OF AF-2W



BI-MOTORED AIRCRAFT





TB-25

UNITED STATES

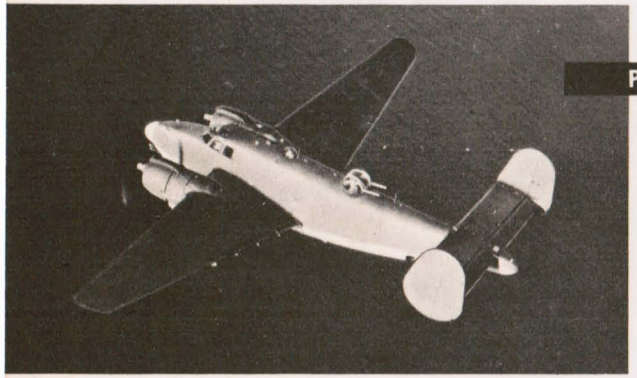
SPAN: 67′ 6″

LENGTH: 54′ 1″

ENGINES: 2 W R-2600'S

SPEED: 275 M.P.H.

RANGE: 1500 MILES



PV

UNITED STATES

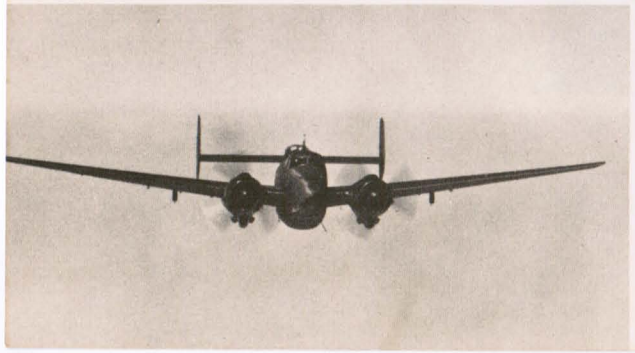
SPAN: 75′

LENGTH: 52′ 1″

ENGINES: 2 R-2800'S

SPEED: OVER 275 M.P.H.

RANGE: NOT AVAILABLE



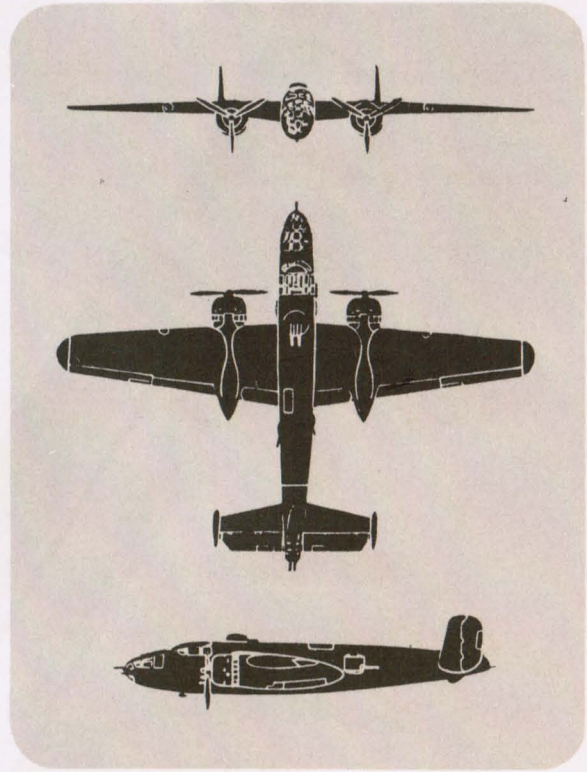
3200 FT.

1600 FT.

800 FT.



DISTANT APPEARANCE OF TB-25

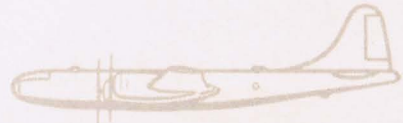


Silhouette



TB-25

F-86



B-29

COMPARATIVE SIZE TB-25

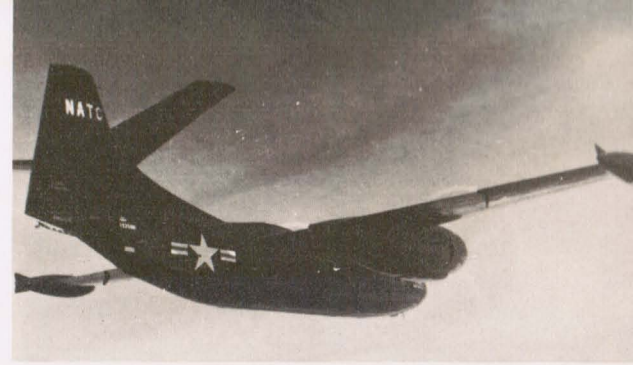
BI-MOTORED AIRCRAFT



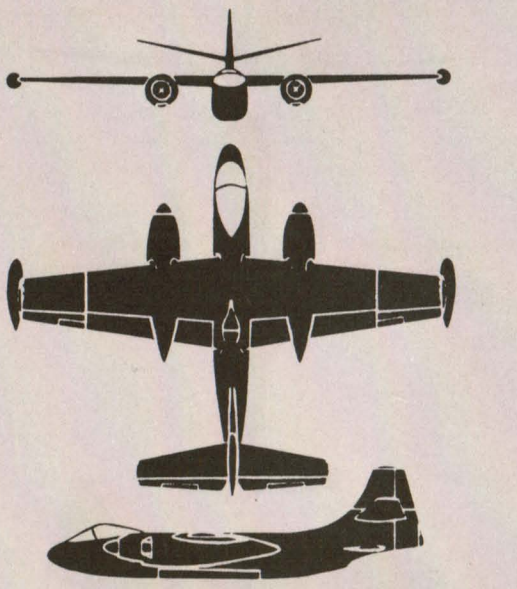




DISTANT APPEARANCE B-26



(AJ)



Silhouette

UNITED STATES **AJ**

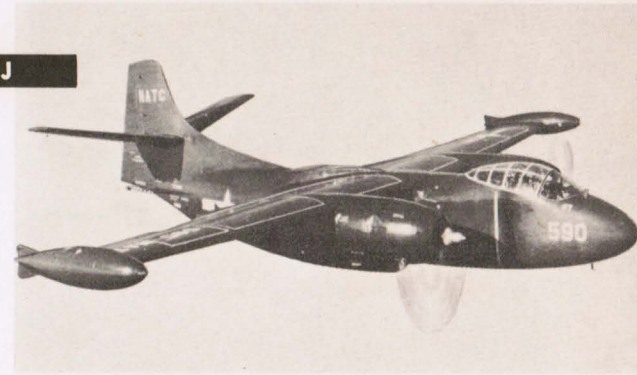
SPAN: 71′ 5″

LENGTH: 63′ 1″

ENGINES: 2 P-W R-2800'S

SPEED: OVER 400 M.P.H.

RANGE: OVER 1500 MILES



UNITED STATES **B-26**

SPAN: 70′

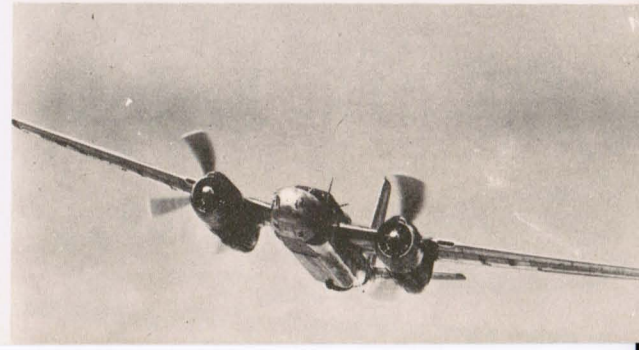
LENGTH: 50′ 10″

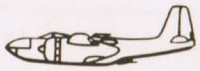
ENGINES: 2 P-W R-2800'S

SPEED: OVER 350 M.P.H.

RANGE: 900 MILES COMB. RAD.







B-26



F-86

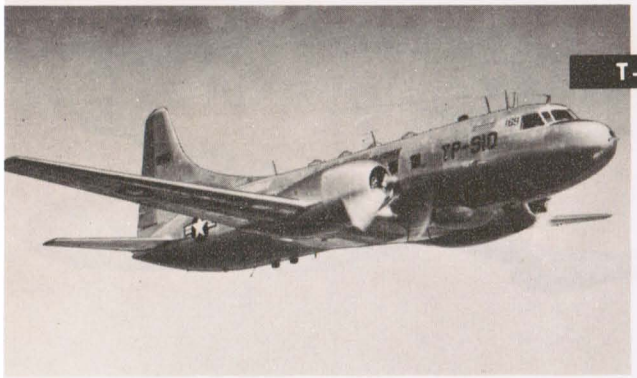


B-29

COMPARATIVE SIZE OF B-26

BI-MOTORED AIRCRAFT





T-29

UNITED STATES

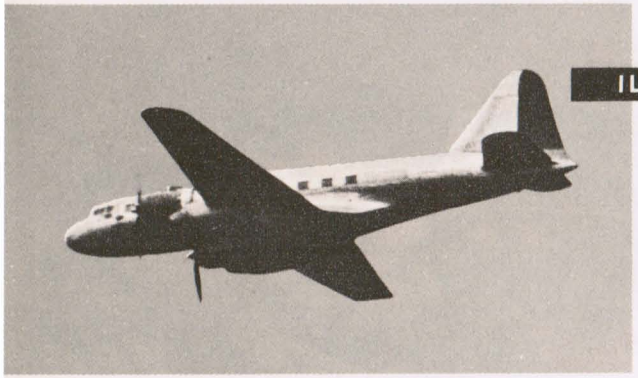
SPAN: 91′ 9″

LENGTH: 74′ 8″

ENGINES: 2P-W R-2800'S

SPEED: OVER 300 MPH

RANGE: 2,500 MILES



IL-12

RUSSIAN

SPAN: 104′

LENGTH: 69′ 10″

ENGINES: 2 RADIAL AIR COOLED

SPEED: 200 MPH CLASS

RANGE: 1063 MILES



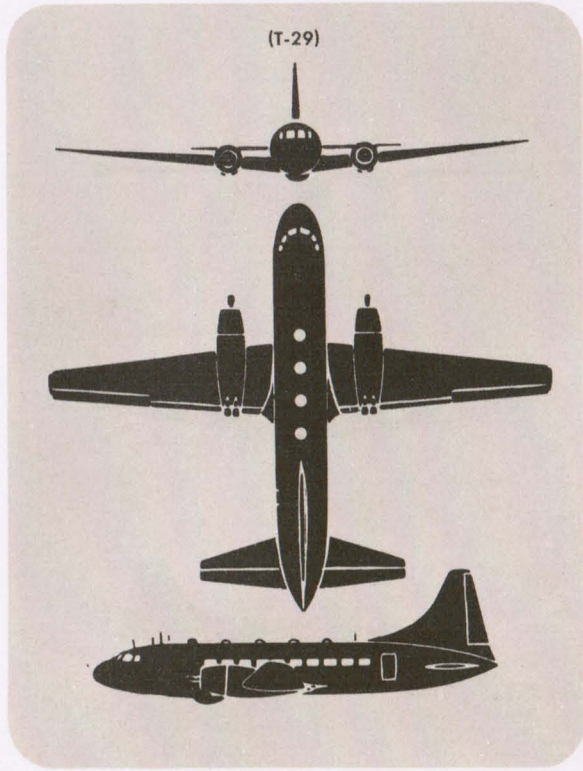
3200 FT.

1600 FT.

800 FT.



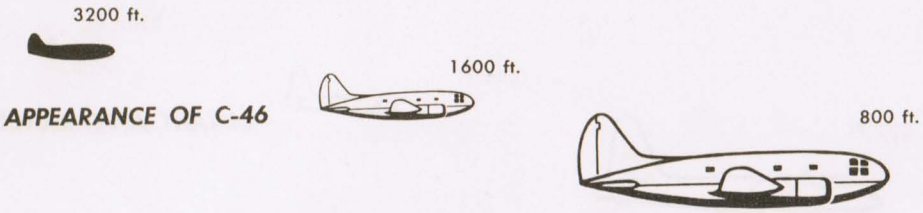
DISTANT APPEARANCE OF IL-12



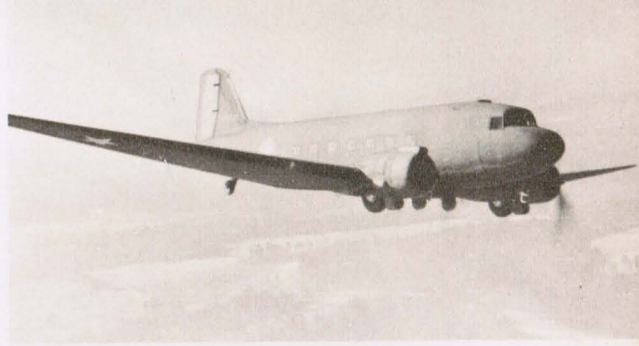


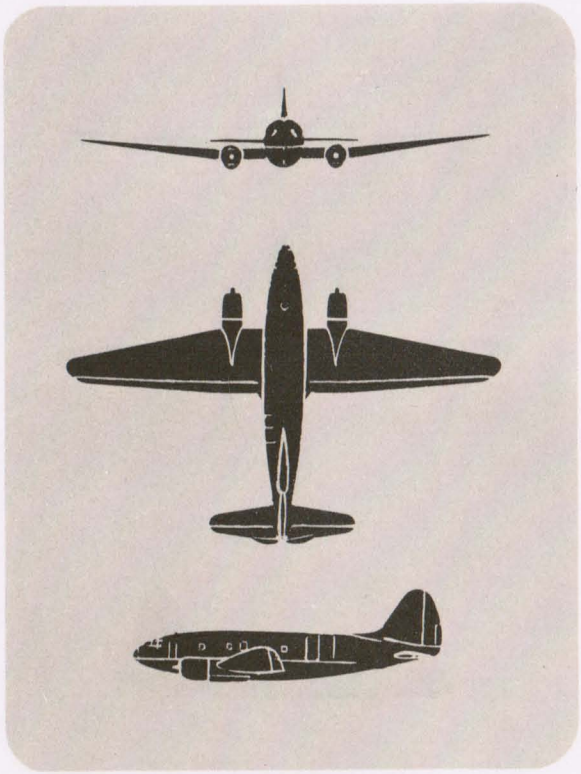
COMPARATIVE SIZE OF IL-12

BI-MOTORED AIRCRAFT



DISTANT APPEARANCE OF C-46





Silhouette

UNITED STATES **C-47**

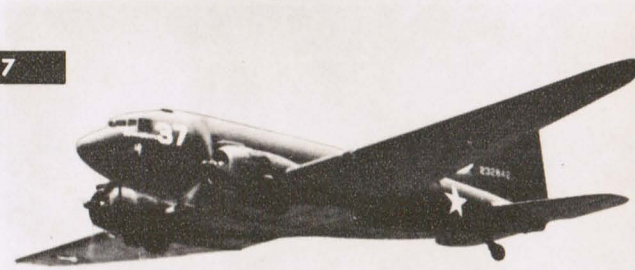
SPAN: 95′

LENGTH: 63′ 8″

ENGINES: 2P-W R-1830'S

SPEED: 200 MPH

RANGE: 750 MILES COMB. RAD.



UNITED STATES **C-46**

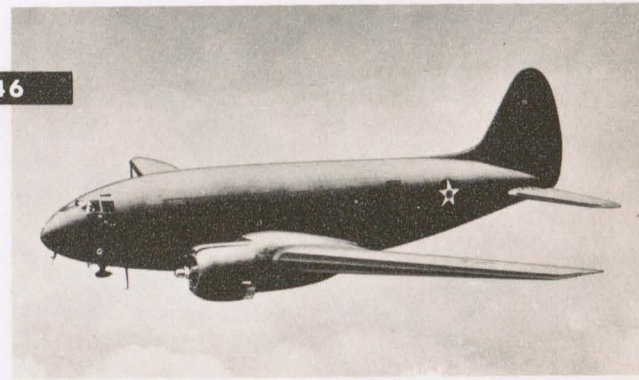
SPAN: 108′

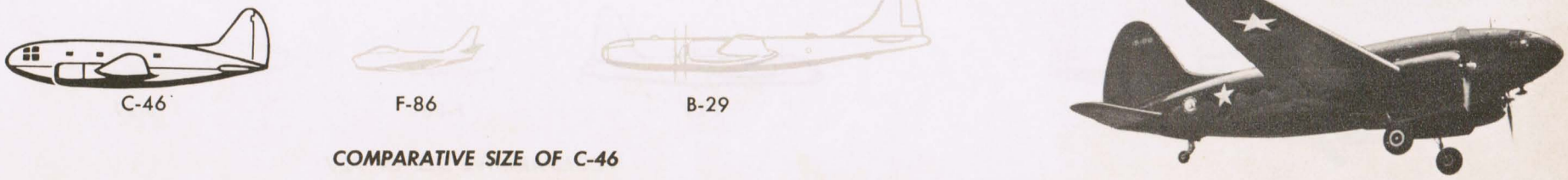
LENGTH: 76′ 3″

ENGINES: 2P-W R-2800'S

SPEED: 230 MPH

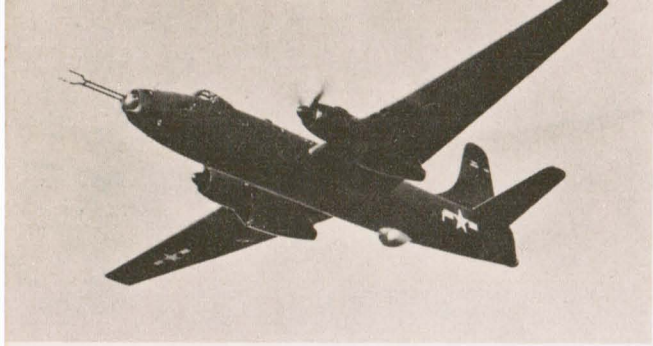
RANGE: 1,000 MILES COMB. RAD.

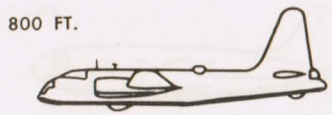




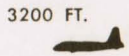
COMPARATIVE SIZE OF C-46

BI-MOTORED AIRCRAFT

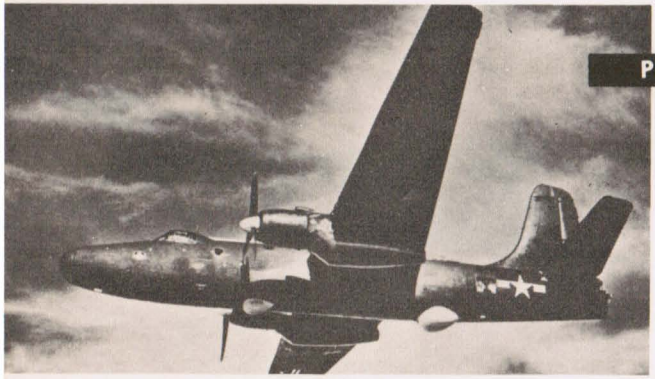








DISTANT APPEARANCE OF P2V



P4M

UNITED STATES

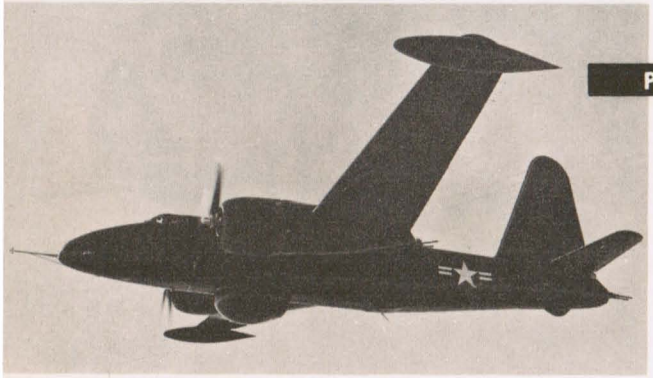
SPAN: 114′

LENGTH: 86′ 2″

ENGINES: 2 P-W R 4360'S
2 ALLISON J-33

SPEED: 345 M.P.H.

RANGE: NOT AVAILABLE



P2V

UNITED STATES

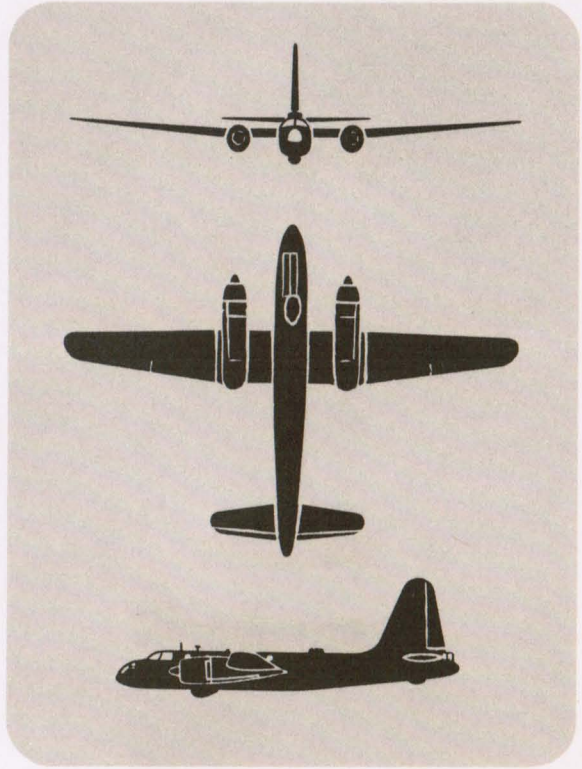
SPAN: 100′

LENGTH: 77′ 11″

ENGINES: 2 R-3350'S

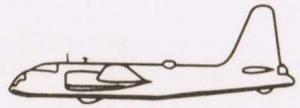
SPEED: OVER 345 M.P.H.

RANGE: OVER 1150 MILES COMB. RAD.



Silhouette

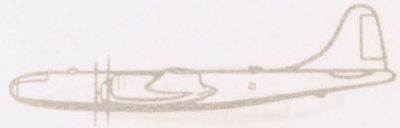




P2V



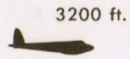
F-86



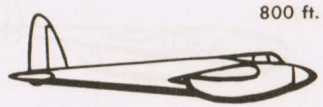
B-29

COMPARATIVE SIZE OF P2V

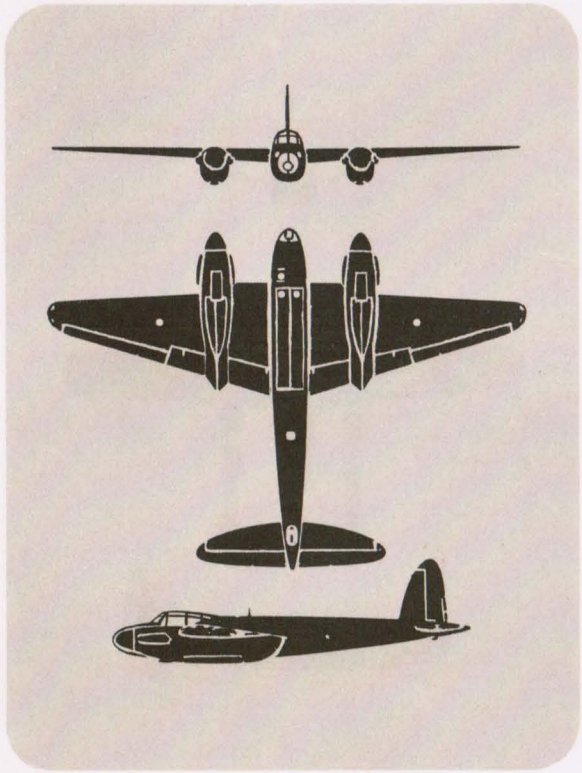
BI-MOTORED AIRCRAFT







DISTANT APPEARANCE OF MOSQUITO



Silhouette

BRITISH **MOSQUITO**

SPAN: 54′ 2″

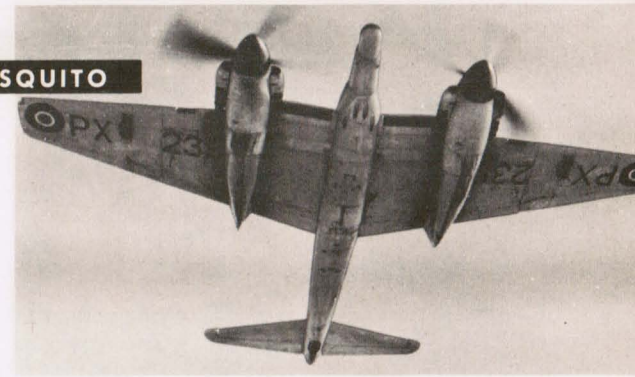
LENGTH: 44′ 6″

ENGINES: 2 MERLIN 113

SPEED: OVER 400 M.P.H.

RANGE: OVER 2000 MILES





UNITED STATES **F7F**

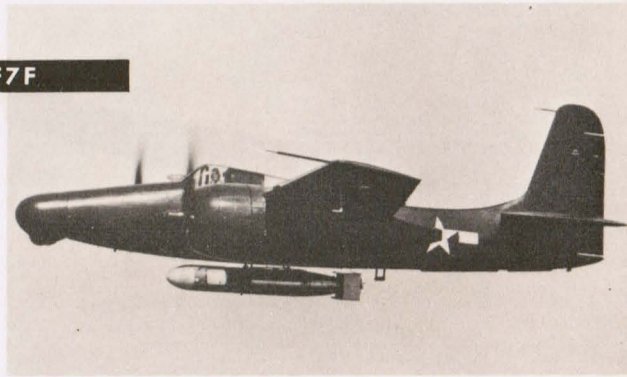
SPAN: 61′ 6″

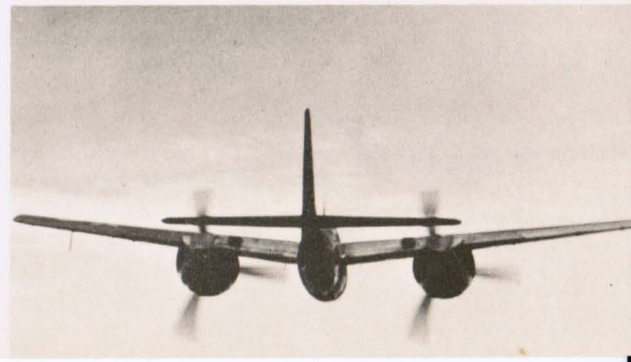
LENGTH: 45′ 4½″

ENGINES: 2 P-W R-2800'S

SPEED: OVER 400 M.P.H.

RANGE: OVER 1500 MILES



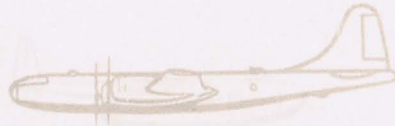




MOSQUITO



F-86



B-29

COMPARATIVE SIZE OF MOSQUITO

BI-MOTORED AIRCRAFT





DISTANT APPEARANCE OF C-82



C-120

UNITED STATES

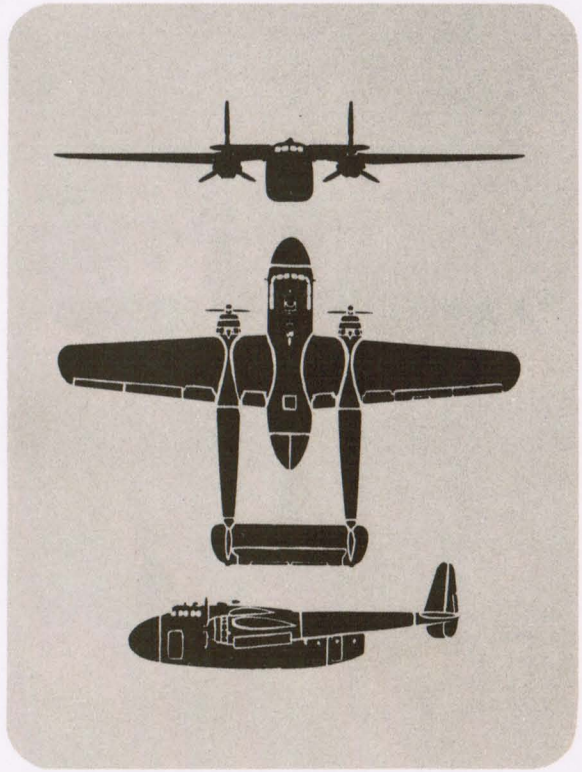
SPAN: 109′

LENGTH: 83′

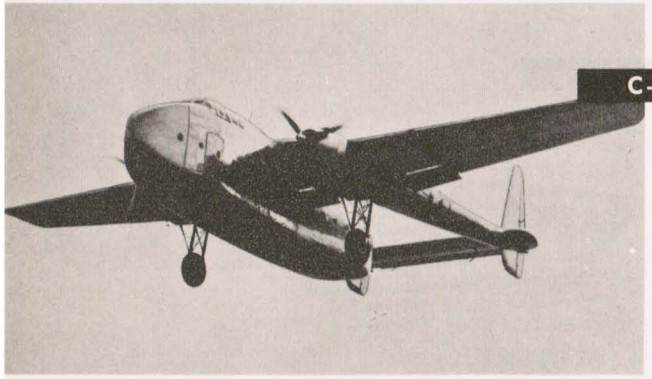
ENGINES: 2 P-W R-4360'S

SPEED: OVER 250 MPH

RANGE: 1,000 MILE COMB. RADIUS



Silhouette



C-82

UNITED STATES

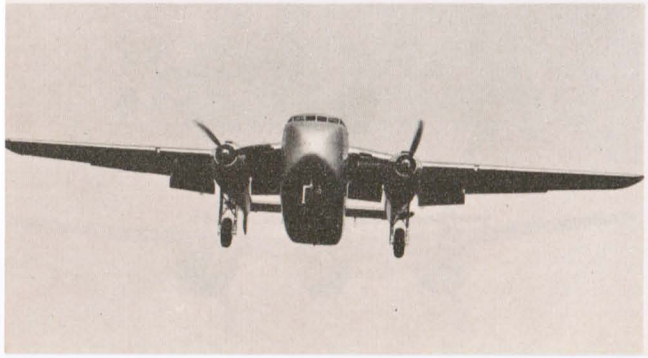
SPAN: 106′ 5″

LENGTH: 77′ 1″

ENGINES: 2 P-W R-2800'S

SPEED: 250 MPH

RANGE: 1,150 MILES COMB. RAD.





C-82 F-86 B-29

COMPARATIVE SIZE OF C-82

BI-MOTORED AIRCRAFT

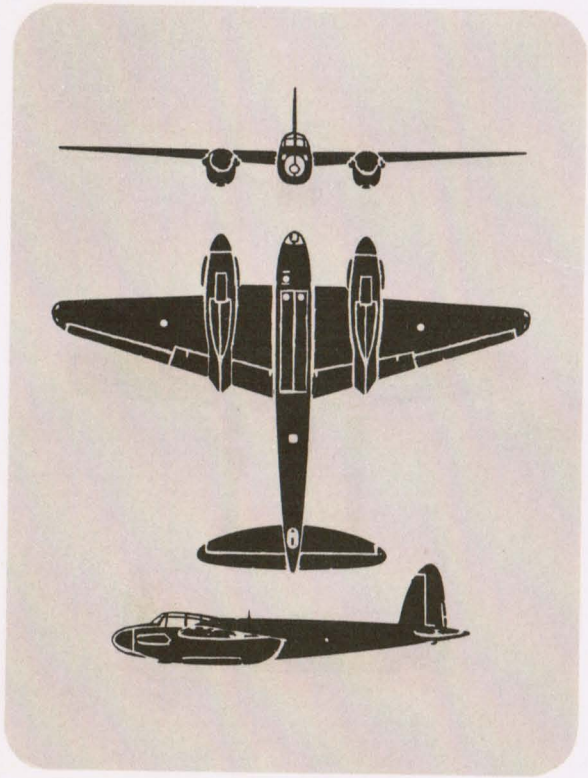


DISTANT APPEARANCE OF MOSQUITO









Silhouette

BRITISH **MOSQUITO**

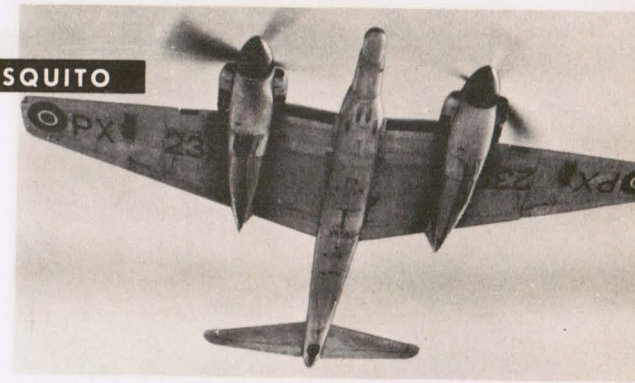
SPAN: 54′ 2″

LENGTH: 44′ 6″

ENGINES: 2 MERLIN 113

SPEED: OVER 400 M.P.H.

RANGE: OVER 2000 MILES



UNITED STATES **F7F**

SPAN: 61′ 6″

LENGTH: 45′ 4½″

ENGINES: 2 P-W R-2800'S

SPEED: OVER 400 M.P.H.

RANGE: OVER 1500 MILES





MOSQUITO

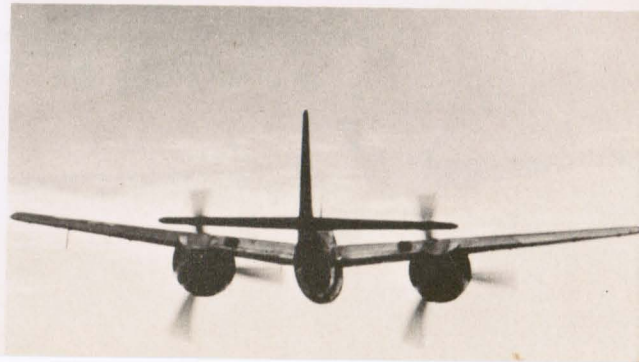


F-86



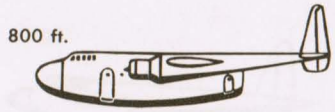
B-29

COMPARATIVE SIZE OF MOSQUITO



BI-MOTORED AIRCRAFT









DISTANT APPEARANCE OF C-82



C-120

UNITED STATES

SPAN: 109′

LENGTH: 83′

ENGINES: 2 P-W R-4360'S

SPEED: OVER 250 MPH

RANGE: 1,000 MILE COMB. RADIUS



C-82

UNITED STATES

SPAN: 106′ 5″

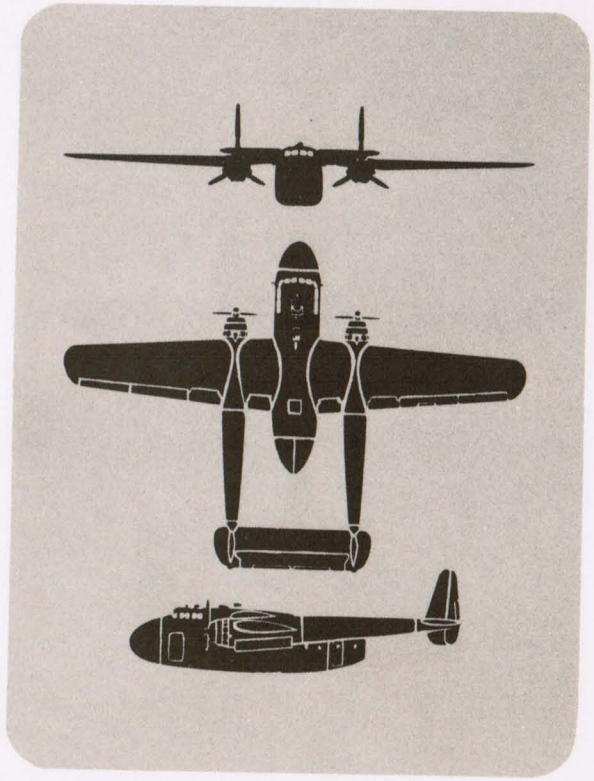
LENGTH: 77′ 1″

ENGINES: 2 P-W R-2800'S

SPEED: 250 MPH

RANGE: 1,150 MILES COMB. RAD.





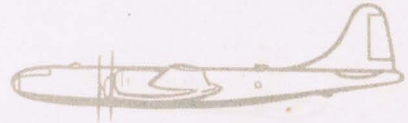
Silhouette



C-82



F-86



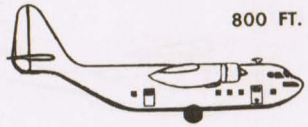
B-29

COMPARATIVE SIZE OF C-82

BI-MOTORED AIRCRAFT

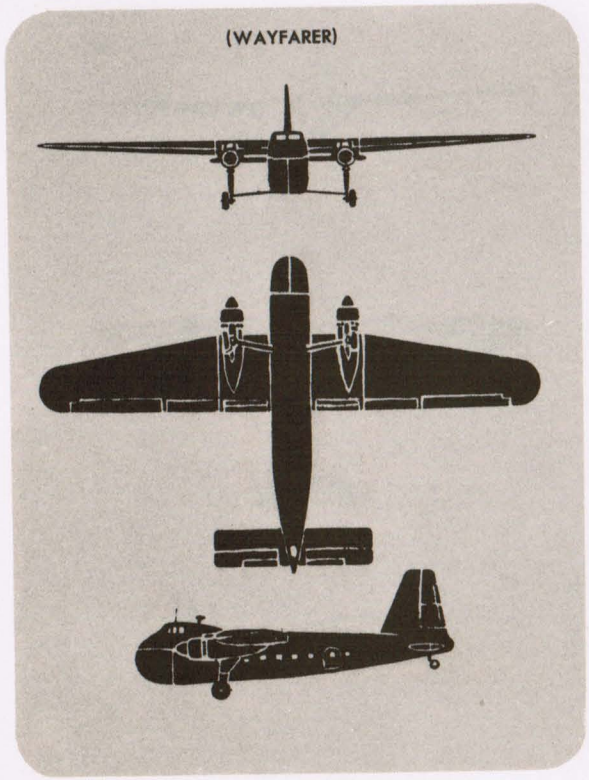






DISTANT APPEARANCE OF C-122





Silhouette

C-122

UNITED STATES

SPAN: 86′ 4″

LENGTH: 56′ 7″

ENGINES: 2 WRIGHT 1820's

SPEED: 220 MPH

RANGE: 1,000 MILES



WAYFARER

BRITISH

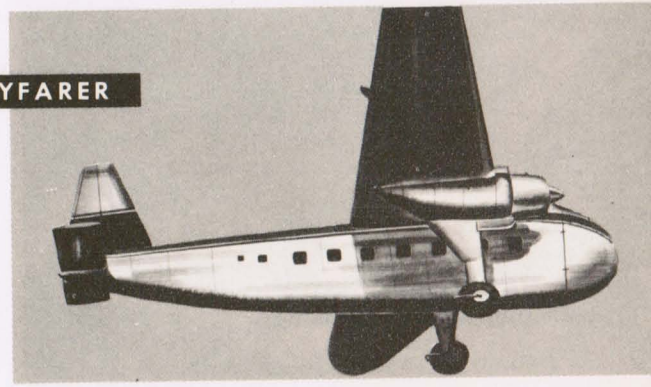
SPAN: 108′

LENGTH: 68′ 4″

ENGINES: 2 HERCULES 672

SPEED: 224 MPH

RANGE: NOT AVAILABLE



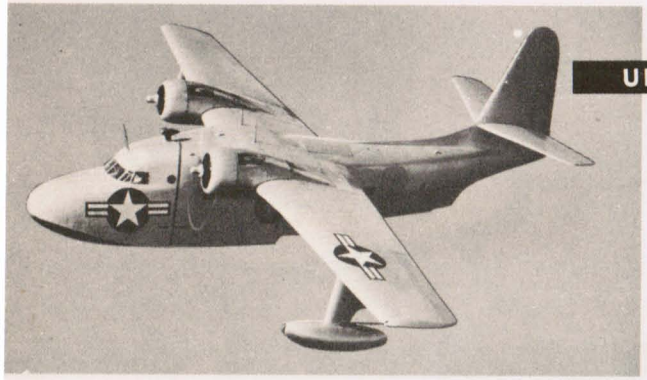


COMPARATIVE SIZE OF C-122



BI-MOTORED AIRCRAFT





UF-1

UNITED STATES

SPAN: 80′

LENGTH: 60′ 7″

ENGINES: 2 WR-1820'S

SPEED: OVER 225 M.P.H.

RANGE: 1150 MILES



PBY-6A

UNITED STATES

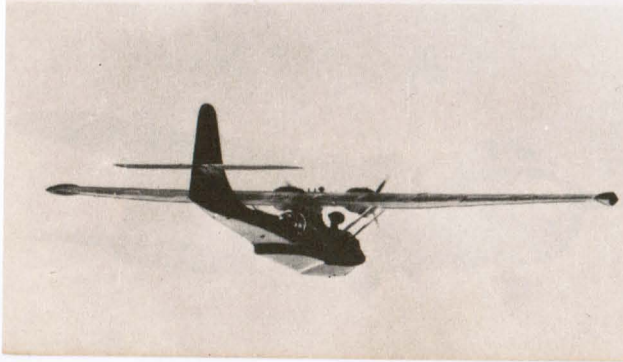
SPAN: 104′

LENGTH: 62′ 11″

ENGINES: 2 P-WR 1830'S

SPEED: OVER 150 M.P.H.

RANGE: OVER 1800 MILES



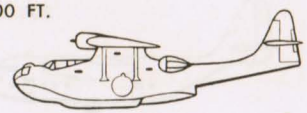
3200 FT.



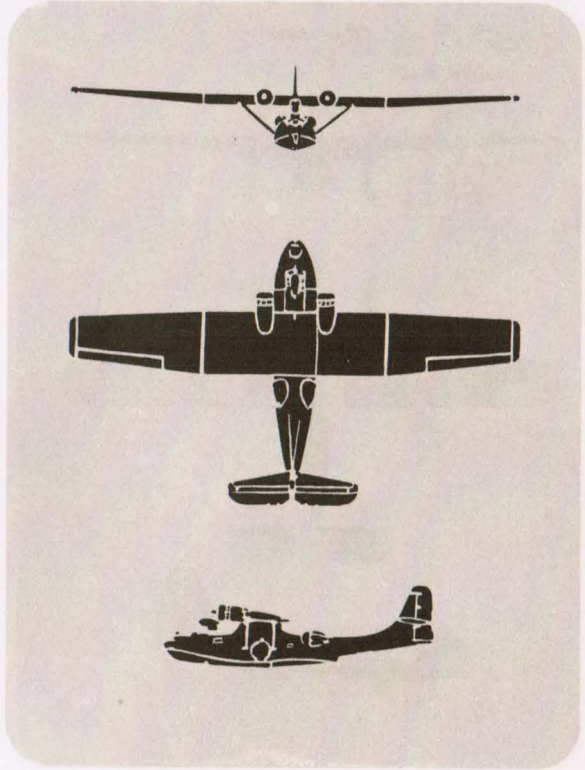
1600 FT.



800 FT.



DISTANT APPEARANCE OF PBY6A



Silhouette



PBY6A

F-86



B-29

COMPARATIVE SIZE OF PBY6A

BI-MOTORED AIRCRAFT



3200 FT.

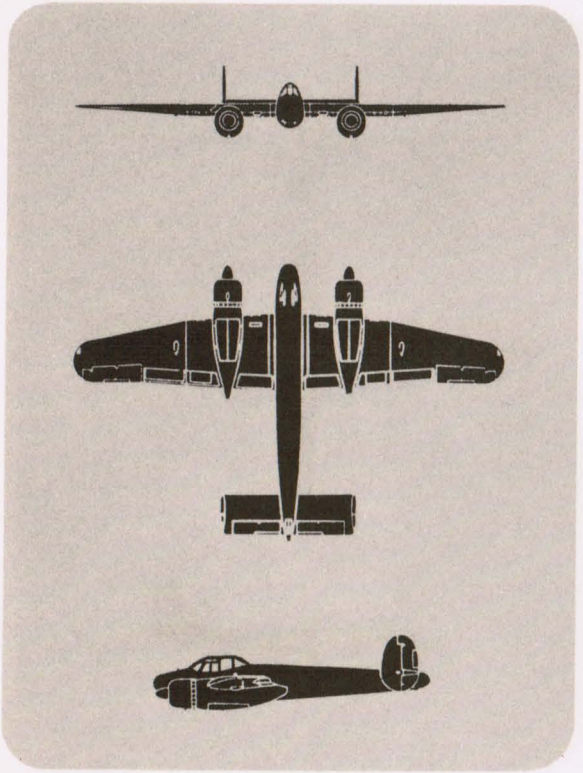


1600 FT.

800 FT.



DISTANT APPEARANCE OF BRIGAND



Silhouette



BRITISH **BRIGAND**

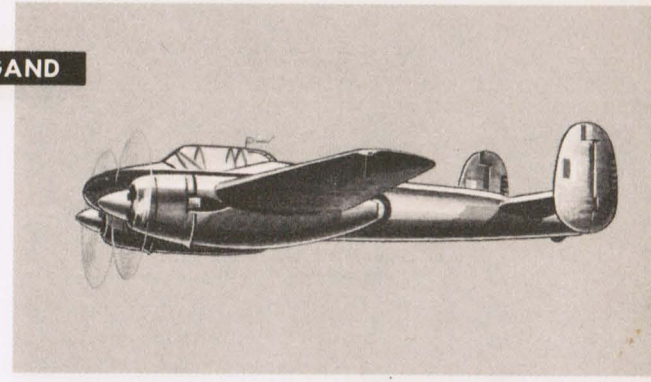
SPAN: 72′ 4″

LENGTH: 46′ 5″

ENGINES: 2 CENTAURUS 57'S

SPEED: OVER 350 M.P.H.

RANGE: OVER 2100 MILES



RUSSIAN **TU-2**

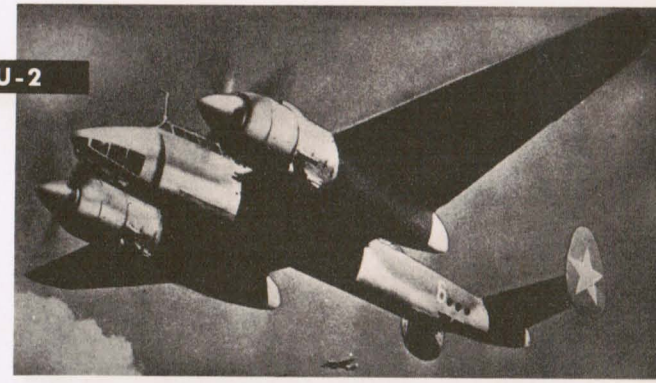
SPAN: 61′

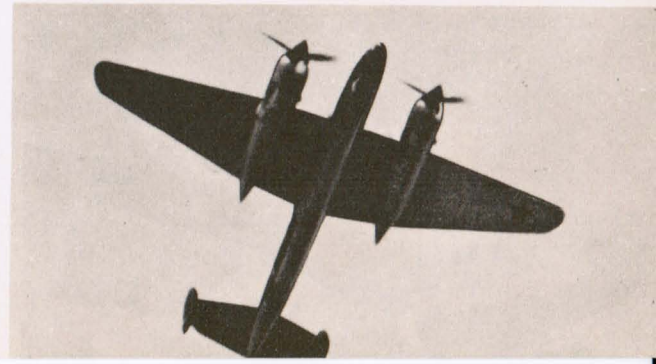
LENGTH: 45′ 3″

ENGINES: 2 RADIAL AIR COOLED

SPEED: OVER 300 MPH

RANGE: OVER 750 MILES



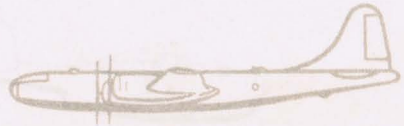




BRIGAND



F-86

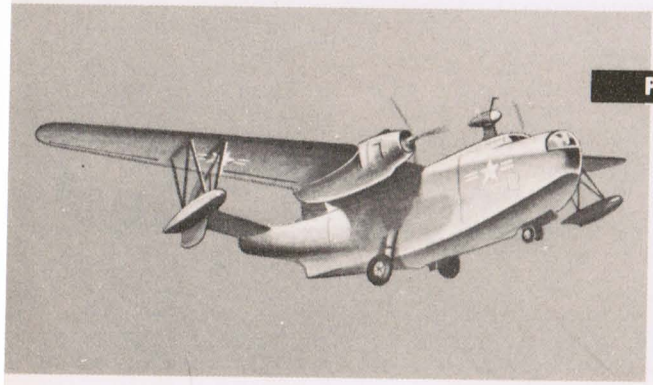


B-29

COMPARATIVE SIZE OF BRIGAND

BI-MOTORED AIRCRAFT





PBM

UNITED STATES

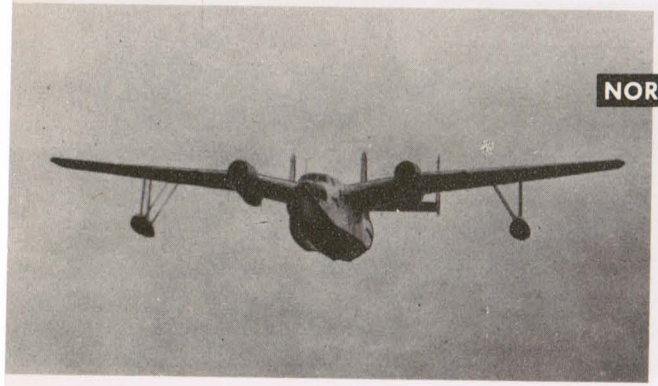
SPAN: 118′

LENGTH: 79′ 10″

ENGINES: 2 PW R 2800'S

SPEED: OVER 200 M.P.H.

RANGE: OVER 2000 MILES



NORD 1402

FRENCH

SPAN: 103′ 8″

LENGTH: 72′ 3″

ENGINES: 2 ARSENAL 12H

SPEED: OVER 200 M.P.H.

RANGE: NOT AVAILABLE



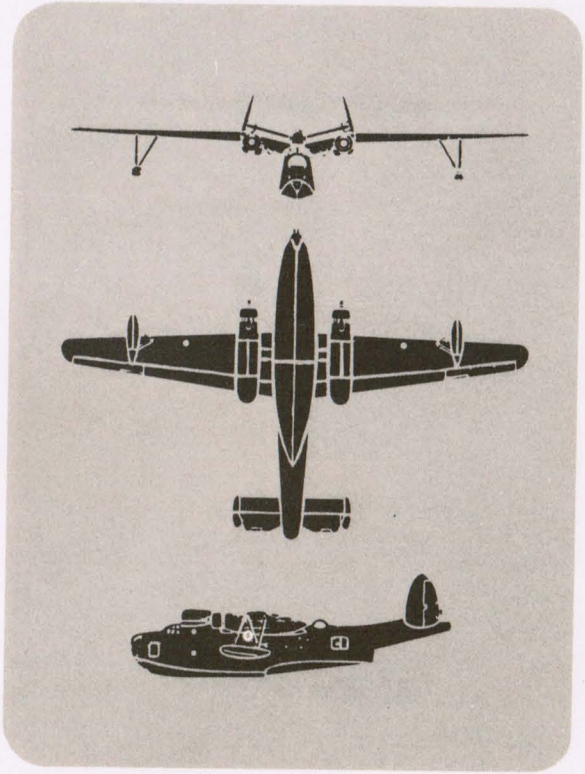
3200 FT.

1600 FT.

800 FT.



DISTANT APPEARANCE OF PBM



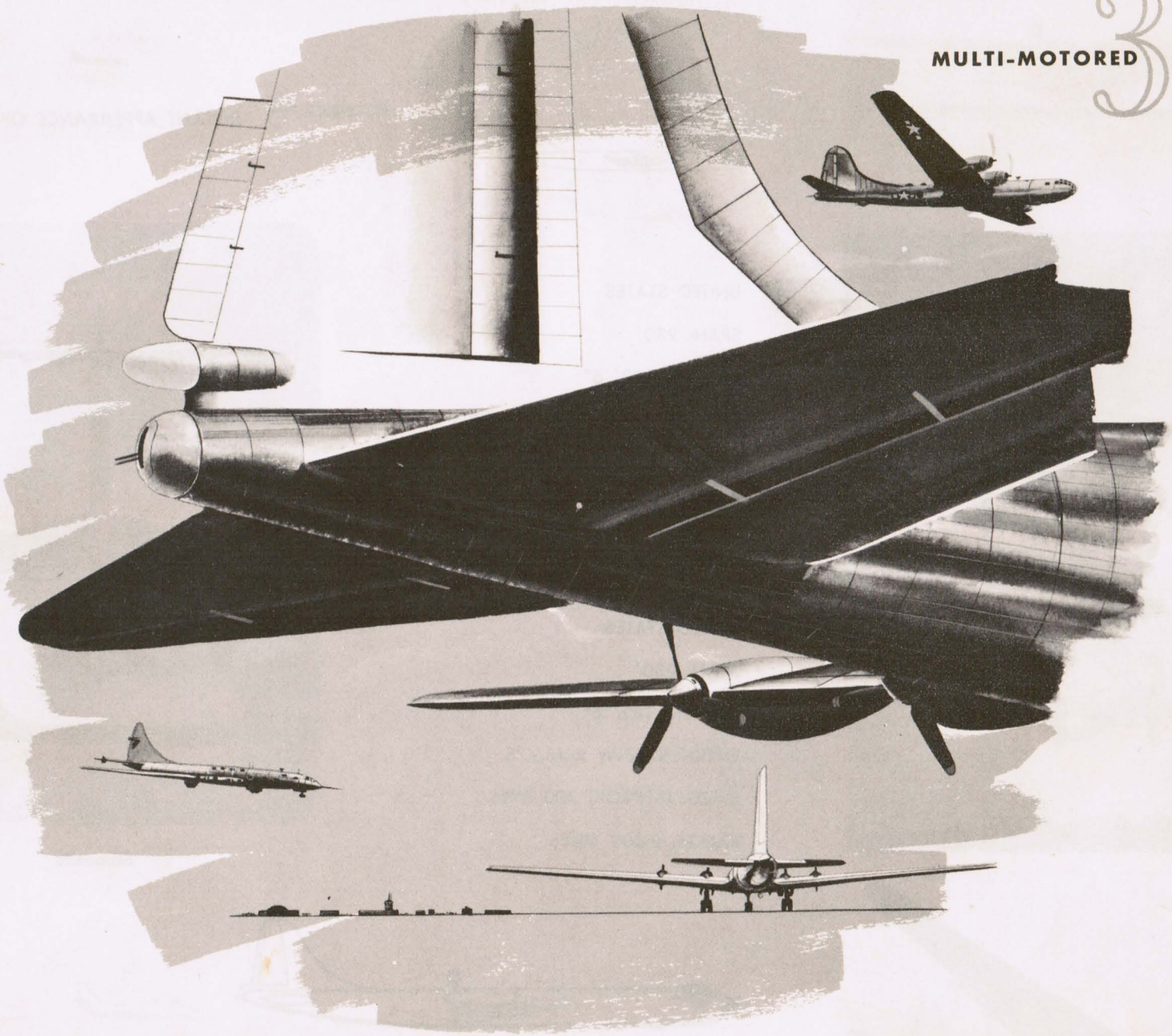
Silhouette



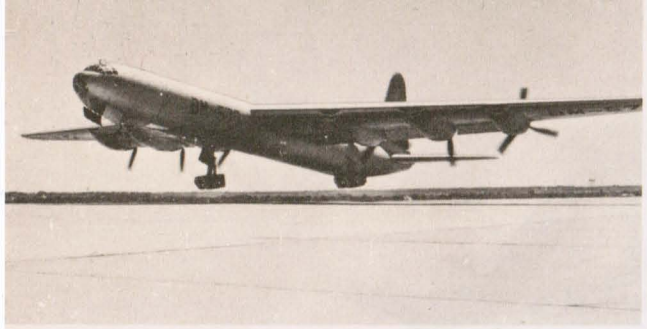
PBM F-86 B-29

COMPARATIVE SIZE OF PBM

3 MULTI-MOTORED AIRCRAFT

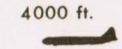


MULTI-MOTORED AIRCRAFT

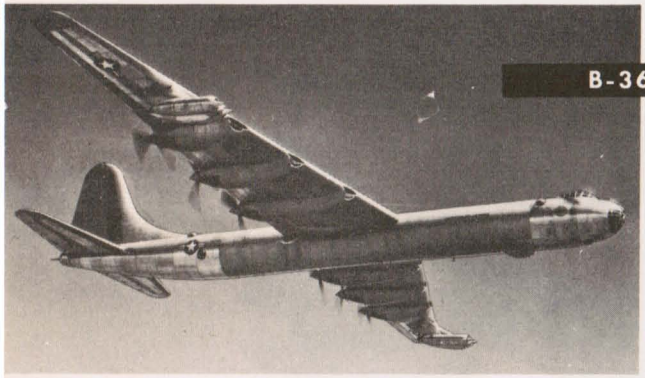








DISTANT APPEARANCE OF B-36



B-36

UNITED STATES

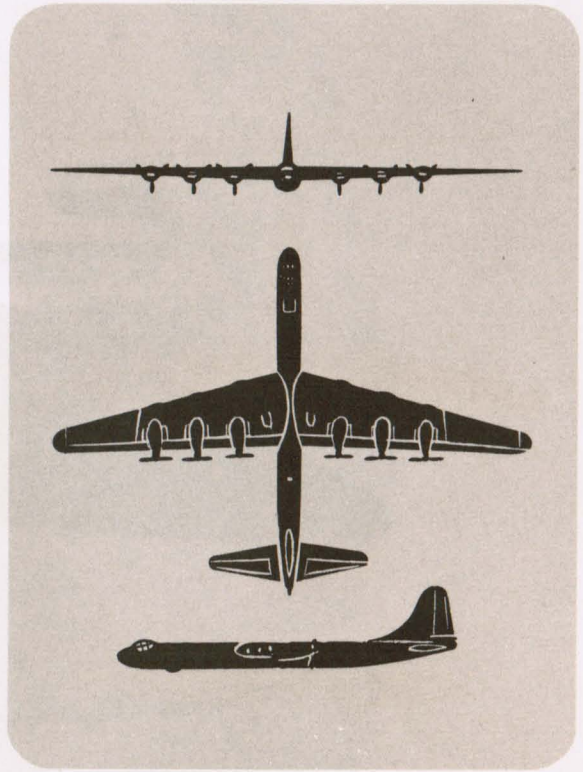
SPAN: 230′

LENGTH: 162′ 6″

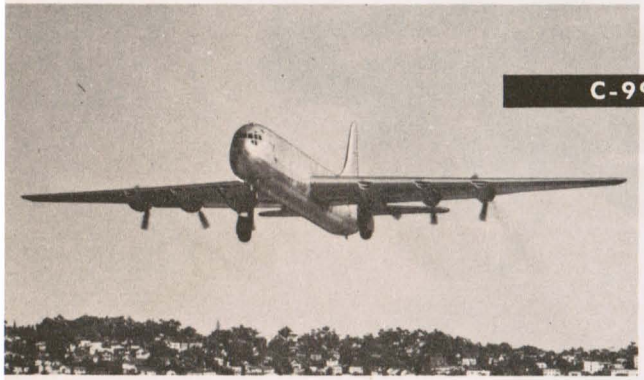
ENGINES: 6P-W R4360'S-4GE J-47'S

SPEED: OVER 435 MPH

RANGE: 4,000 MILES COMB. RAD.



Silhouette



C-99

UNITED STATES

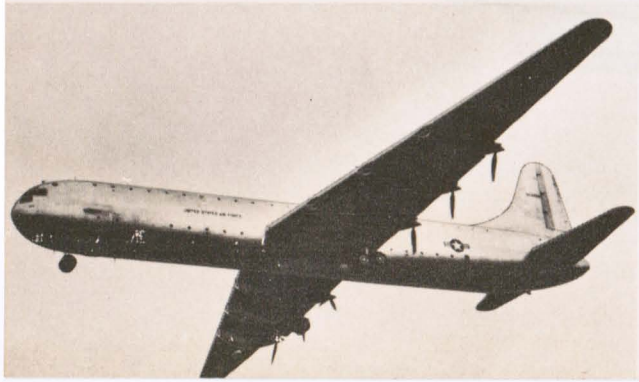
SPAN: 230′

LENGTH: 182′ 6″

ENGINES: 6P-W R-4360'S

SPEED: (APPROX) 300 MPH

RANGE: 8,000 MILES





B-36



F-86



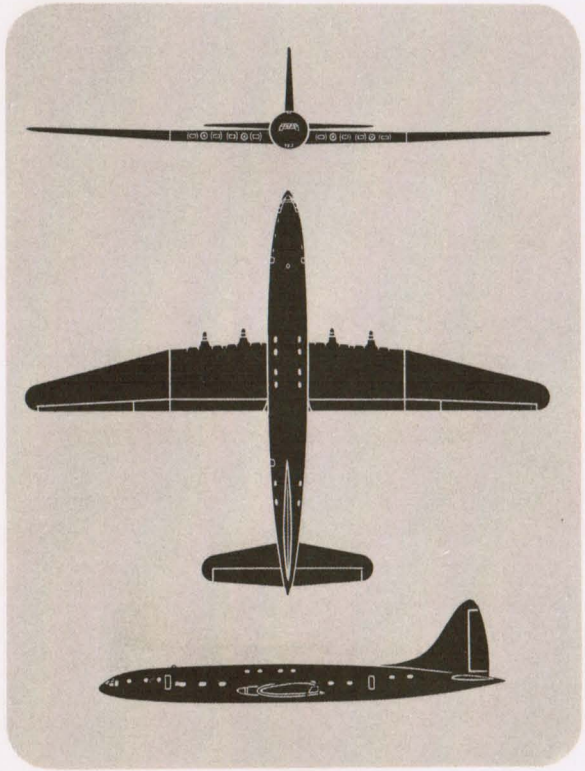
TB-25

COMPARATIVE SIZE OF B-36

MULTI-MOTORED AIRCRAFT



DISTANT APPEARANCE OF BRABAZON



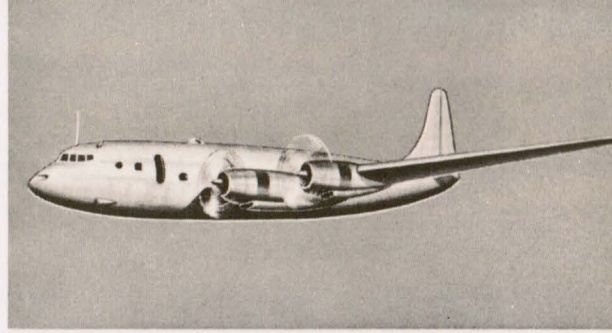
Silhouette



BRABAZON

F-86 TB-25

COMPARATIVE SIZE OF BRABAZON



FRENCH **ARMAGNAC**

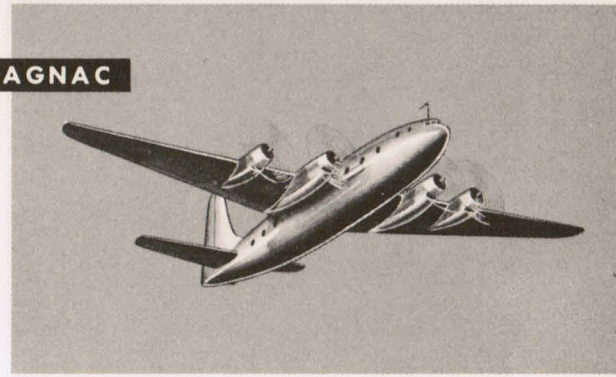
SPAN: 160′ 7″

LENGTH: 129′ 10¾″

ENGINES: 4P-W R-4360'S

SPEED: OVER 275 MPH

RANGE: 3,730 MILES



BRITISH **BRABAZON**

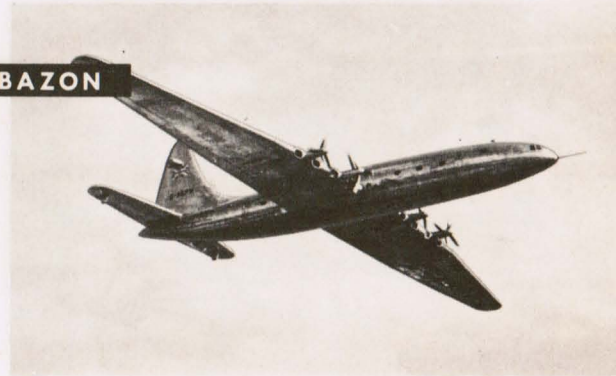
SPAN: 230′

LENGTH: 177′

ENGINES: 8 CENTAURUS 20'S

SPEED: EST. 300 MPH

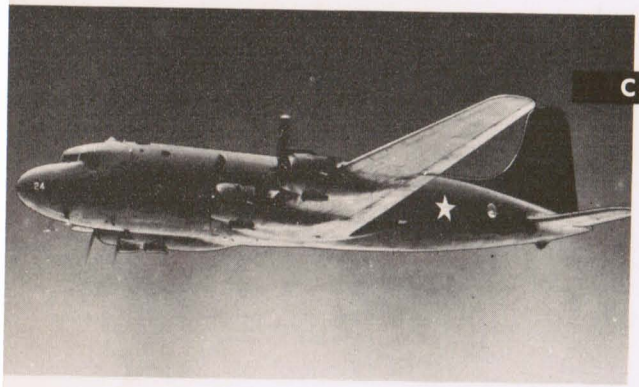
RANGE: EST. 5,500 MILES





MULTI-MOTORED AIRCRAFT





C-54

UNITED STATES

SPAN: 117′ 6″

LENGTH: 93′ 5″

ENGINES: 4 P-W R-2000'S

SPEED: 300 MPH

RANGE: 1,150 MILES COMB. RAD.



C-74

UNITED STATES

SPAN: 173′ 3″

LENGTH: 124′ 2″

ENGINES: 4P-W R-4360'S

SPEED: OVER 300 MPH

RANGE: 2,200 MILES COMB. RAD.



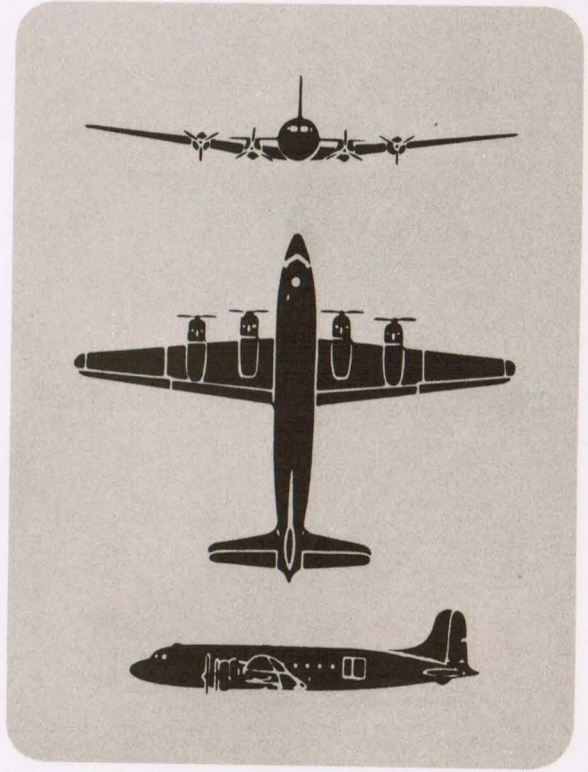
4000 FT.

2000 FT.

1000 FT.



DISTANT APPEARANCE OF C-54



Silhouette



C-54



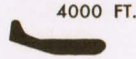
F-86



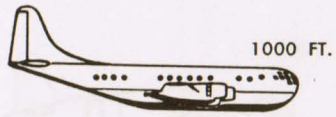
TB-25

COMPARATIVE SIZE OF C-54

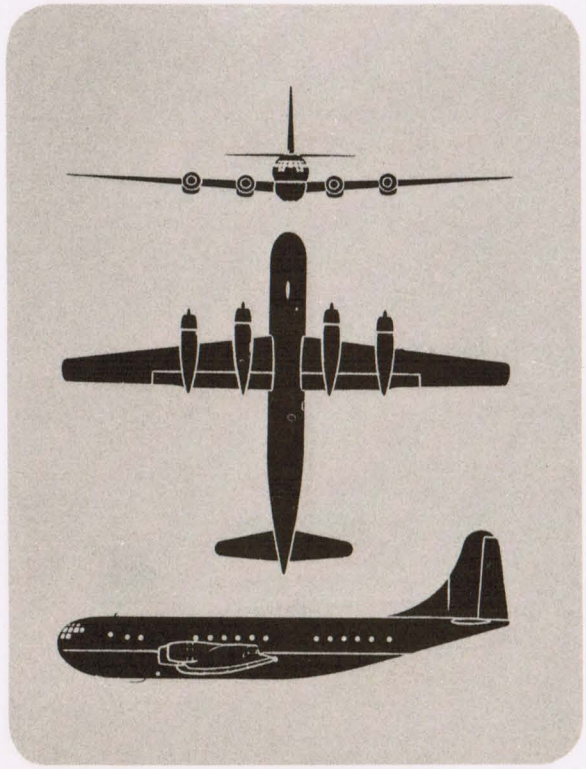
MULTI-MOTORED AIRCRAFT







DISTANT APPEARANCE OF C-97



Silhouette



UNITED STATES **C-124**

SPAN: 173′ 4″

LENGTH: 127′ 3″

ENGINES: 4 P-W R-4360'S

SPEED: OVER 300 MPH

RANGE: 1,100 MILES COMB. RAD.



UNITED STATES **C-97**

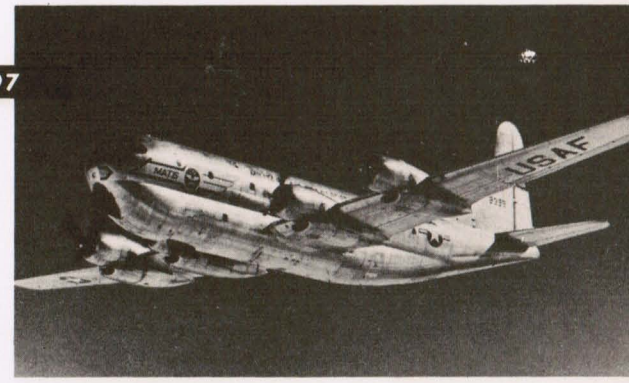
SPAN: 141′ 4″

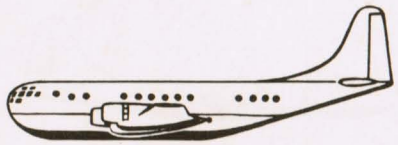
LENGTH: 110′ 4″

ENGINES: 4P W R4360'S

SPEED: OVER 350 MPH

RANGE: 1,100 MILES COMB. RAD.





C-97

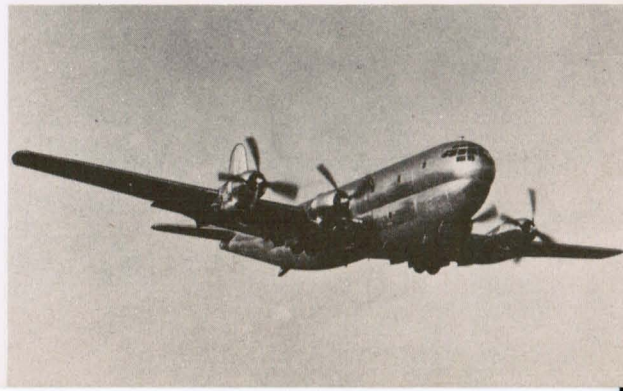


F-86



TB-25

COMPARATIVE SIZE OF C-97



MULTI-MOTORED AIRCRAFT





HASTINGS

BRITISH

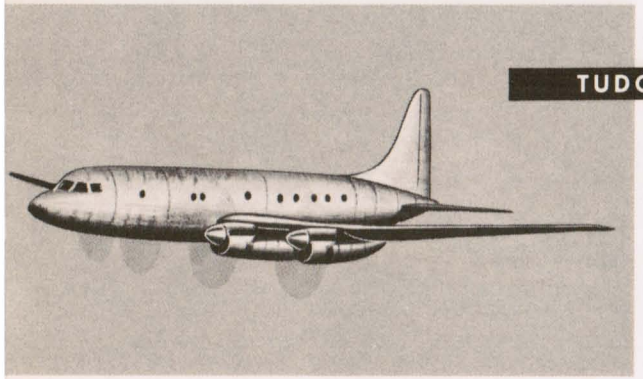
SPAN: 113′

LENGTH: 82′

ENGINES: 4 HERCULES

SPEED: 350 MPH

RANGE: OVER 3,800 MILES



TUDOR

BRITISH

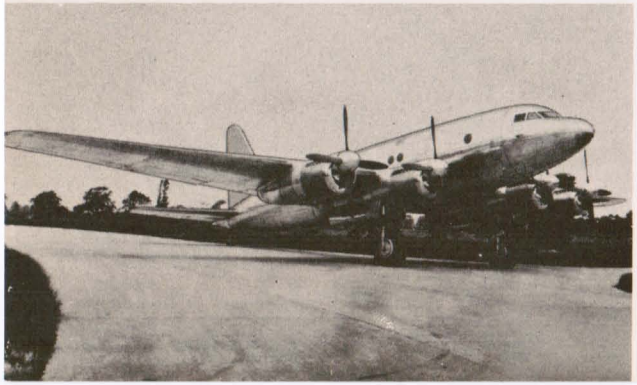
SPAN: 120′

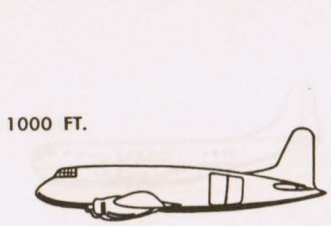
LENGTH: 85′3″

ENGINES: 4 ROLLS-ROYCE MERLIN'S

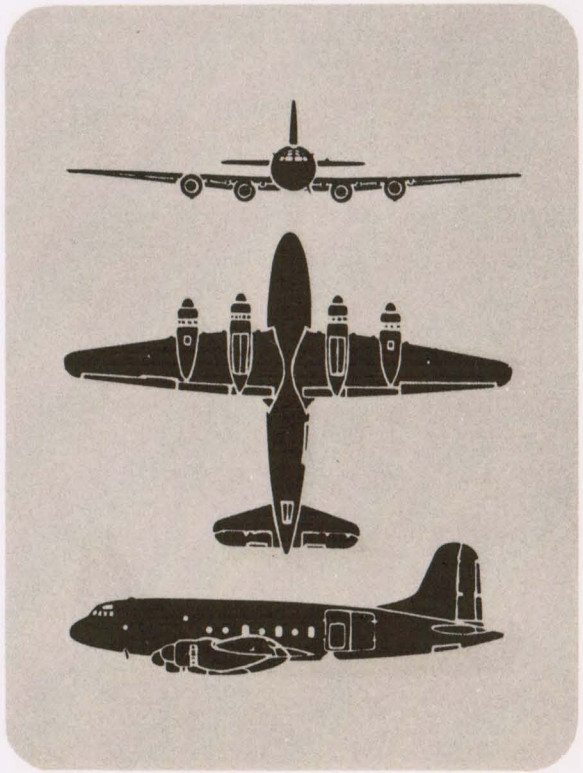
SPEED: OVER 250 MPH

RANGE: 3,500 MILES (APPROX)





DISTANT APPEARANCE OF HASTINGS



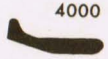
Silhouette



HASTINGS F-86 B-29

COMPARATIVE SIZE OF HASTINGS

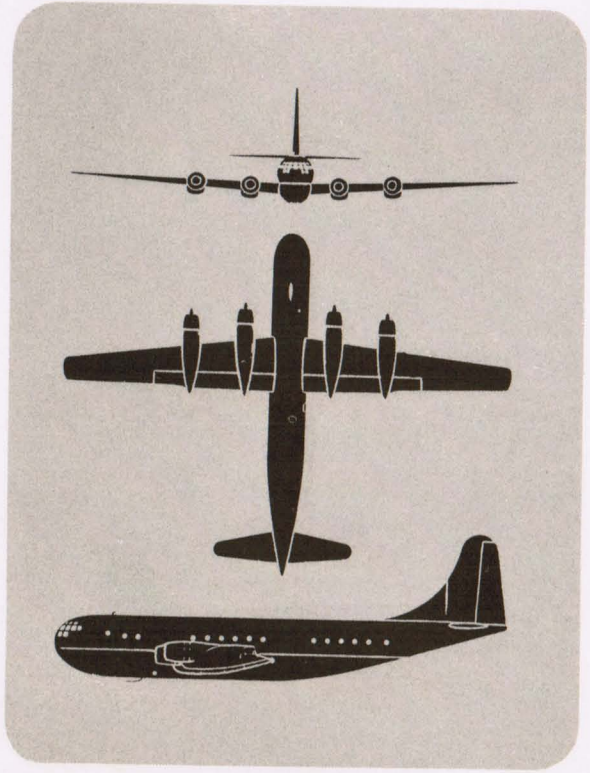
MULTI-MOTORED AIRCRAFT







DISTANT APPEARANCE OF C-97



Silhouette



UNITED STATES **C-124**

SPAN: 173′ 4″

LENGTH: 127′ 3″

ENGINES: 4 P-W R-4360'S

SPEED: OVER 300 MPH

RANGE: 1,100 MILES COMB. RAD.



UNITED STATES **C-97**

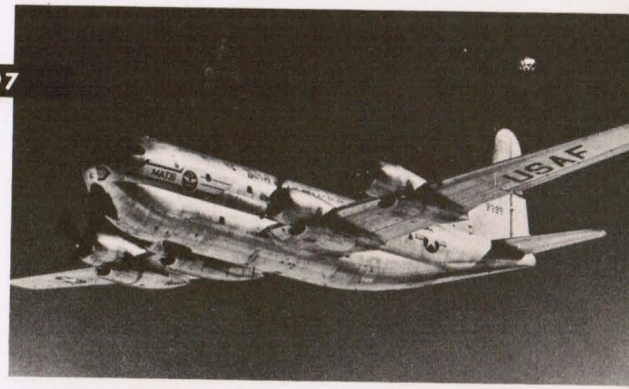
SPAN: 141′ 4″

LENGTH: 110′ 4″

ENGINES: 4P W R4360'S

SPEED: OVER 350 MPH

RANGE: 1,100 MILES COMB. RAD.





C-97

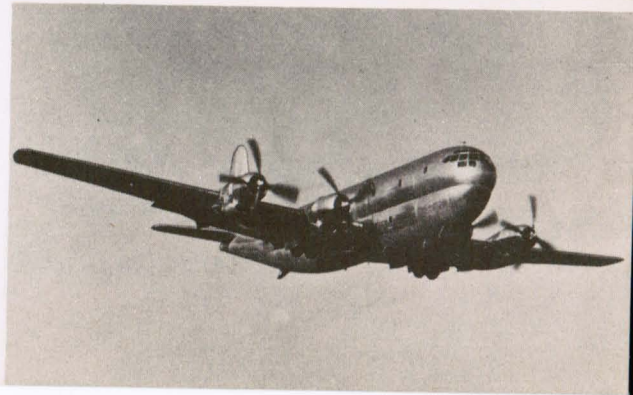


F-86

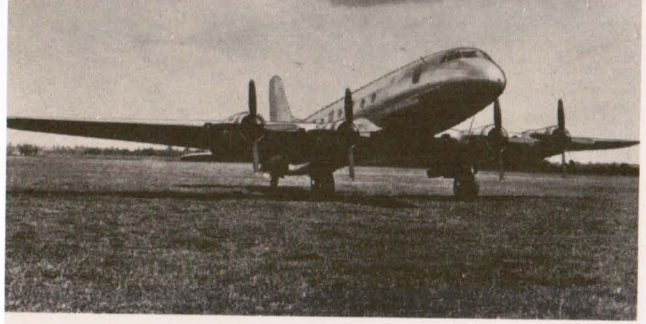


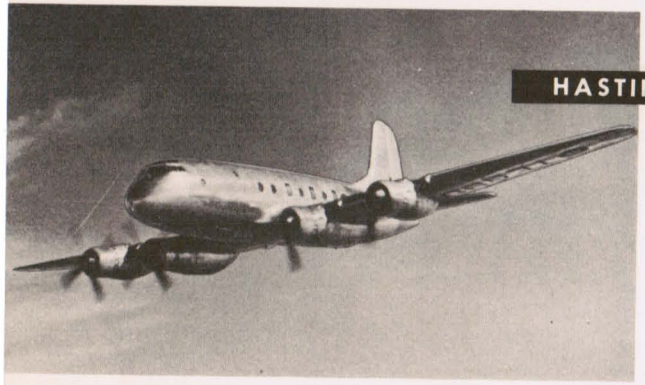
TB-25

COMPARATIVE SIZE OF C-97



MULTI-MOTORED AIRCRAFT





HASTINGS

BRITISH

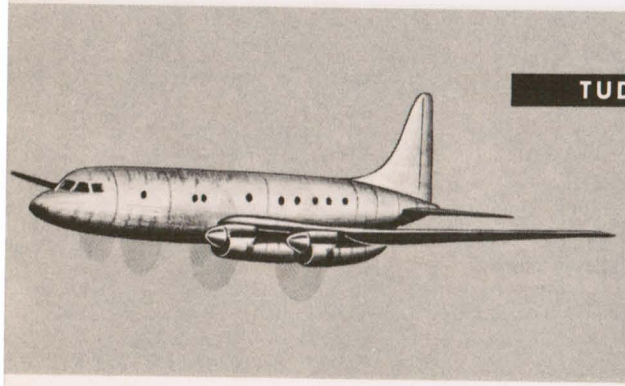
SPAN: 113′

LENGTH: 82′

ENGINES: 4 HERCULES

SPEED: 350 MPH

RANGE: OVER 3,800 MILES



TUDOR

BRITISH

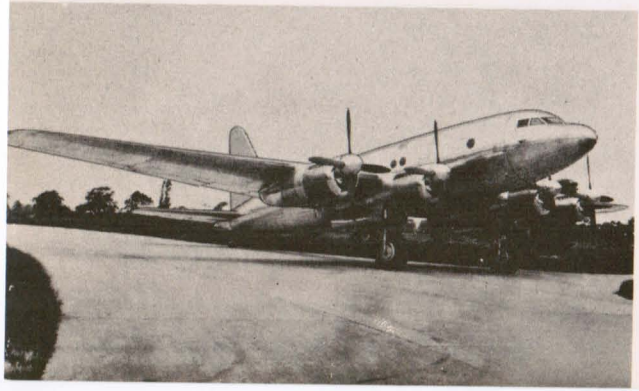
SPAN: 120′

LENGTH: 85′3″

ENGINES: 4 ROLLS-ROYCE MERLIN'S

SPEED: OVER 250 MPH

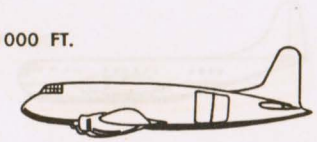
RANGE: 3,500 MILES (APPROX)



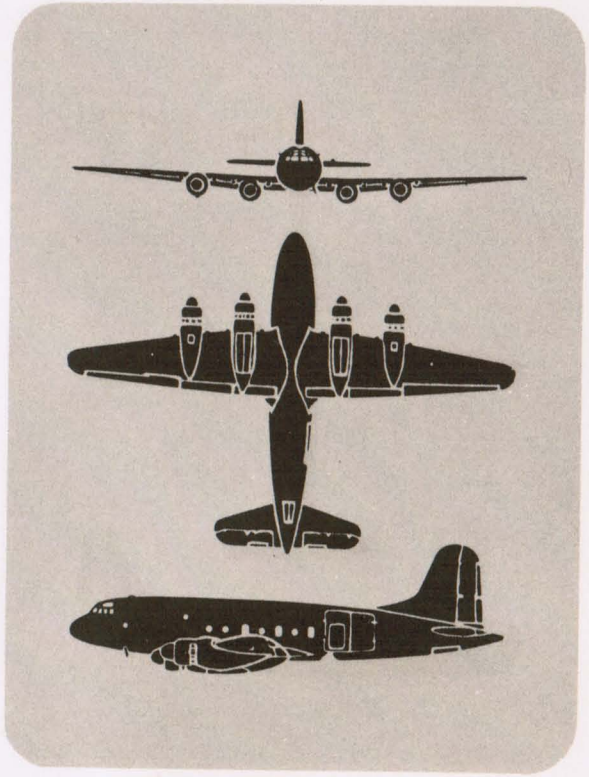
4000 FT.

2000 FT.

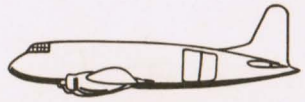
1000 FT.



DISTANT APPEARANCE OF HASTINGS



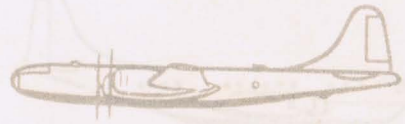
Silhouette



HASTINGS



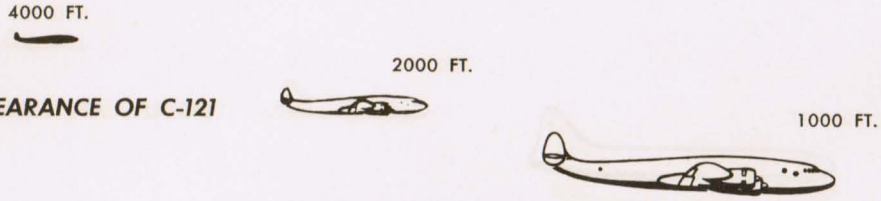
F-86



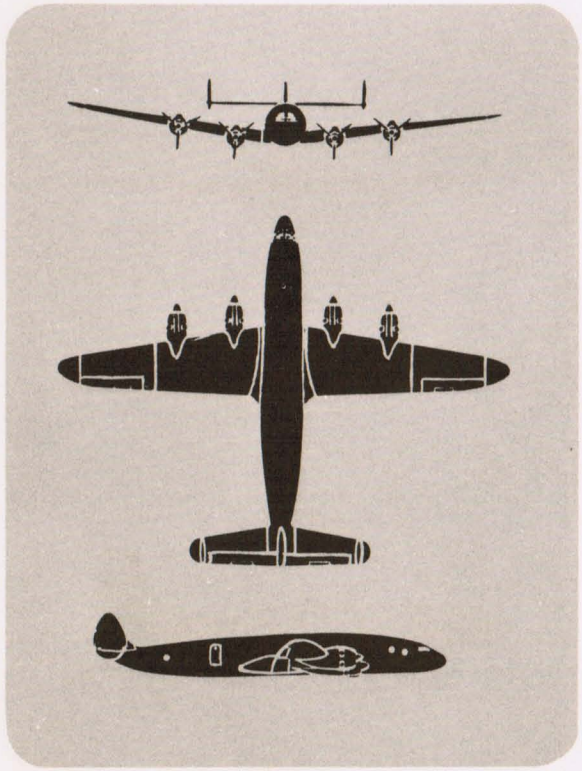
B-29

COMPARATIVE SIZE OF HASTINGS

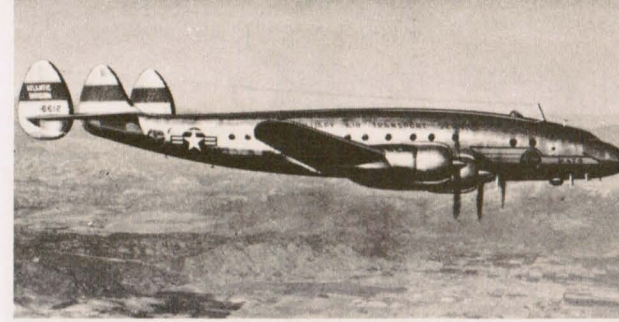
MULTI-MOTORED AIRCRAFT



DISTANT APPEARANCE OF C-121



Silhouette





C-121

UNITED STATES

SPAN: 123′

LENGTH: 95′ 4″

ENGINES: 4 WRIGHT R-3350'S

SPEED: OVER 350 MPH

RANGE: OVER 1,100 MILES COMB. RAD.



BREDA-ZAPPATA B.Z. 308

ITALIAN

SPAN: 138′ 2″

LENGTH: 110′

ENGINES: 4 CENTAURUS

SPEED: OVER 300 MPH

RANGE: NOT AVAILABLE



C-121

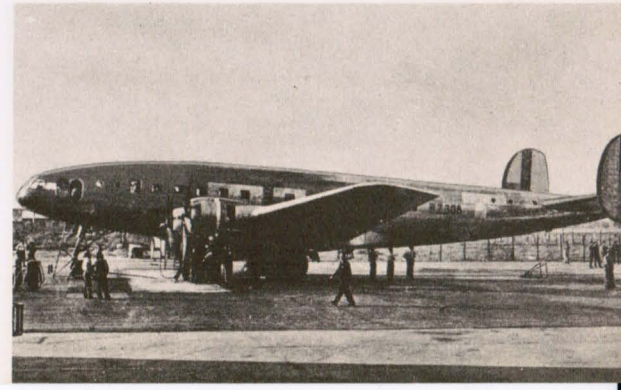


F-86

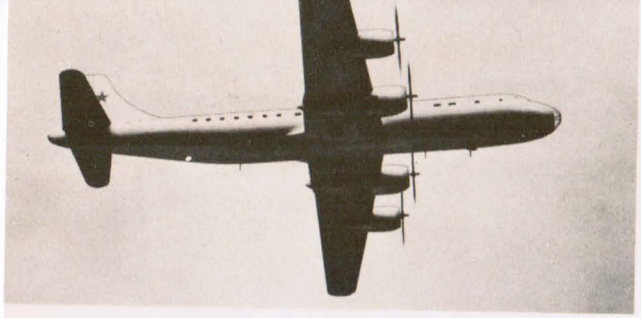


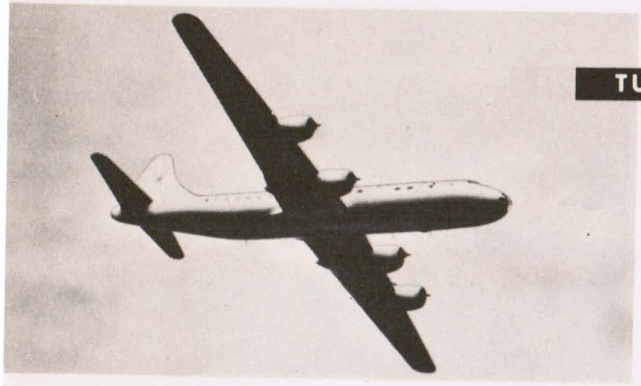
TB-25

COMPARATIVE SIZE OF C-121



MULTI-MOTORED AIRCRAFT





TU-70

RUSSIAN

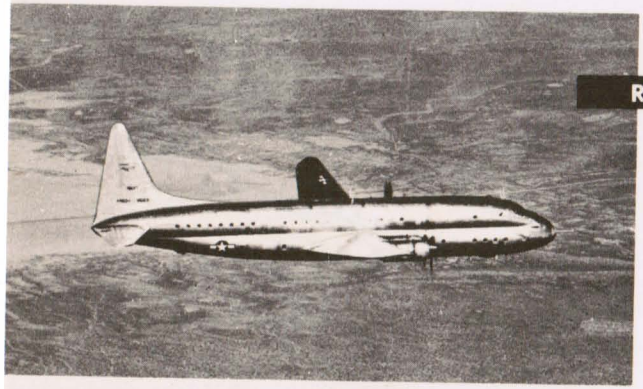
SPAN: EST. 141′

LENGTH: EST. 119′

ENGINES: 4 RECIPROCATING TYPE

SPEED: EST. 320 MPH

RANGE: EST. 2,485 MILES



R60

UNITED STATES

SPAN: 189′ 1″

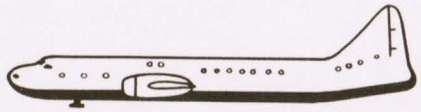
LENGTH: 156′ 1″

ENGINES: 4 P-W R-4360'S

SPEED: 296 MPH

RANGE: 2,438 MILES





TU-70



F-86



TB-25

COMPARATIVE SIZE OF TU-70

4000 FT.



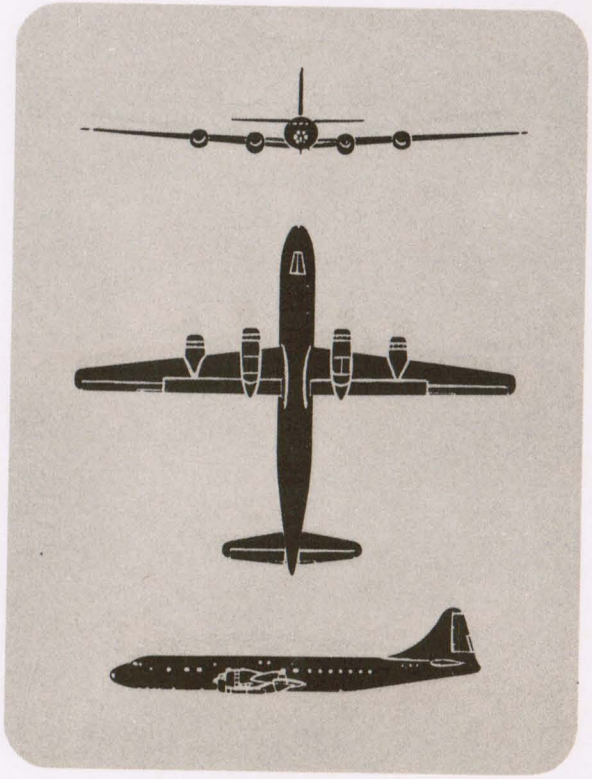
2000 FT.



1000 FT.



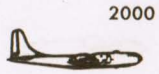
DISTANT APPEARANCE OF TU-70



Silhouette

MULTI-MOTORED AIRCRAFT

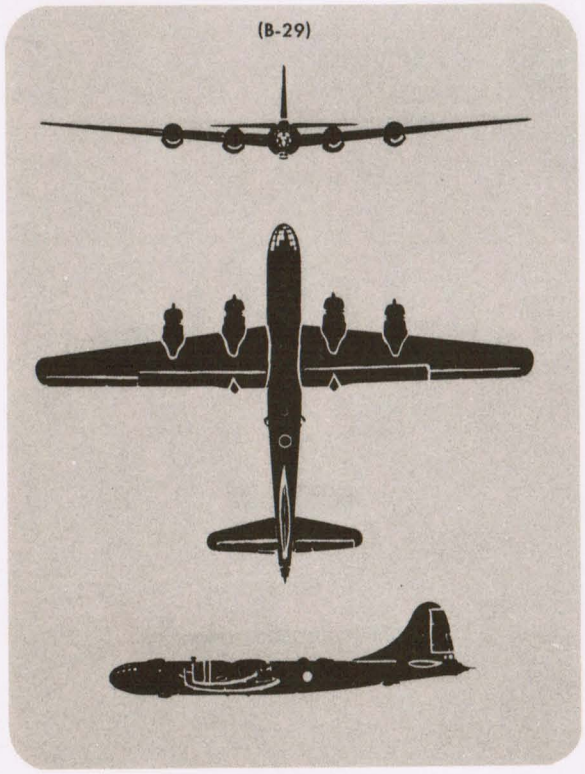




DISTANT APPEARANCE OF B-50







Silhouette

B-29

UNITED STATES

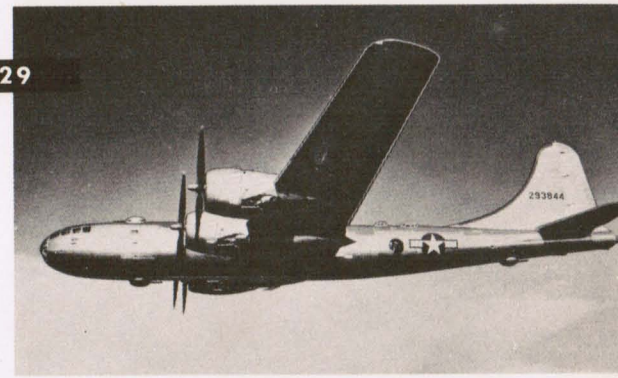
SPAN: 141′ 3″

LENGTH: 99′

ENGINES: 4 WRIGHT R-3350'S

SPEED: OVER 350 MPH

RANGE: 2,000 MILES COMB. RAD.



B-50

UNITED STATES

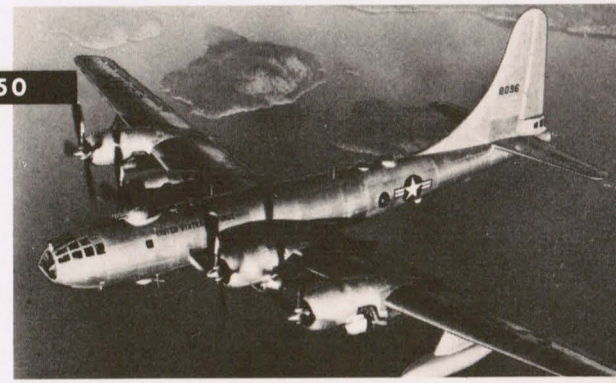
SPAN: 141′ 3″

LENGTH: 99′

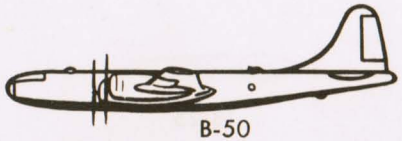
ENGINES: 4P-W R4360'S

SPEED: OVER 400 MPH

RANGE: 2,300 MILES COMB. RAD.







B-50

F-86

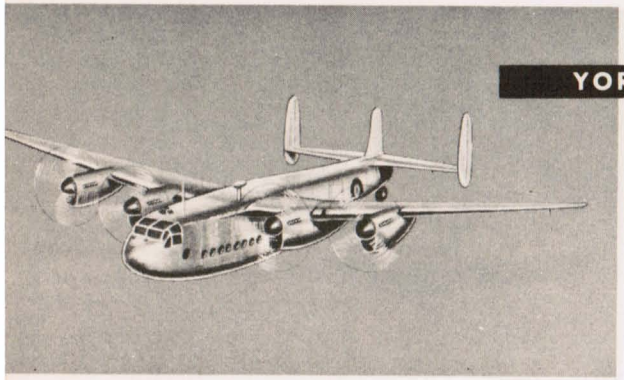


TB-25

COMPARATIVE SIZE OF B-50

MULTI-MOTORED AIRCRAFT





YORK

BRITISH

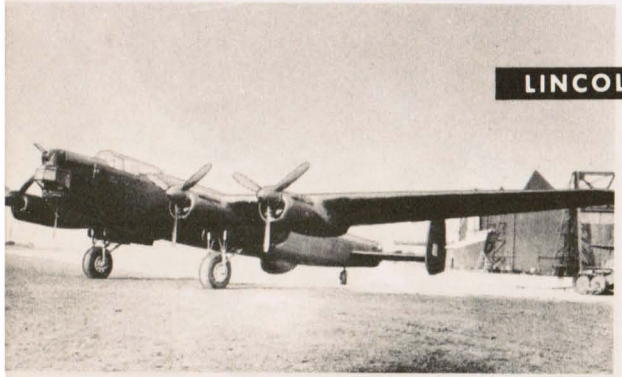
SPAN: 102′

LENGTH: 78′ 6″

ENGINES: 4 MERLIN 24'S

SPEED: 285 MPH

RANGE: 2,619 MILES



LINCOLN 2

BRITISH

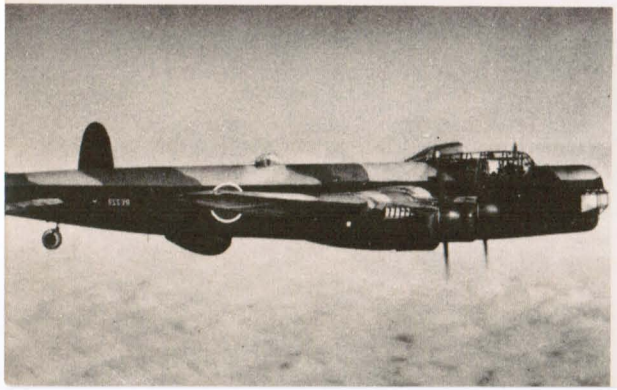
SPAN: 120′

LENGTH: 78′ 4″

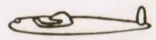
ENGINES: 4 MERLIN 68'S

SPEED: 299 MPH

RANGE: 2,921 MILES

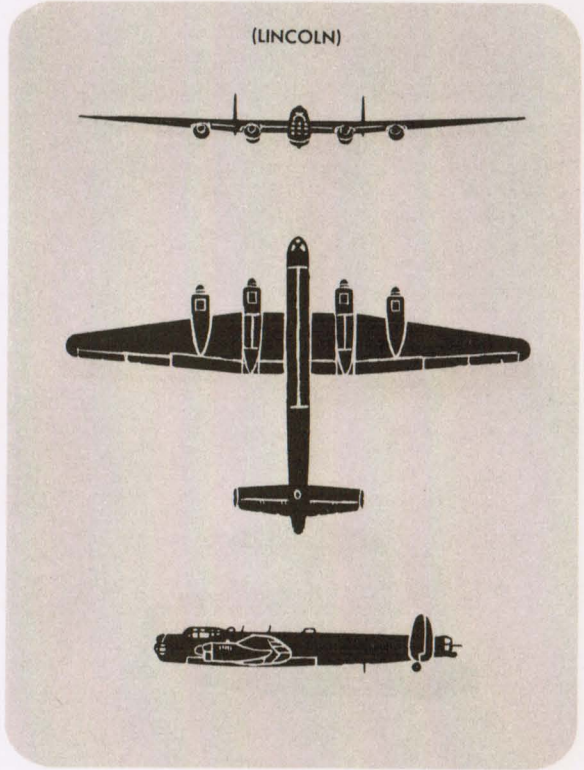




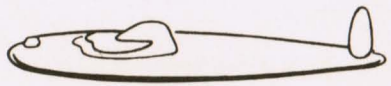




DISTANT APPEARANCE OF YORK



Silhouette



YORK



F-86



TB-25

COMPARATIVE SIZE OF YORK

MULTI-MOTORED AIRCRAFT



4000 FT.



2000 FT.

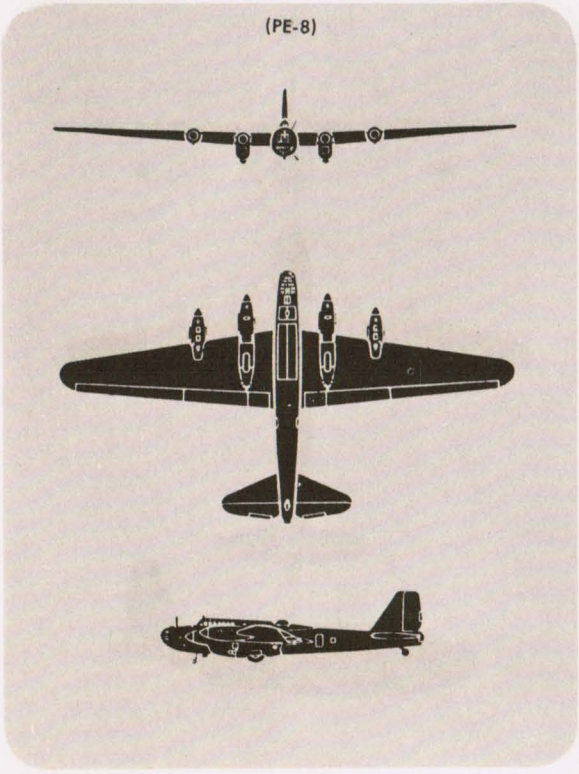
DISTANT APPEARANCE OF B-17



1000 FT.



(PE-8)



Silhouette

RUSSIAN **PE-8**

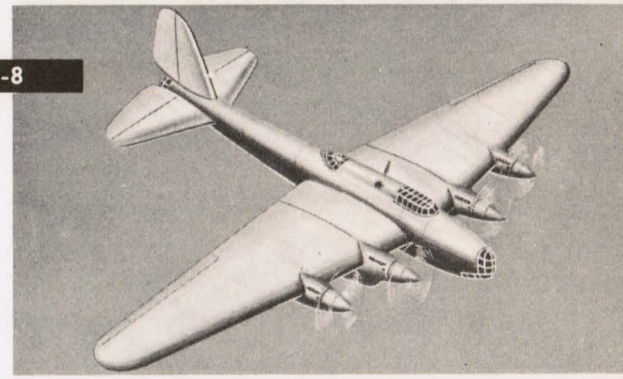
SPAN: 129′10″

LENGTH: 72′5″

ENGINES: 4 ASH-82'S

SPEED: OVER 225 MPH

RANGE: 1725 TO 2400 MILES



UNITED STATES **B-17**

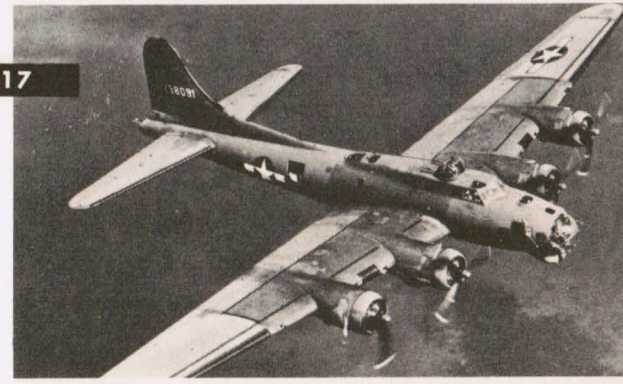
SPAN: 103′ 8″

LENGTH: 74′ 8″

ENGINES: 4 WR 1820'S

SPEED: OVER 300 M.P.H.

RANGE: 1000 MILES COMBAT RADIUS

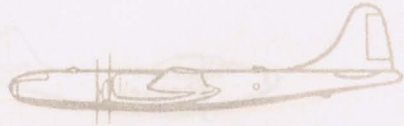




B-17

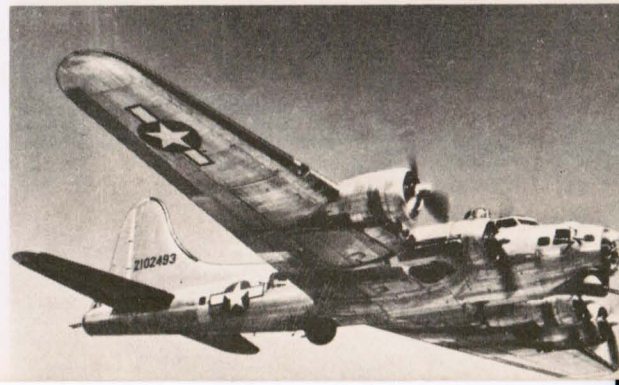


F-86



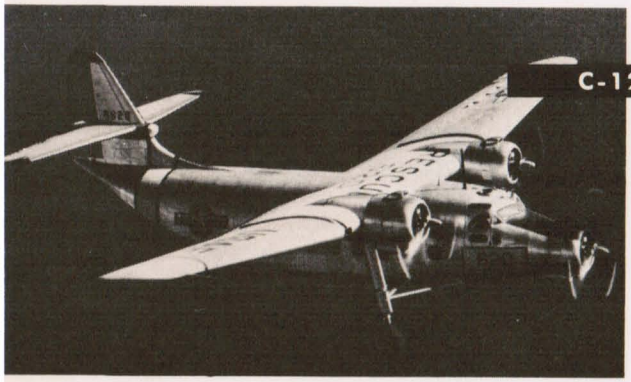
B-29

COMPARATIVE SIZE OF B-17



MULTI-MOTORED AIRCRAFT





C-125

UNITED STATES

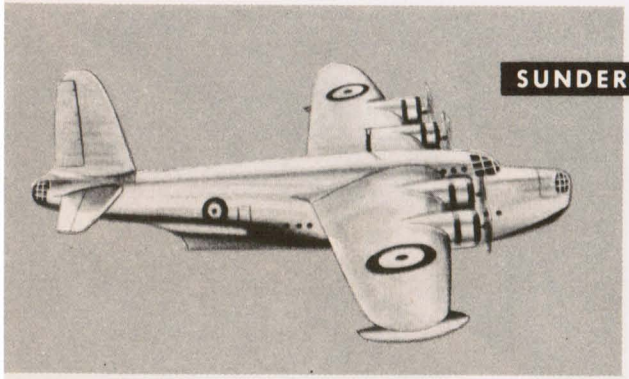
SPAN: 87′

LENGTH: 67′ 2″

ENGINES: 3 WRIGHT 1820'S

SPEED: OVER 200 M.P.H.

RANGE: OVER 500 COMB. RAD.



SUNDERLAND

BRITISH

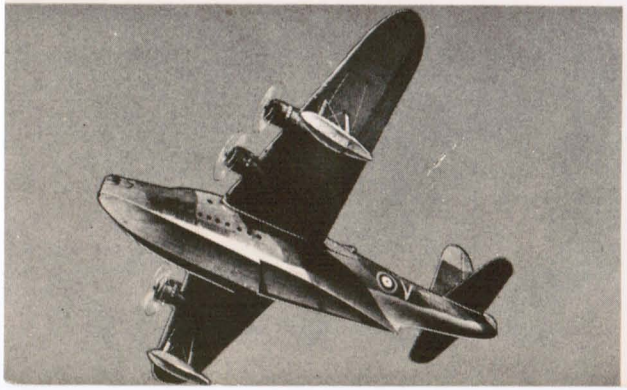
SPAN: 112′ 9″

LENGTH: 85′ 4″

ENGINES: 4 PEGASUS 18

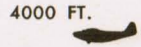
SPEED: OVER 200 M.P.H.

RANGE: OVER 1700 MILES

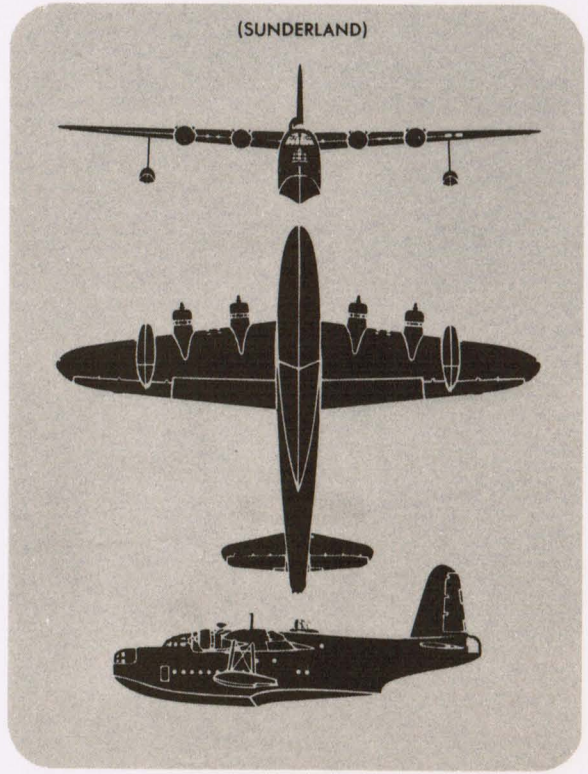








DISTANT APPEARANCE OF C-125



Silhouette



C-125



F-86



TB-25

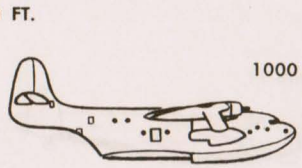
COMPARATIVE SIZE OF C-125

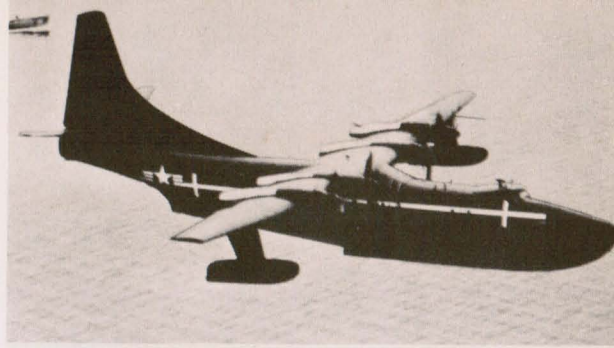
MULTI-MOTORED AIRCRAFT

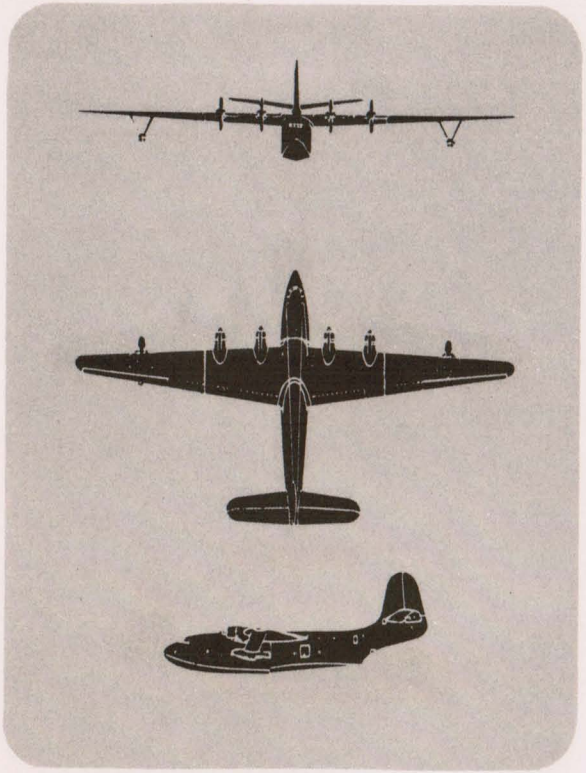




DISTANT APPEARANCE OF JRM-1







Silhouette

UNITED STATES

P5Y

SPAN: NOT AVAILABLE

LENGTH: NOT AVAILABLE

ENGINES: 4 ALLISON T40'S

SPEED: NOT AVAILABLE

RANGE: EXTRA LONG



UNITED STATES

JRM-1

SPAN: 200′

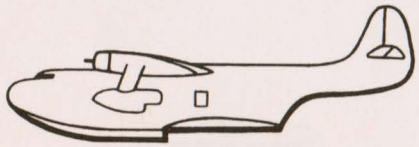
LENGTH: 120′ 3″

ENGINES: 4 WRIGHT R-3350'S

SPEED: OVER 200 M.P.H.

RANGE: OVER 3500 MILES





JRM-1



F-86



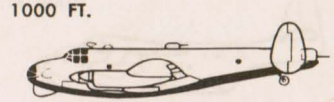
TB-25

COMPARATIVE SIZE OF JRM-1

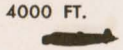


MULTI-MOTORED AIRCRAFT

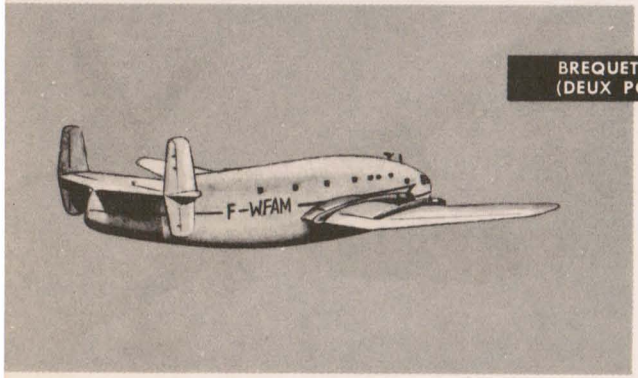








DISTANT APPEARANCE OF SHACKLETON



BREQUET 76-3 (DEUX PONTS)

FRENCH

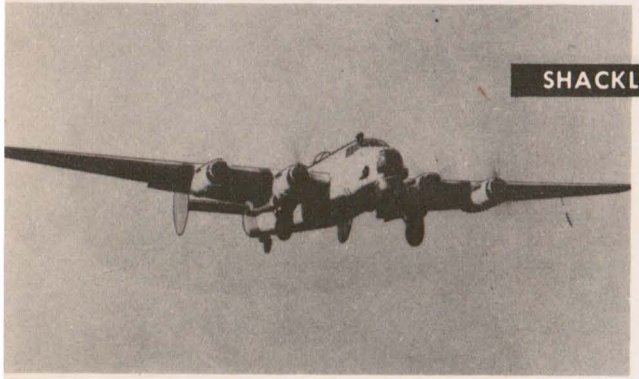
SPAN: 140′ 10″

LENGTH: 94′ 11″

ENGINES: 4 GNOME RHONE 14R

SPEED: OVER 200 M.P.H.

RANGE: 2367 MILES



SHACKLETON

BRITISH

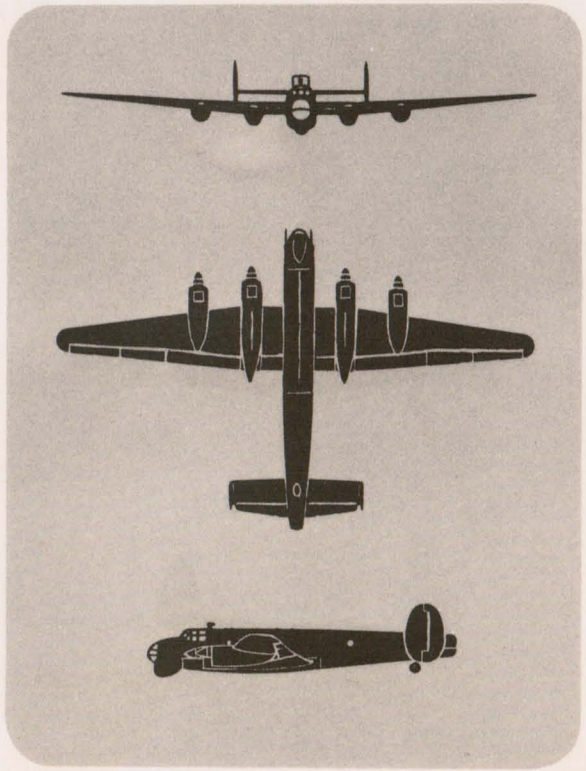
SPAN: 120′

LENGTH: 77′ 6″

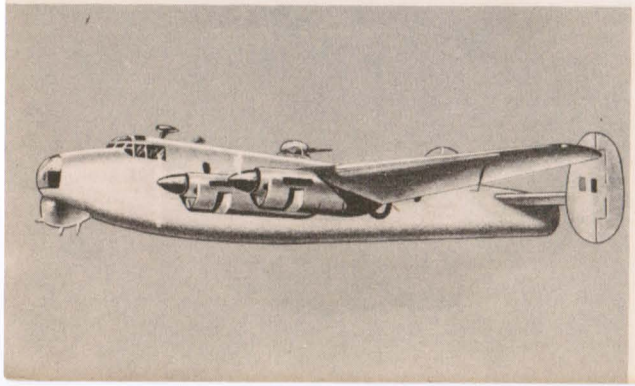
ENGINES: 4 ROLLS-ROYCE GRIFFON

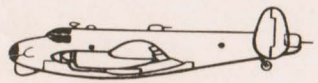
SPEED: NOT AVAILABLE

RANGE: NOT AVAILABLE



Silhouette

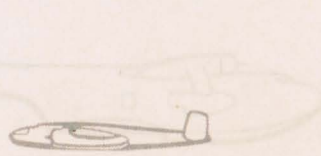




SHACKLETON

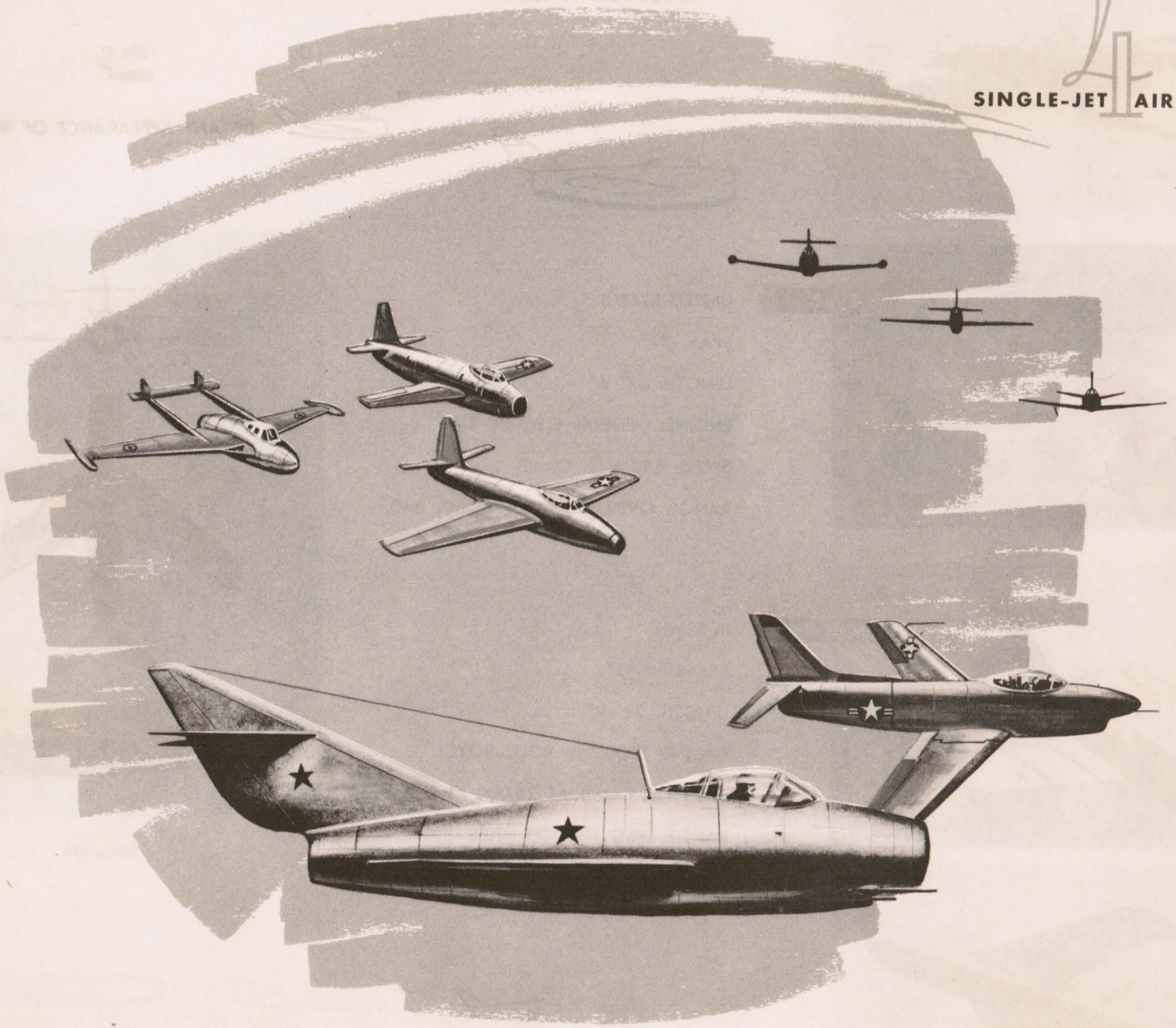


F-86



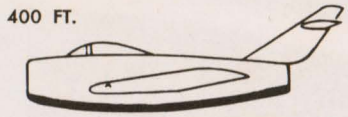
TB-25

COMPARATIVE SIZE OF SHACKLETON





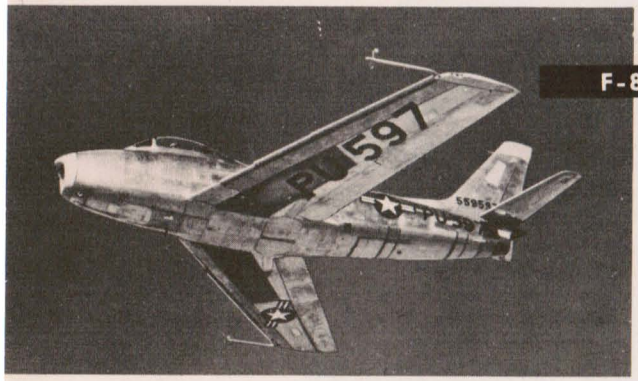
SINGLE-JET AIRCRAFT







DISTANT APPEARANCE OF MIG-15



F-86

UNITED STATES

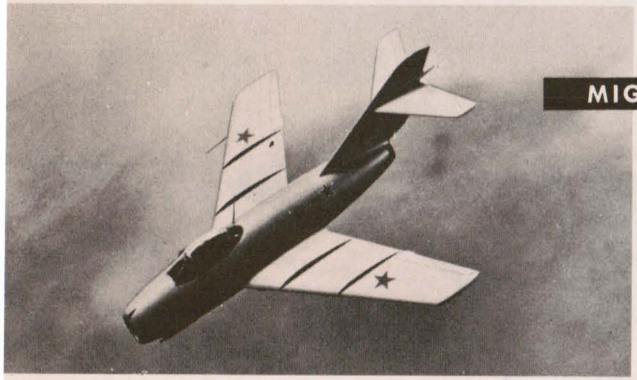
SPAN: 37′

LENGTH: 37′ 6″

ENGINE: GENERAL ELECTRIC J-47

SPEED: 650 MPH CLASS

RANGE: OVER 500 MILES COMB. RAD.



MIG-15

RUSSIAN

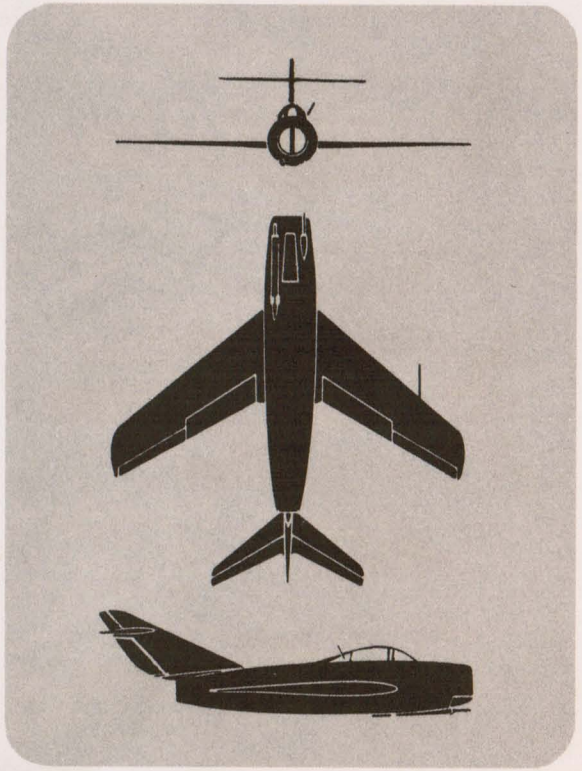
SPAN: 32′ 5″

LENGTH: 32′ 9″

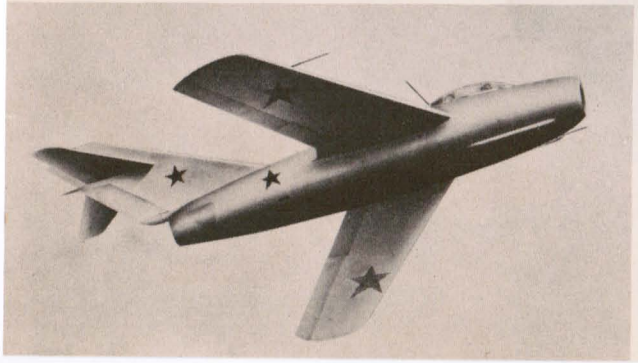
ENGINE: MODIFIED ROLLS-ROYCE

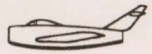
SPEED: 615 MPH AT 25,000 FT.

RANGE: (EST) 700-800 MILES



Silhouette

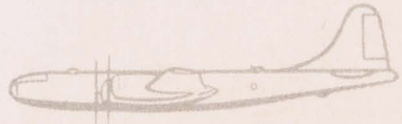




MIG-15



TB-25

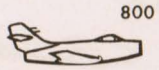


B-29

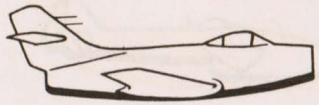
COMPARATIVE SIZE OF MIG-15

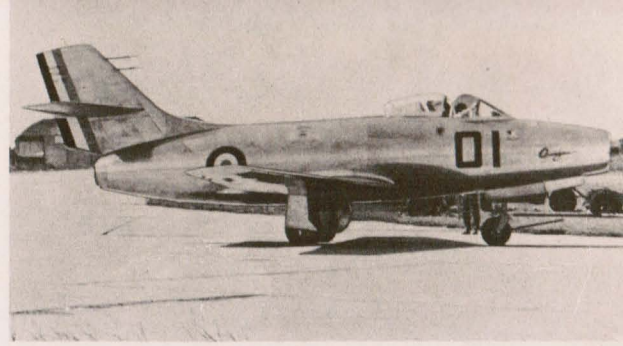
SINGLE-JET AIRCRAFT

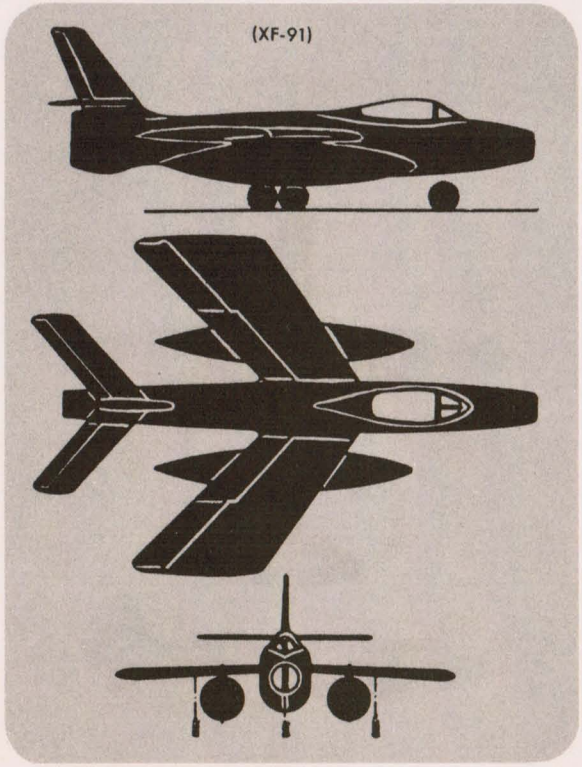




DISTANT APPEARANCE OF OURAGAN







Silhouette

OURAGAN

FRENCH

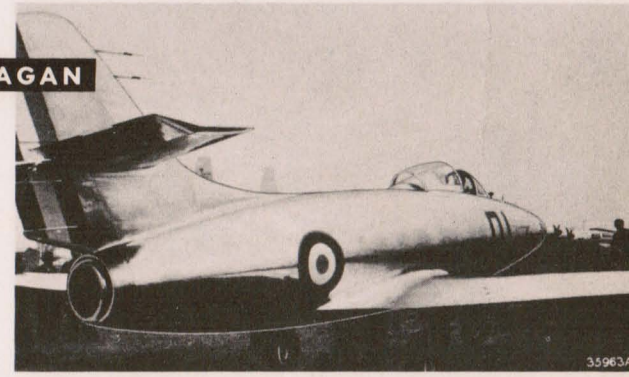
SPAN: 40′ 4″

LENGTH: 35′ 3″

ENGINE: NENE TURBO-JET

SPEED: 600 MPH CLASS

RANGE: NOT AVAILABLE



XF-91

UNITED STATES

SPAN: 31′3″

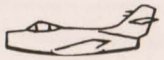
LENGTH: 43′3″

ENGINE: G. E. J-47

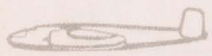
SPEED: NOT AVAILABLE

RANGE: NOT AVAILABLE

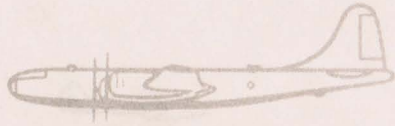




OURAGAN

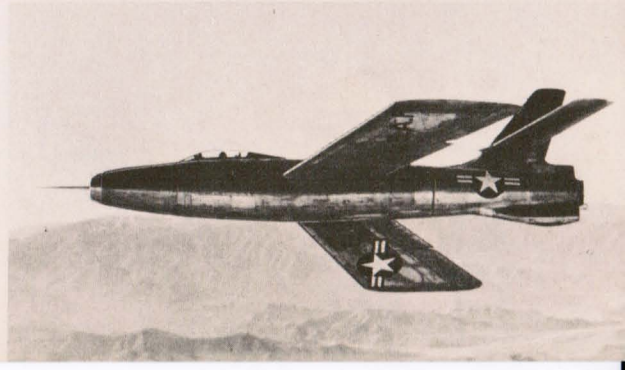


TB-25

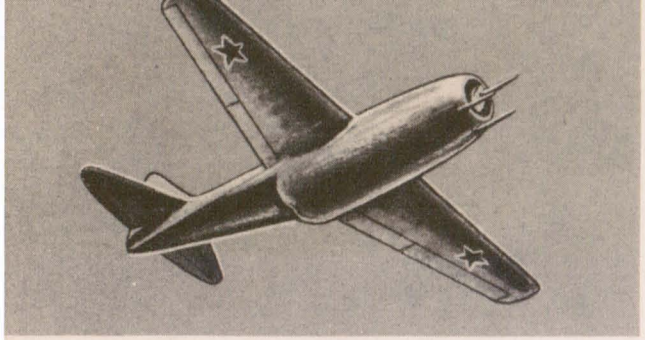


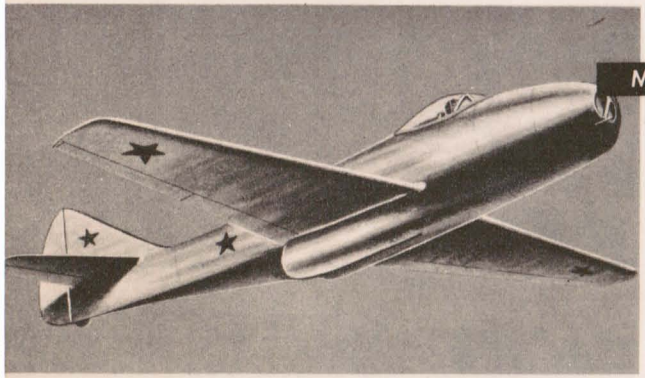
B-29

COMPARATIVE SIZE OF OURAGAN



SINGLE-JET AIRCRAFT





MIG-9

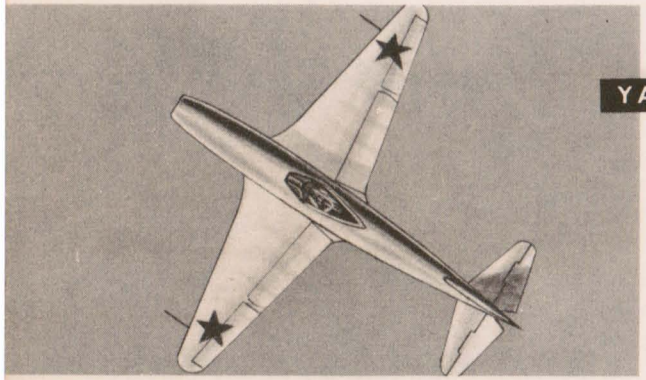
RUSSIAN

SPAN: 34′

LENGTH: 32′9″

ENGINE: TWO MODIFIED JUNKERS (PLACED IN THIS GROUP BECAUSE OF SIMILARITY TO SINGLE-JET AIRCRAFT)

SPEED: 600 MPH CLASS



YAK-15

RUSSIAN

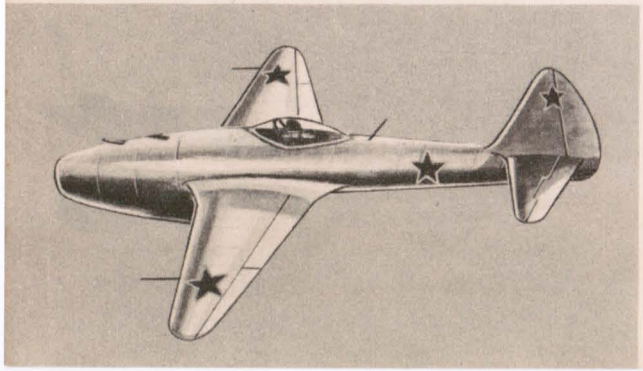
SPAN: 30′

LENGTH: (EST) 29′

ENGINE: JUNKERS JUMO

SPEED: APPROX. 500 MPH

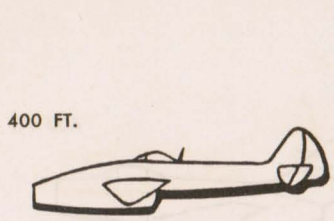
RANGE: NOT AVAILABLE



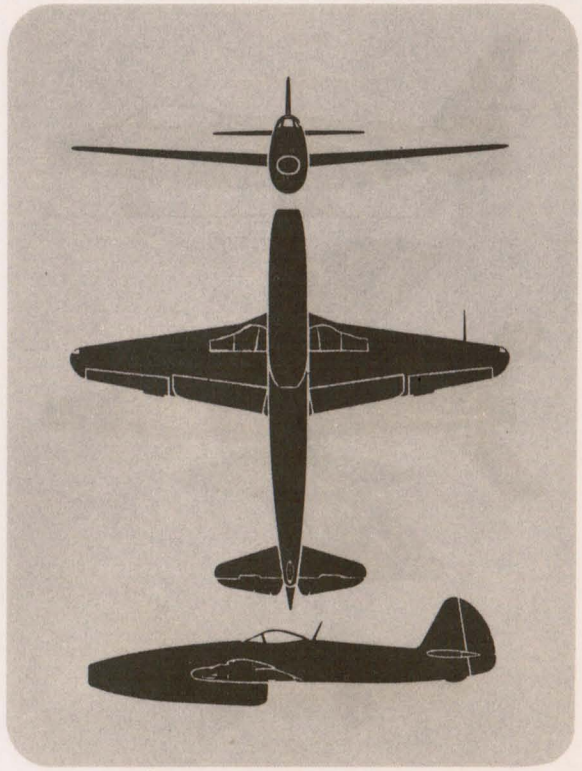
1600 FT.

800 FT.

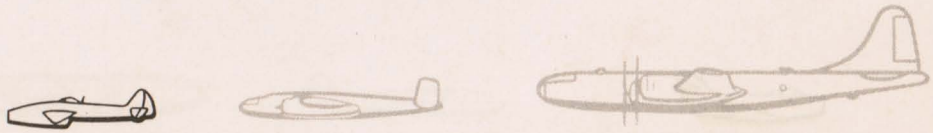
400 FT.



DISTANT APPEARANCE OF YAK-15



Silhouette



YAK-15 TB-25 B-29

COMPARATIVE SIZE OF YAK-15

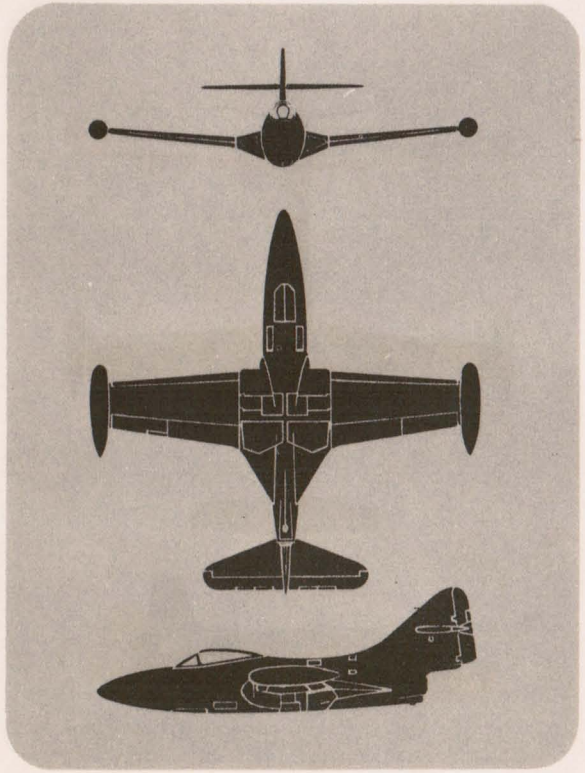
SINGLE-JET AIRCRAFT



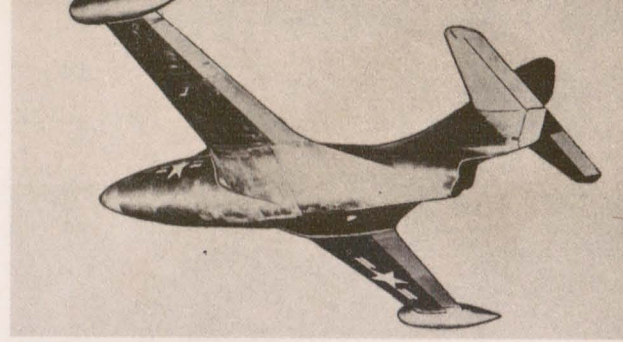
DISTANT APPEARANCE OF F9F-2







Silhouette





UNITED STATES — **F9F-2**

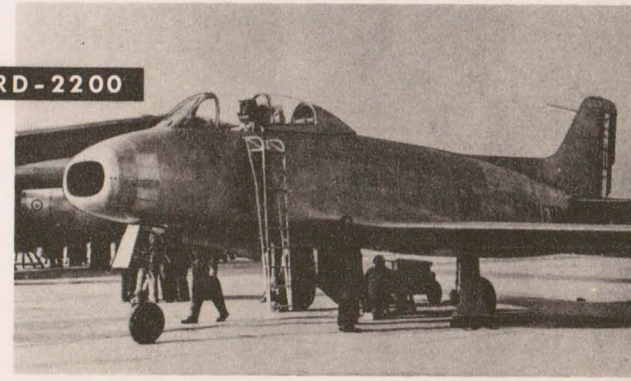
SPAN: 38′

LENGTH: 37′ 11″

ENGINE: P-WJ42

SPEED: 600 M.P.H. CLASS

RANGE: OVER 1700 MILES



FRENCH — **NORD-2200**

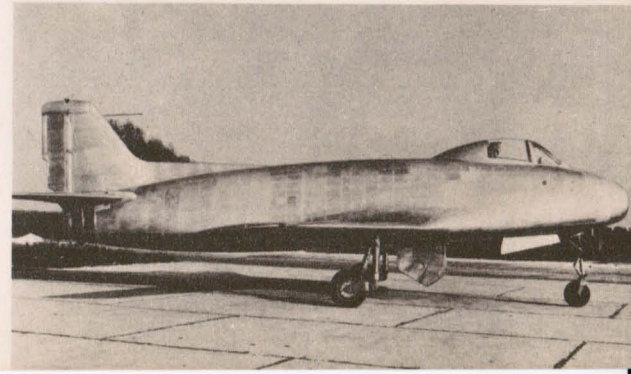
SPAN: 39′ 4″

LENGTH: 44′ 3″

ENGINE: NENE

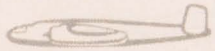
SPEED: (APPROX.) 575 M.P.H.

RANGE: NOT AVAILABLE

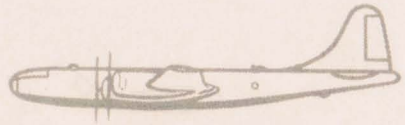




F9F-2



TB-25



B-29

COMPARATIVE SIZE OF F9F-2

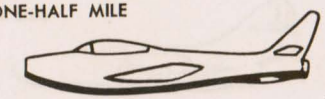
SINGLE-JET AIRCRAFT



1600 FT.

800 FT.

ONE-HALF MILE



DISTANT APPEARANCE OF F-84F



F-84F

UNITED STATES

SPAN: 34′

LENGTH: 43′

ENGINE: WRIGHT J-65

SPEED: 600 MPH CLASS

RANGE: OVER 850 MILES COMB. RAD.



FJ-1

UNITED STATES

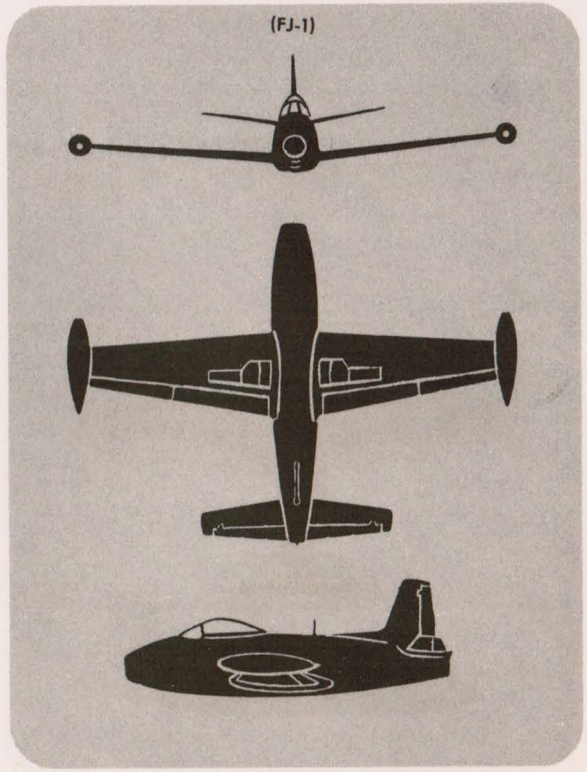
SPAN: 38′ 2″

LENGTH: 34′ 5″

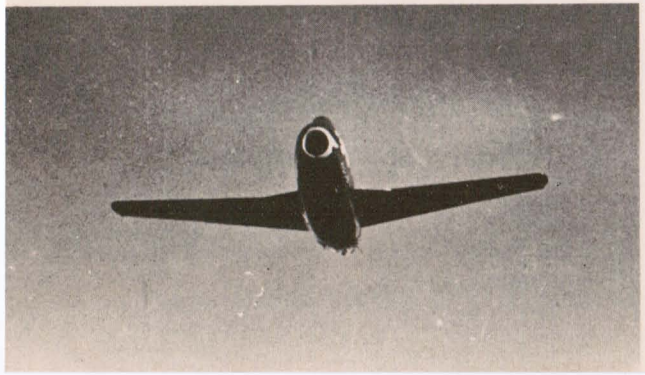
ENGINE: ALLISON J-35

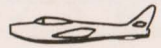
SPEED: OVER 525 MPH

RANGE: OVER 1,300 MILES



Silhouette

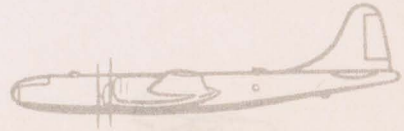




F-84F



TB-25



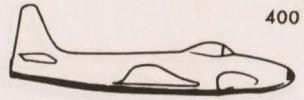
B-29

COMPARATIVE SIZE OF F-84F

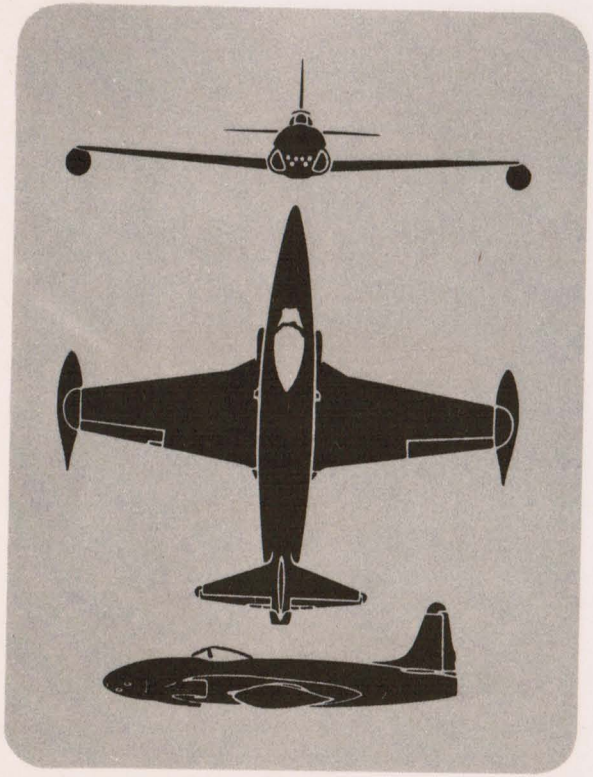
SINGLE-JET AIRCRAFT



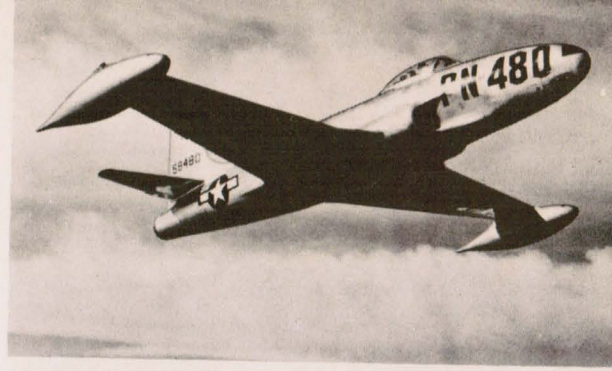




DISTANT APPEARANCE OF F-80



Silhouette



UNITED STATES **F-80**

SPAN: 39′

LENGTH: 34′ 6″

ENGINE: ALLISON J-33

SPEED: 600 MPH CLASS

RANGE: OVER 500 MILES COMB. RAD.



FRENCH **VG-90**

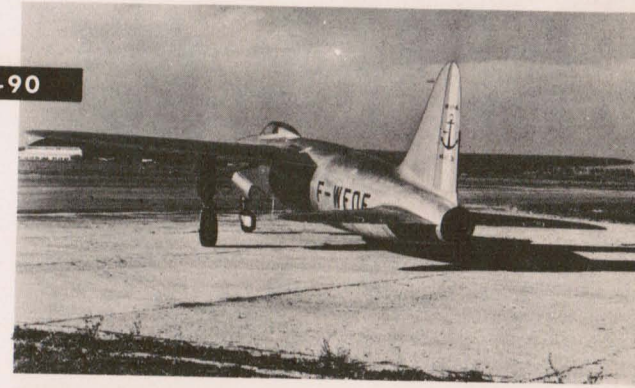
SPAN: 41′ 4″

LENGTH: 44′ 1″

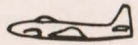
ENGINE: NENE TURBO-JET

SPEED: OVER 550 MPH

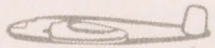
RANGE: NOT AVAILABLE



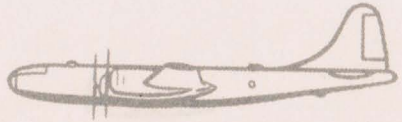




F-80



TB-25

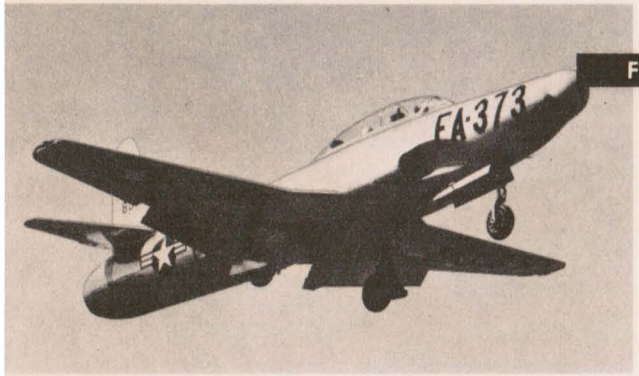


B-29

COMPARATIVE SIZE OF F-80

SINGLE-JET AIRCRAFT





F-94

UNITED STATES

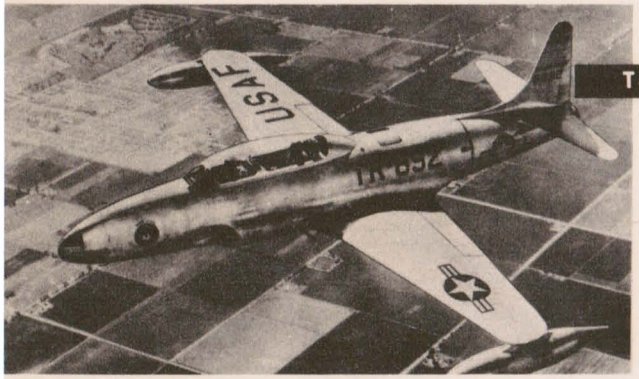
SPAN: 37′6″ (TYPE C)

LENGTH: 41′5″ (TYPE C)

ENGINE: ALLISON J-33

SPEED: 600 MPH CLASS

RANGE: (APPROX) 500 MILES COMB. RAD.



T-33

UNITED STATES

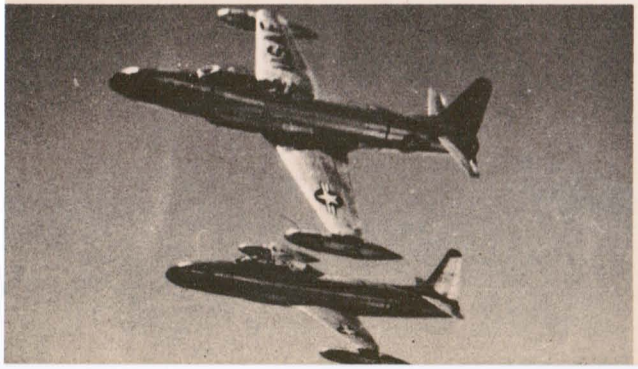
SPAN: 38′ 11″

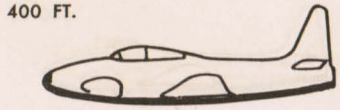
LENGTH: 40′ 1″

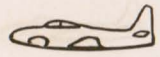
ENGINE: ALLISON J-33

SPEED: 600 MPH CLASS

RANGE: 500 MILE COMBAT RADIUS

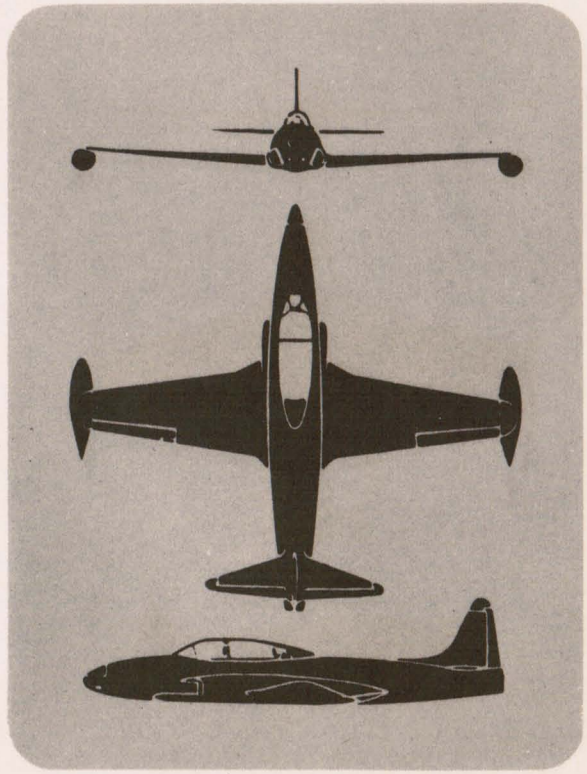




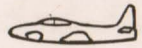




DISTANT APPEARANCE OF T-33



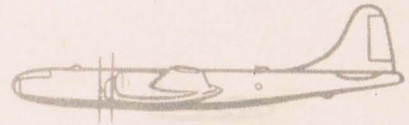
Silhouette



T-33



TB-25



B-29

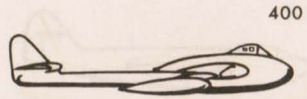
COMPARATIVE SIZE OF T-33

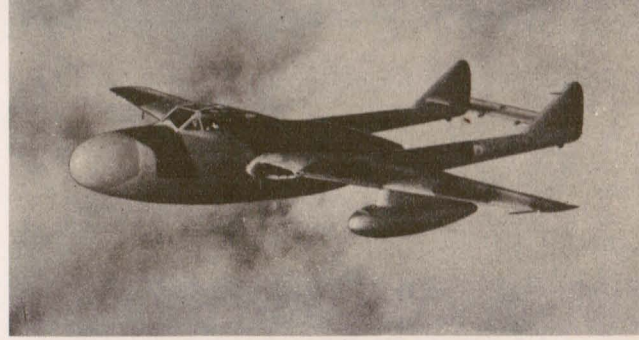
SINGLE-JET AIRCRAFT

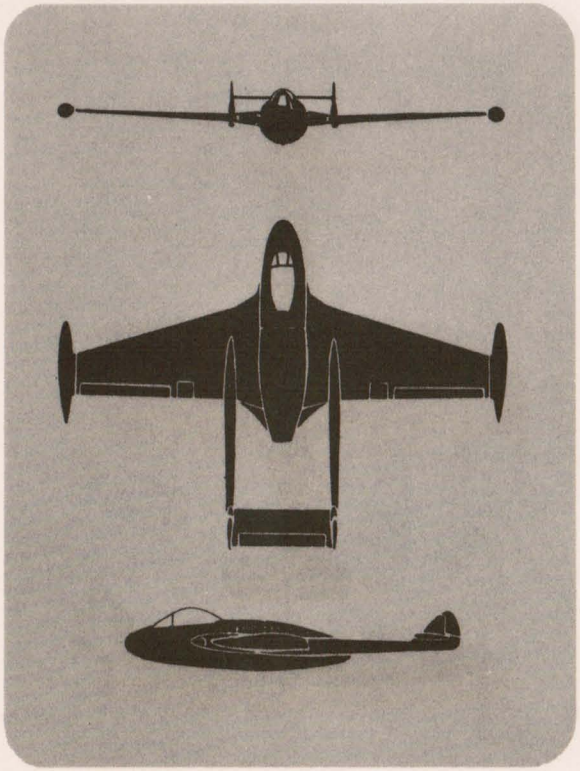




DISTANT APPEARANCE OF VENOM







Silhouette

BRITISH **VAMPIRE**

SPAN: 38′

LENGTH: 34′ 7″

ENGINE: GOBLIN

SPEED: NOT AVAILABLE

RANGE: NOT AVAILABLE



BRITISH **VENOM**

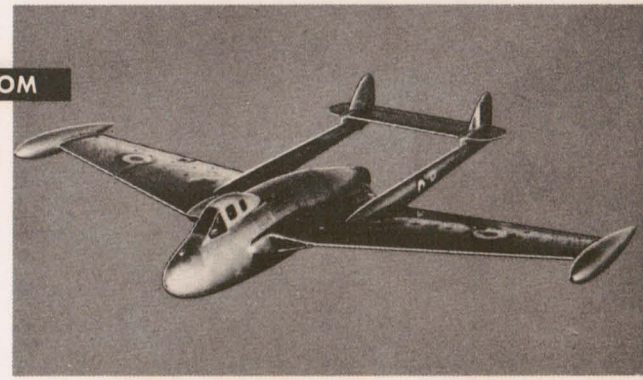
SPAN: 41′ 9″

LENGTH: 31′ 5″

ENGINE: GHOST 50

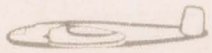
SPEED: NOT AVAILABLE

RANGE: NOT AVAILABLE

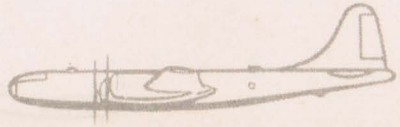




VENOM

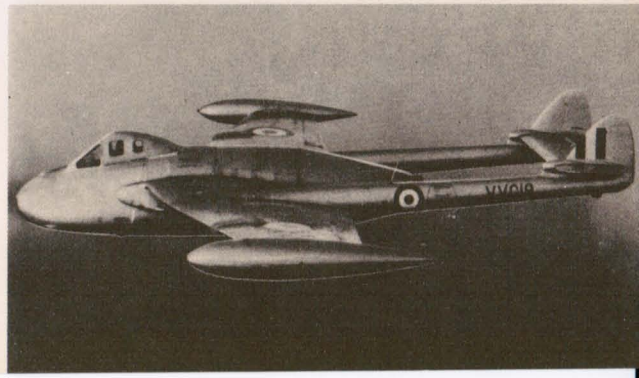


TB-25

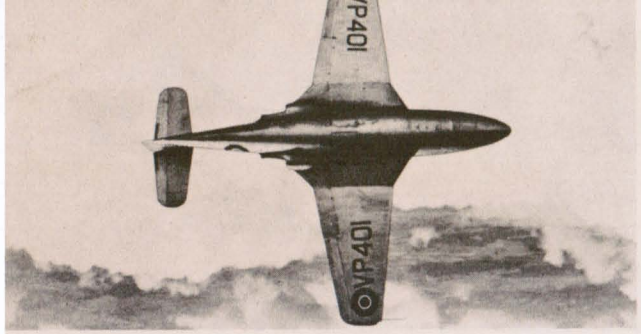


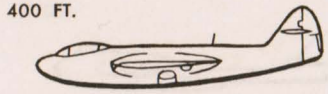
B-29

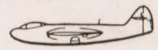
COMPARATIVE SIZE OF VENOM



SINGLE-JET AIRCRAFT

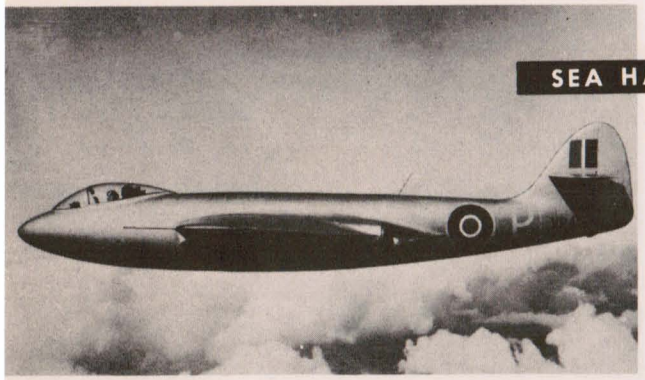








DISTANT APPEARANCE OF HAWKER 1052



SEA HAWK → BRITISH

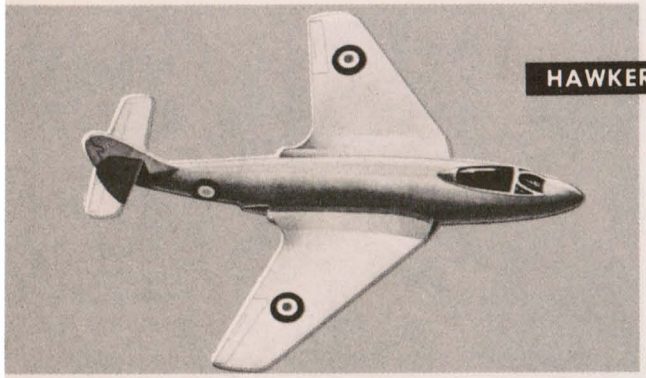
SPAN: 39′

LENGTH: 39′ 7″

ENGINE: ROLLS-ROYCE NENE

SPEED: NOT AVAILABLE

RANGE: NOT AVAILABLE



HAWKER 1052 → BRITISH

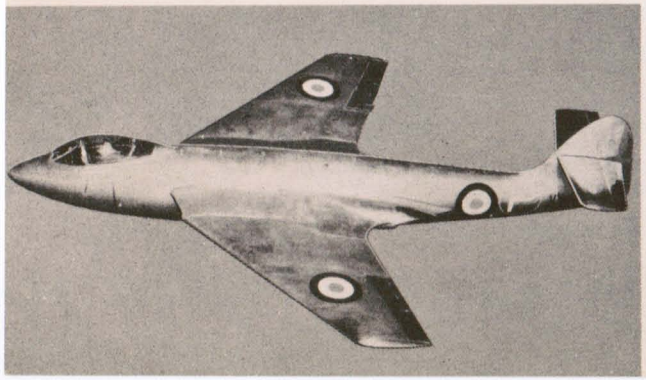
SPAN: 31′ 6″

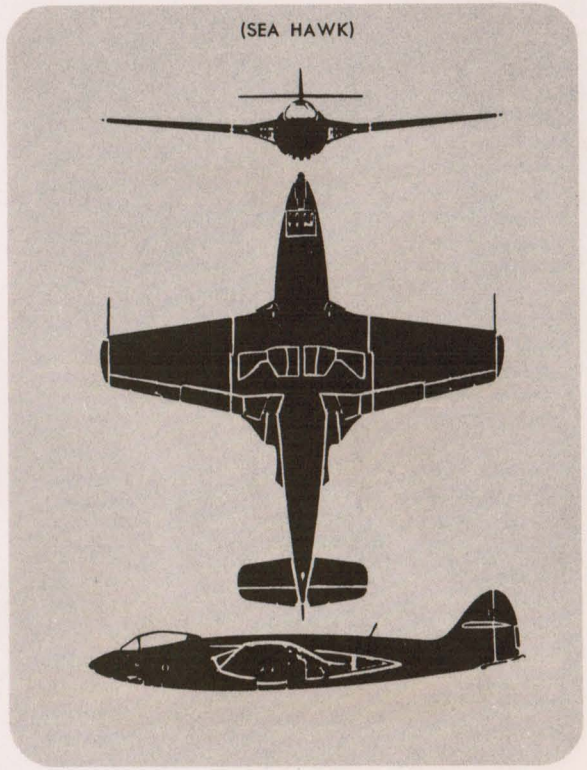
LENGTH: 39′ 7″

ENGINE: ROLLS-ROYCE NENE

SPEED: 600 MPH CLASS

RANGE: NOT AVAILABLE



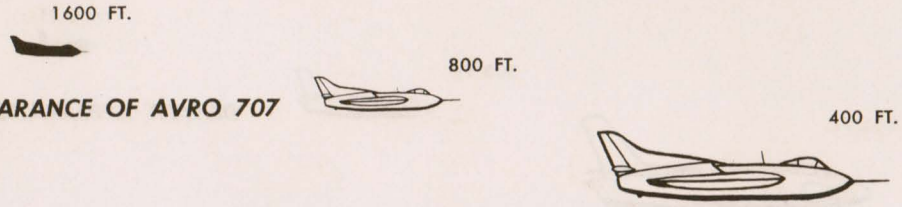


Silhouette

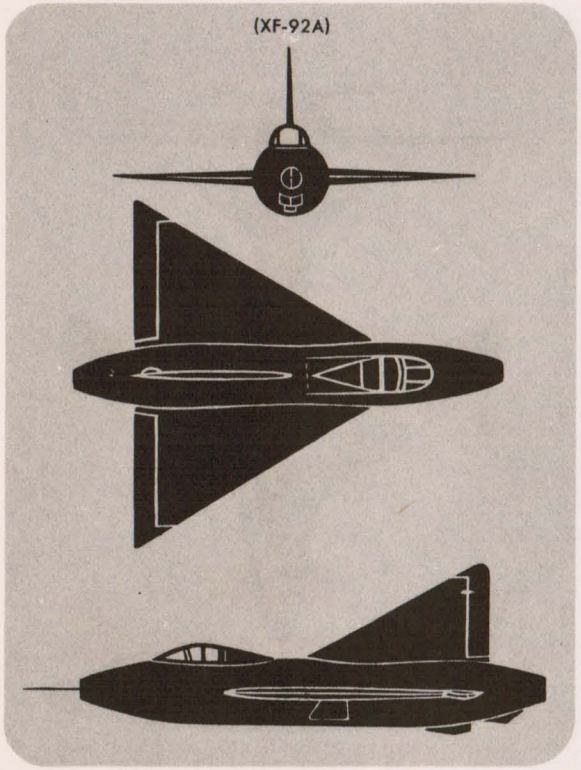


COMPARATIVE SIZE OF HAWKER 1052

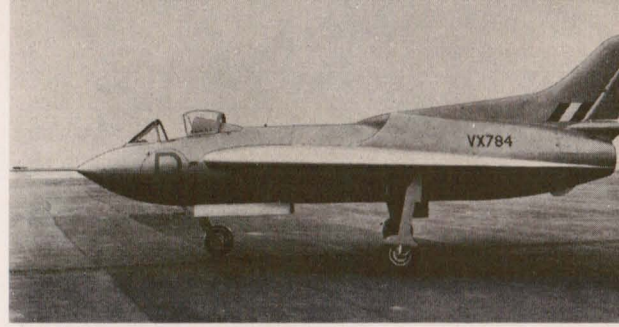
SINGLE-JET AIRCRAFT



DISTANT APPEARANCE OF AVRO 707



Silhouette



AVRO 707

BRITISH

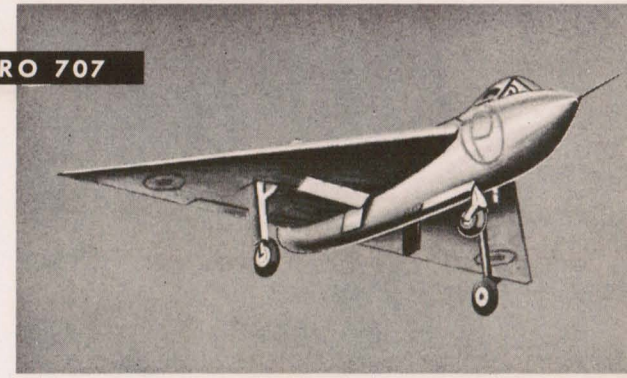
SPAN: 33′

LENGTH: 30′ 6″

ENGINE: ROLLS-ROYCE DERWENT

SPEED: NOT AVAILABLE

RANGE: NOT AVAILABLE



XF-92A

UNITED STATES

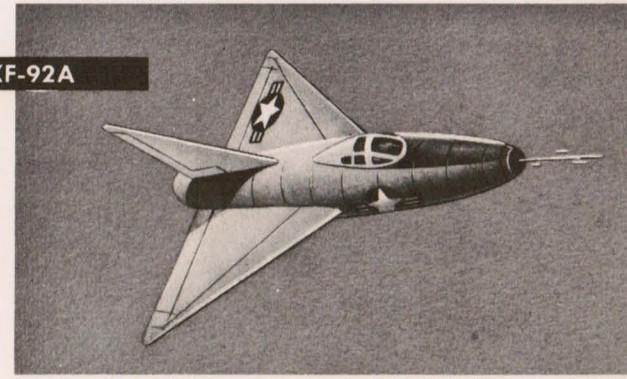
SPAN: (APPROX.) 31′

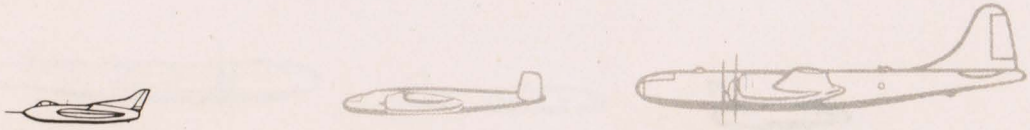
LENGTH: (APPROX.) 41′

ENGINE: ALLISON J-33

SPEED: NOT AVAILABLE

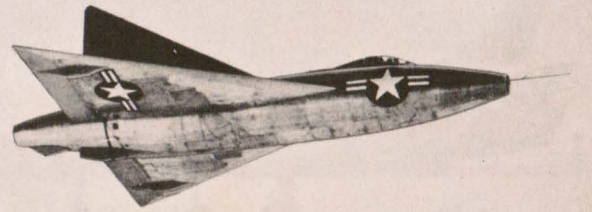
RANGE: NOT AVAILABLE



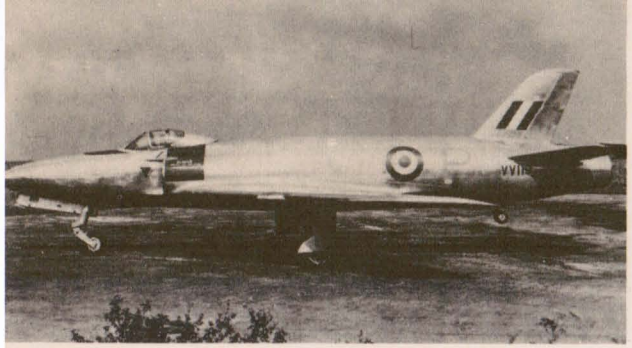


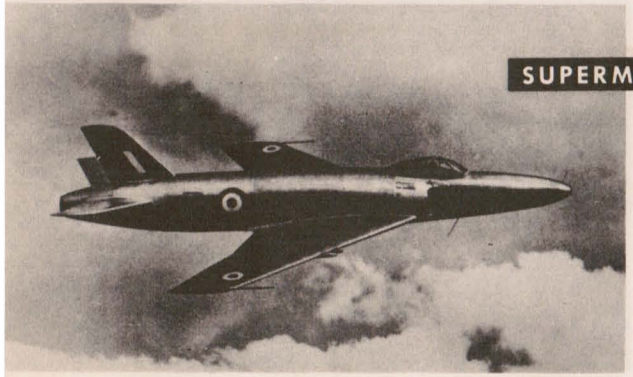
AVRO 707 TB-25 B-29

COMPARATIVE SIZE OF AVRO 707



SINGLE-JET AIRCRAFT





SUPERMARINE

BRITISH

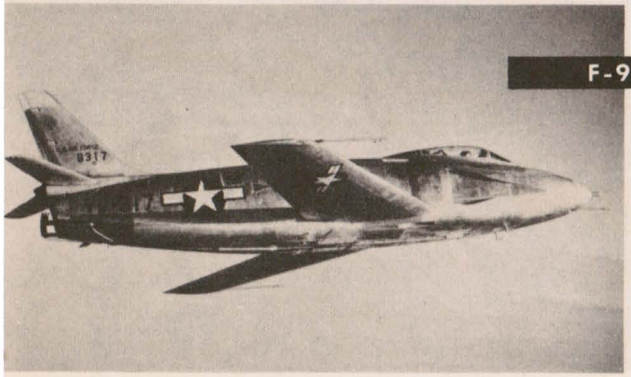
SPAN: 31′ 8″ (APPROX)

LENGTH: 39′ 9″ (APPROX)

ENGINE: ROLLS-ROYCE NENE

SPEED: NOT AVAILABLE

RANGE: NOT AVAILABLE



F-93

UNITED STATES

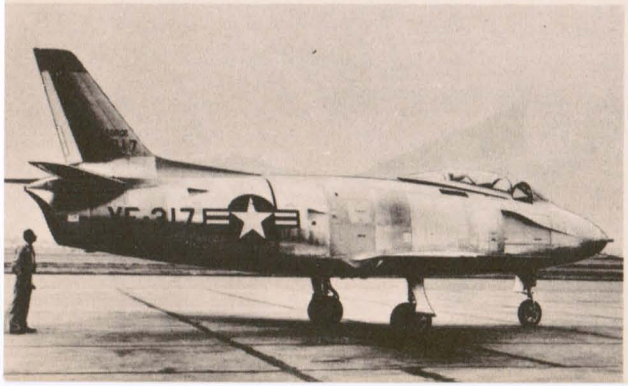
SPAN: 39′

LENGTH: 44′

ENGINE: P-W J-48

SPEED: 600 M.P.H. CLASS

RANGE: OVER 600 MILES COMB. RAD.



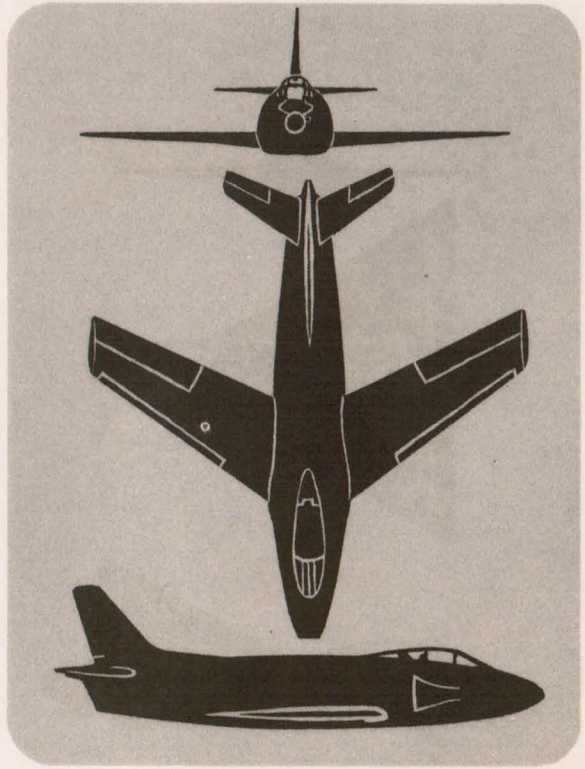
1600 FT.

800 FT.

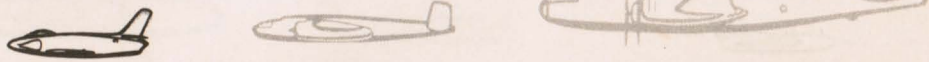
400 FT.



DISTANT APPEARANCE OF F-93

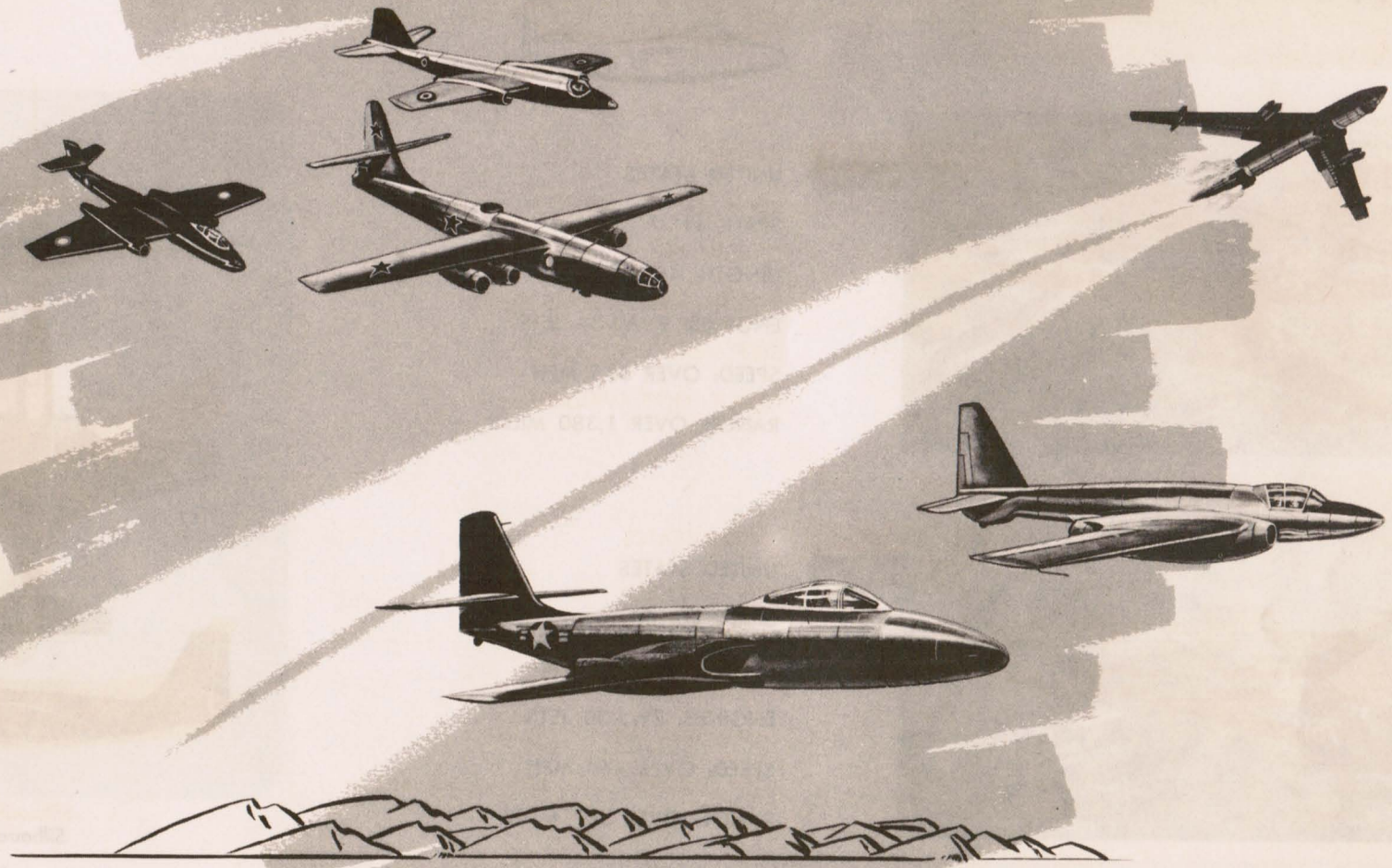


Silhouette

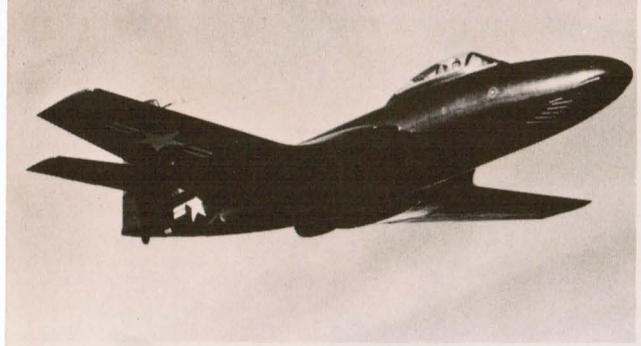


F-93 TB-25 B-29

COMPARATIVE SIZE OF F-93



MULTI-JET AIRCRAFT





F2H-1

UNITED STATES

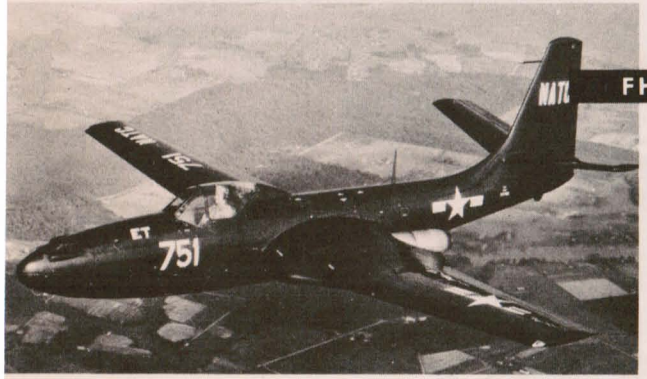
SPAN: 41′ 7″

LENGTH: 40′ 2″

ENGINES: 2 WJ-34 JETS

SPEED: OVER 575 MPH

RANGE: OVER 1,380 MILES



FH-1

UNITED STATES

SPAN: 40′ 9″

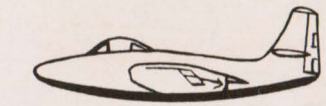
LENGTH: 38′ 9″

ENGINES: 2WJ-30 JETS

SPEED: OVER 460 MPH

RANGE: OVER 747 MILES

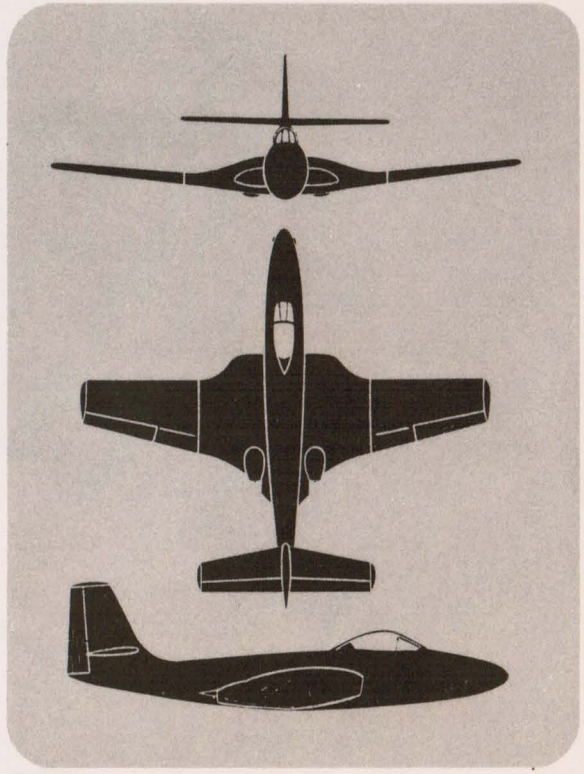








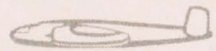
DISTANT APPEARANCE OF F2H-1



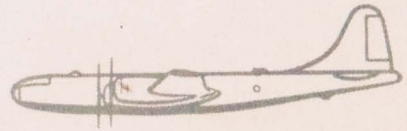
Silhouette



F2H-1



TB-25



B-29

COMPARATIVE SIZE OF F2H-1

MULTI-JET AIRCRAFT

2400 FT.



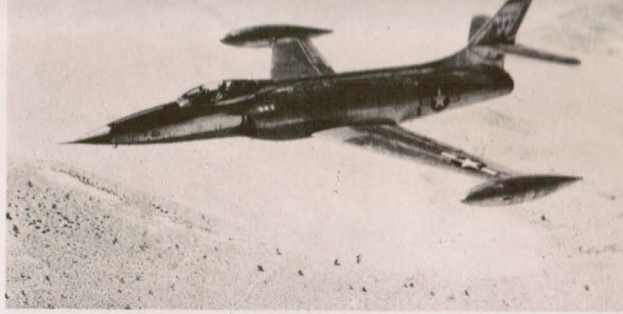
1200 FT.

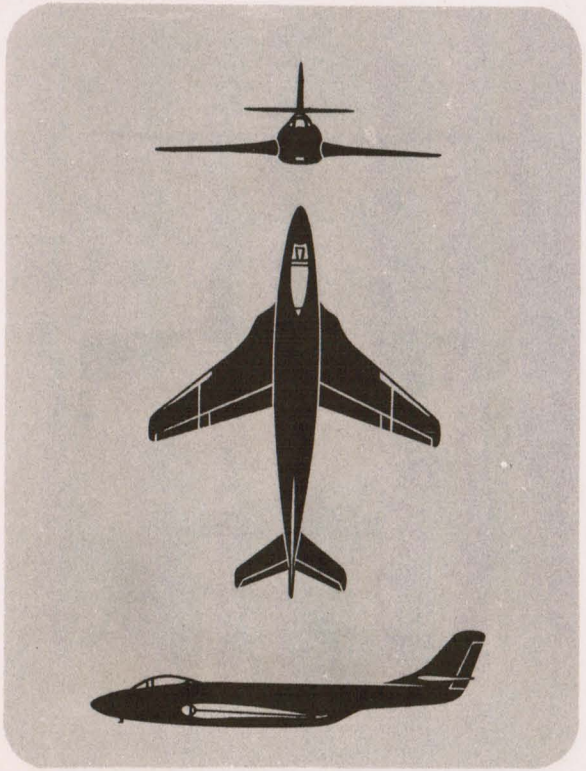


600 FT.



DISTANT APPEARANCE OF XF-88





Silhouette

F-90

UNITED STATES

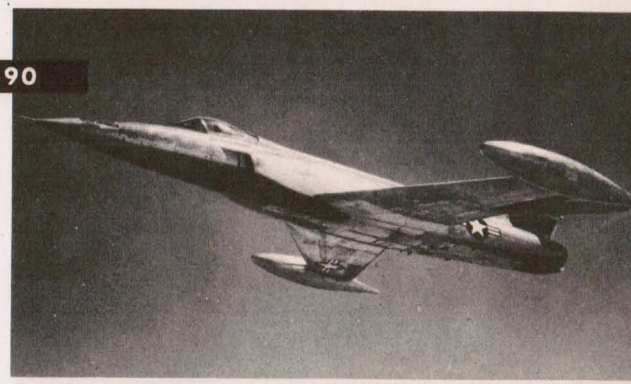
SPAN: 39′ 8″

LENGTH: 56′2″

ENGINES: TWO WJ-34'S

SPEED: NOT AVAILABLE

RANGE: NOT AVAILABLE



X F-88

UNITED STATES

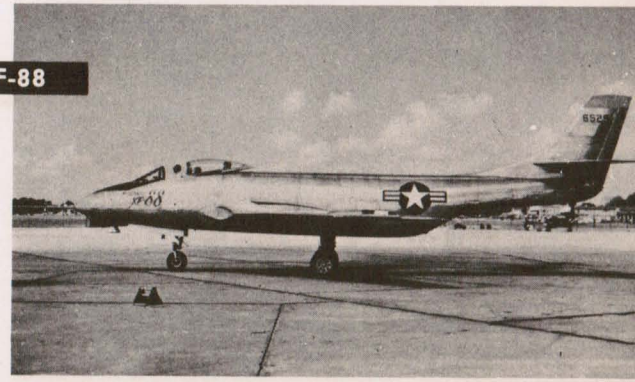
SPAN: 40′

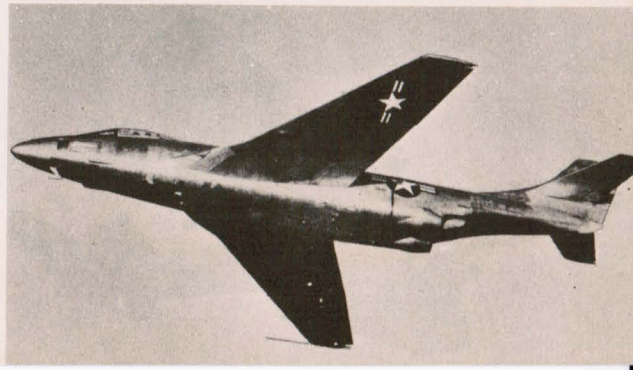
LENGTH: 55′

ENGINES: TWO WJ-34'S

SPEED: NOT AVAILABLE

RANGE: NOT AVAILABLE



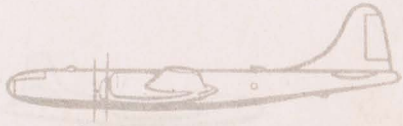




XF-88



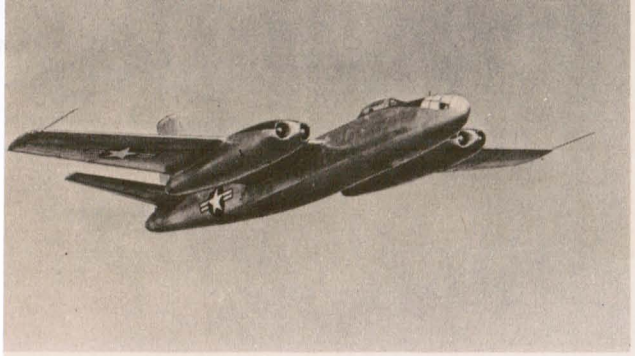
F-86

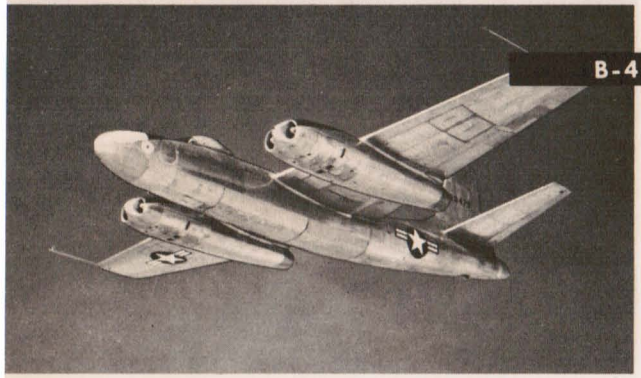


B-29

COMPARATIVE SIZE OF XF-88

MULTI-JET AIRCRAFT





B-45

UNITED STATES

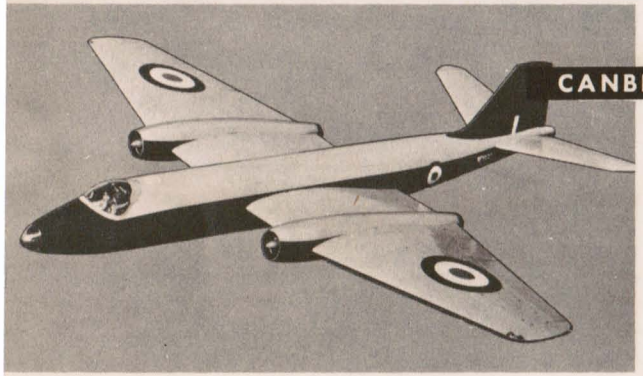
SPAN: 89′

LENGTH: 75′

ENGINE: 4GE J-47 JETS

SPEED: 550 MPH CLASS

RANGE: OVER 800 MILE COMB. RAD.



CANBERRA

BRITISH

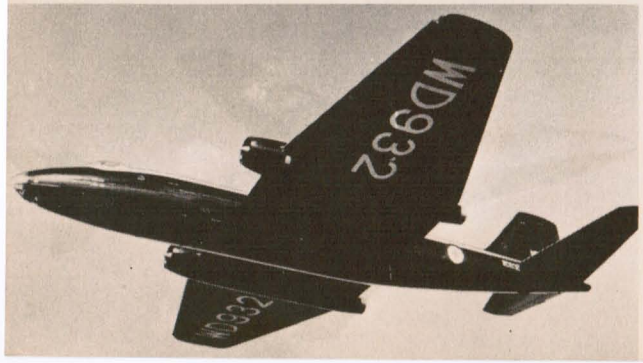
SPAN: 63′ 11″

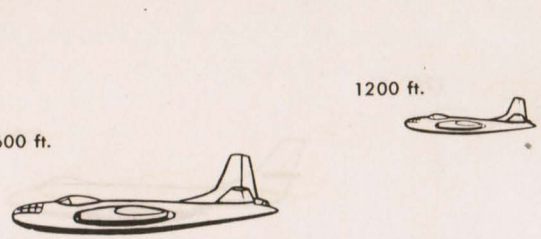
LENGTH: 65′ 6″

ENGINES: 2 ROLLS ROYCE AVONS

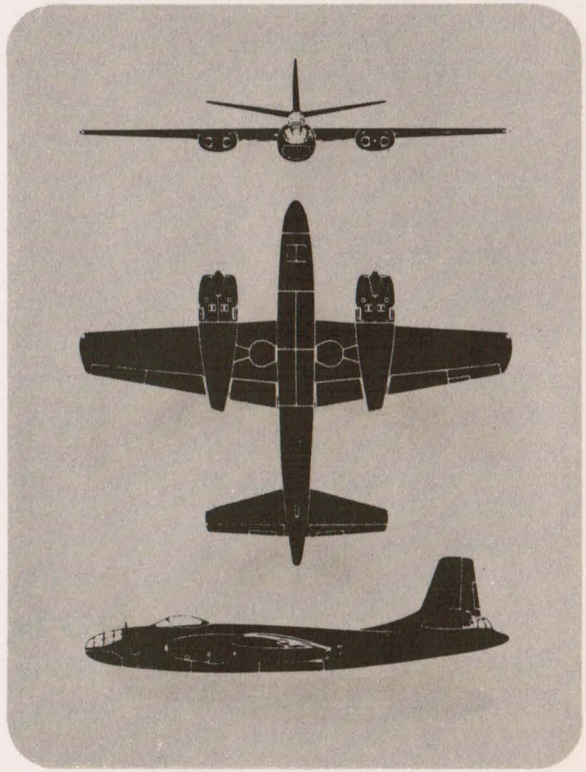
SPEED: NOT AVAILABLE

RANGE: NOT AVAILABLE





DISTANT APPEARANCE OF B-45

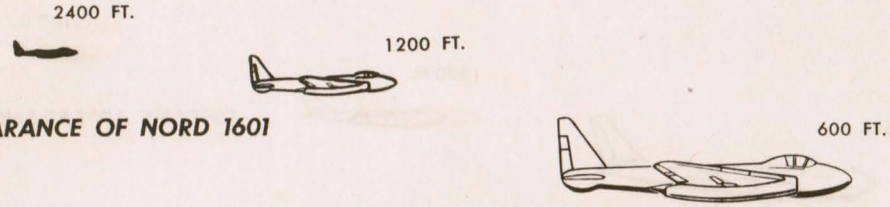


Silhouette

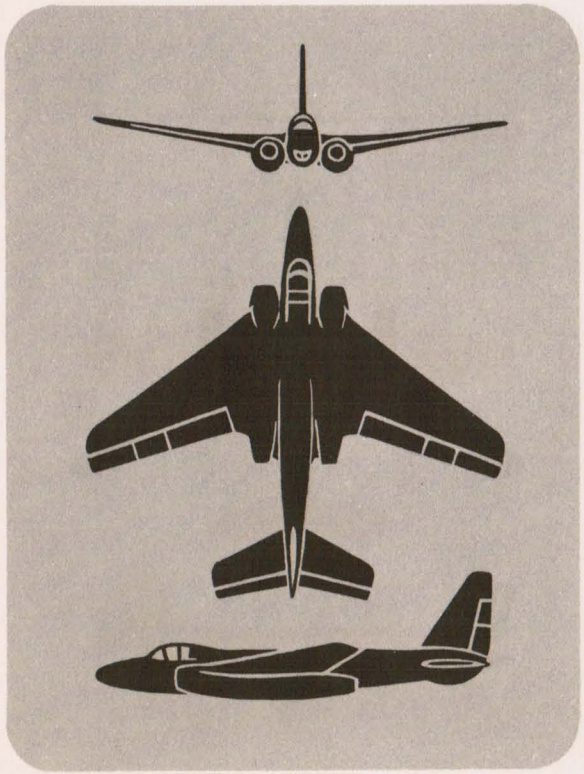


COMPARATIVE SIZE OF B-45

MULTI-JET AIRCRAFT



DISTANT APPEARANCE OF NORD 1601



Silhouette

FRENCH **NORD - 1601**

SPAN: 40′ 5″

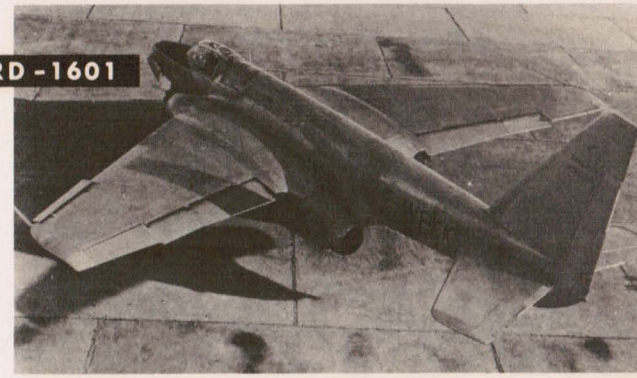
LENGTH: 38′ 9″

ENGINES: 2 ROLLS-ROYCE DERWENT 5

SPEED: OVER 600 M.P.H.

RANGE: NOT AVAILABLE





BRITISH **VIKING**

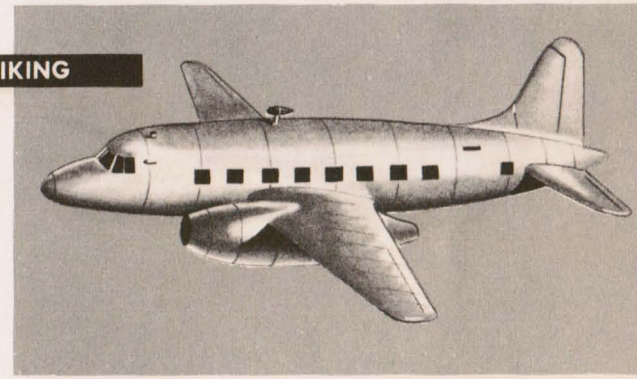
SPAN: 89′ 3″

LENGTH: 65′ 2″

ENGINES: 2 ROLLS-ROYCE NENE

SPEED: OVER 425 M.P.H.

RANGE: NOT AVAILABLE



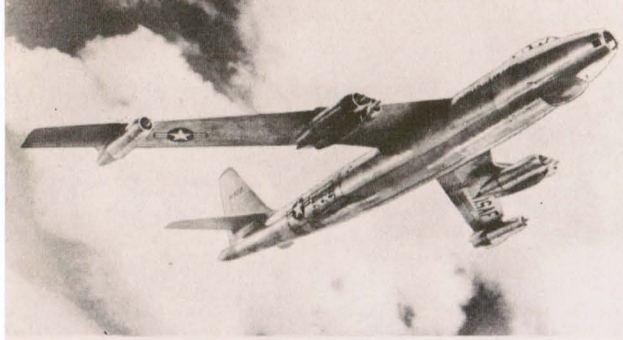




NORD 1601 F-86 B-29

COMPARATIVE SIZE OF NORD 1601

MULTI-JET AIRCRAFT









DISTANT APPEARANCE OF B-47



B-47 UNITED STATES

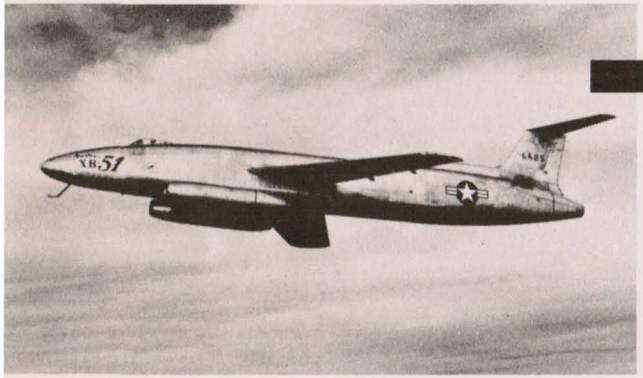
SPAN: 116′

LENGTH: 106′8″

ENGINES: 6 GE J-47'S

SPEED: 600 MPH CLASS

RANGE: 3000 MILES



B-51 UNITED STATES

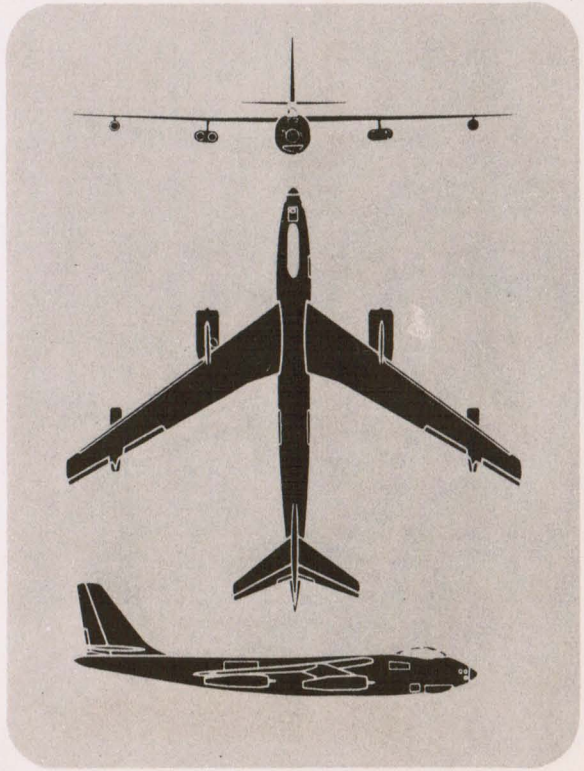
SPAN: 55′

LENGTH: 80′

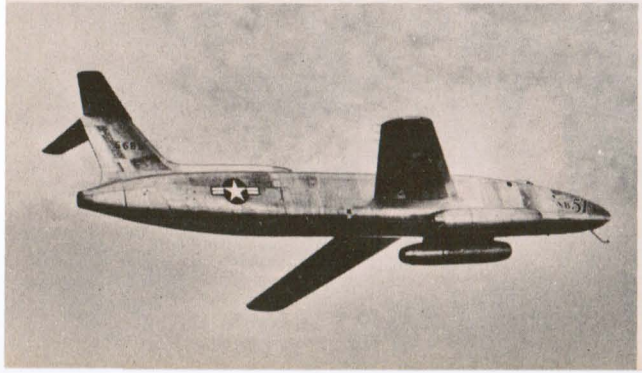
ENGINES: 3 GE J-47'S

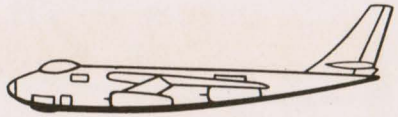
SPEED: NOT AVAILABLE

RANGE: NOT AVAILABLE



Silhouette

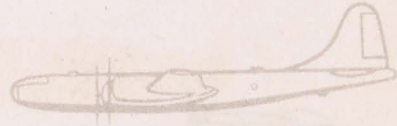




B-47



F-86

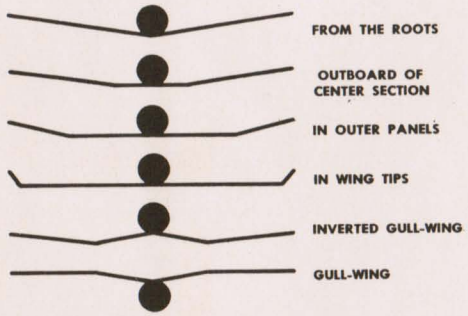


B-29

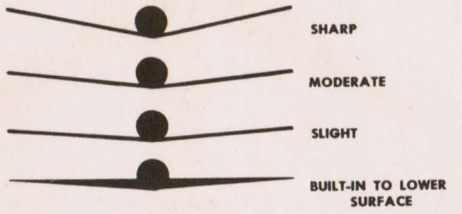
COMPARATIVE SIZE OF B-47

RECOGNITION FEATURES

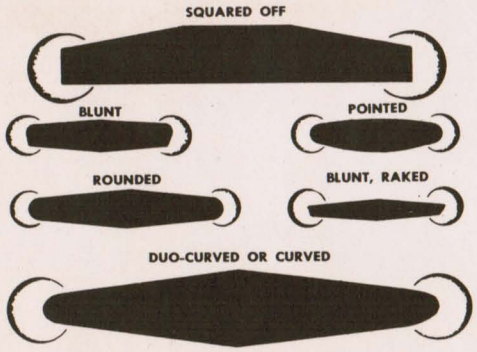
TYPES OF WING DIHEDRAL ANGLE



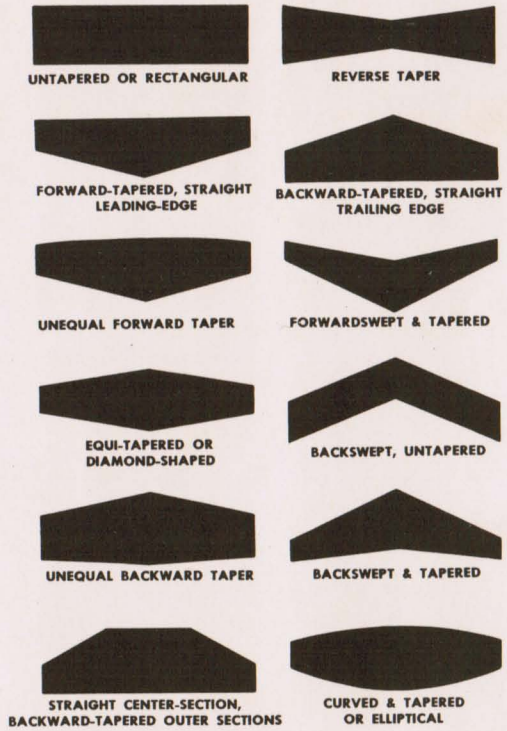
DEGREES OF WING DIHEDRAL ANGLE



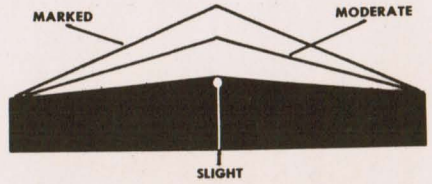
TYPES OF WING TIP



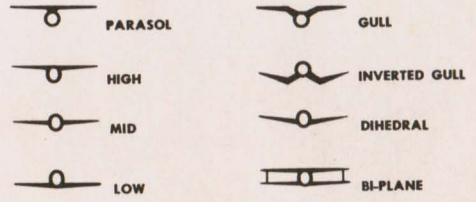
TYPES OF TAPER



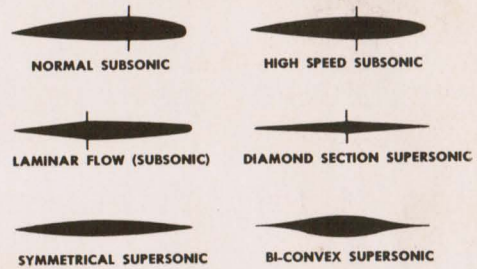
DEGREES OF TAPER



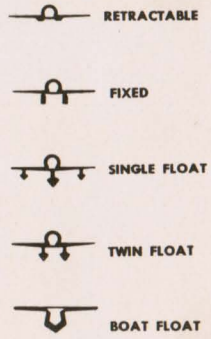
WING POSITIONS



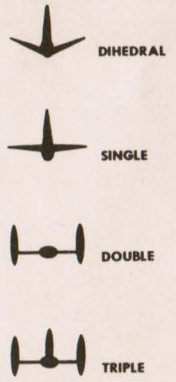
TYPICAL WING SECTIONS



UNDERCARRIAGE



TAIL



UNIVERSAL PRINTING CO., ST. LOUIS, MO., NOVEMBER 1951, 808,300