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WAR DEPARTMENT
FM 30–30

NAVY DEPARTMENT
BUAER 3

RECOGNITION
PICTORIAL MANUAL

UNCLASSIFIED

RESTRICTED

FLAGS USED IN THE INTERNATIONAL CODE

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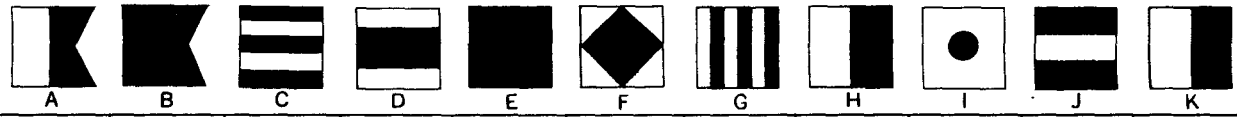

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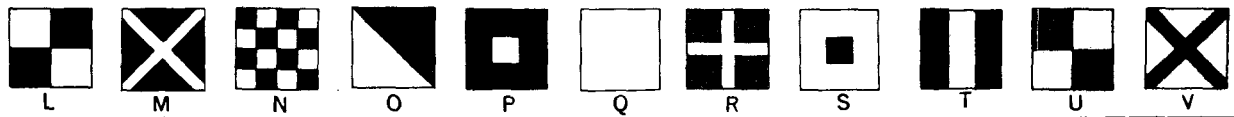

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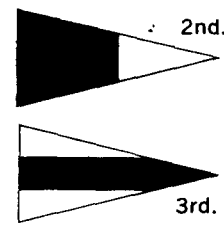

H. O. Misc. 10,702

U.S. ARMY MILITARY HISTORY INSTITUTE

WAR DEPARTMENT
Washington, April 1, 1943.

1. FM 30–30, Military Intelligence, Aircraft Recognition Pictorial Manual, is published for the information and guidance of all concerned.

2. This manual supersedes FM 30–30, February 21, 1942; FM 30–31, August 1, 1941; FM 30–34, July 18, 1941; FM 30–35, March 11, 1942; FM 30–38, March 16, 1942; and FM 30–39, October 24, 1941.

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By order of the Secretary of War:

G. C. MARSHALL,
Chief of Staff.

Official:

J. A. ULIO,
Major General,
The Adjutant General.

Distribution:

D(6); B(5); R(10); Bn(5); C(10). For explanation of symbols see FM 21–6

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TRAINING DIVISION • BUREAU OF AERONAUTICS
NAVY DEPARTMENT • WASHINGTON, D. C.
JUNE 1943

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THE FIRST REQUIREMENT in warfare is the ability to distinguish friend from foe. Nowhere is this more difficult than in the air. Owing to the great speeds and heights attained by modern aircraft, recognition is frequently dependent on a momentary glimpse. In the same way instant and accurate recognition of surface craft, mechanized ground equipment, etc., is fraught with great difficulties owing to varying conditions of visibility, distance, and variety of types.

Before the outbreak of this war few realized the grave problems of recognition that the increasing dominance of air power would present. The existence of these problems was soon apparent when, after two months, the casualties of the British Advanced Air Striking Force in France amounted to:—Shot down by the Germans, eight: Shot down by the French, nine. In those days the only question asked was, "Is it in range?" Since then mistakes in recognition, on the sea, on land, and in the air have been too numerous to mention. Usually these mistakes are attended by the most serious consequences.

It is now fully realized that the only way to prevent these occurrences is by demanding the highest general level of proficiency in recognition throughout the services. This can only be attained by concentrated study. It is not suggested that practice will make one absolutely perfect, but it will certainly go most of the way toward reducing the chances of a man being a danger not only to himself, but to his comrades-in-arms.

The Navy's problem at sea, whether on warship or merchant ship, is to know as soon as possible whether any aircraft or ship within sight is friendly or hostile, what type it is, and how it is likely to attack, and from that to estimate the best method of defence.

The Army's problems are also varied. Antiaircraft gunners should be able to recognize any airplane within range, or likely to come within range, whether flying directly toward the battery or not. Columns on the move may have to contend with the low-flying attack-bomber or the dive-bomber. Instant recognition saves lives and leads to the destruction of the enemy.

The Air Forces, both of the Army and the Navy, have even more problems to solve because the views from which crews may see the enemy are not confined to those from underneath. The fighter pilot may hope to dive on the enemy from above and behind, but to him the underneath view is important too. The tail gunner needs the head-on view. All must know their aircraft well. In a completely different category are the photographic interpreters who have to recognize the top-plan views of aircraft dispersed on airdromes or in ports. In the past, too little attention has been paid to this important silhouette. Likewise, the accurate recognition of mechanized ground equipment is of extreme importance.

The Ground Observer Corps has concentrated much attention on recognition. Again any aircraft within view, friendly or hostile, should be recognized quickly—even through a momentary gap in the clouds.

The first thing to be appreciated is that recognition does not begin and end with appearance. Certainly it is essential to distinquish between the appearance of friend and foe; *but this is seldom sufficient*. It is also essential to recognize the exact type. In the

case of aircraft, this recognition gives knowledge of the wing span, approximate speed, probable armament, and if hostile, a reasonable deduction as to future actions. The situation is similar to that of surface-craft, where recognition has a tactical value and gives an idea of what the enemy can do and how he may be dealt with, once recognized.

What enables a person accurately and speedily to recognize tanks, ships, planes, etc.? The process is no different from that of recognizing an automobile, a horse, a bird, or a friend. Let one ask himself the question, "When I see a friend walking down the street, do I look at every feature of him and having gone through a process of analysis, decide that it is Bill?" Obviously not. Recognition is instinctive. One knows immediately that it is "Bill" because one is *familiar* with his whole appearance and general characteristics, such as the way he stands or walks. It is not difficult to translate these characteristics into terms of airplanes, ships, etc. The combination of all these characteristics into the over-all effect of an object is known scientifically as the "total form" of that object. Now one can ask one more question. "Why did you get to know the "total form" of a friend or automobile, or horse?" The answer is, because you were interested in him or it. Therefore, the requirement for efficient recognition is familiarity based on a general knowledge of air or surface craft, or tanks, or other military equipment, a knowledge which will only be gained by an aroused interest and enthusiasm for them. If this is borne in mind, there will finally be an end to those famous last words, "I *think* they're ours."

NOTE:

"RECOGNITION" means VISUAL recognition.

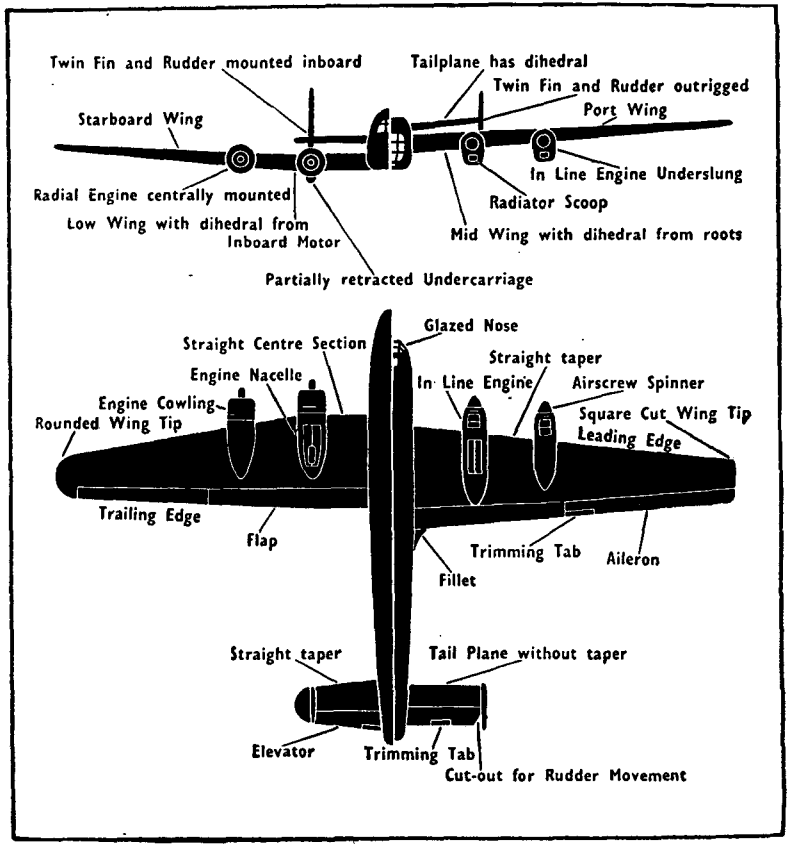
"IDENTIFICATION" means identification OTHER THAN VISUAL.

PICTORIAL MANUAL

The present manual is primarily designed for self-instruction and general use but will also serve as a text in recognition courses. It includes four types of material: black and white silhouettes; wash drawings; photographs; and editorial matter.

Silhouettes are the foundation stone on which all recognition training is based. They may seem dull and uninspiring but the fact remains that the "three-view" silhouette, giving the head-on, plan, and side-view shows every salient recognition feature of a ship or plane just as an architect's drawing of plan, section, and elevations gives the essentials of a building. They are basic diagrams and their value is evident from the accompanying example which shows how great is the contrast between the halves of two different airplanes and indicates in print the facts which an experienced observer can read directly from a silhouette. The wash drawings pick up where the silhouette diagrams leave off. By adding form and detail, they advance toward reality while still conveying accurate facts like engineering drawings. Both types of drawing should be studied for their over-all effect and not just for details. Photographs give the final step toward a realistic impression and show the aircraft, etc., from various angles. The editorial matter is intended to drive home the plane or ship by lending it interest and appeal; also such data are included as can be released.

The material in this manual has been assembled and edited jointly by Army and Navy aviation training divisions. Much valuable assistance has been contributed by the British, particularly in supplying silhouettes. The bulk of the material came from intelli-



gence and photographic sources in both Army and Navy. The data and dimensions are the most exact available. The Army and Navy can release only approximate performance figures for their own planes and ships but the dimensions given have been obtained from their respective design sections. For foreign models, the best available figures are given and, where reliable sources of information differ on dimensions, the more probable figure is given and the less probable one follows it in parenthesis. It is suggested that when figures are definitely confirmed, the necessary corrections be made by the individual holding this book. The manual will be constantly enlarged and amended.

MOTION PICTURES

An ideal form of training would naturally be to see actual aircraft, ships, etc., as often as required until one was entirely familiar with them in all positions and under every condition of visibility. This is clearly impracticable; therefore the training medium which reproduces this ideal with the greatest realism is the moving picture. There are, at present, three types of training film available. The first is introductory and is intended for presentation in the primary stages of training. Its object is to serve as a glossary of terms explaining to the beginner the meaning of such words and phrases as "dihedral", "taper", "underslung", etc. The second kind of film is that dealing with the recognition of individual types of aircraft, ships, etc. This class of film is planned on the principle that it is of basic importance to have detailed knowledge. Flying or action shots are combined with close-up stills, diagrams, and animated drawings, all joining with the commentary to give the visual directive to the human eye which is so essential. This series may be used effectively, provided detailed analysis is not accepted as a final solution to the problem. An airplane, for example, cannot be learned just by memorizing its wings, engines, fuselage, and tail, separately and without regard to the "total form" effect they join to produce; for in recognition the whole is more than the sum of its parts. The third class of film is well represented by the "Quizcraft" Series. This class comprises actual flying shots of various aircraft and is designed for use at a more advanced stage of training. It is not suggested that these films present a serious recognition problem to a man with any degree of training. The primary object is to give the student the opportunity to see aircraft in conditions as nearly as possible approaching reality. Emphasis, therefore, is placed upon distant shots under all conditions of visibility. The "test" element is secondary and only introduced to maintain interest. Training films and film strips are listed in FM 21-7 and in the Catalog of U. S. Navy Training films.

FILM SLIDES AND FILM STRIPS

Film slides and film strips are another means of presenting silhouettes, wash-drawings, and still photographs. By reducing progressively the time of exposing them, it is possible to develop speed in recognition. Time intervals as short as one-fifth second can be obtained with an improvised shutter consisting of a piece of cardboard with a hole in it which is allowed to drop across the projector lens.

FLASH METER TRAINING

This is a development in the method of projecting film slides perfected for use by the U. S. Navy. It has also been adopted, with certain modifications, by the U. S. Army Air Forces. Equipment is used which consists of a slide projector with a flash meter (like a camera shutter). The slides are flashed on the screen at progressively faster speeds up to 1/100th second. At such speeds, the student is forced to recognize an object from its "total form" because there is no time for the eye to scan its parts. The importance of this approach has already been mentioned. This develops a "skill of seeing" and holds the student's attention like a game of skill. For fullest application, a properly trained instructor is necessary.

MODELS AND POSTERS

Sets of scale models of aircraft and surface craft are obtainable in accordance with existing regulations and policies. These models are highly accurate and carefully constructed to scale. Suspending airplane models in various flying attitudes or setting out ship models in formation is all very well as far as it goes, but even more important is it that they should be available to students for examination. They may satisfy themselves, the models being accurate, that certain features do exist which may well have been missed when seeing representations of the aircraft or ship on former occasions. The scale model is eminently suitable as it can be made to adopt any position, whereas the views presented by slides, photographs, and silhouettes are necessarily limited.

Posters are valuable for teaching classes if no projector is available. Posted conspicuously, they constantly refresh the memory.

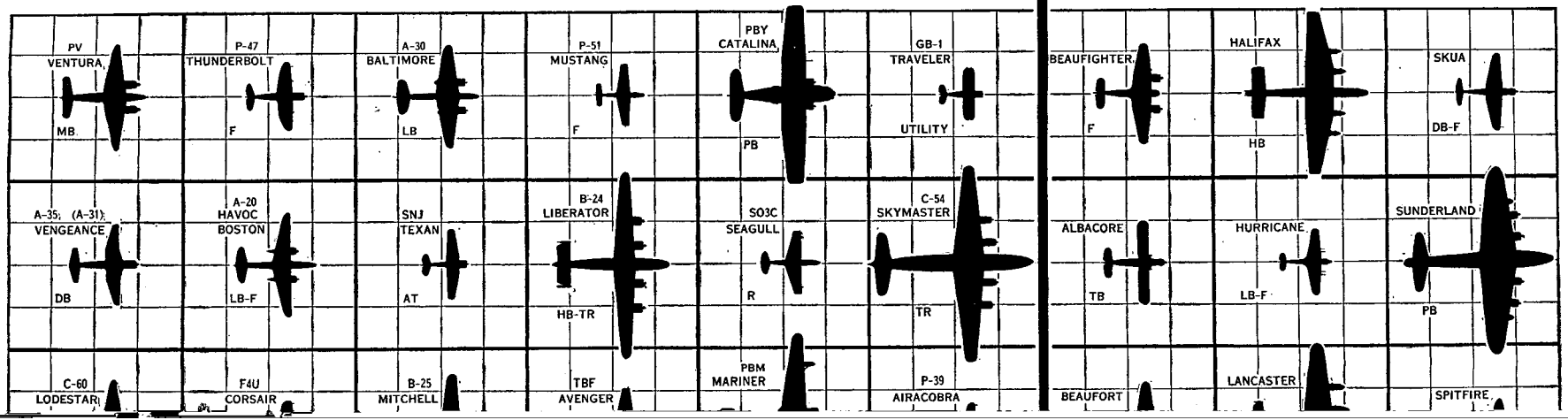
TEACHING RECOGNITION

The above training aids can best be utilized for teaching recognition if training progresses as follows. FIRST, the student is taught the important items of nomenclature using the glossary in this manual, supplemented by the introductory training films and film strips. SECOND, individual planes, ships, etc., are presented, with emphasis on their silhouette, engineering form, photographic appearance, and interest appeal. In addition to this manual, large posters of silhouettes or wash-drawings may be used. Silhouettes, wash-drawings, or photographs can also be projected on screens using delineoscopes or film slides or strips. THIRD, the student's attention must thereafter be directed to recognizing the "total form" of the object. For this purpose, motion pictures (on individual airplanes, ships, etc.) and models can be utilized to good advantage. Film slides and film strips projected for progressively decreasing periods of time are the best means of presenting "total form" and *should be utilized to the maximum extent to which these aids are available.* FINALLY, the aircraft, etc., are observed under the most realistic conditions possible, as in the "Quizcraft" series of motion pictures. Where necessary the ingenious recognition instructor should improvise his own aids and equipment. Cases are reported where an opaque projector (i. e. reflectoscope) was concocted from a box, bulbs, old lenses, cardboard tube, etc. In this, as in any other enterprise of war, improvisation will often be the rule and not the exception.

In conclusion, PRACTICAL RESULTS ARE THE FINAL TEST AND A STUDENT MUST TRY HIS SKILL ON EVERY ACTUAL SHIP OR PLANE HE SEES AND ON EVERY PICTURE OF ONE IN A MAGAZINE OR NEWSPAPER.

FRIEND

U.S.A. U.K.



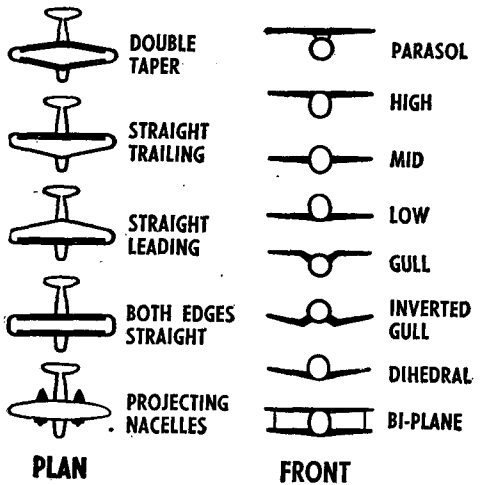
SHAFT—The part connected to the power plant which drives the propeller or rotor (of a helicopter).
SKID FIN—A fore and aft vertical surface, usually attached to the top of the wing to increase lateral stability.
SLAT—A movable auxiliary airfoil, attached to the leading edge of a wing, which when closed falls within the original contour of the main wing and which when opened forms a slot.
SLOT—The space between the "slat" and wing designed to improve the flow conditions of an airfoil.
SLOTTED AILERON—An aileron having an air passage between the nose of the aileron and the wing.
SPAN—The maximum distance from tip to tip of an airfoil.
"SPAT"—An aerodynamically designed housing to cover a nonretractable wheel.
SPINNER—A fairing of approximately conical or paraboloidal shape, which is fitted coaxially with the propeller hub and revolves with the propeller.
SPOILER—A small plate arranged to project above the upper surface of a wing to disturb the smooth air flow, with consequent loss of lift and increase of drag.
SPONSON—A protuberance from a seaplane hull designed to increase the beam or give lateral stability at rest.
SPRAY STRIP—A strip projecting from the hull of a seaplane to change the manner in which the spray is thrown.
STABILIZER—Any airfoil whose primary function is to increase the stability of an aircraft. It usually refers to the fixed horizontal tail surface of an airplane, as distinguished from the fixed vertical surface.
STABILIZER, STUB-WING—A projection from the side of the central hull of a flying boat intended to increase the buoyancy and stability of a flying boat while the boat is at rest and to increase the hydrodynamic lift during the take-off. It is an integral part of the hull, and usually takes the form of a stumpy airfoil or a stub wing.
STEP—A break in the form of the bottom of a float or hull.
STRUT—A member of a truss frame.
OLEO STRUT—A shock absorbing telescoping strut in which an oleo gear is used.
SWEEPBACK—Term applied to a wing whose leading and trailing edges are further aft at the tips than at the center.
TAB—An auxiliary airfoil attached to a control surface for the purpose of reducing the control force or trimming the aircraft.
TAIL—The after part of an airplane consisting of stabilizers, elevators, fin, and rudder.
TAIL BOOM—A spar or outrigger connecting the tail surfaces and the main supporting surfaces.
TAIL SKID—A skid for supporting the tail of an airplane on the ground.
TAIL WHEEL—A wheel for supporting the tail of an airplane on the ground.
TAPER—A gradual diminishing of the chord length or chord thickness of an airfoil.
TIP—The outermost part of an airfoil or propeller.
TURRET—A transparent movable enclosure housing armament. It may be free or power-driven. It may also be retractable.
UNDERCARRIAGE—See landing gear.
VENTRAL—The lowermost part of a fuselage.
WING—Main supporting surface or airfoil of an airplane. It can have many plan shapes, the most usual of which are:

(a) STRAIGHT—When leading and trailing edges are straight, parallel, and at right angles to the direction of flight.
(b) TAPERED—When leading and/or trailing edges are not at right angles to the direction of flight, so that wing diminishes in chord length toward the tip.
(c) ELLIPTICAL—When leading and trailing edges are elliptical in general shape.
(d) CURVED—When leading and/or trailing edge is rounded.
(e) SWEPTBACK—When the general wing shape sweeps aft toward the tips.
(f) SWEPTFORWARD—When the general wing shape sweeps forward toward the tips.

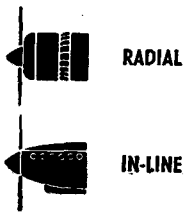
Wings are also classified by their front view shape:

a. *Horizontal*—When the wing axis forms a horizontal line.
b. *Dihedral*—When the wing axis slopes up or down from the horizontal.
c. *Gull*—When the inner panel has positive dihedral and the remainder of the wing to the tip is horizontal or has less positive dihedral.
d. *Inverted gull*—When the reverse is true, i. e., inner panel has negative dihedral and outer panel is horizontal or has positive dihedral.

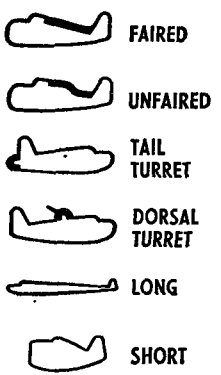
WING



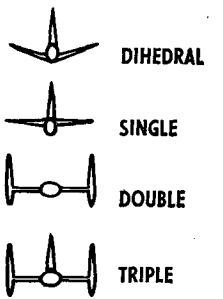
ENGINE



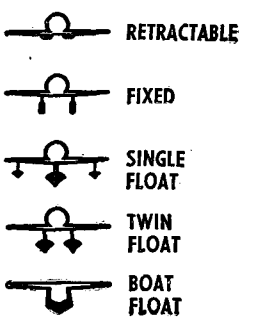
FUSELAGE



TAIL



UNDERCARRIAGE



The drawings on this page are symbolic only. They represent the main characteristics found in aircraft.

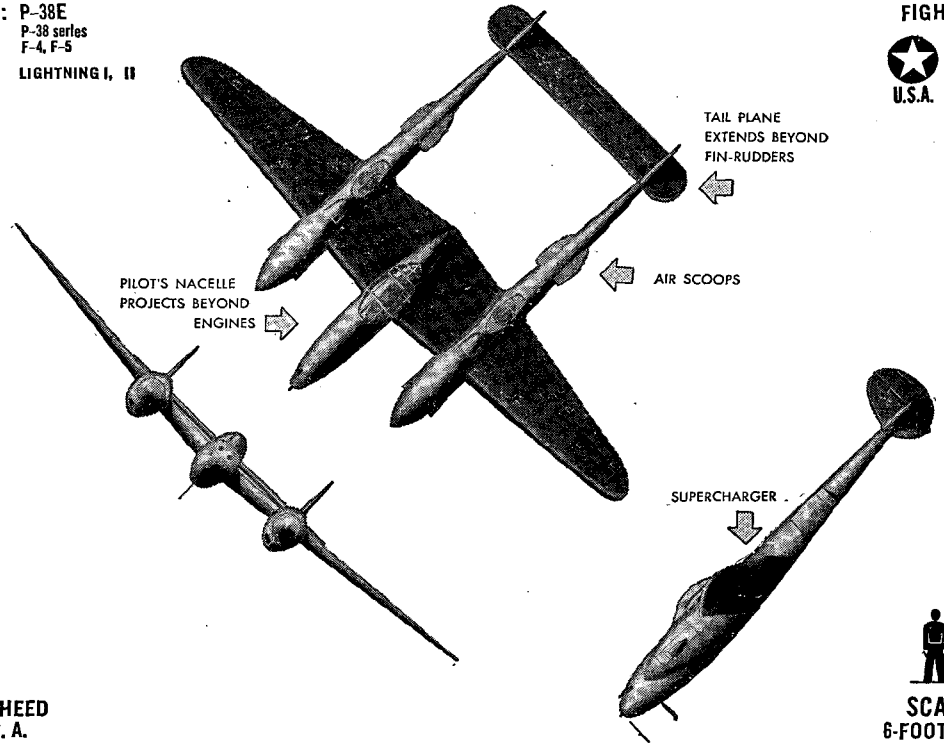
P-38 "LIGHTNING"

ARMY: P-38E
P-38 series
F-4, F-5

R. A. F.: LIGHTNING I, II

FIGHTER

U.S.A. U.K.

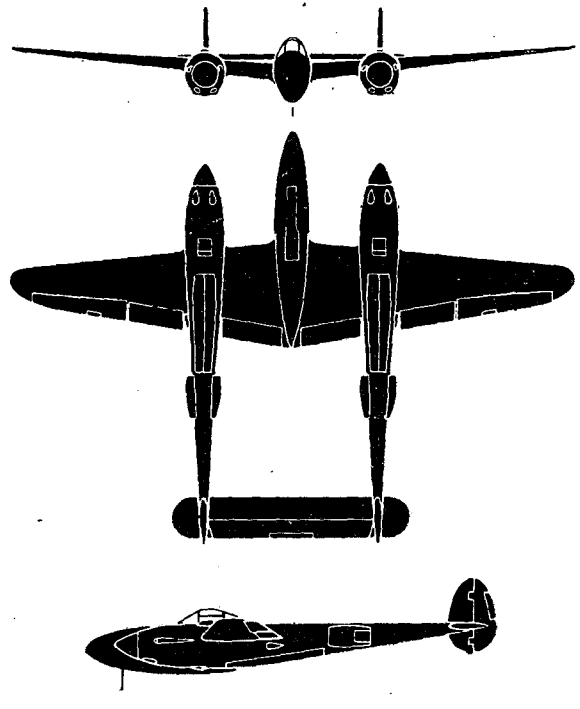


LOCKHEED
U. S. A.

SCALE
6-FOOT MAN

DISTINGUISHING FEATURES: Twin-engine, mid-wing monoplane. Pilot's central nacelle projects well forward to rounded nose. Sharper taper on trailing edge of wings. Full dihedral from the roots. In-line engines mounted in nacelles at forward ends of twin tail booms extending from motors to stabilizer. Air scoops for radiators fitted on sides of booms halfway back. Stabilizer is long and rectangular with rounded tips extending outboard of the booms. Twin fins and rudders are egg-shaped.

INTEREST: In addition to speed, range, and excellent high altitude performance, versatility is an outstanding characteristic of this aircraft. In the Aleutians, in the South Pacific, in Europe and in North Africa, it has been in use both as a low and high altitude fighter and as a photographic reconnaissance aircraft (in latter case, designated as F-4 and F-5). The fact that its propellers rotate in opposite directions, thus balancing torque, enhances maneuverability of the P-38. With its twin tail booms, the Lightning is one of the easiest aircraft to recognize.



SPAN: 52 ft.
LENGTH: 37 ft. 10 in.
APPROX. MAX. SPEED: over 400 m. p. h.

SERVICE CEILING:
over 30,000 ft.

APRIL 1943
FROM DATA CURRENTLY AVAILABLE

WAR DEPARTMENT FM 30-30
NAVY DEPARTMENT BUAER 3

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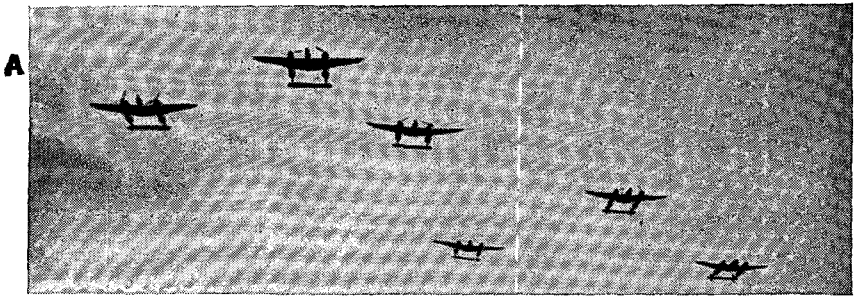

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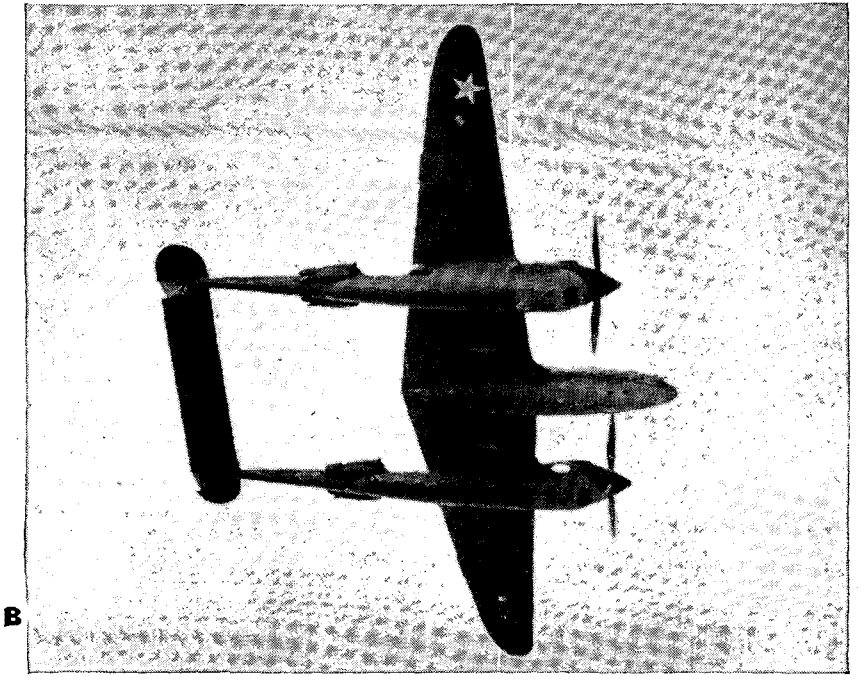

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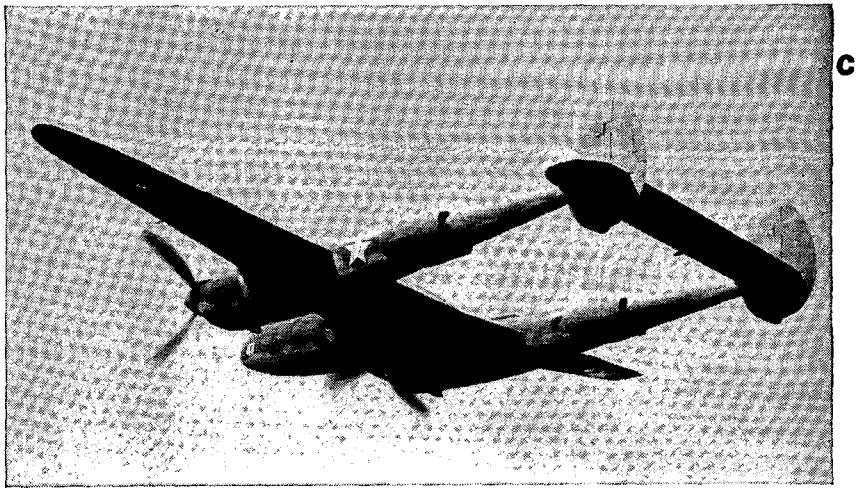

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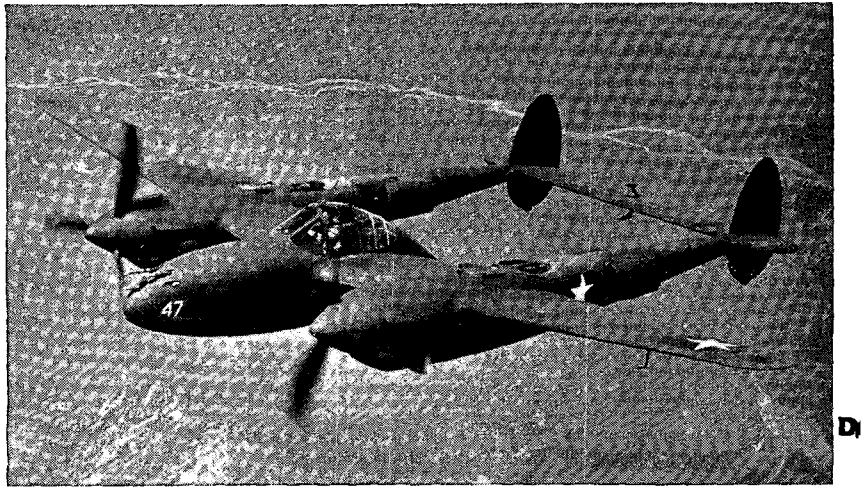
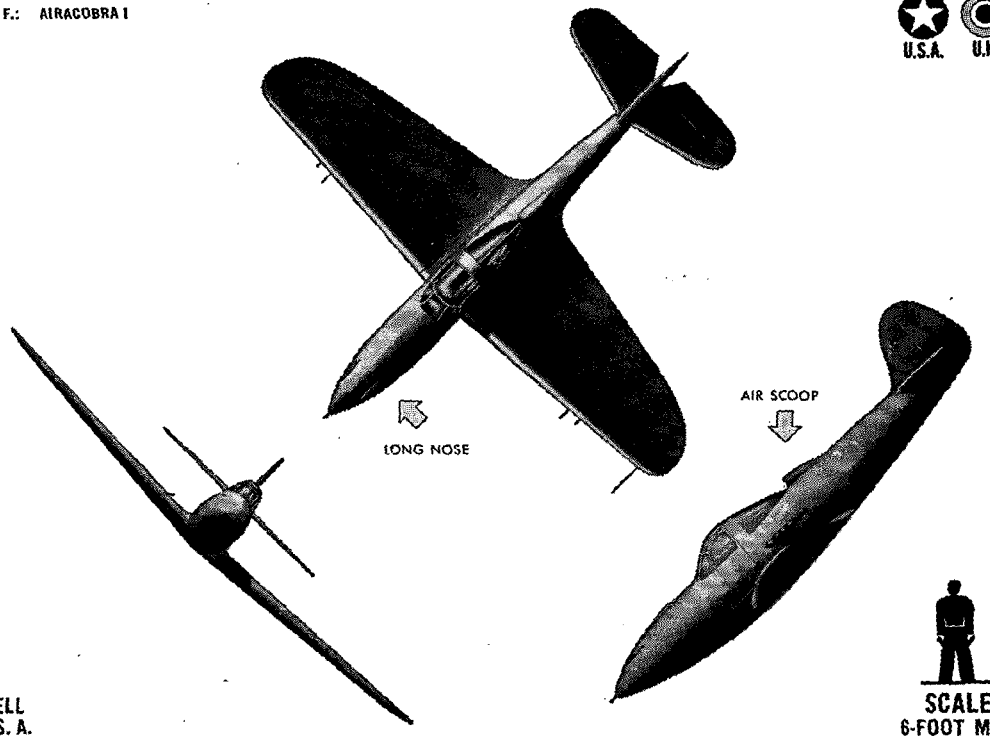


ARMY: P-39E
P-39 series
R. A. F.: AIRACOBRA I

FIGHTER

U.S.A. U.K.



BELL
U. S. A.

SCALE
6-FOOT MAN

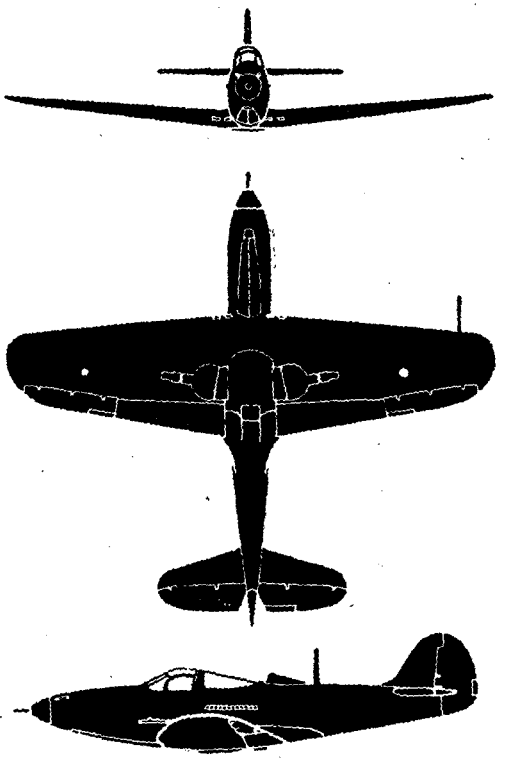
DISTINGUISHING FEATURES: Low-wing monoplane with dihedral from wing roots. Wing is set midship. Slight taper on leading edge and sharper taper on trailing edge. Long thin nose covering cannon which fires through spinner. Airscoop is directly behind pilot. Long slim fuselage. Small fin and rudder with tapered leading edge and rounded trailing edge. Entire fuselage is curved giving plane a graceful rocker effect.

INTEREST: This aircraft, rated among the most graceful airplanes in the air today, often mounts a 37-mm cannon, the heaviest carried by any aircraft of similar type. The P-39 has been used effectively for ground strafing, and as a low altitude fighter. Heavy defensive armor protects the pilot against ground fire when operating at low altitudes. The engine is placed amidship in the fuselage behind the pilot's cockpit, the propeller being driven by a 10-foot shaft.

APRIL 1943
FROM DATA CURRENTLY AVAILABLE

WAR DEPARTMENT FM 30-30
NAVY DEPARTMENT BUAER 3

P-39 "AIRACOBRA"



SPAN: 34 ft.
LENGTH: 30 ft. 2 in.
APPROX. MAX. SPEED: over 360 m. p. h.

SERVICE CEILING: over 30,000 ft.

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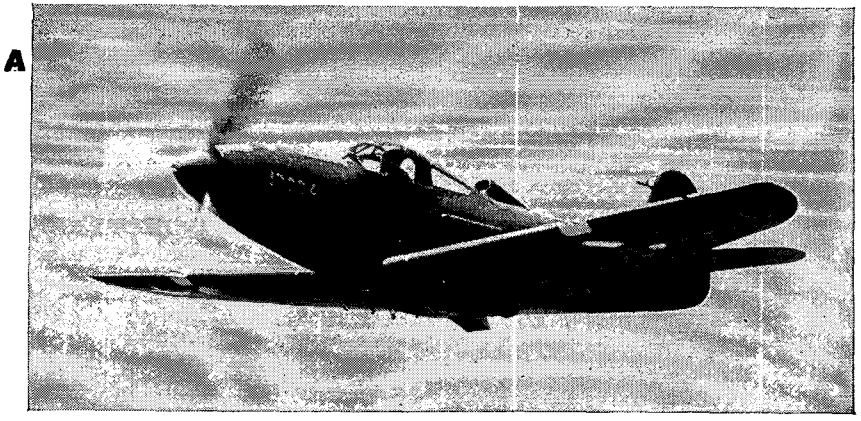
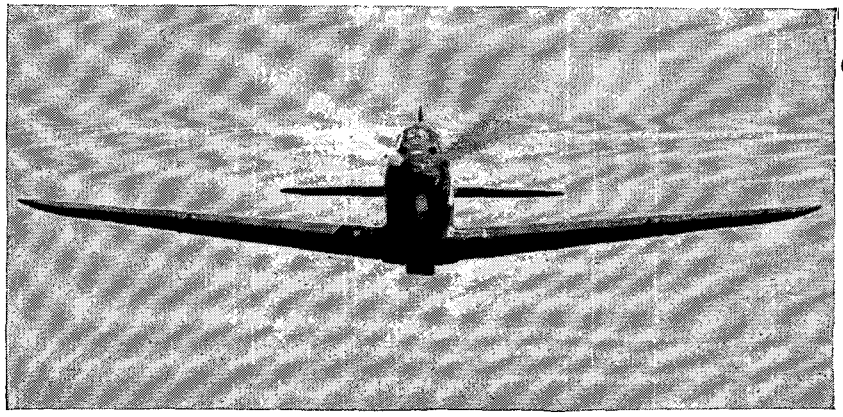
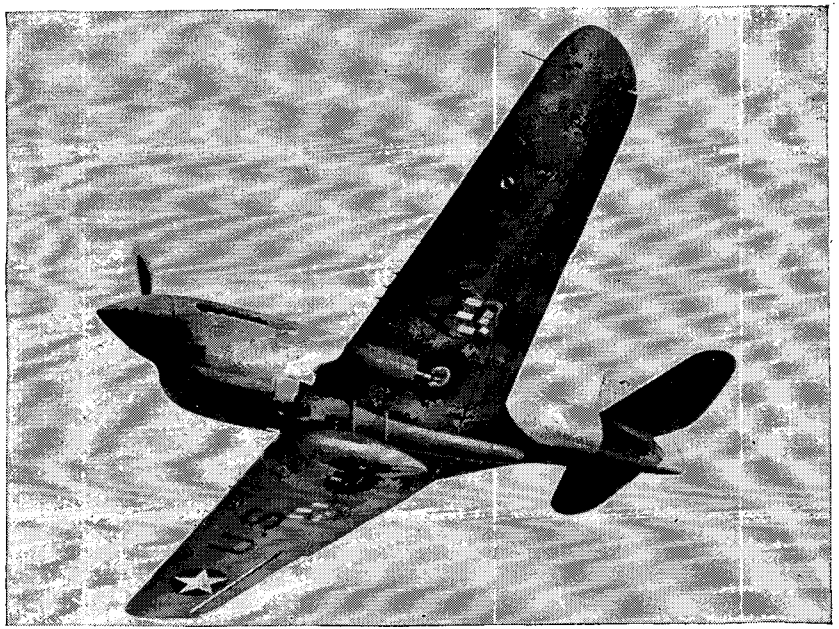




C

A



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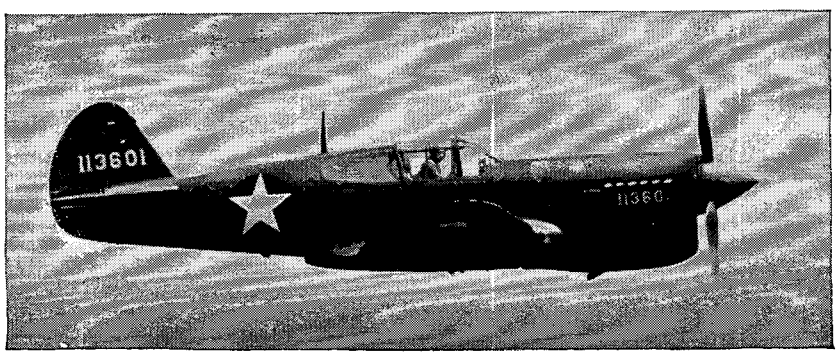

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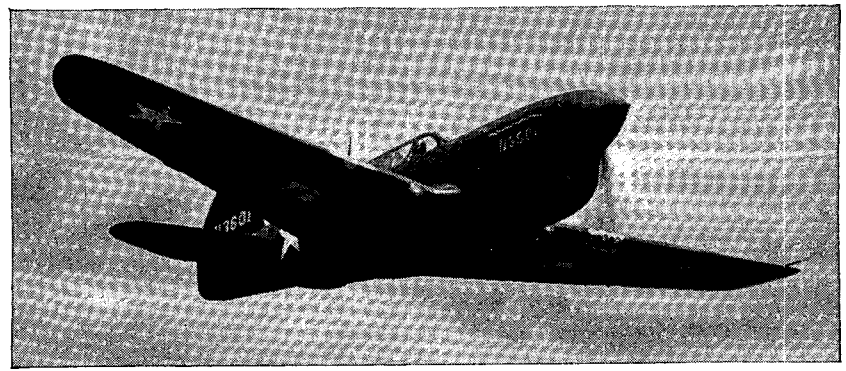

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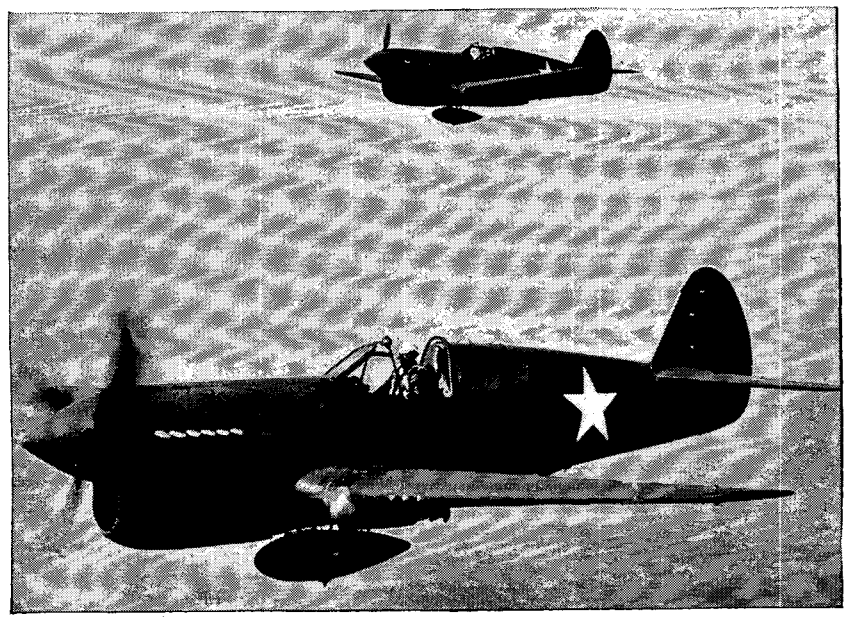
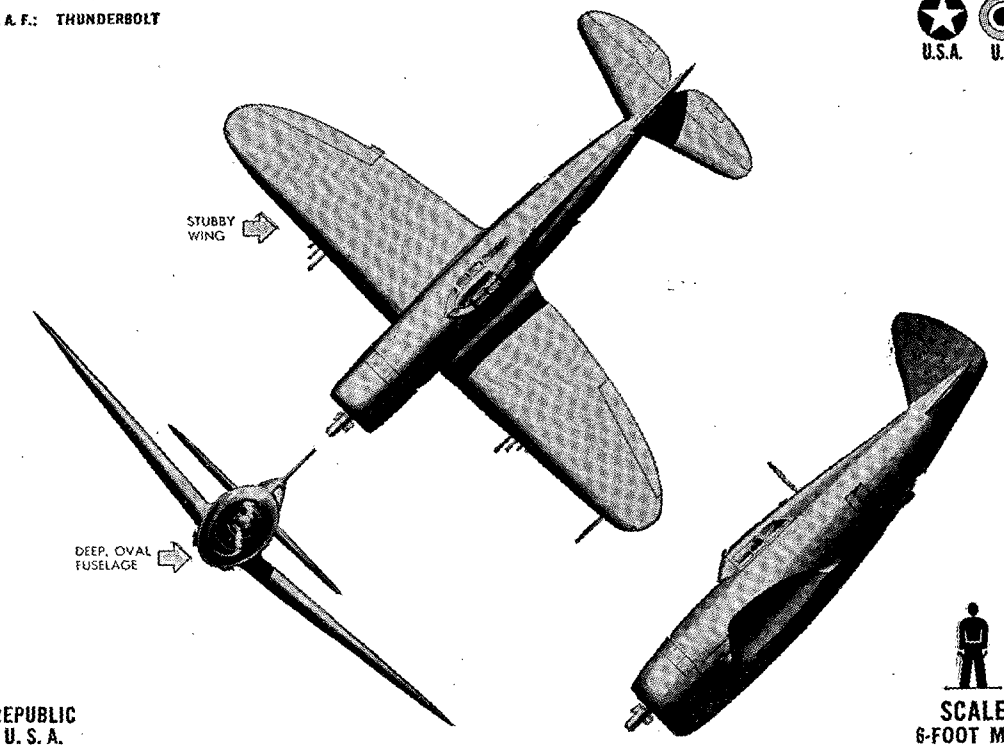


ARMY: P-47D
P-47 series
R. A. F.: THUNDERBOLT

FIGHTER
U.S.A. U.K.



REPUBLIC
U. S. A.

SCALE
6-FOOT MAN

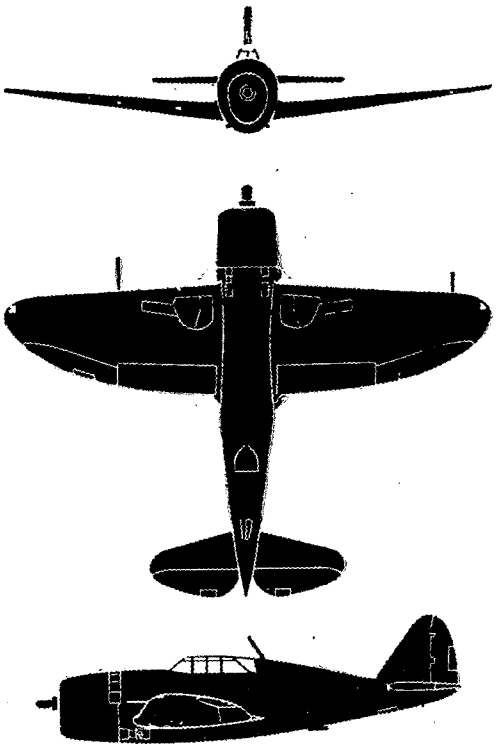
DISTINGUISHING FEATURES: Low mid-wing monoplane with single radial engine. Wing has slightly tapered edge and semi-elliptical trailing edge. Wings have full dihedral from roots. Engine cowl is oval-shaped with propeller hub set above center. Fuselage has thick heavy appearance with sharp ridge down sloping back. Single fin and rudder with pronounced taper on leading edge and curved trailing edge.

INTEREST: The P-47 is one of the largest and fastest single engine fighters yet built. Its weight of over 5 tons, with nearly a ton of guns and ammunition, is greater than that of many commercial transports of a few years ago. Designed in 1941, this was the highest horsepower single engine fighter yet produced for the Army Air Forces. Use of a four-blade propeller reduces the size of the propeller arc, while still coping with the engine's great power output. This aircraft was designed for fighting at high altitudes.

APRIL 1943
FROM DATA CURRENTLY AVAILABLE

WAR DEPARTMENT FM 30-33
NAVY DEPARTMENT BUAER 0

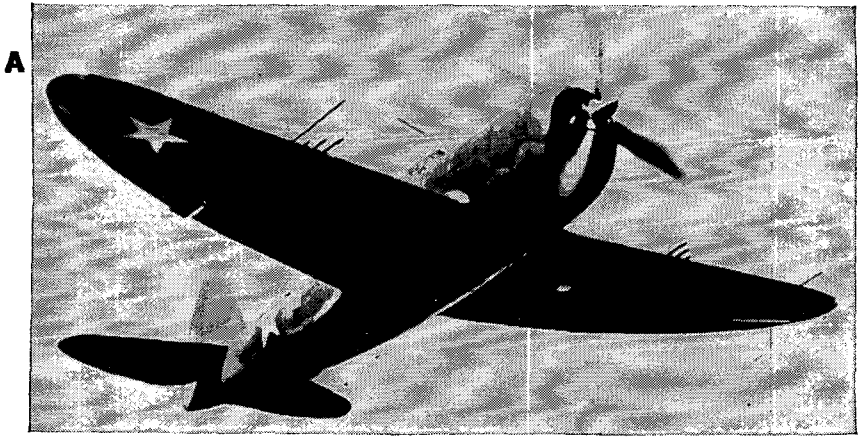
P-47 "THUNDERBOLT"



SPAN: 40 ft. 10 in.
LENGTH: 35 ft. 4 in.
APPROX. MAX. SPEED: over 390 m. p. h.
SERVICE CEILING: over 38,000 ft.

RESTRICTED

A



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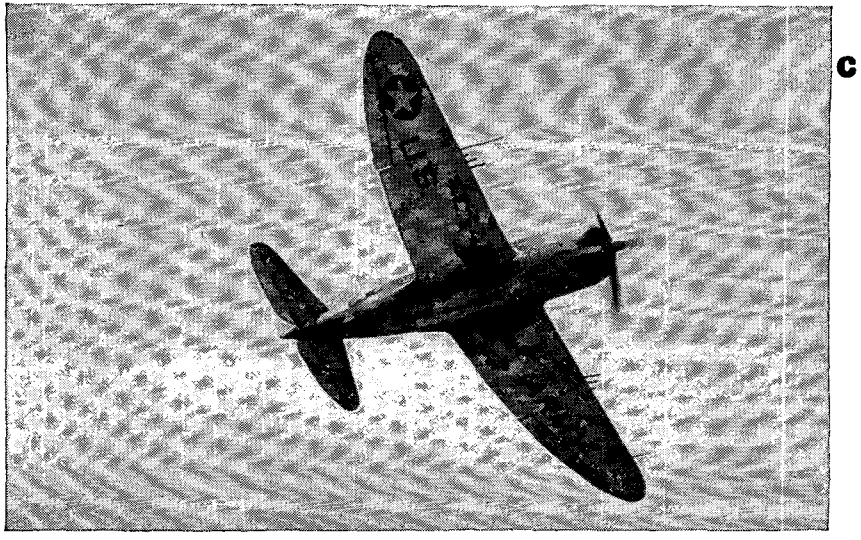

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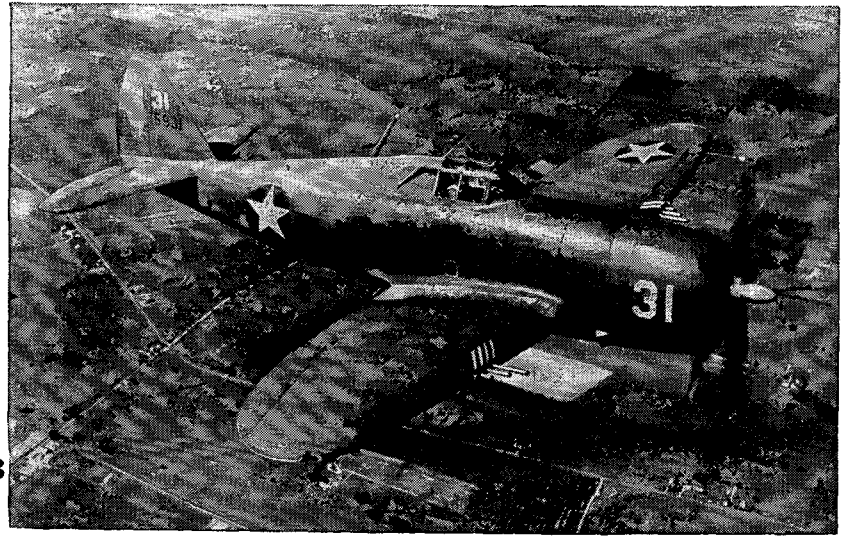

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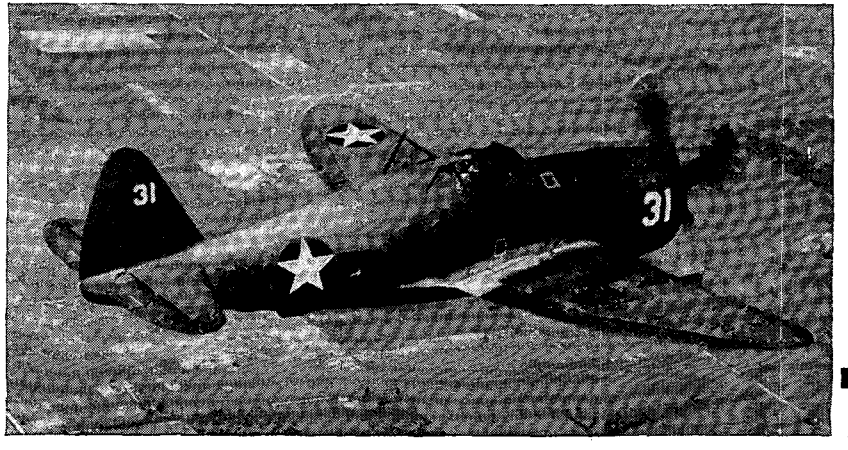
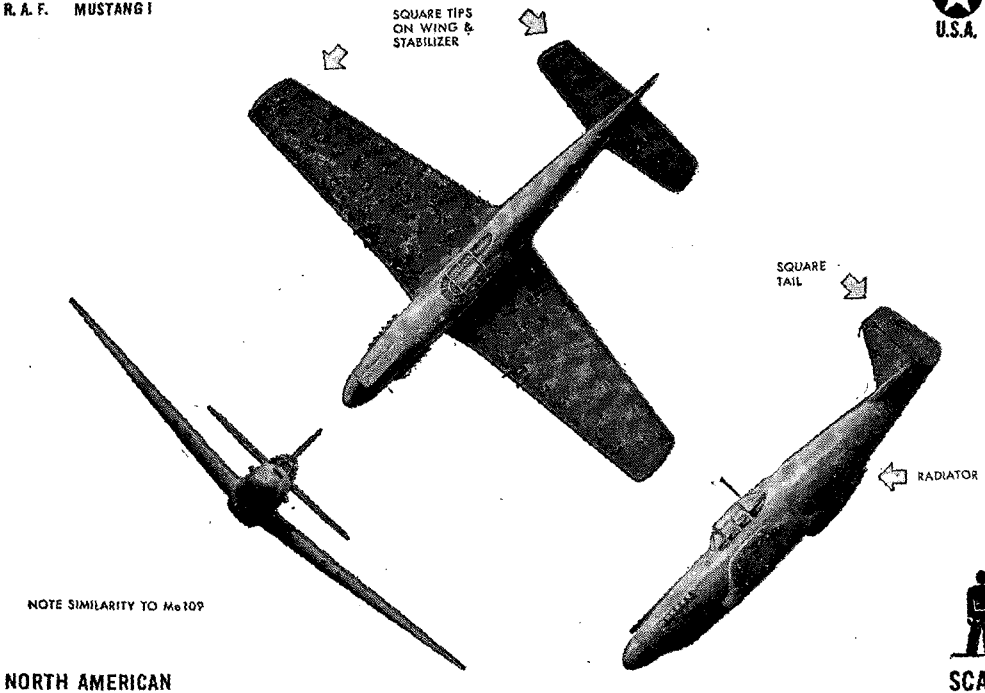


ARMY: P-51
P-51 series
A-36

R. A. F. MUSTANG I

FIGHTER

U.S.A. U.K.



SCALE
6-FOOT MAN

NORTH AMERICAN
U. S. A.

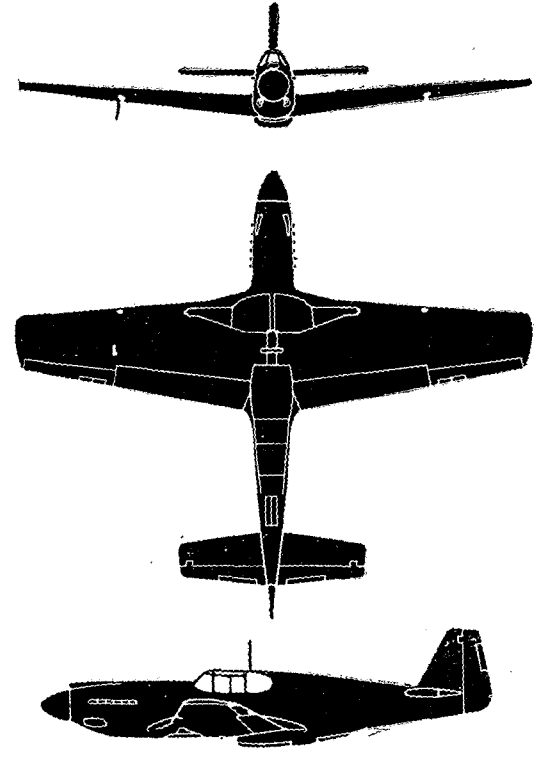
DISTINGUISHING FEATURES: Single in-line engine low-wing monoplane with long pointed nose. Wings have full dihedral and are tapered to nearly square tips. Long radiator mounted under fuselage extends aft of cockpit enclosure. Single fin and rudder is tall with a square top.

INTEREST: The Mustang was developed quietly and attracted little public notice until used by the British during the dramatic Commando raid on Dieppe. Although this aircraft has been used on fighter sweeps over Europe, a large part of its job in the war may prove to be that of strafing and reconnaissance. In this capacity it is joining the Tomahawk (P-40) and the Lysander in British Army cooperation squadrons. An outstanding virtue of this aircraft is its speed near the ground. A bomber version fitted with dive brakes, the A-36, is now in service for ground-air support.

APRIL 1943
FROM DATA CURRENTLY AVAILABLE

WAR DEPARTMENT FM 30-30
NAVY DEPARTMENT BUAER 3

P-51 "MUSTANG"

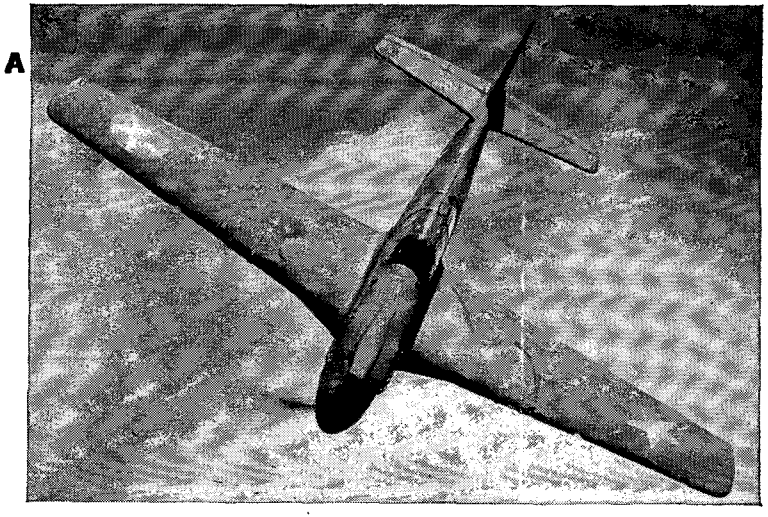


SPAN: 37 ft.
LENGTH: 32 ft. 3 in.
APPROX. MAX. SPEED: 390 m. p. h.

SERVICE CEILING:
over 30,000 ft.

~~RESTRICTED~~

A



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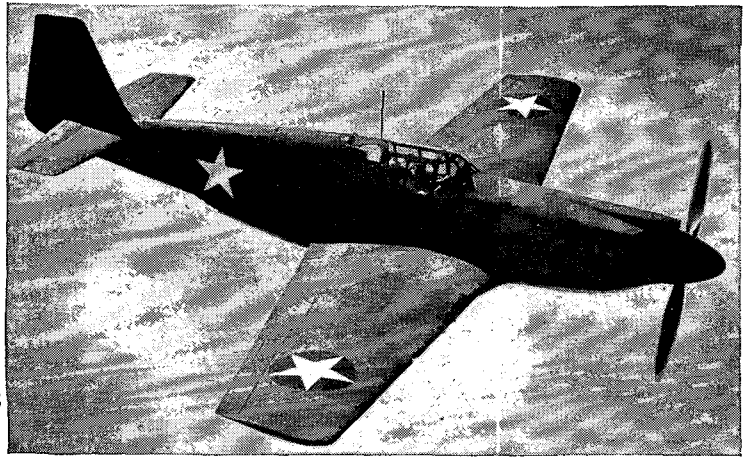

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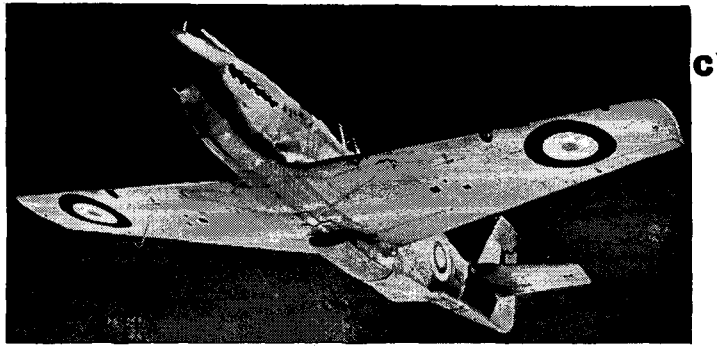

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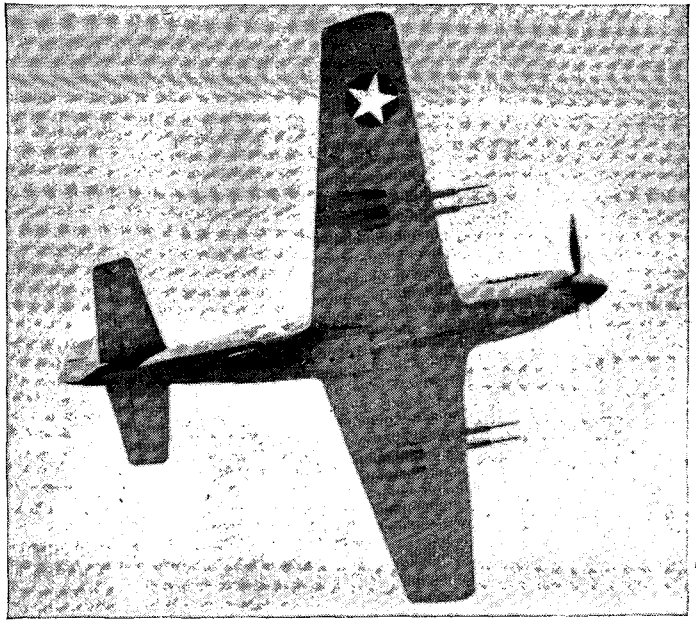
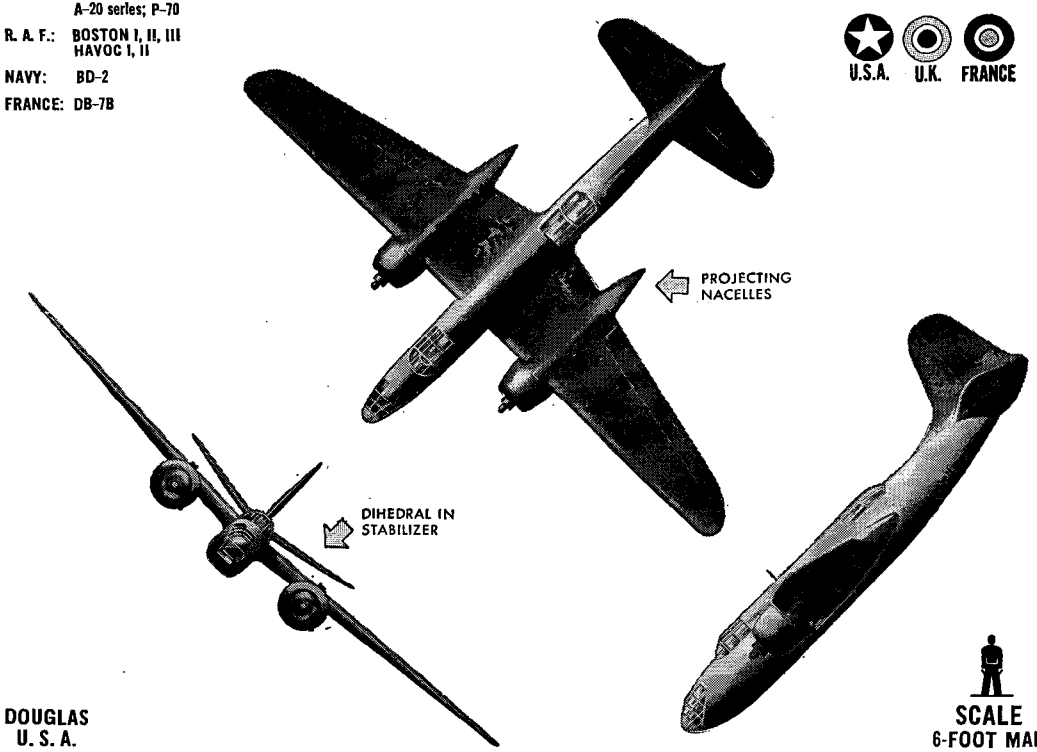


A-20 "HAVOC" OR "BOSTON"

ARMY: A-20A
A-20 series; P-70
R. A. F.: BOSTON I, II, III
HAVOC I, II
NAVY: BD-2
FRANCE: DB-7B

LIGHT BOMBER—FIGHTER

U.S.A. U.K. FRANCE

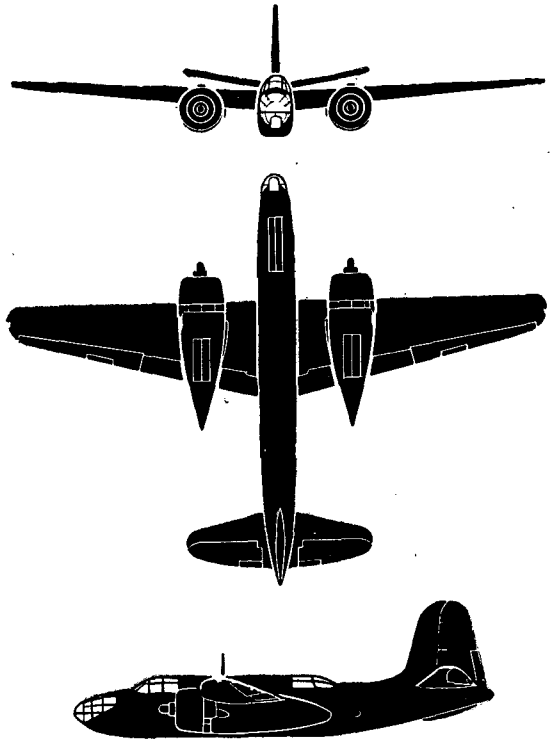


DOUGLAS
U. S. A.

SCALE
6-FOOT MAN

DISTINGUISHING FEATURES: Shoulder wing monoplane with long thin transparent nose. Wing has straight leading edge and pronounced taper to trailing edge. Twin radial engines are underslung with nacelles extending well beyond the trailing edge of wing. Fuselage has a graceful attitude due to the turned up after section. Tall single fin and rudder.

INTEREST: This aircraft is unquestionably one of the best in its class. Designed as a fast day bomber, this plane is also used as a fighter. The night figher version with solid nose is known as the P-70, while the British know the A-20 as the "Boston" when used as a bomber and as the "Havoc" when used for ground attack. The U. S. Navy designation is BD. The A-20 is much used in large scale daylight fighter and bomber sweeps over France and in North Africa. Because of its high performance, striking power and maneuverability, losses have been relatively small.



SPAN: 61 ft. 4 in.
LENGTH: 48 ft.
APPROX. SPEED: 340 m. p. h.

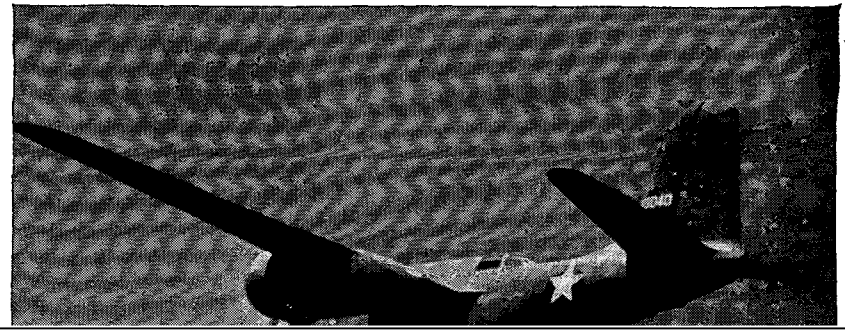
SERVICE CEILING:
over 24,000 ft.

~~RESTRICTED~~

APRIL 1943
FROM DATA CURRENTLY AVAILABLE

WAR DEPARTMENT FM 30-30
NAVY DEPARTMENT BUAER 33

A

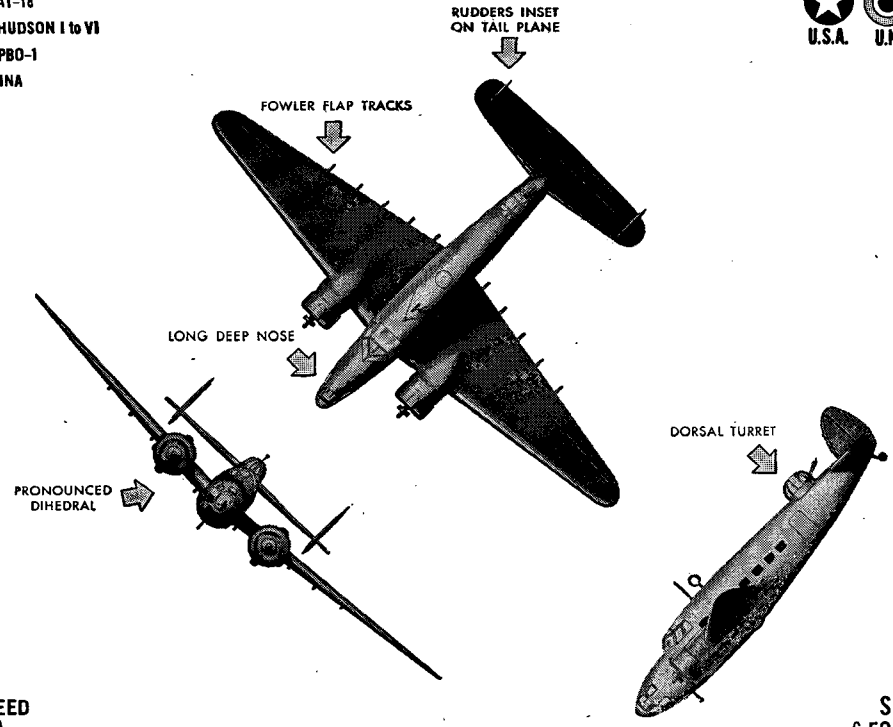


C

ARMY: A-29
A-29, A; A-28, A
AT-18
R. A. F.: HUDSON I to VI
NAVY: PBO-1
N. E. I., CHINA

LIGHT BOMBER

U.S.A. U.K. CHINA



LOCKHEED
U. S. A.

SCALE
6-FOOT MAN

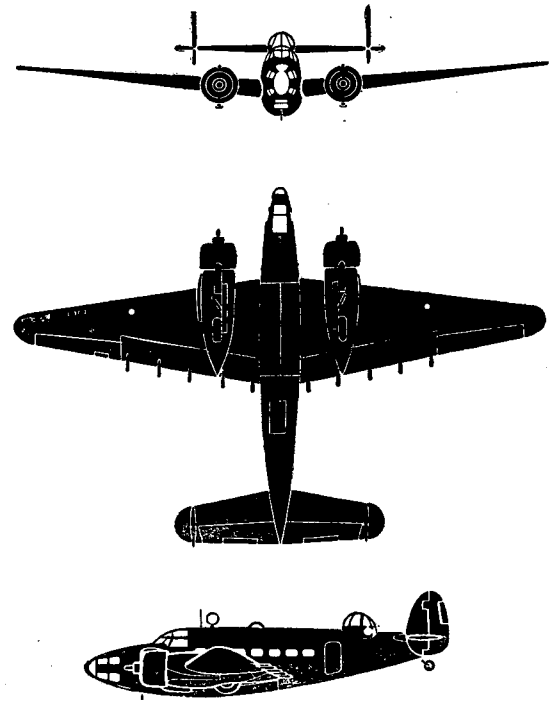
DISTINGUISHING FEATURES: Two-engine mid-wing monoplane. Wings taper equally to sharp rounded tips and have full dihedral. Fowler flap guides project beyond trailing edge of wing. Fuselage is short and deep with pointed transparent nose. Large dorsal turret well aft. Oval twin fins and rudders set inboard.

INTEREST: The British have called this aircraft the "Old Boomerang" because it "always comes back." It was the first American-built type to be flown across the Atlantic to England by Ferry Command pilots. The prototype which first flew in 1939 was developed from a Lockheed commercial transport. Considered by the British to be one of the air achievements of the war, the Hudson is now sharing service with the newer and larger "Ventura."

APRIL 1943
FROM DATA CURRENTLY AVAILABLE

WAR DEPARTMENT FM 30-30
NAVY DEPARTMENT BUAER 3

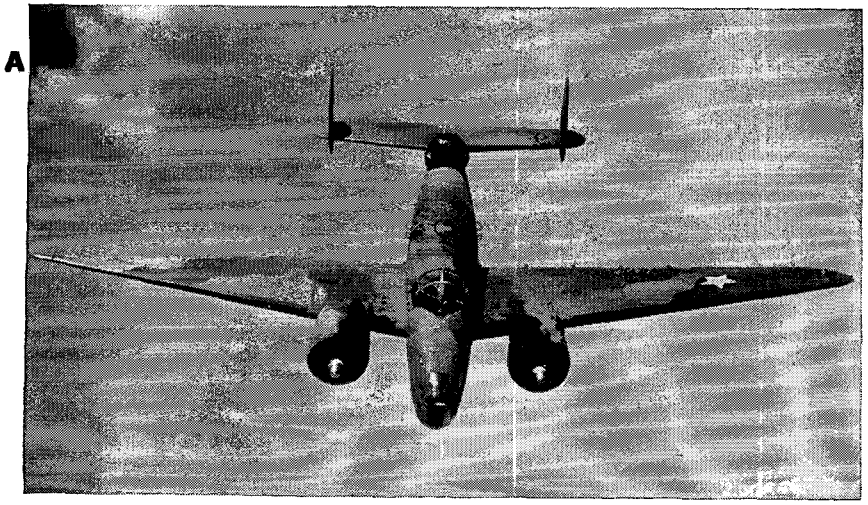
A-29 "HUDSON"



SPAN: 65 ft. 6 in.
LENGTH: 44 ft. 3 in.
APPROX. MAX. SPEED: 265 m. p. h.

SERVICE CEILING:
over 25,000 ft.

A



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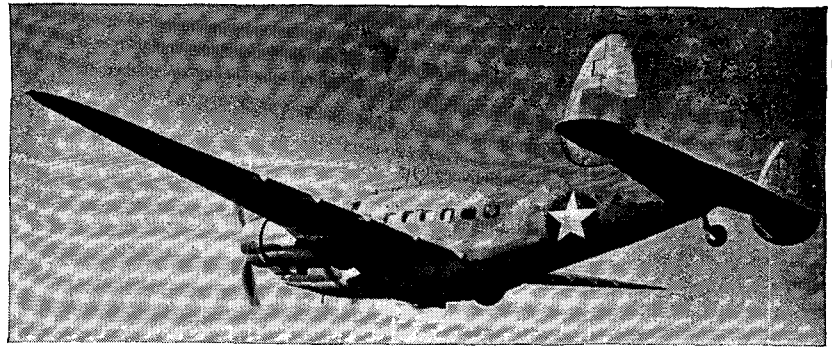

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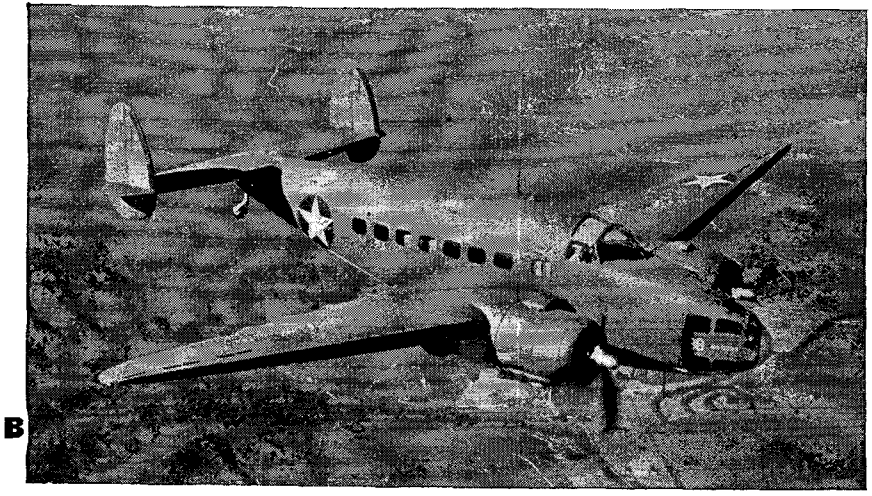

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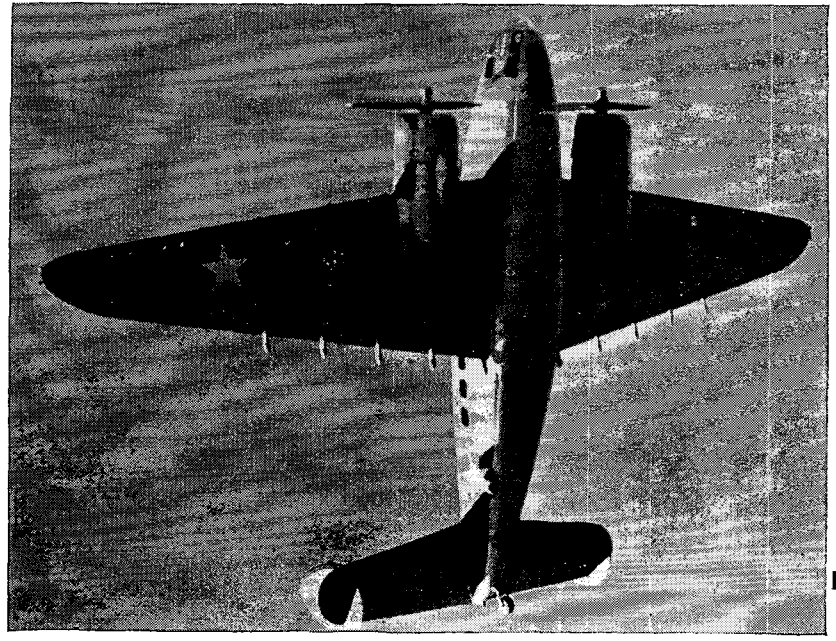
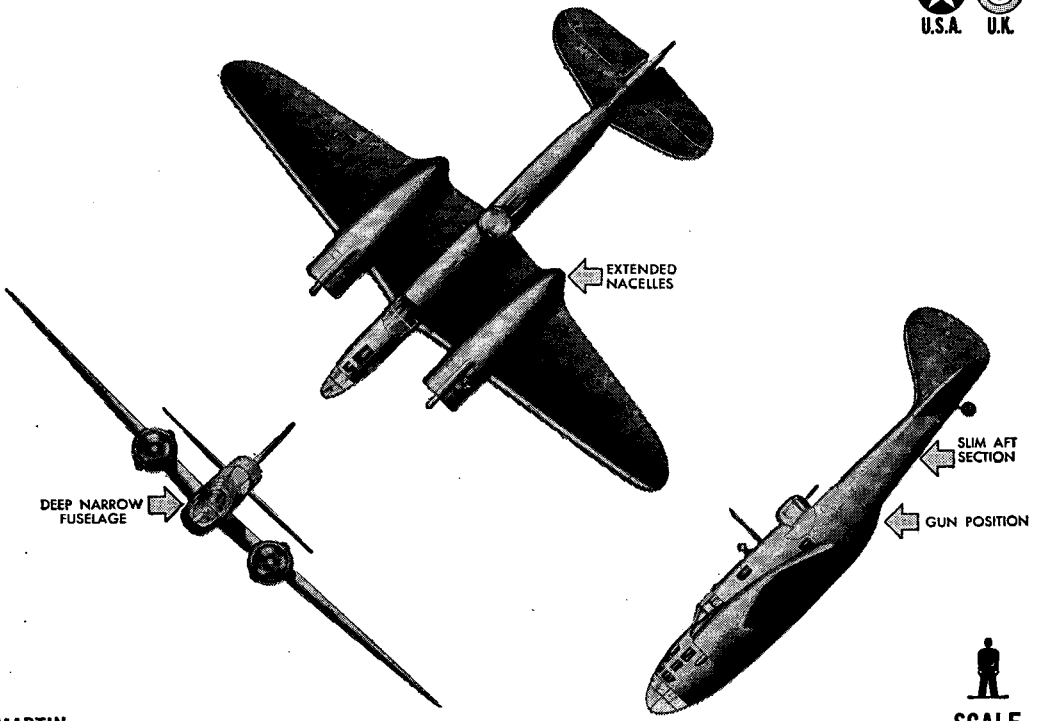


ARMY: A-30
R. A. F.: BALTIMORE I, II, III

LIGHT BOMBER

U.S.A. U.K.



MARTIN
U. S. A.

SCALE
6-FOOT MAN

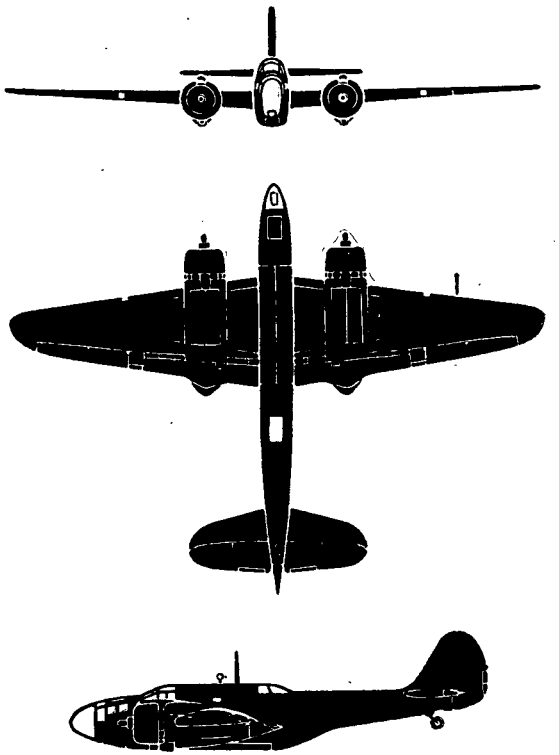
DISTINGUISHING FEATURES: Mid-wing monoplane with two radial engines. Deep, narrow fuselage with deep step on underside aft of the wing. Transparent plastic nose. Rounded single fin and rudder.

INTEREST: Although designed primarily as a light bomber, this aircraft is also well-suited for long-range reconnaissance. Its speed, defensive armament, and maneuverability make it capable of dealing effectively with enemy fighter planes. Developed from the lighter Maryland to meet specific needs of the R. A. F., it ranks as one of the highest climbing, and one of the fastest of its type. Early models do not have a top turret. Thus far, it has been in operational service almost exclusively with the Royal Air Force in the Middle East.

APRIL 1943
FROM DATA CURRENTLY AVAILABLE

WAR DEPARTMENT FM 30-30
NAVY DEPARTMENT BUAER 3

A-30 "BALTIMORE"

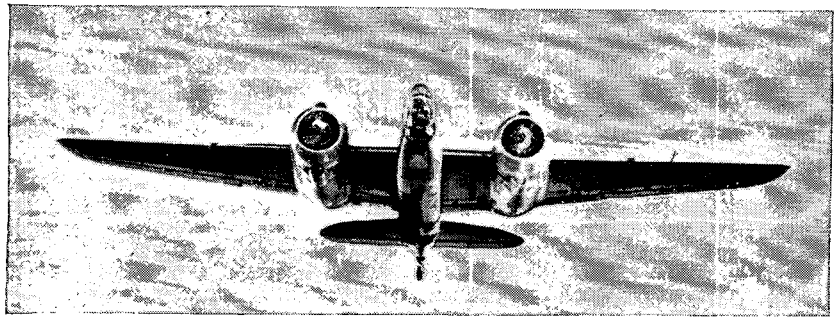


SPAN: 61 ft. 4 in.
LENGTH: 48 ft. 6 in.
APPROX. MAX. SPEED: 315 m. p. h.

SERVICE CEILING:
over 22,000 ft.

~~RESTRICTED~~

A



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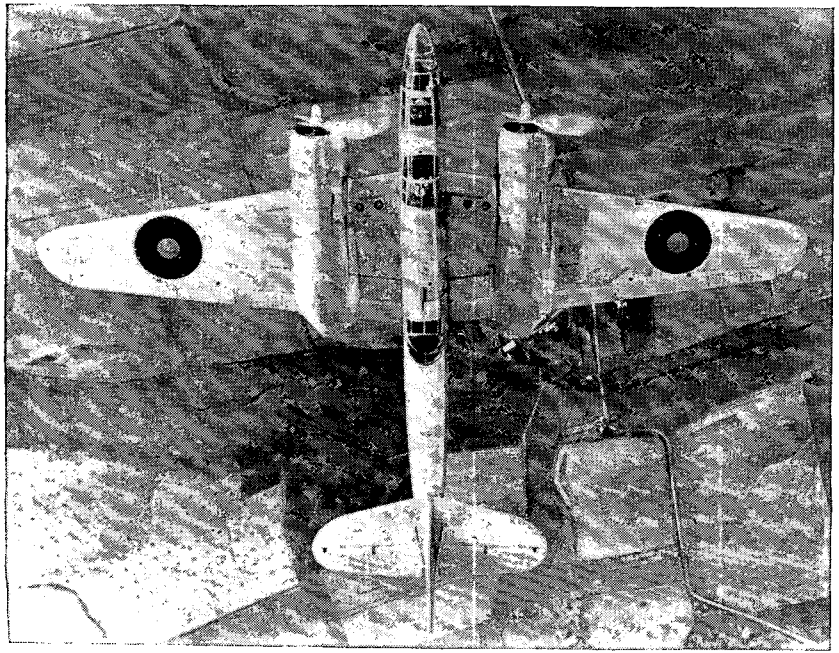

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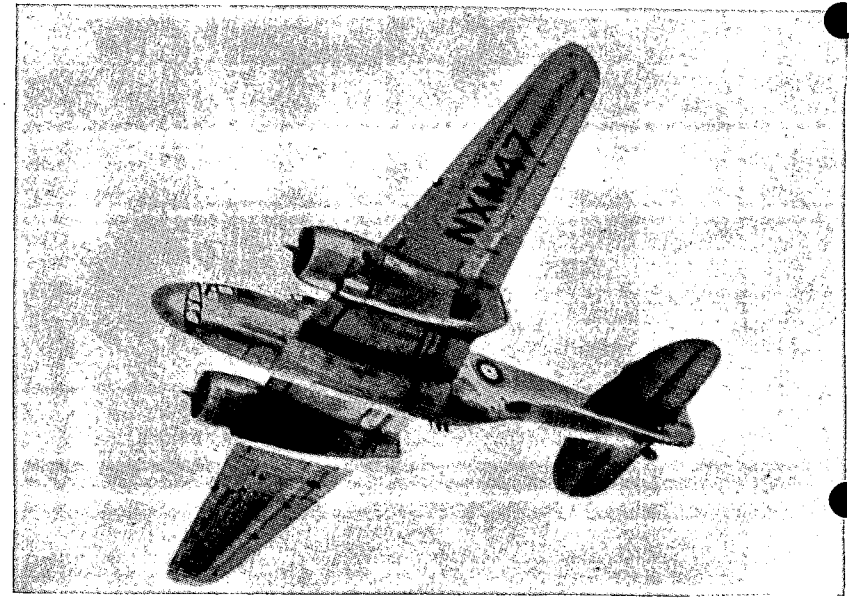

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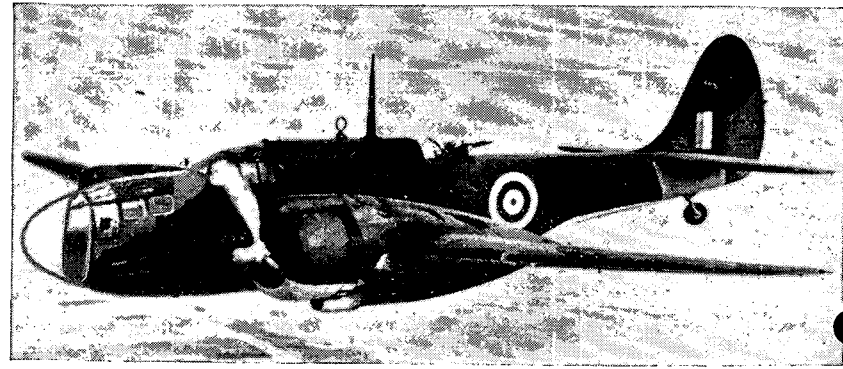
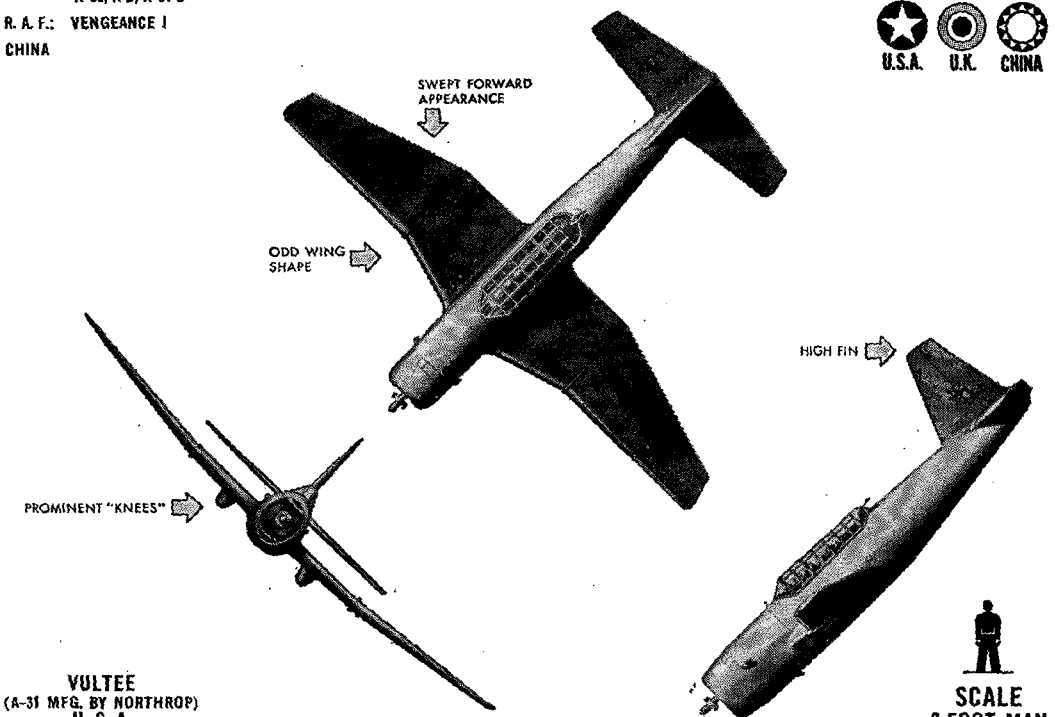


ARMY: A-35 (A-31)
A-35, A B; A-31 C
R. A. F.: VENGEANCE I
CHINA

DIVE BOMBER

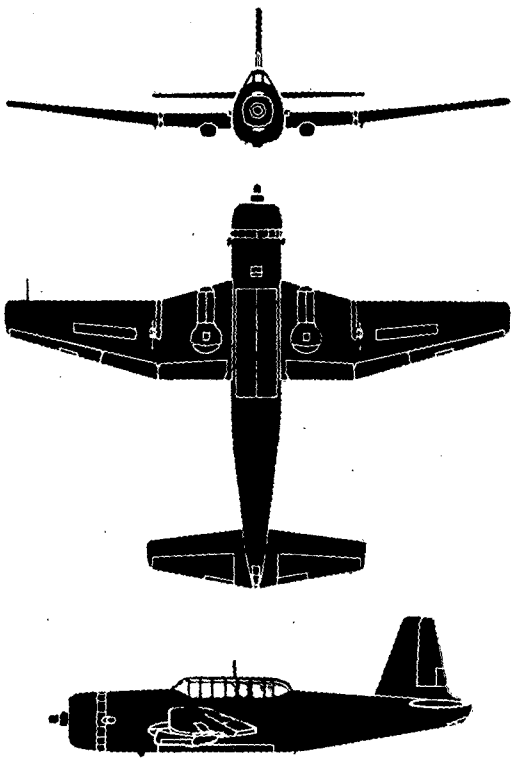
U.S.A. U.K. CHINA

A-35 (A-31) "VENGEANCE"



VULTEE
(A-31 MFG. BY NORTHROP)
U. S. A.

SCALE
6-FOOT MAN



DISTINGUISHING FEATURES: Mid-wing monoplane with single radial engine. Center section of wing has swept-back leading edge and straight trailing edge. Outer sections have straight leading edge and sharply tapered trailing edge with blunt tips. Prominent knuckles show at under-carriage attachment. Cockpit enclosure is long and horizontal. Very high triangular fin and rudder with square top.

INTEREST: The British ordered this very maneuverable two-place dive bomber in July 1940, just after the German Ju 87-B (Stuka) had figured so prominently in the defeat of France. However, since that time, it has been shown that in land warfare, dive bombers are extremely vulnerable in face of adequate fighter opposition and well organized anti-aircraft fire. It is therefore more likely that the Vengeance will be used for general reconnaissance purposes except where local conditions favor dive bombing. A modified version is coming into use by the U. S. Navy as the TBV-1.

SPAN: 48 ft.
LENGTH: 40 ft.
APPROX. MAX. SPEED: over 280 m. p. h.
SERVICE CEILING: over 20,000 ft.

RESTRICTED

APRIL 1943
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WAR DEPARTMENT FM 30-30
NAVY DEPARTMENT BUAER 3

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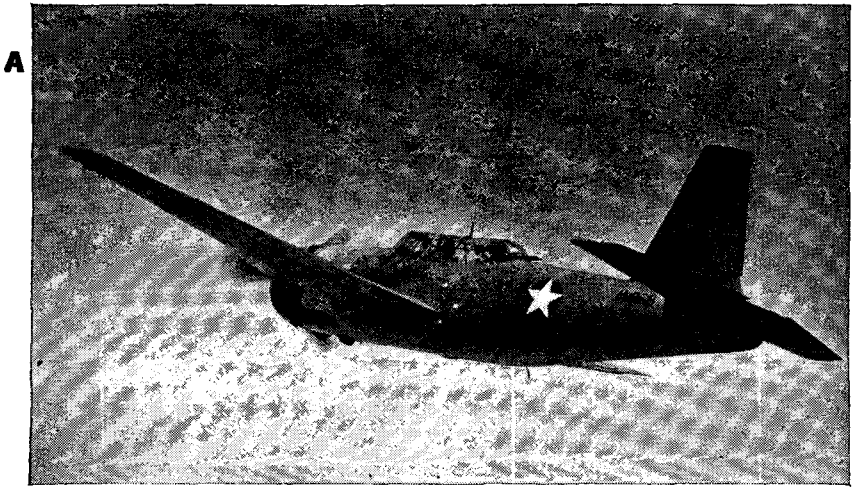

C

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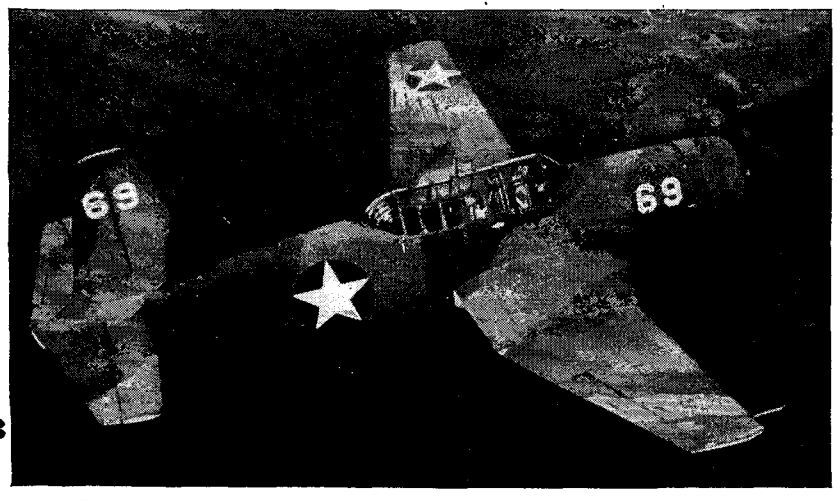
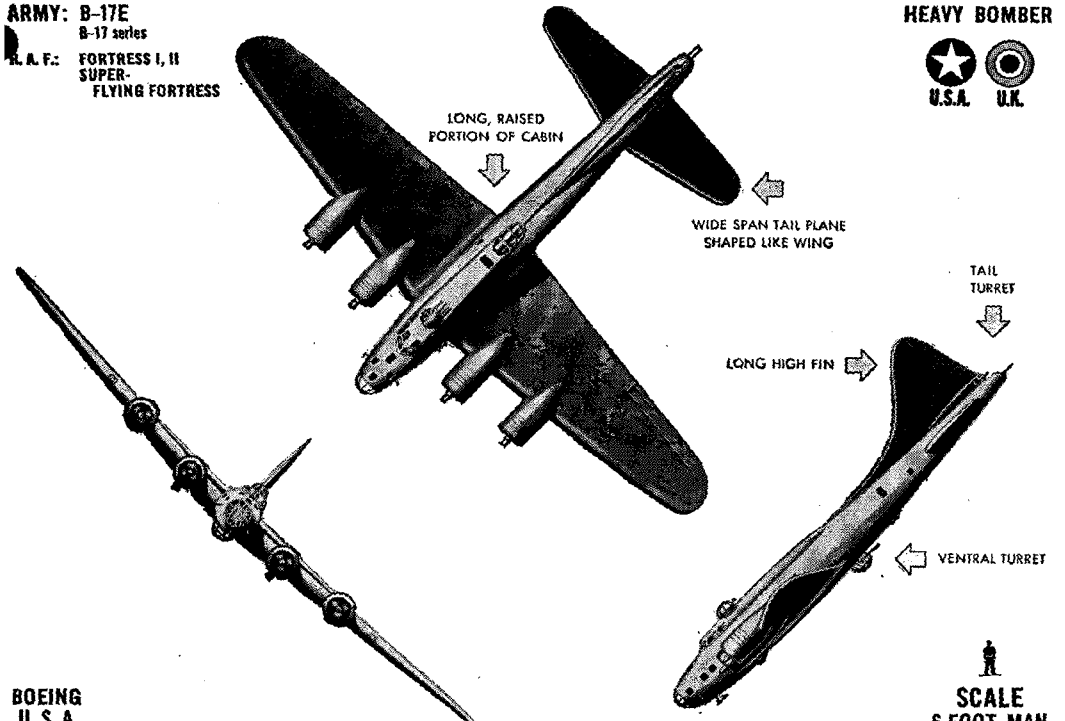


D

ARMY: B-17E
B-17 series
R. A. F.: FORTRESS I, II
SUPER-
FLYING FORTRESS

HEAVY BOMBER

U.S.A. U.K.



BOEING
U. S. A.

SCALE
6-FOOT MAN

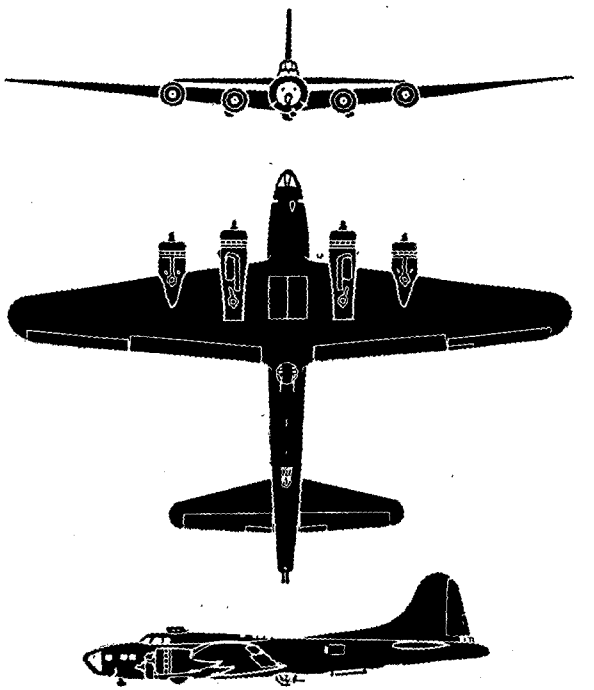
DISTINGUISHING FEATURES: Four-engine, low-wing monoplane. Wings equally tapered with rounded tips and full dihedral. Long, narrow fuselage. Gun turret on top of fuselage just aft of pilot's cockpit enclosure. Large ventral turret aft of wings. Tail has broad single fin and rudder with fin faired far forward into fuselage. Large stabilizer and elevator, similar in shape to the wing.

INTEREST: Designed for high altitude, daytime precision bombing of restricted targets, the B-17 was the first long-range American bomber. Intended primarily for long flights over the Pacific, great fuel capacity rather than tremendous bomb load was emphasized in the individual design. It now does effective work, however, for the Army Air Forces in raids at shorter range in Europe, North Africa, and in the Southwest Pacific. The relative lack of armament characterizing early models is now corrected so it is possible on some missions to operate under the protection of its own guns without fighter escort. The early models, B-17 to B-17D had a much smaller fin with straight leading edge intersecting the fuselage back of the L. E. of the stabilizer.

APRIL 1943
FROM DATA CURRENTLY AVAILABLE

WAR DEPARTMENT FM 30-30
NAVY DEPARTMENT BUAER 3

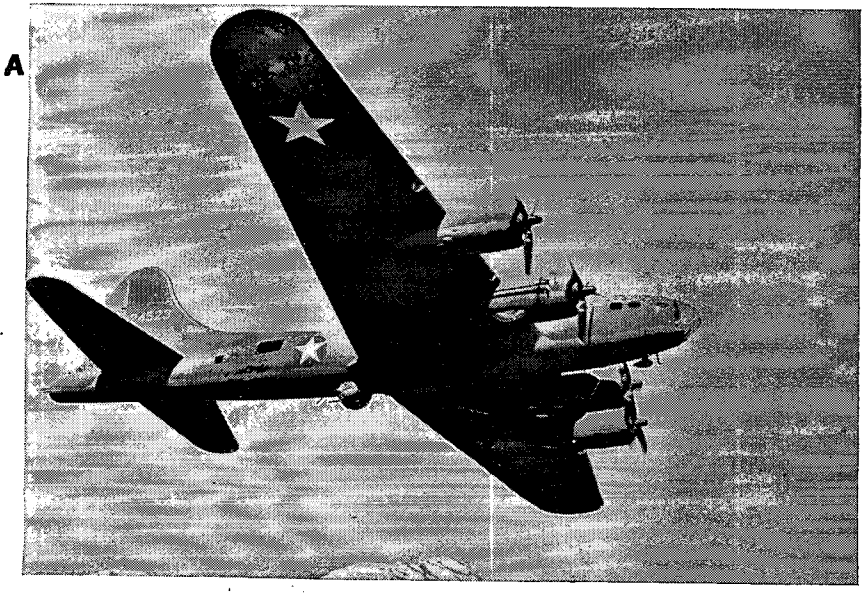
B-17 "FLYING FORTRESS"



SPAN: 103 ft. 10 in.
LENGTH: 74 ft. 9 in.
APPROX. MAX. SPEED: 310 m. p. h.

SERVICE CEILING:
over 35,000 ft.

RESTRICTED



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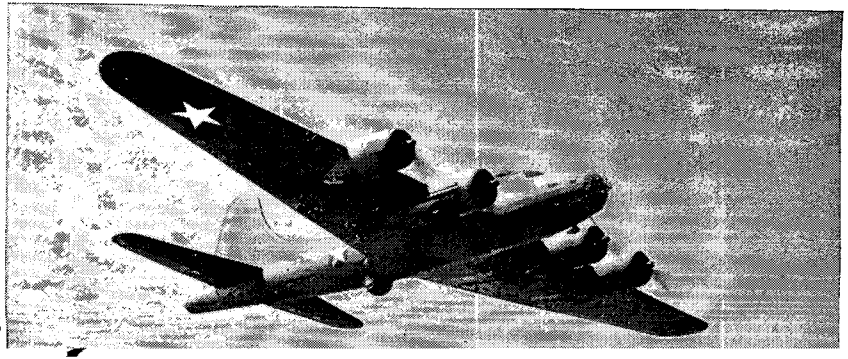

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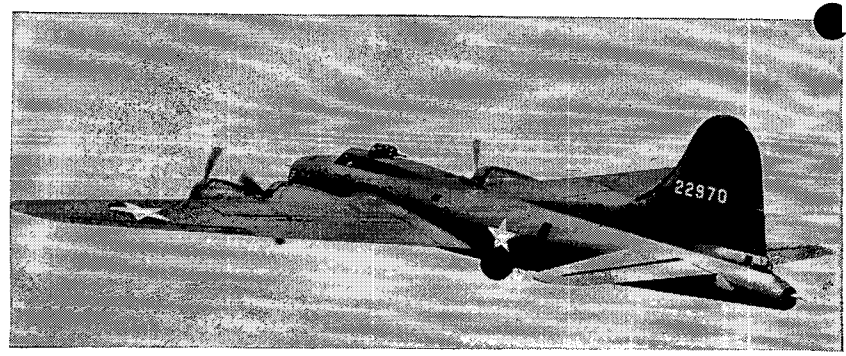

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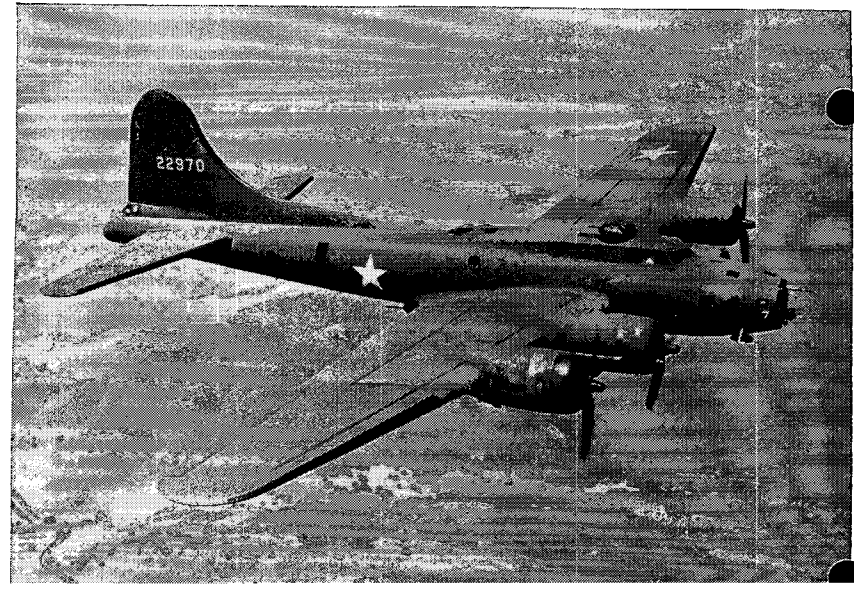
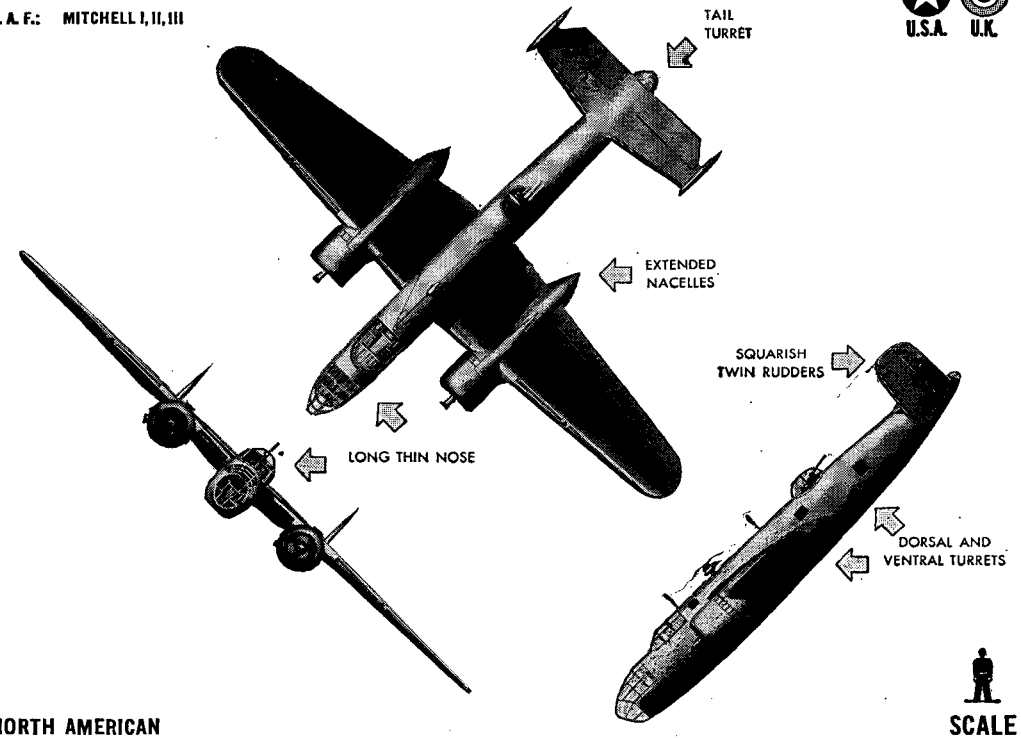


D

ARMY: B–25 C
B–25 series
NAVY: PBJ
R. A. F.: MITCHELL I, II, III

MEDIUM BOMBER

U.S.A. U.K.



NORTH AMERICAN
U. S. A.

SCALE
6-FOOT MAN

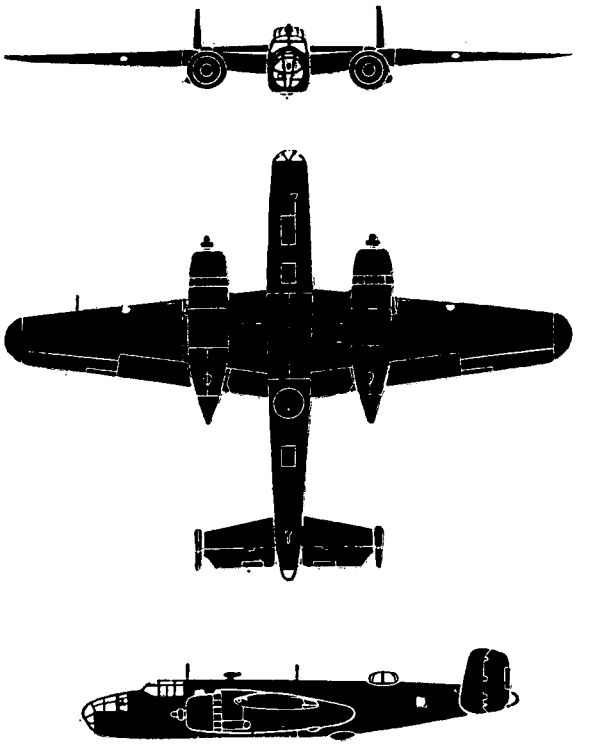
DISTINGUISHING FEATURES: Two radial engines underslung below wings. Nacelles extend beyond trailing edge of wing. High outboard twin fins and rudders sloped like a lopsided rectangle. Gull wing effect due to positive dihedral on inboard panel only. Wings tapered on both edges with more pronounced taper on trailing edge. Long transparent nose.

INTEREST: The B–25 was named after the late Gen. "Billy" Mitchell. It has gained considerable publicity as the result of its use in the bombing raid on Tokyo in April 1942. It is in use on nearly all of the Allied war fronts and has performed well for the British in their African campaigns.

APRIL 1943
FROM DATA CURRENTLY AVAILABLE

WAR DEPARTMENT FM 30–30
NAVY DEPARTMENT BUAER 3

B-25 "MITCHELL"

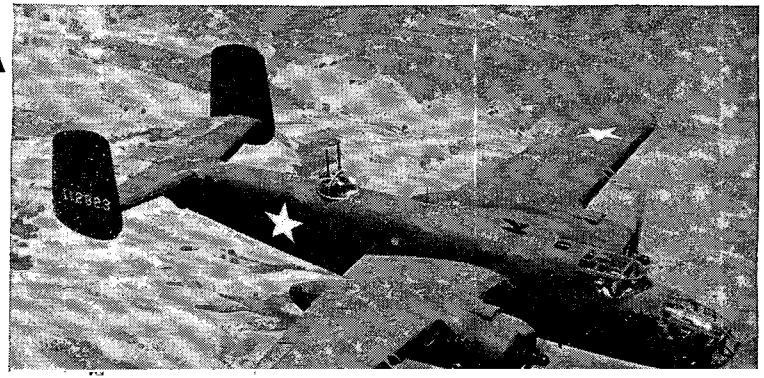


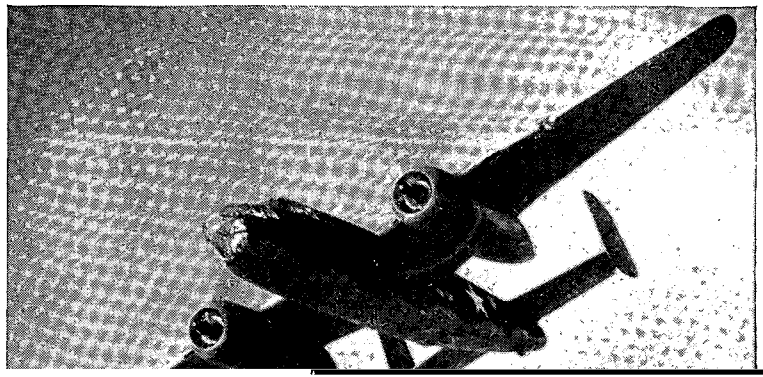
SPAN: 67 ft. 6 in.
LENGTH: 54 ft. 1 in.
APPROX. MAX. SPEED: 300 m. p. h.

SERVICE CEILING:
25,000 ft.

~~RESTRICTED~~

A





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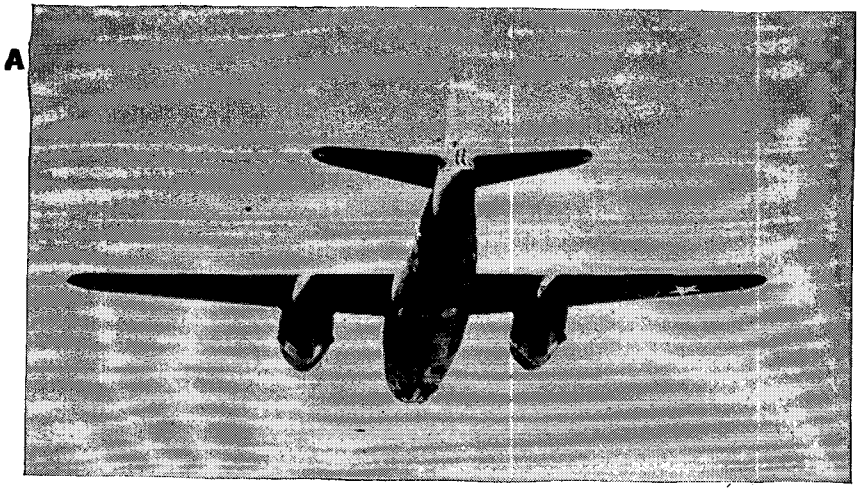

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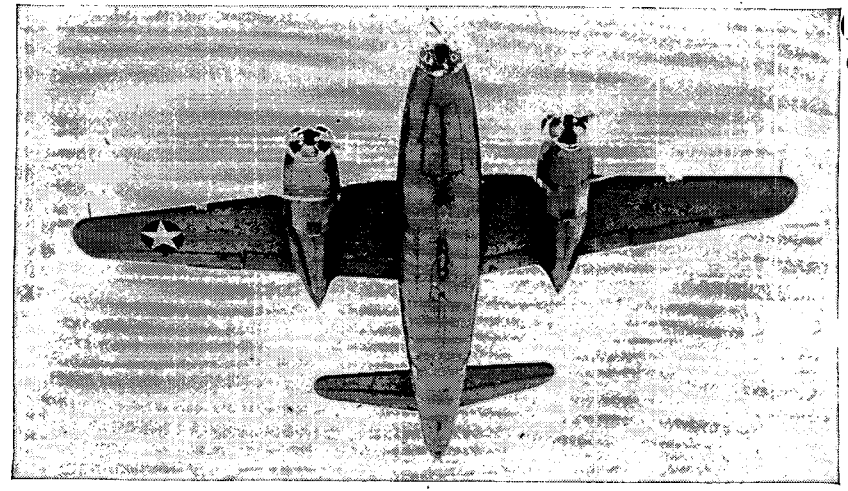

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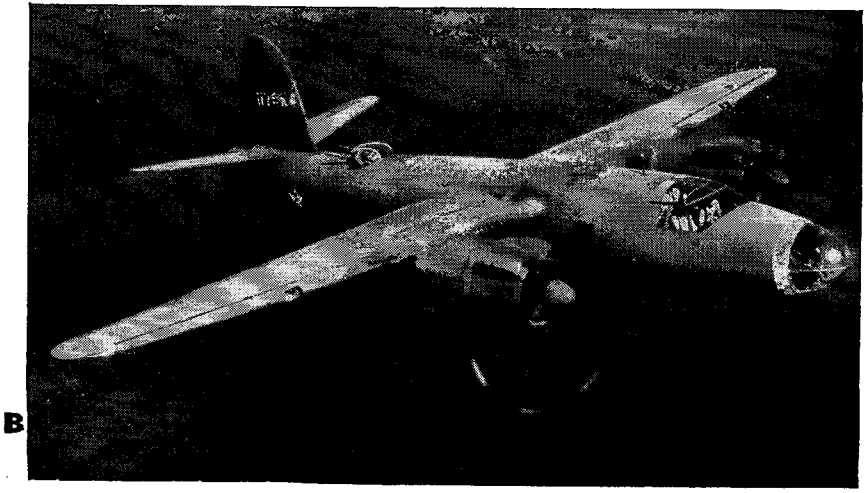

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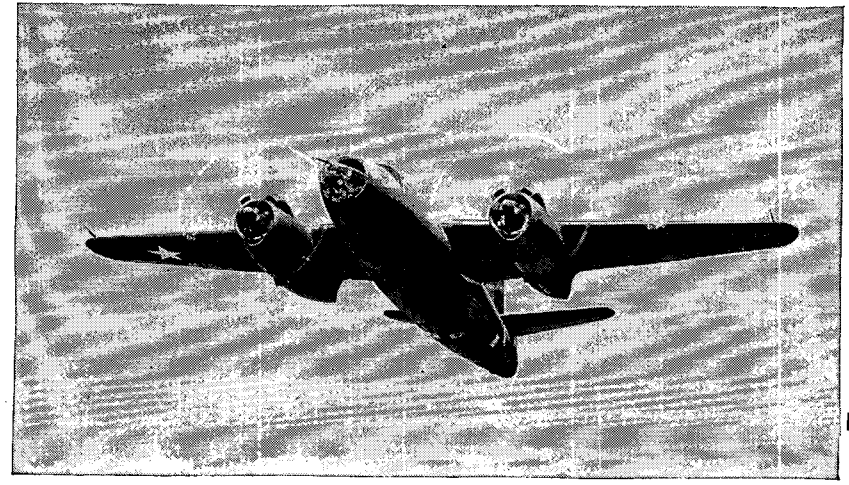
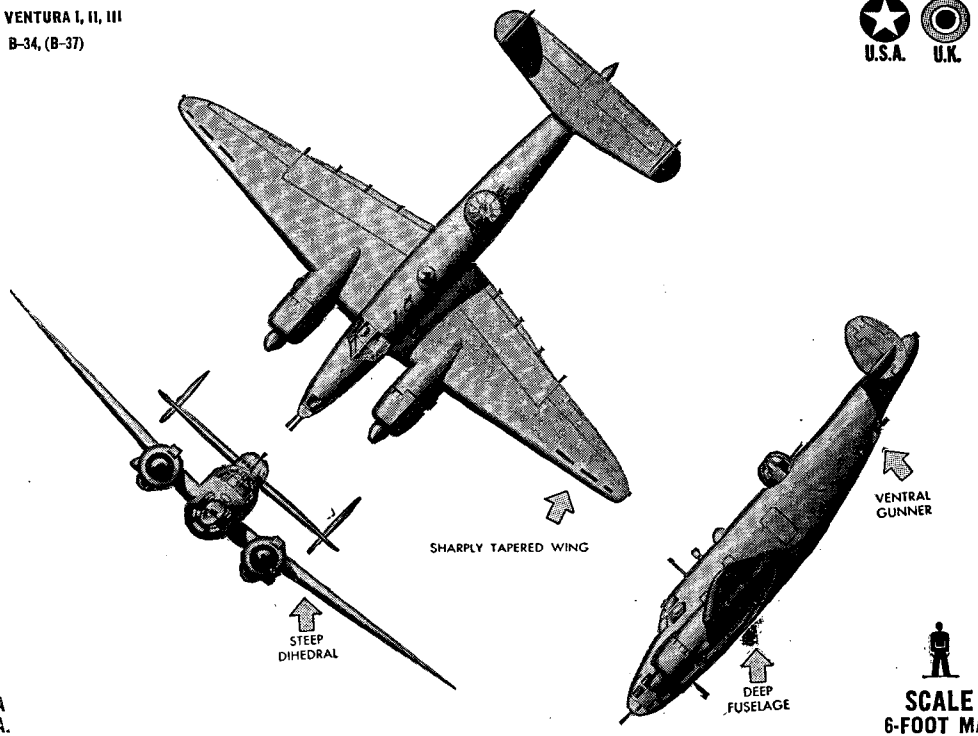


NAVY: PV-1
PV-1, 3
R. A. F.: VENTURA I, II, III
ARMY: B-34, (B-37)

MEDIUM BOMBER

U.S.A. U.K.



VEGA
U. S. A.

SCALE
6-FOOT MAN

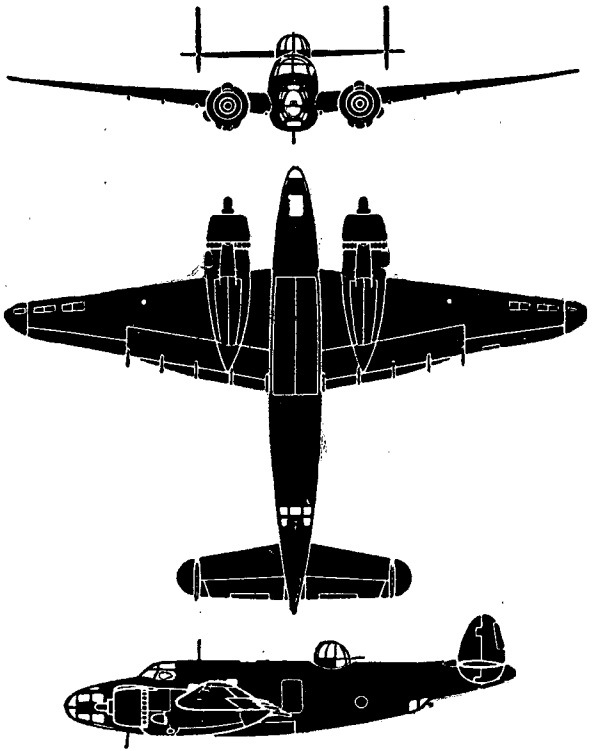
DISTINGUISHING FEATURES: Mid-wing monoplane. Both edges of wing have marked taper. Fowler flap guides are visible. Radial motors are underslung in long nacelles. The fuselage is heavy with a power turret aft of trailing edge of wings. Bottom line of fuselage is broken to accommodate rear guns. Twin fins and rudders are egg-shaped, mounted high and inboard.

INTEREST: The "Ventura" was developed from the Hudson (A-29), which it closely resembles in size and appearance. It has much more powerful engines, however. The prototype of the PV-1 first flew in 1941 and operational models were first reported in action during December 1942 in raids over Holland and Germany. The Army version (B-34) of this aircraft is now in use, along with the A-29, by the R. A. F. Coastal Command for general reconnaissance and other duties.

APRIL 1943
FROM DATA CURRENTLY AVAILABLE

WAR DEPARTMENT FM 30-30
NAVY DEPARTMENT BUAER 3

PV "VENTURA"

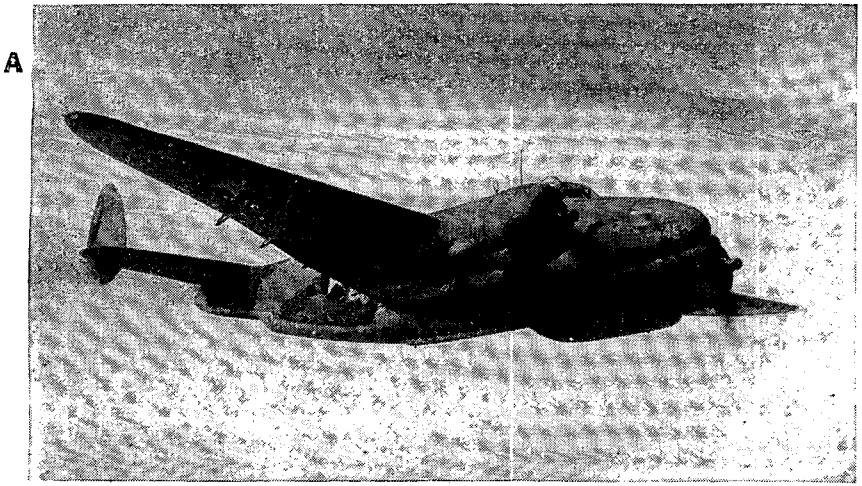


SPAN: 65 ft. 6 in.
LENGTH: 51 ft. 5 in.
APPROX. MAX. SPEED: over 300 m. p. h.

SERVICE CEILING:
over 32,000 ft.

RESTRICTED

A



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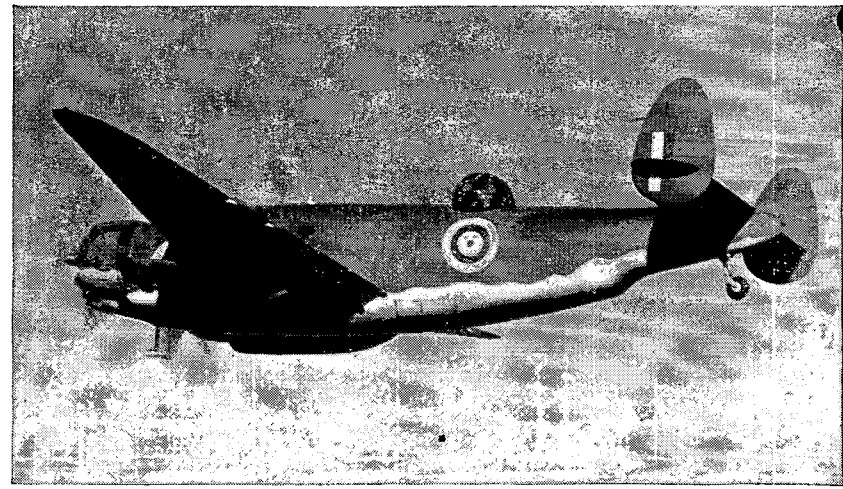

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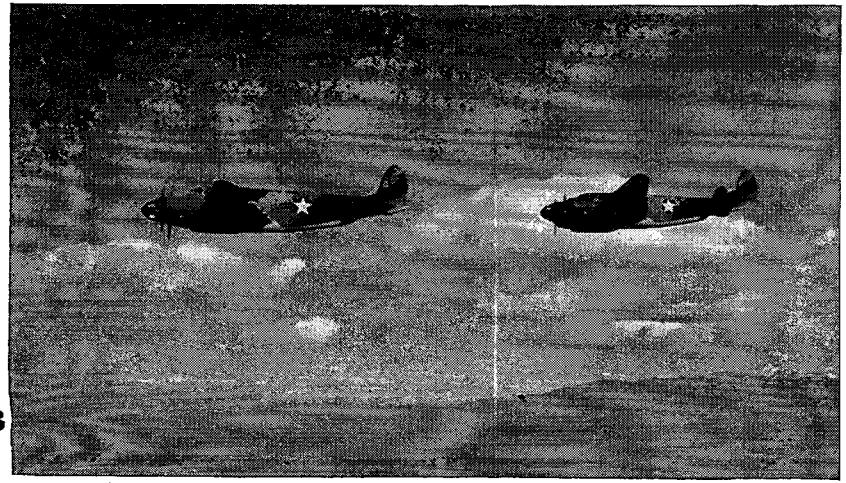
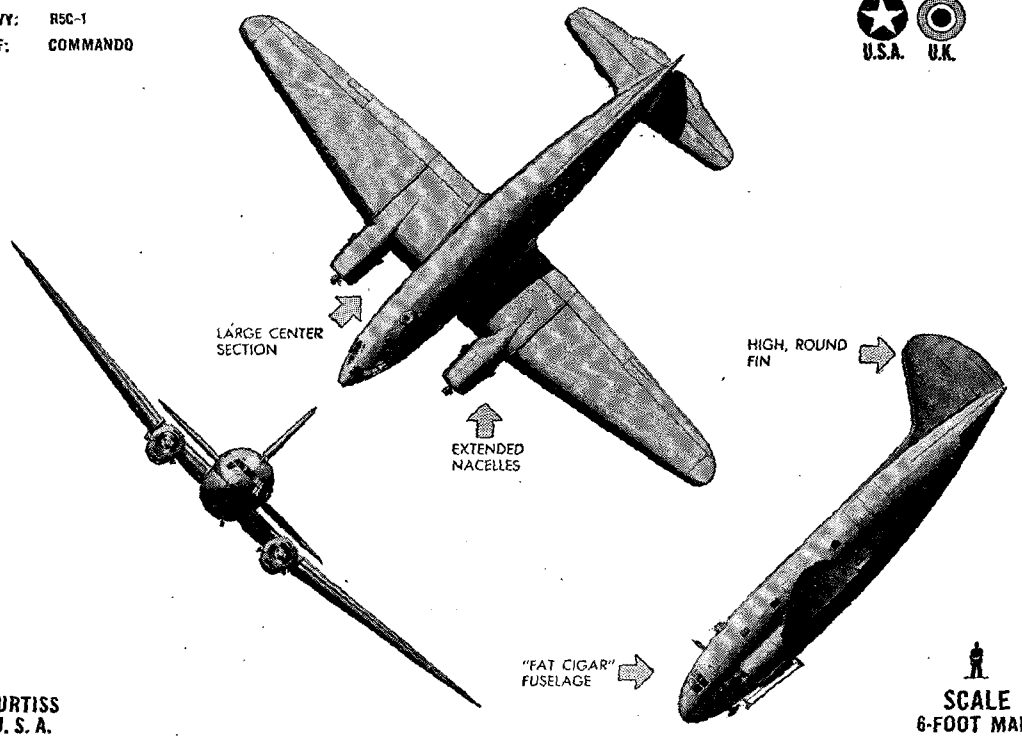


ARMY: C-46
C-46 A
NAVY: R5C-1
RAF: COMMANDO

TRANSPORT—GLIDER TUG

U.S.A. U.K.



CURTISS
U. S. A.

SCALE
6-FOOT MAN

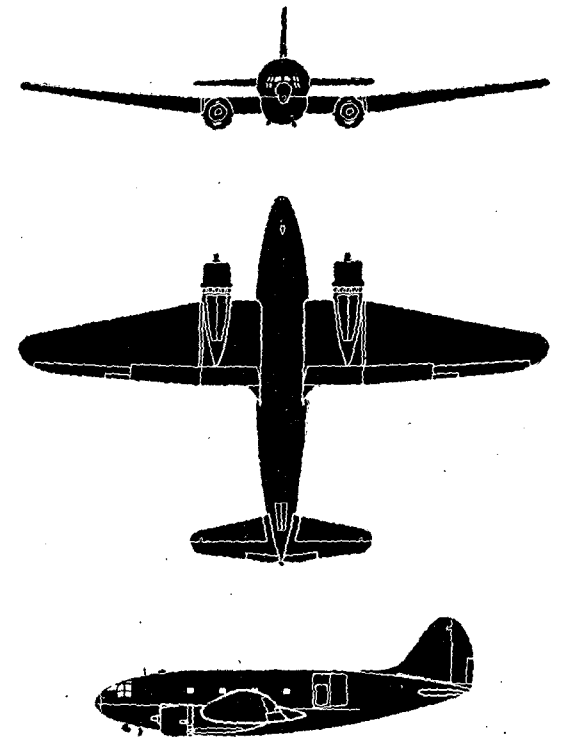
DISTINGUISHING FEATURES: Low mid-wing monoplane with two radial engines. Wings tapered on outer panels with most of the taper on leading edges. Engines slightly underslung, projecting well forward of wing. Fuselage is cylindrical in shape with pointed nose unbroken by step for cockpit enclosure. Rounded single fin and rudder sweeping into fuselage.

INTEREST: The largest twin-engined military cargo plane in the world, the Commando is sometimes called the "Flying Whale" or the "Troopship of the Sky." Originally designed as a 36-passenger commercial airliner, it now may carry such materials as trucks, light field artillery or "Jeeps." Adapted for troop carrying in 1941, it may transport a large number of fully-equipped troops. The Commando's engines are larger and more powerful than those in use on commercial airlines, and in size this aircraft dwarfs those in commercial use.

APRIL 1943
FROM DATA CURRENTLY AVAILABLE

WAR DEPARTMENT FM 30-30
NAVY DEPARTMENT BUAER 3

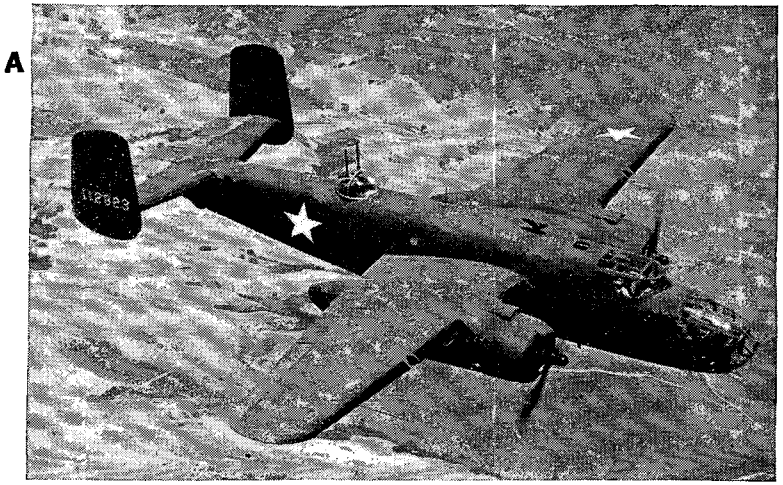
C-46 "COMMANDO"



SPAN: 108 ft.
LENGTH: 76 ft. 4 in.
APPROX. MAX. SPEED: over 260 m. p. h.
SERVICE CEILING: above 27,000 ft.

RESTRICTED

A



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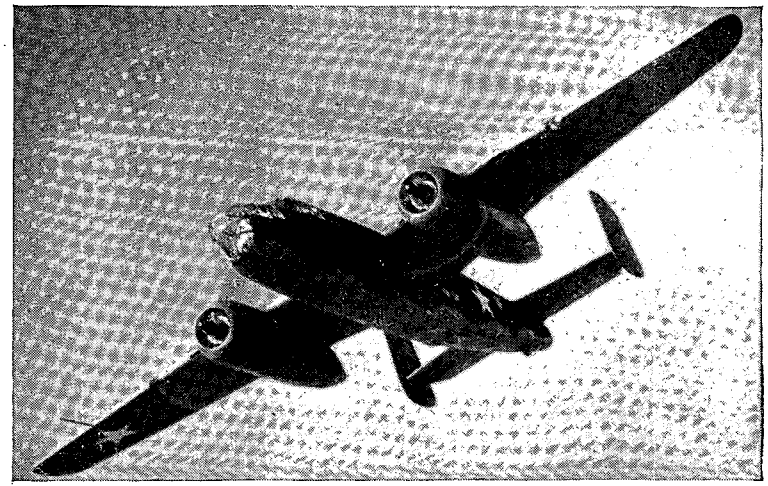

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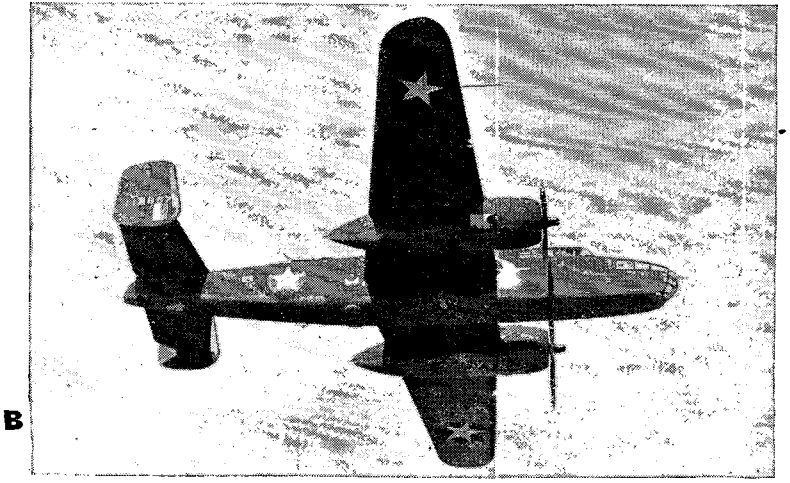

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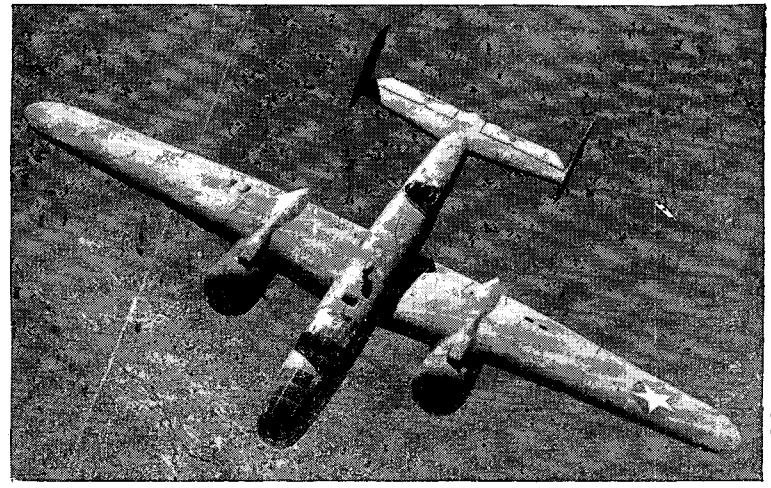
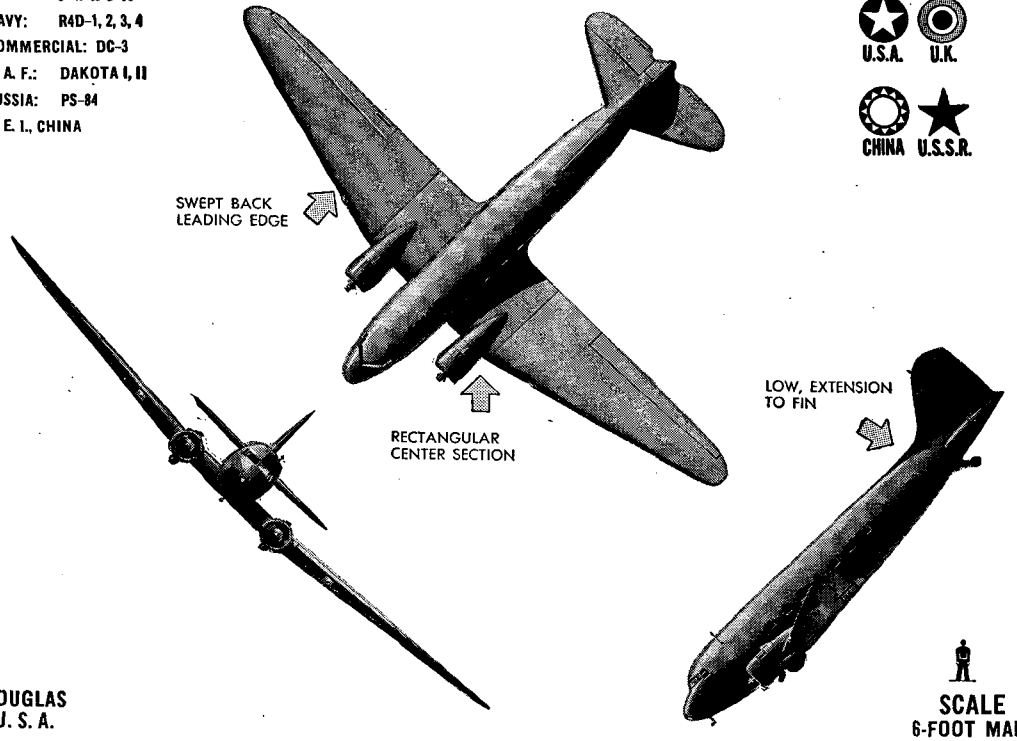


ARMY: C–47
C–47 to C–53
NAVY: R4D–1, 2, 3, 4
COMMERCIAL: DC–3
R. A. F.: DAKOTA I, II
RUSSIA: PS–84
N. E. I., CHINA

TRANSPORT—GLIDER TUG

U.S.A. U.K.

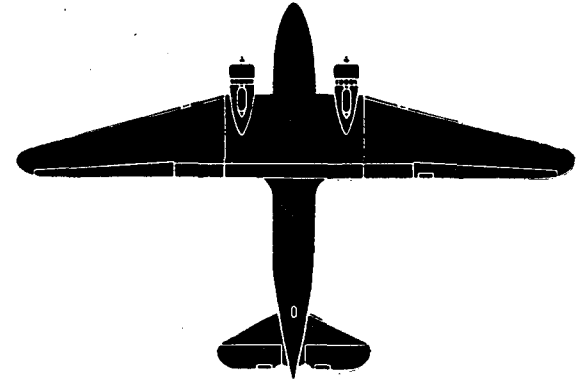
CHINA U.S.S.R.



DOUGLAS
U. S. A.

SCALE
6-FOOT MAN

C-47 "SKYTRAIN"
C-53 "SKYTROOPER"



DISTINGUISHING FEATURES: Twin-engine low-wing monoplane. Center section of wing has no dihedral. Outer section of leading edge has sharp taper. Trailing edge is straight and tips are sharply rounded. The tail fin is faired forward for about one-third the length of the fuselage. The tail plane is sharply tapered at the leading edge.

INTEREST: This troop and cargo transport is the military transport version of the DC–3, one of the best-known and most widely used American commercial aircraft. The C–47 is built under license in Russia and designated the PS–84. It is used as a standard transport of the Russian Air Force. This aircraft is designated as either the C–47 or the C–53, depending on the internal arrangement and use of cargo and jumping hatches. The name "Skytrain" comes from use of this transport as a troop carrier and as a glider tug. In England it is known as the Dakota.

SPAN: 95 ft.
LENGTH: 64 ft. 6 in.
APPROX. MAX. SPEED: 220 m. p. h.

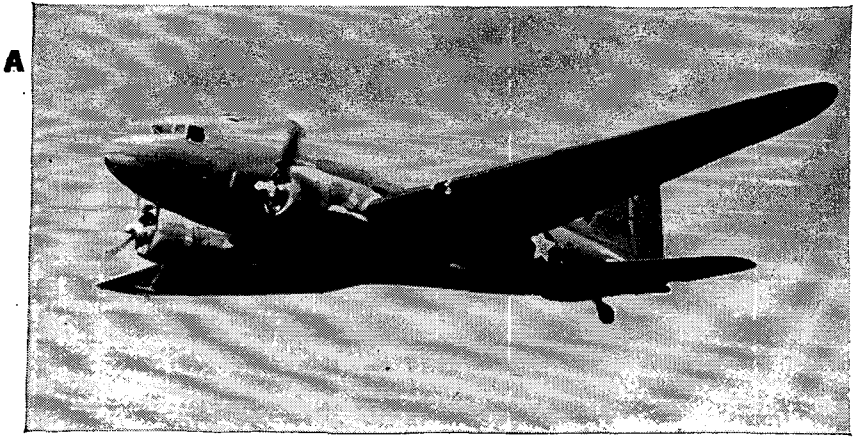
SERVICE CEILING:
24,000 ft.

APRIL 1943
FROM DATA CURRENTLY AVAILABLE

WAR DEPARTMENT FM 30–30
NAVY DEPARTMENT BUAER 3

RESTRICTED

A



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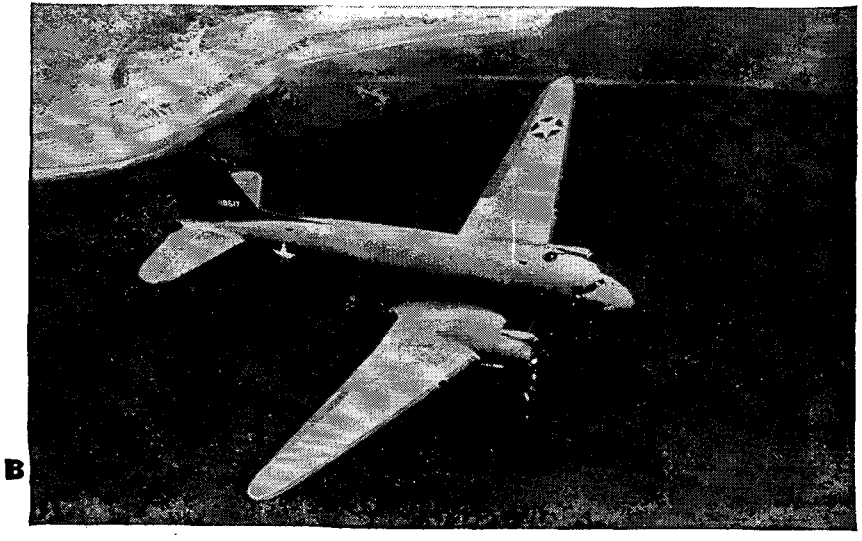

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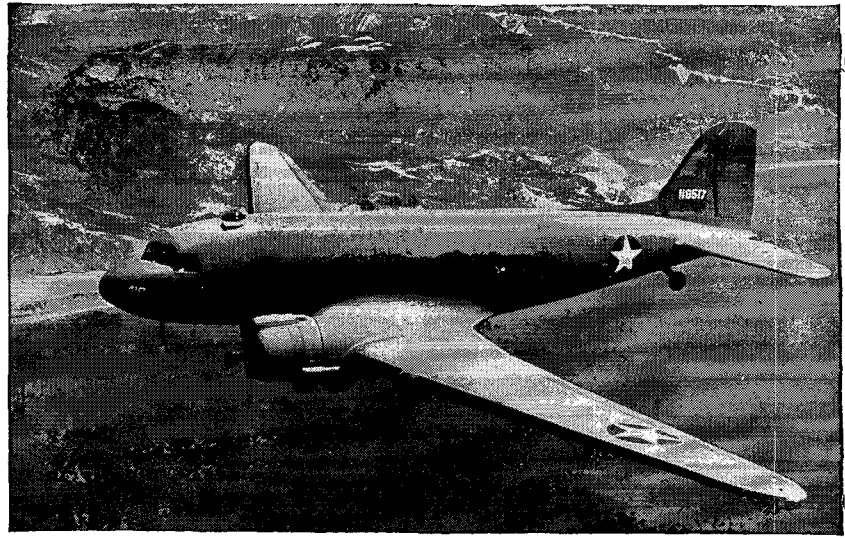

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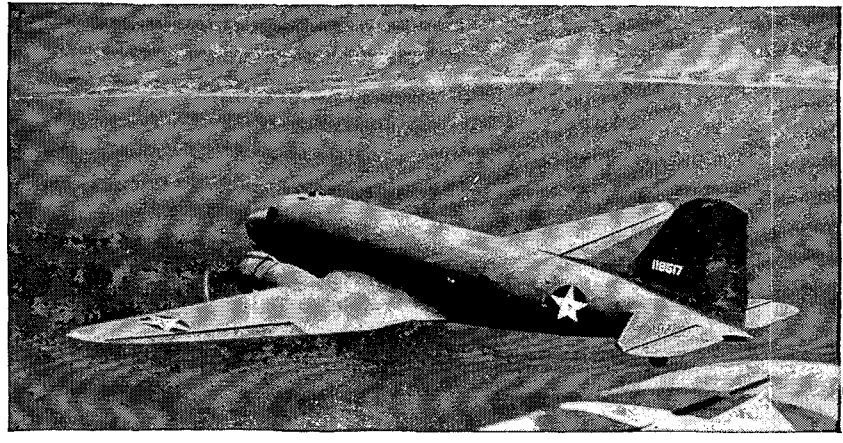
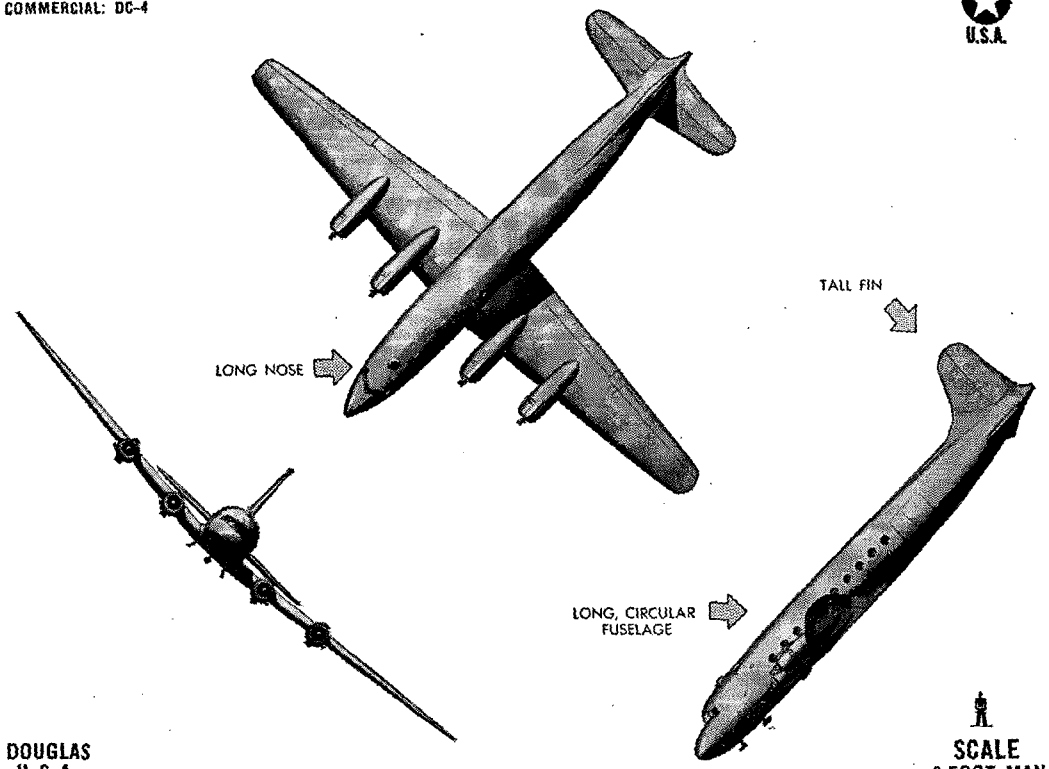


ARMY: C-54
C-54, A
NAVY: R5D-1
COMMERCIAL: DC-4

TRANSPORT

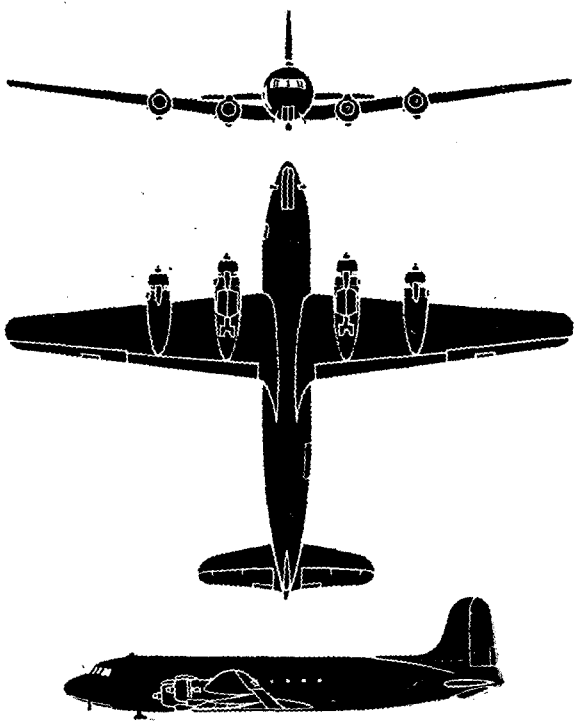
U.S.A.



DOUGLAS
U. S. A.

SCALE
6-FOOT MAN

C-54 "SKYMASTER"



DISTINGUISHING FEATURES: Four-engined low-wing monoplane. Narrow, equally tapered wings with small rounded tips. Thick fuselage with *long* massive nose. Tall fin and rudder faired into fuselage.
INTEREST: This troop and cargo carrier is the largest operational military transport aircraft in the United States today. Its commercial designation was DC-4, the prototype of which was sold to Japan. The current military version differs in many ways, however, from the plane which the Japanese purchased. As a troop transport, the Skymaster can carry more than 40 fully equipped soldiers.

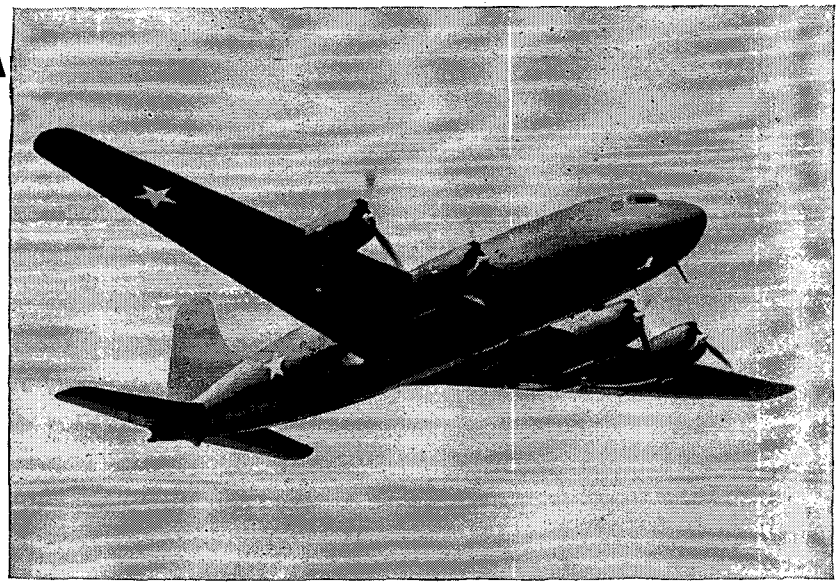
SPAN: 117 ft. 6 in.
LENGTH: 93 ft. 10 in.
APPROX. MAX. SPEED: over 280 m. p. h.
SERVICE CEILING: over 22,200 ft.

RESTRICTED

APRIL 1943
FROM DATA CURRENTLY AVAILABLE

WAR DEPARTMENT FM 30-30
NAVY DEPARTMENT BUAER 3

A



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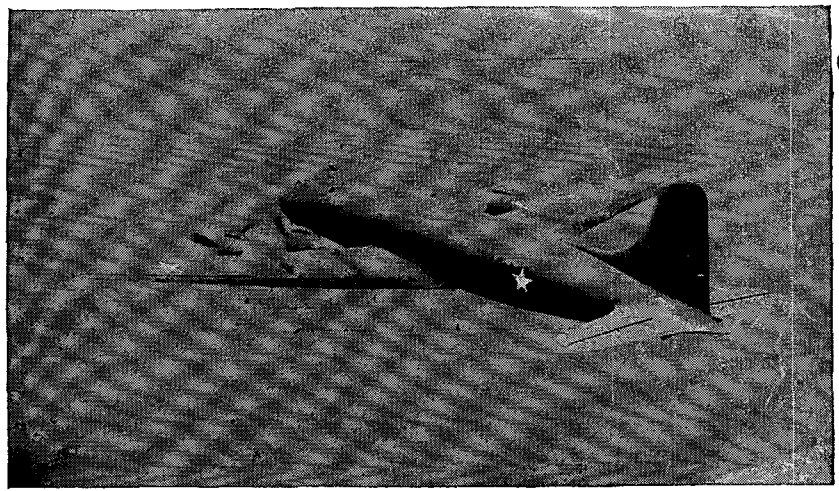

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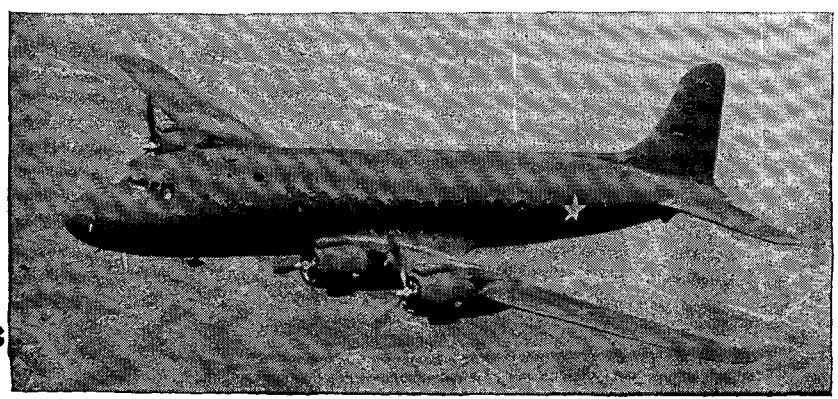

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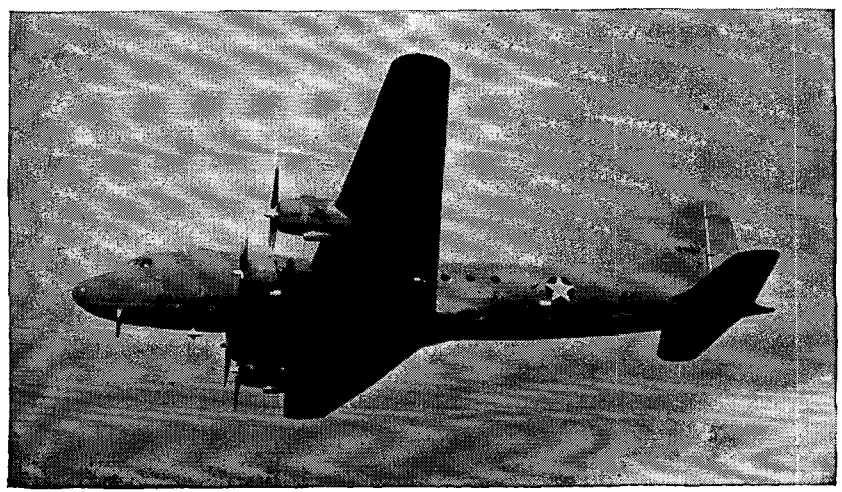
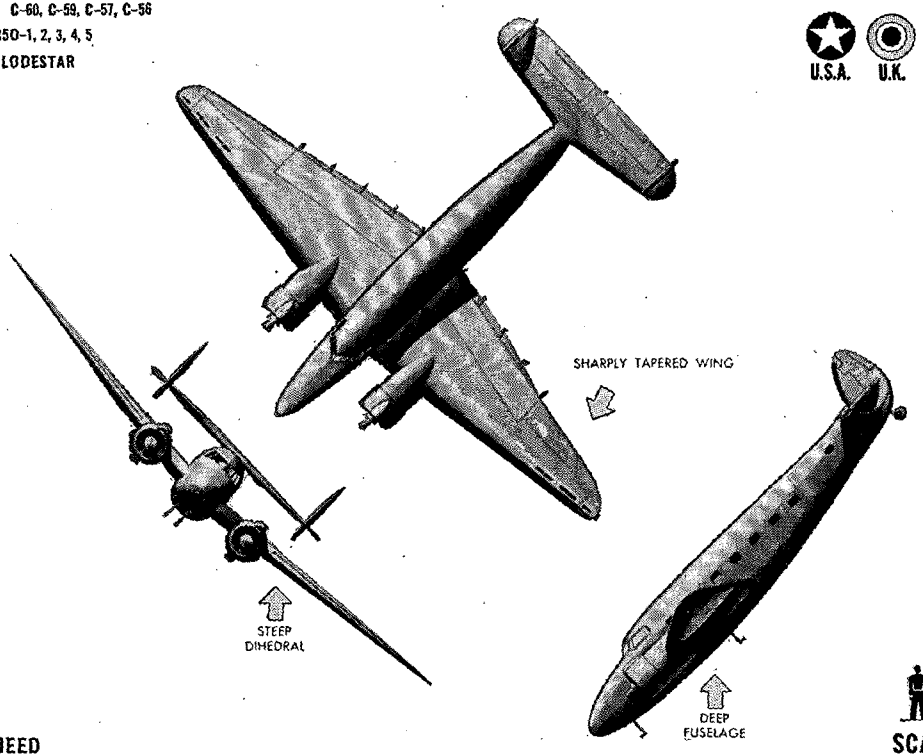


ARMY: C-60
C-60, C-59, C-57, C-56
NAVY: R50-1, 2, 3, 4, 5
R. A. F.: LODESTAR
CHINA

TRANSPORT

U.S.A. U.K. CHINA



LOCKHEED
U. S. A.

SCALE
6-FOOT MAN

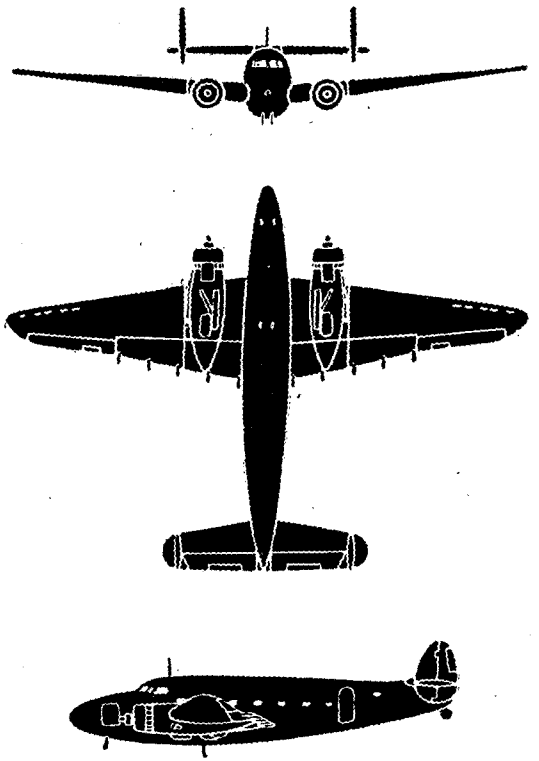
DISTINGUISHING FEATURES: Two engined low mid-wing monoplane with full dihedral. Wings have pronounced taper to sharply rounded tips. Fowler flap guides prominent at trailing edge. Deep fuselage with sharply rounded nose. Egg shaped twin fins and rudders are set inboard.

INTEREST: This aircraft is the military version of the world's fastest commercial transport. It was first converted to military use in order to convey parachute troops for the Netherlands East Indies government. Alternate designations of the Lodestar are C-56, C-57, C-59, depending on the interior equipment. The Hudson (A-29) was developed from the commercial version of this aircraft.

APRIL 1943
FROM DATA CURRENTLY AVAILABLE

WAR DEPARTMENT FM 30-30
NAVY DEPARTMENT BUAER 3

C-60 "LODESTAR"

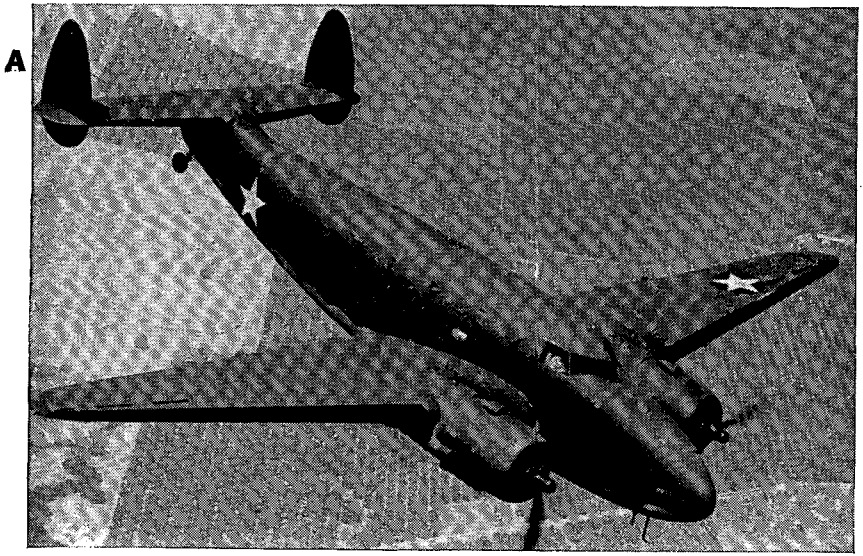


SPAN: 65 ft. 8 in.
LENGTH: 49 ft. 10 in.
APPROX. MAX. SPEED: 265 m. p. h.

SERVICE CEILING:
30,000 ft.

DECLASSIFIED

A



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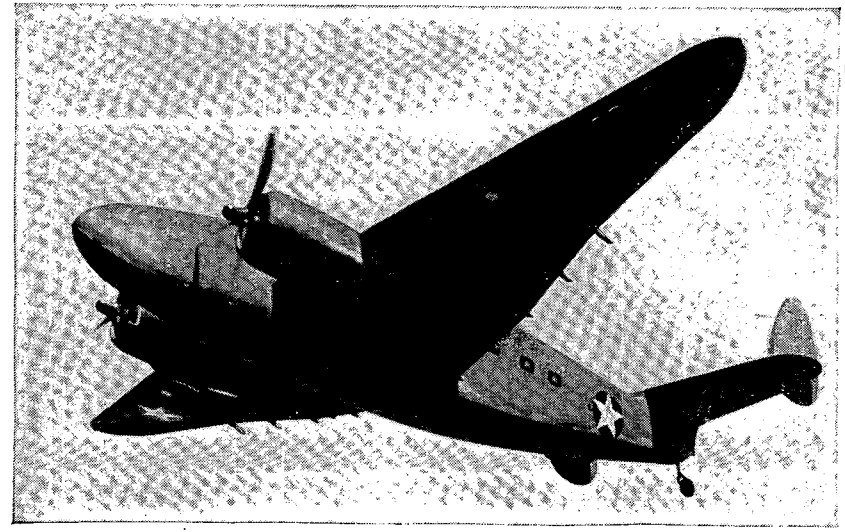
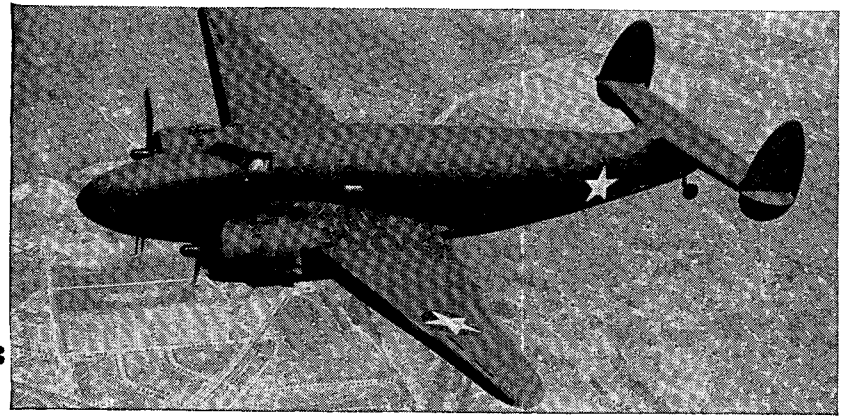


B



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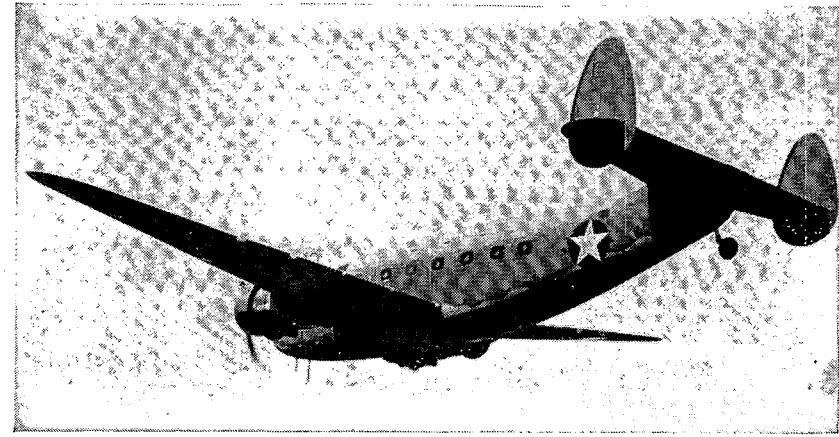
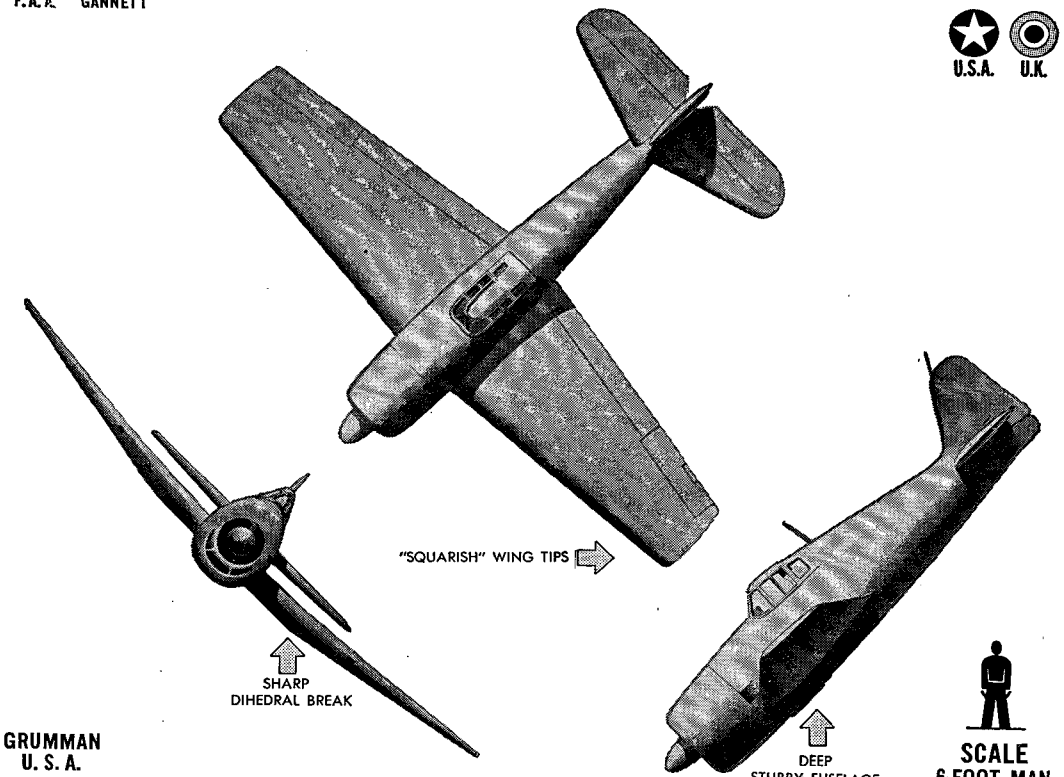


NAVY: F6F-3

F.A.A.: GANNET I

FIGHTER

U.S.A. U.K.



GRUMMAN
U. S. A.

SCALE
6-FOOT MAN

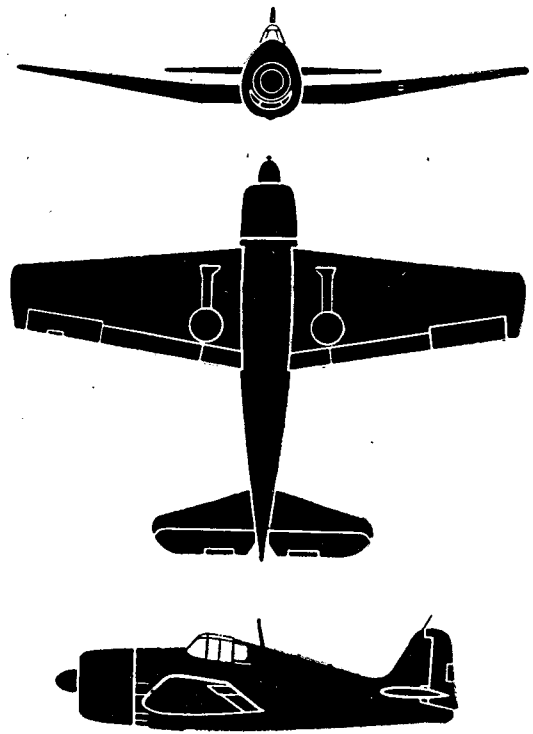
DISTINGUISHING FEATURES: Radial engine, low mid-wing monoplane. Large propeller spinner above center of cowling. Inboard panel of wing horizontal; outboard panels are dihedral. Deep egg-shaped fuselage. High narrow cockpit with straight line running down to tail. Fin and rudder have bluntly rounded top and steep leading and trailing edges. Wing has equally tapered leading and trailing edges and blunt tips. Stabilizer and elevator are long with tapered leading edge, straight trailing edge, and rounded tips.

INTEREST: This new Navy fighter is a carrier-based airplane designed by the Grumman Co. as a successor to the F4F-4. Its performance is similar in many respects to that of the Navy's F4U "Corsair."

APRIL 1943
FROM DATA CURRENTLY AVAILABLE

WAR DEPARTMENT FM 30-30
NAVY DEPARTMENT BUAER 3

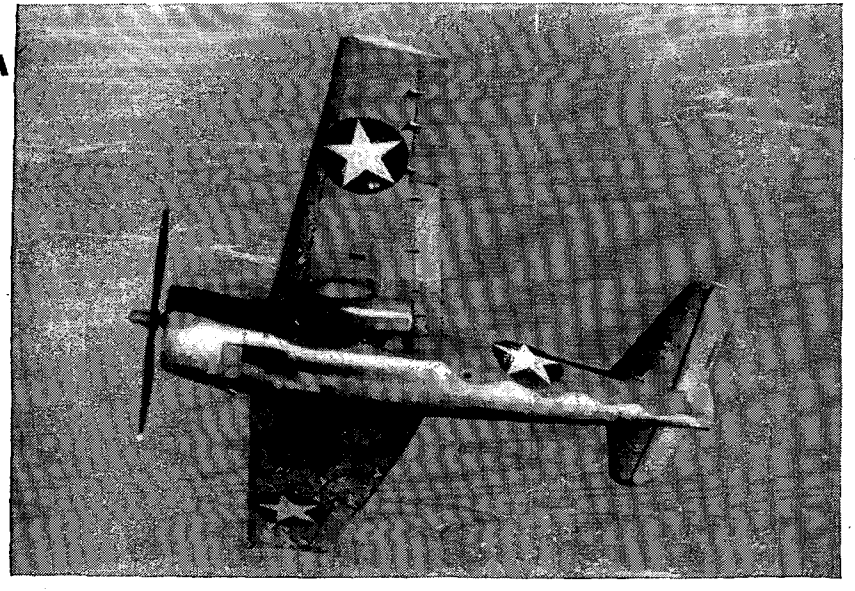
F6F "HELLCAT"



SPAN: 42 ft. 10 in.
LENGTH: 33 ft. 6¼ in.
APPROX. MAX. SPEED:

SERVICE CEILING:

RESTRICTED



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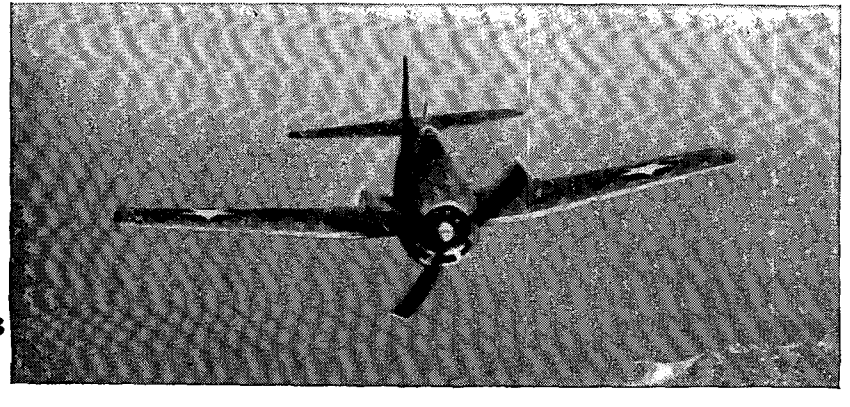

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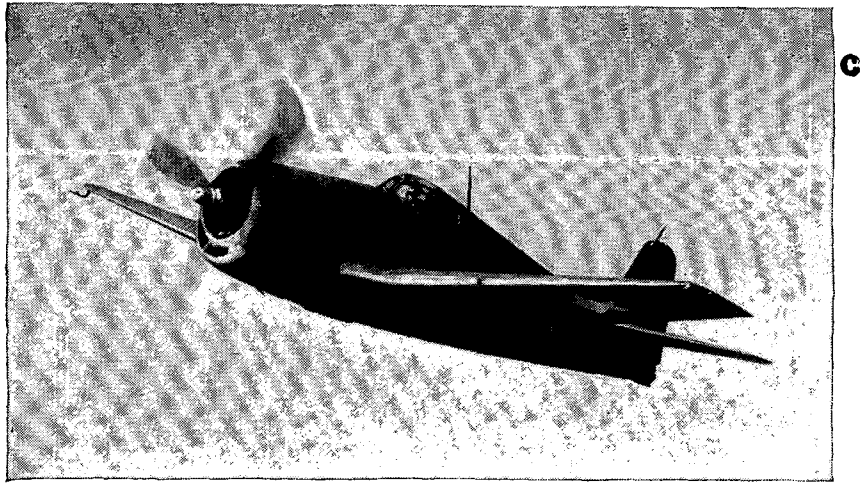

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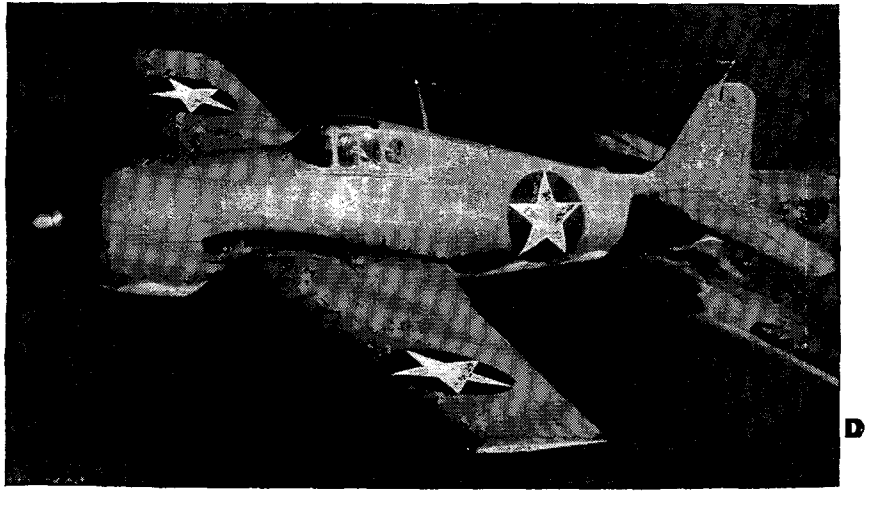


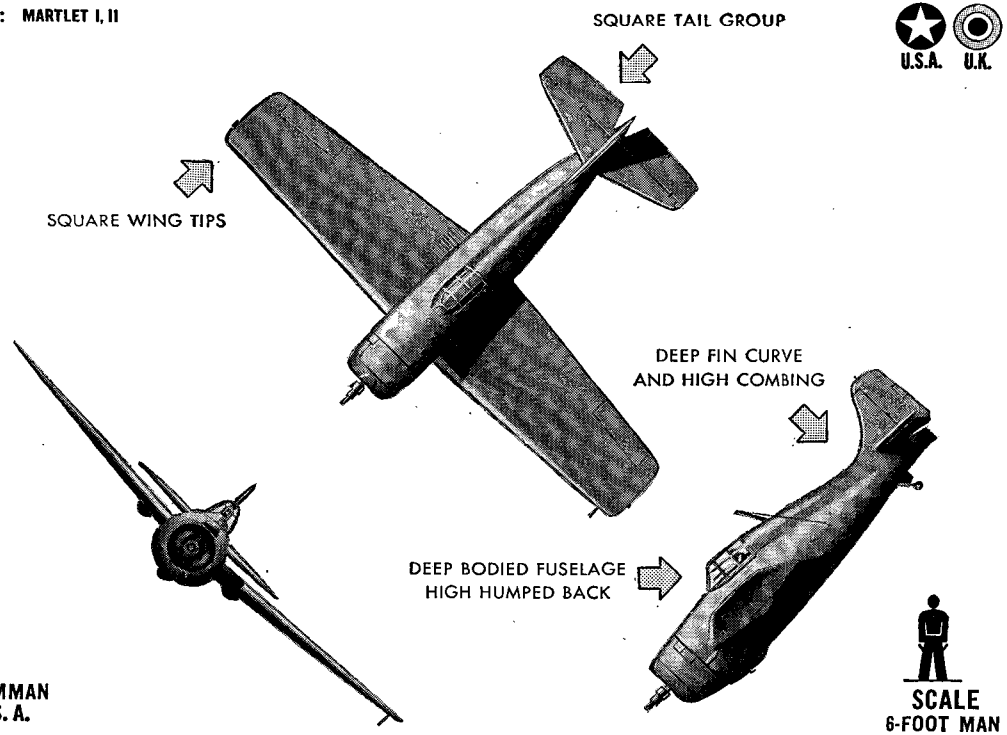
D

NAVY: F4F-3, 4
F4F series: FM-1

F. A. A.: MARTLET I, II

FIGHTER

U.S.A. U.K.



GRUMMAN
U. S. A.

SCALE
6-FOOT MAN

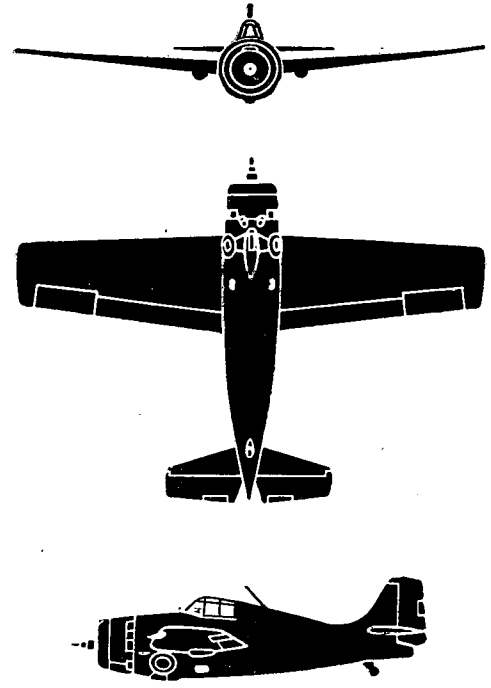
DISTINGUISHING FEATURES: Radial engine mid-wing monoplane. Dihedral from wing roots. Raised cockpit enclosure with straight line running down to the tail. Wings have medium, equal taper with square tips. Fin and rudder have a square top and rather straight trailing edge. Tail tip has an unfinished appearance due to the arrester hook it houses.

INTEREST: This fighter, called the "Martlet" by the British, can be based either on carriers or on land. It is an excellent aircraft and was probably the best carrier-based fighter in battle service until the coming of the newer, heavier, and faster Corsair which is now gradually replacing it. The Wildcat has shown altitude performance approaching that of the Zero. This aircraft was used by the Marines on Wake Island. Lt. Commander O'Hare was flying one when he shot down five Jap aircraft during a single operation.

APRIL 1943
FROM DATA CURRENTLY AVAILABLE

WAR DEPARTMENT FM 30-30
NAVY DEPARTMENT BUAER 3

F4F "WILDCAT"

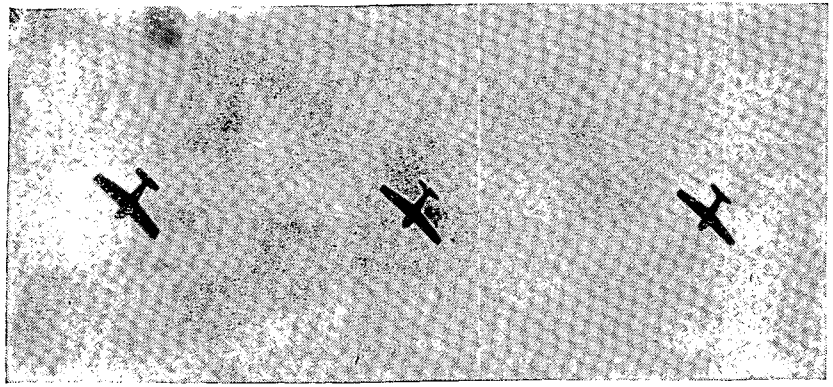


SPAN: 38 ft.
LENGTH: 28 ft. 11 in.
APPROX. MAX. SPEED: over 310 m. p. h.

SERVICE CEILING:
about 33,000 ft.

[redacted]

A



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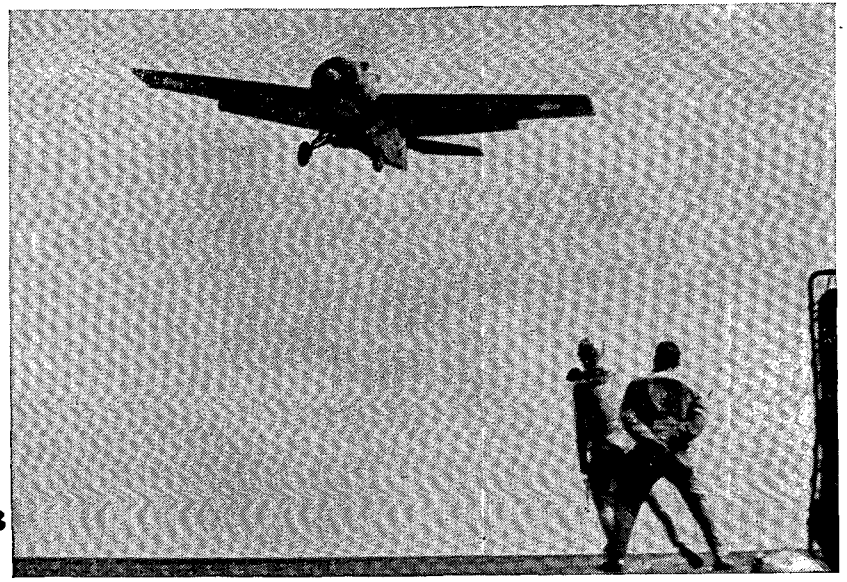

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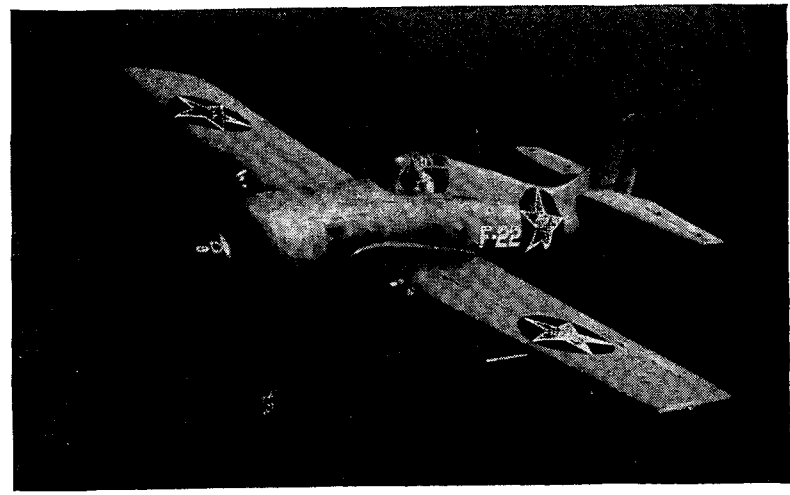

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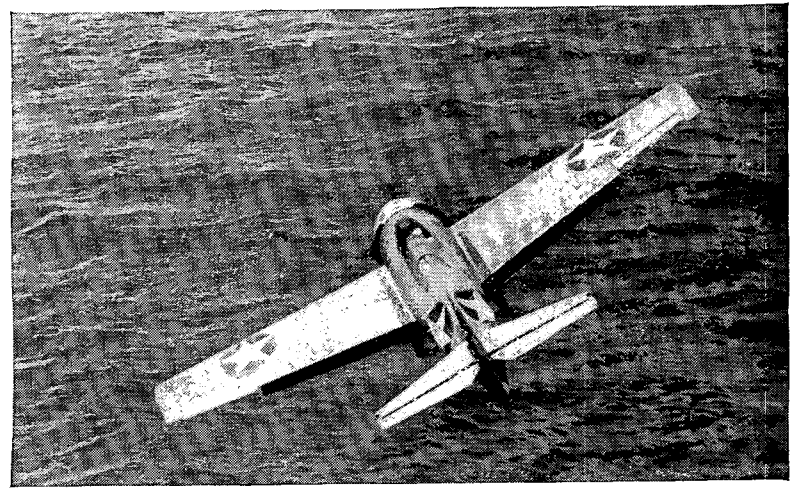
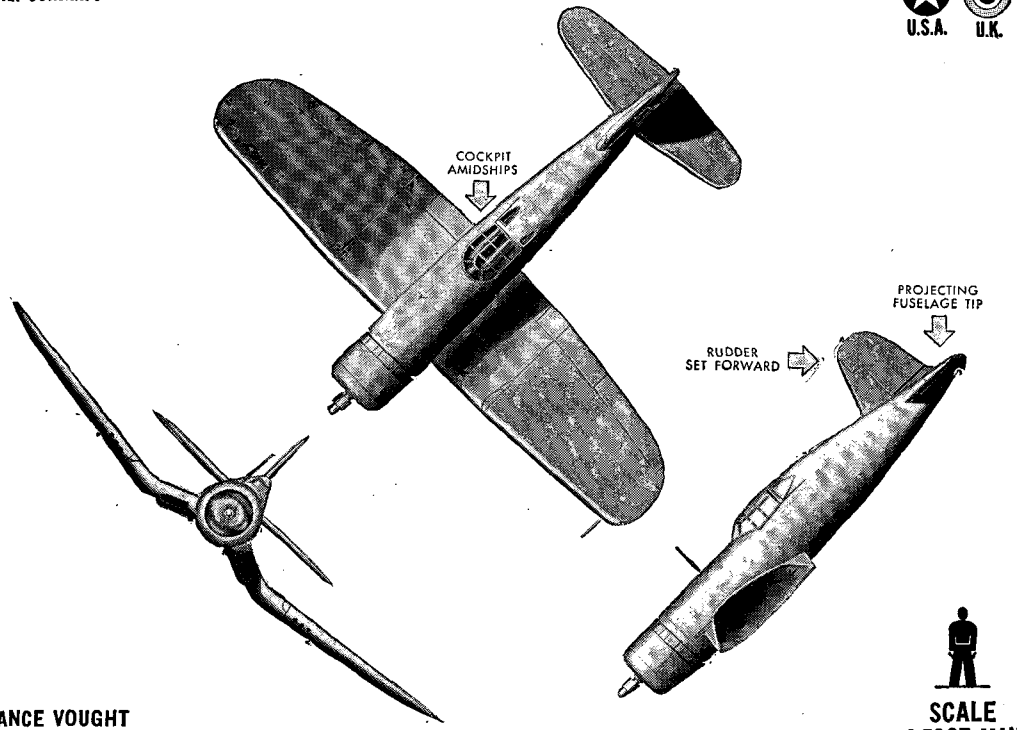


NAVY: F4U-1
F3A-1; FG-1
F. A. A.: CORSAIR I

FIGHTER

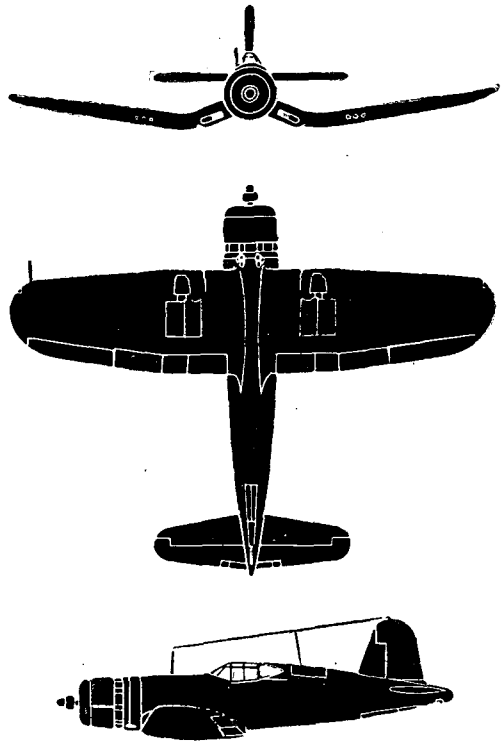
U.S.A. U.K.

F4U "CORSAIR"



SCALE
6-FOOT MAN

CHANCE VOUGHT
U. S. A.



DISTINGUISHING FEATURES: Single radial engine low-wing monoplane. Inverted gull wing. Outer section of the wing is slightly tapered with rounded tips. Nose is medium length and blunt. Fuselage is round with a small cockpit enclosure. The single fin-and-rudder is equally tapered and is rounded on top and set forward of elevators.

INTEREST: This is one of the fastest ship-borne fighters in operation today. The large inverted gull wing was designed to give added clearance for the long propeller blades which are required to absorb the output of the F4U's 2000 h. p. engine. The lower wing position due to the gull design also increases the air cushion effect between deck and plane during landing.

SPAN: 41 ft.
LENGTH: 33 ft. 4 in.
APPROX. MAX. SPEED: 365 m. p. h.

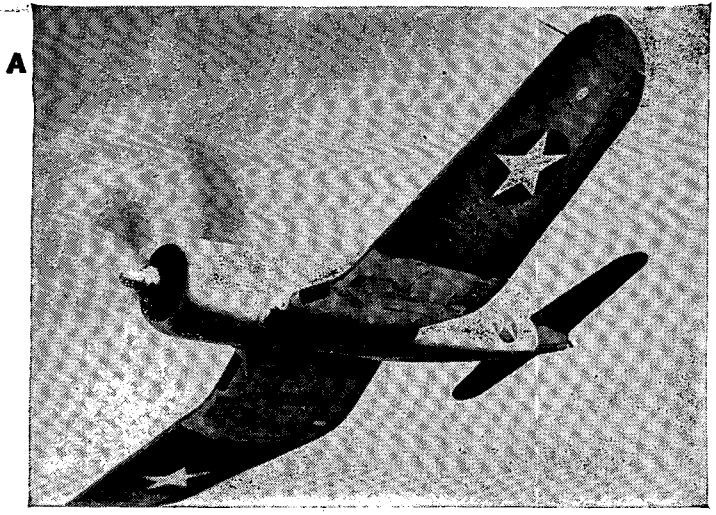
SERVICE CEILING:
over 34,000 ft.

[redacted]

APRIL 1943
FROM DATA CURRENTLY AVAILABLE

WAR DEPARTMENT FM 30-30
NAVY DEPARTMENT BUAER 3

A



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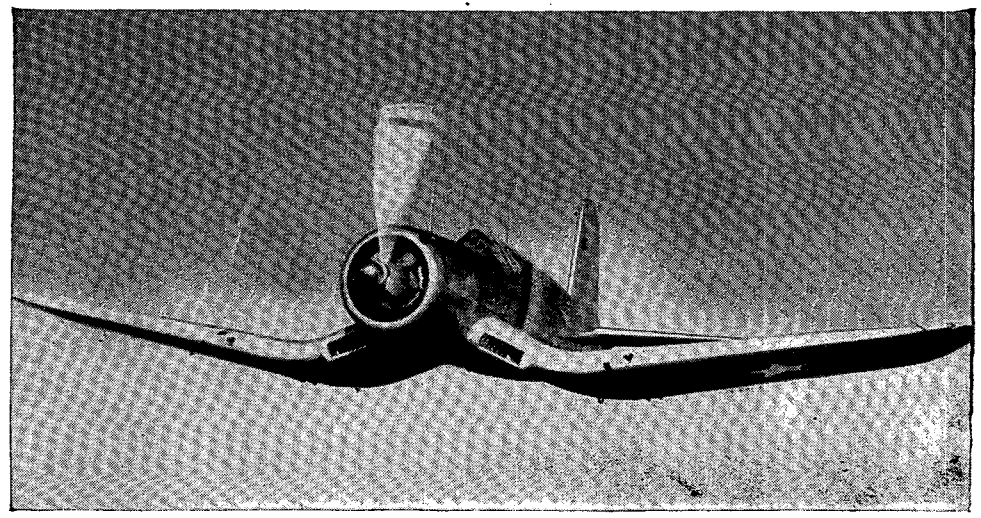

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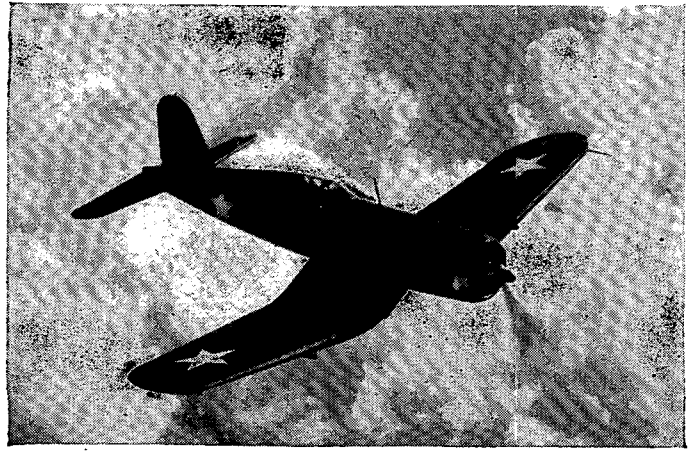

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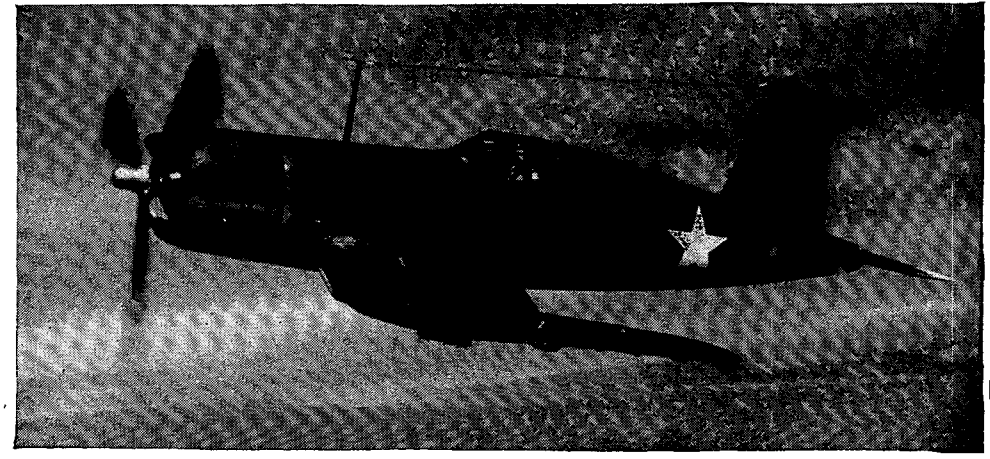


NAVY: SB2C-1, 2
SBW-1; SBF-1

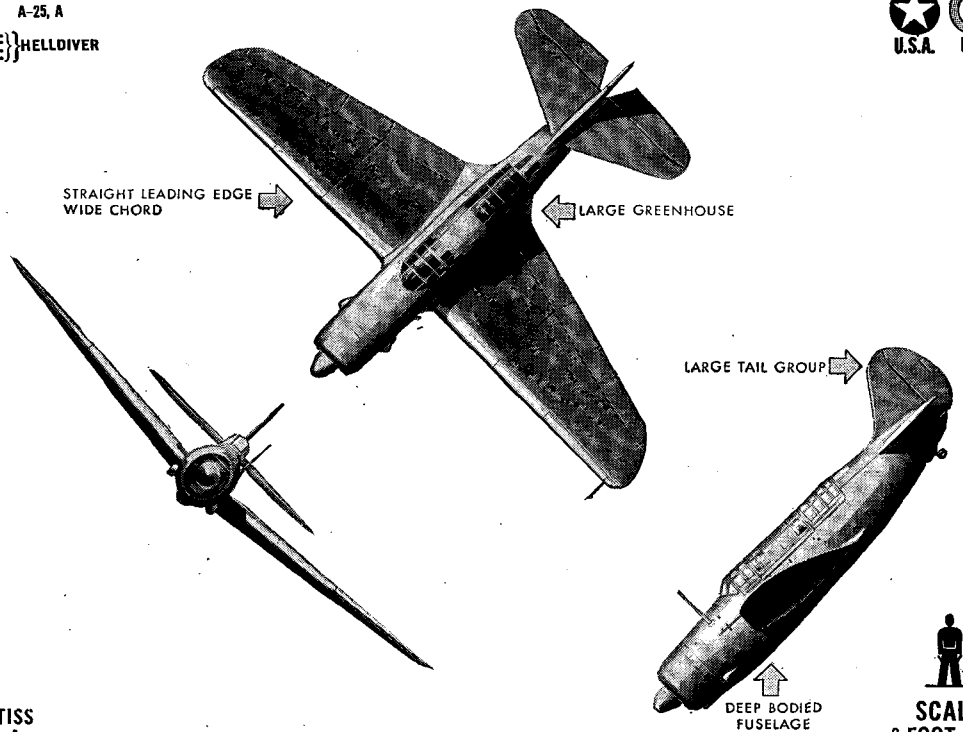
ARMY: A-25, A

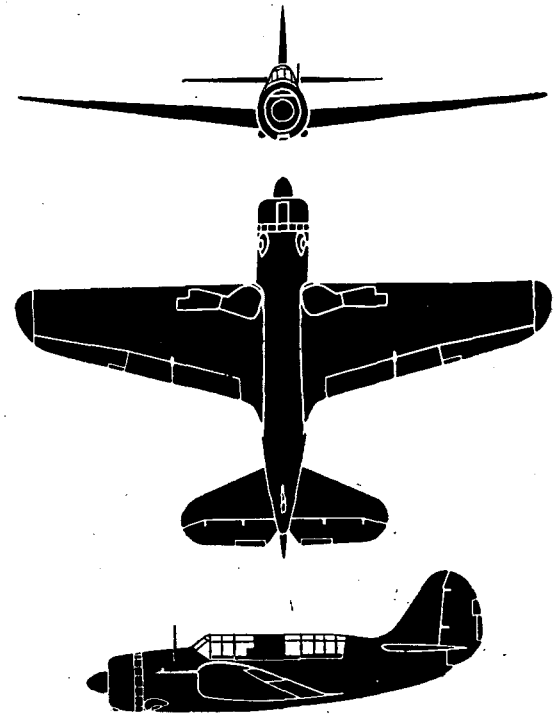
F. A. A.: } HELLDIVER
R. A. F.: }

DIVE BOMBER

U.S.A. U.K.

SB2C "HELLDIVER"





SCALE
6-FOOT MAN

CURTISS
U. S. A.

DISTINGUISHING FEATURES: Single radial engine low mid-wing monoplane. Wings have full dihedral. The leading edge is straight with a sharply tapered trailing edge fairing into fuselage. Large blunt nose with large spinner. Long cockpit enclosure extends aft nearly to high broad fin and rudder. The fin has pronounced taper. Large rounded rudder. The tail plane is mounted high with a V cut-out between the elevators.

INTEREST: One of the largest operational single engine aircraft, the Helldiver was designed to carry torpedoes, depth charges, or large bombs. It can be operated either from carriers or from land bases. It is faster, and probably carries larger bomb loads than the German "Stuka" Some models of this aircraft will appear with twin floats. From all indications, the SB2C will become one of the world's deadliest dive bombers.

SPAN: 49 ft. 9 in.
LENGTH: 36 ft. 8 in.
APPROX. MAX. SPEED: over 300 m. p. h.

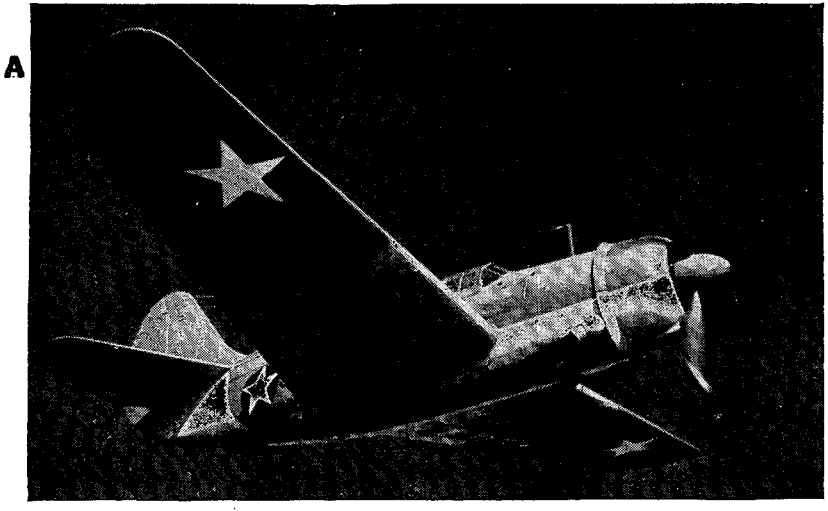
SERVICE CEILING:
over 25,000 ft.

[redacted]

APRIL 1943
FROM DATA CURRENTLY AVAILABLE

WAR DEPARTMENT FM 30-30
NAVY DEPARTMENT BUAER 3

A



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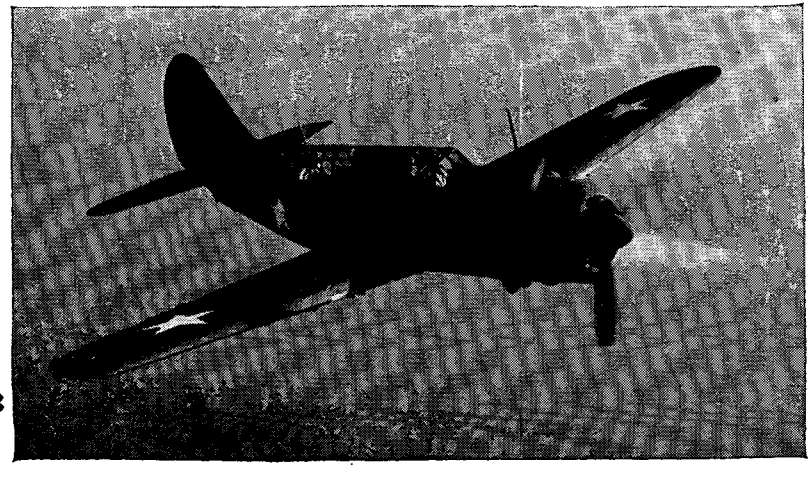

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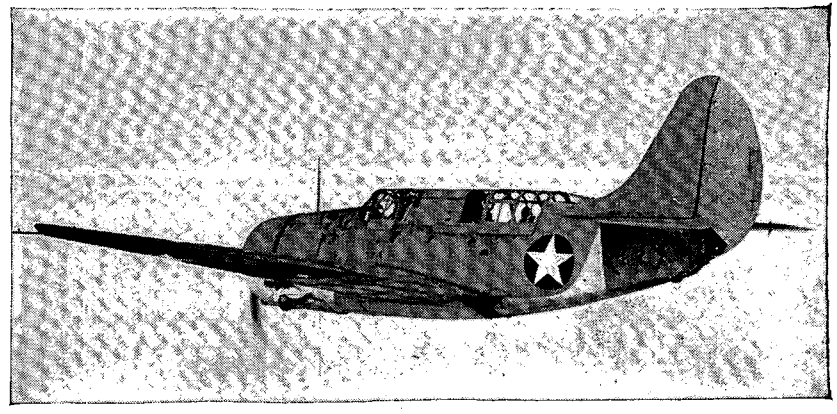

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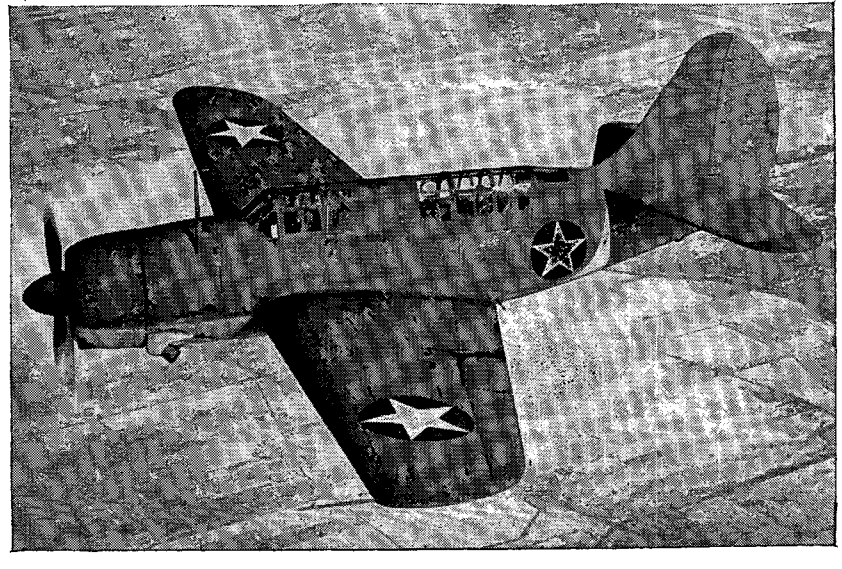


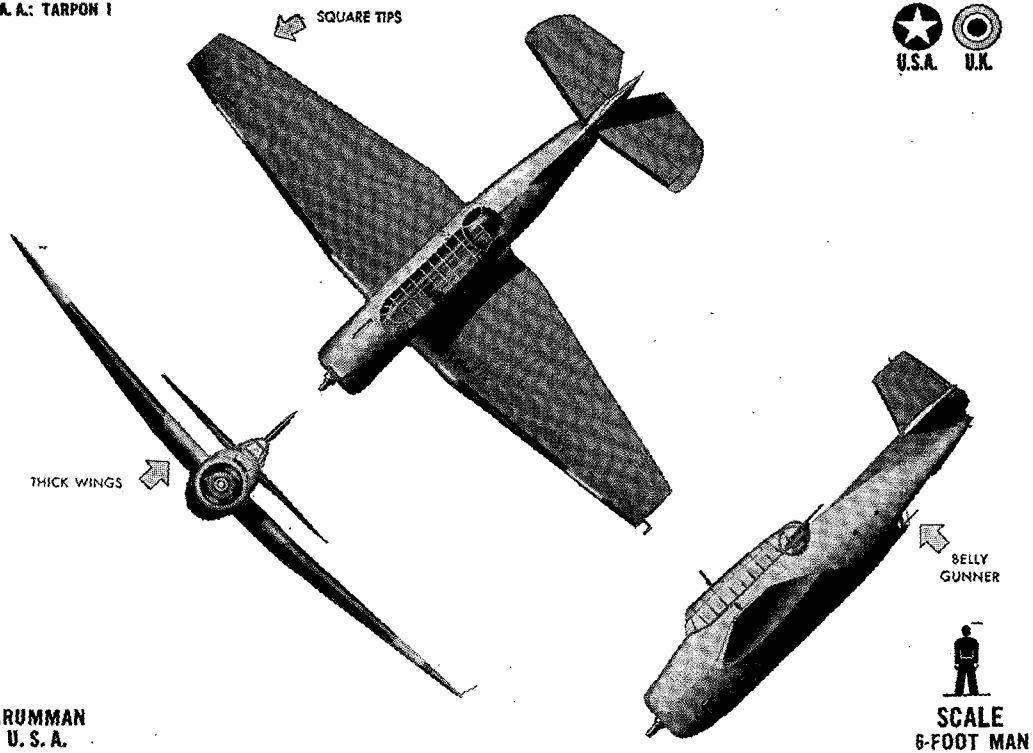
NAVY: TBF-1

F. A. A.: TARPON I

TORPEDO BOMBER

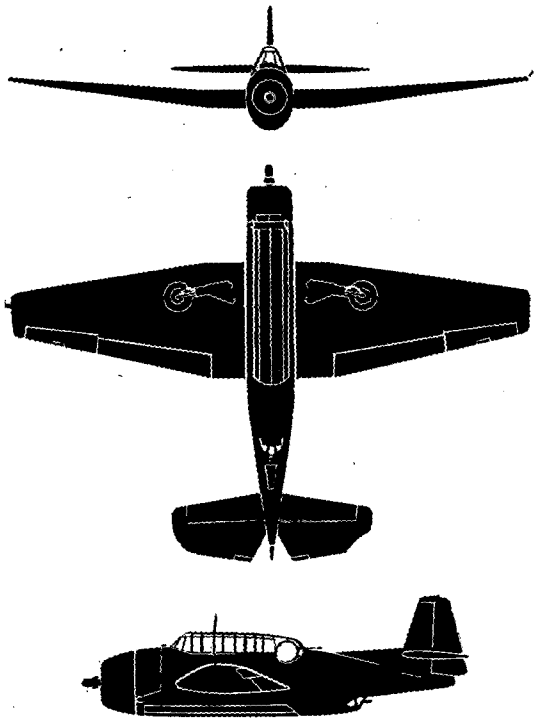
U.S.A. U.K.

TBF "AVENGER"



GRUMMAN
U. S. A.

SCALE
6-FOOT MAN



DISTINGUISHING FEATURES: Mid-wing monoplane with single radial engine. Fuselage is short and heavy with break on underside aft of torpedo housing. Wing has sharp taper in outer panels with square cut tips and dihedral on outer panels. Large cockpit enclosure mounted on top of fuselage with bubble turret aft forming part of it. Stabilizer and elevator are set above fuselage and have taper on both edges with nearly square tips. Fin and rudder are high and angular.

INTEREST: The Avenger is probably the best carrier-based torpedo plane so far seen in action. It first gained wide publicity in the Battle of Midway. Probably the most versatile of all torpedo bombers, the TBF has been used as bomber, scout, and for subpatrol from land bases. The deep fuselage permits it to carry a 21" torpedo or approximately 2000 pounds of bombs internally.

SPAN: 54 ft. 2 in.
LENGTH: 41 ft.
APPROX. MAX. SPEED: 270 m. p. h.

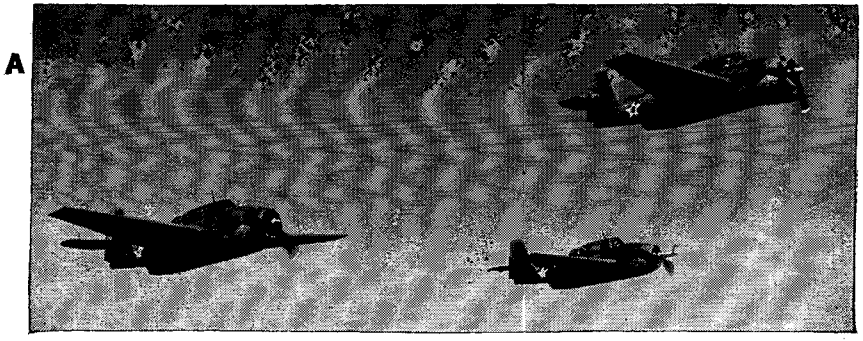
SERVICE CEILING:
22,000 ft.

[redacted]

APRIL 1943
FROM DATA CURRENTLY AVAILABLE

WAR DEPARTMENT FM 30-30
NAVY DEPARTMENT BUAER 3

A



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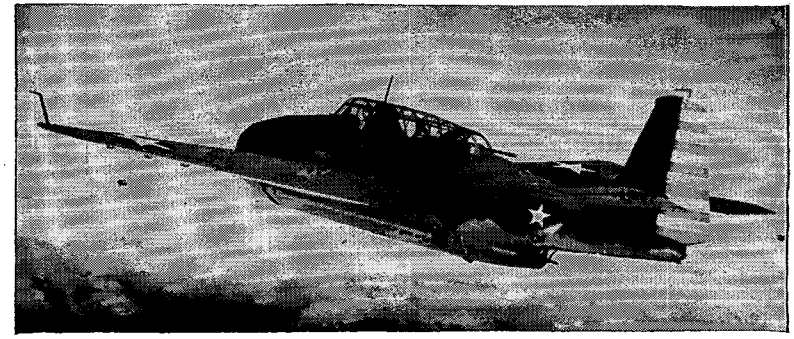

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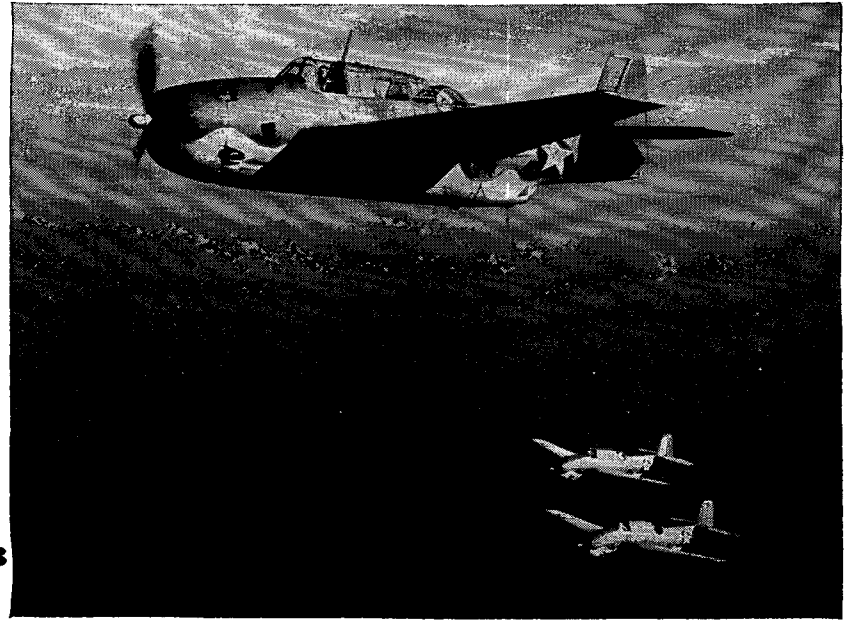

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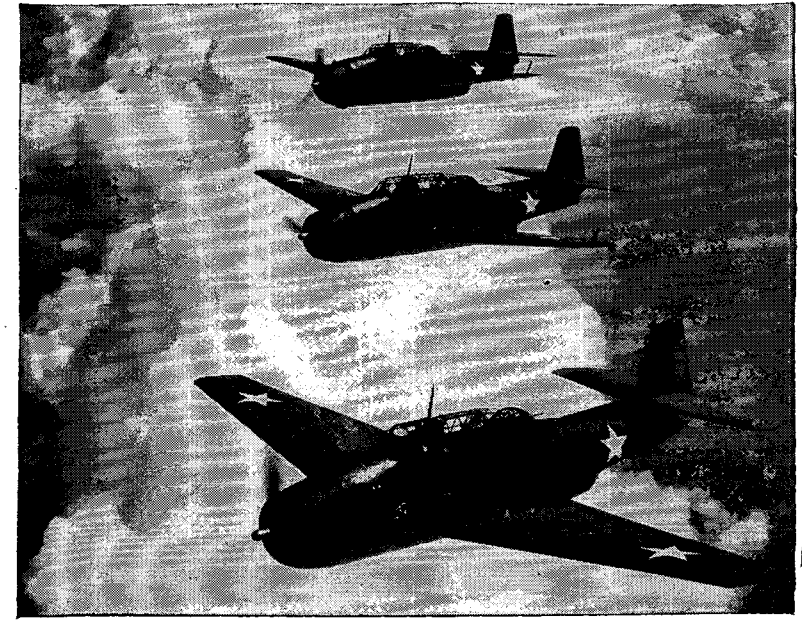
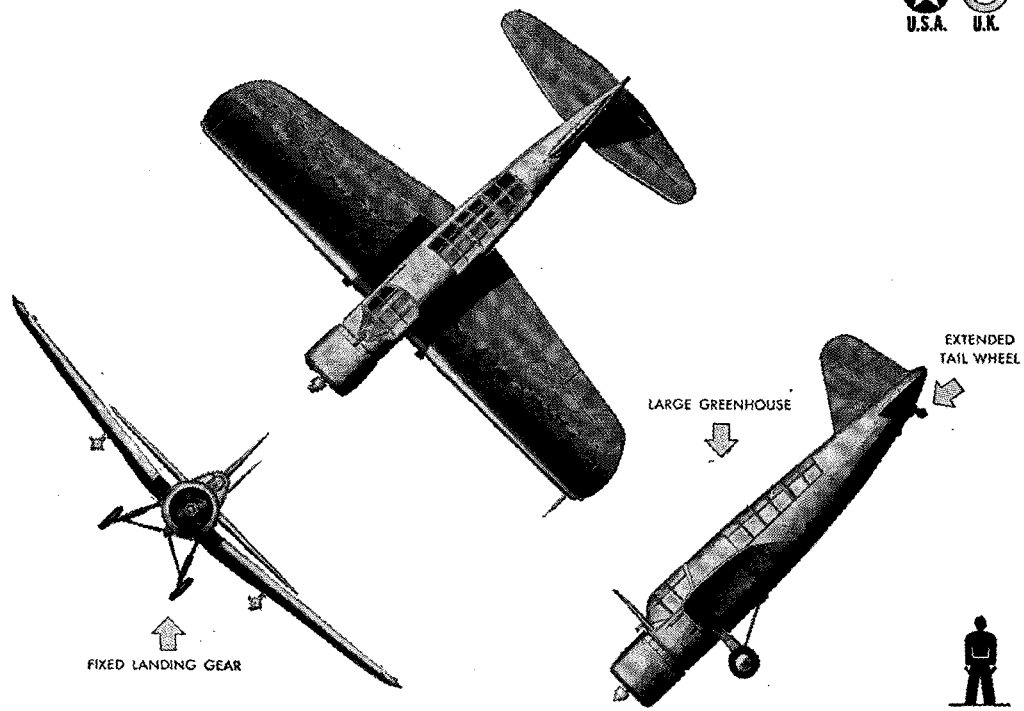


NAVY: OS2U-3
OS2U-1, 2, 3; OS2N

F. A. A.: KINGFISHER 1

RECONNAISSANCE

U.S.A. U.K.



CHANCE VOUGHT
U. S. A.

SCALE
6-FOOT MAN

DISTINGUISHING FEATURES: Low mid-wing monoplane with straight leading edge and tapered trailing edge. Long high cockpit enclosure extending nearly to the tail. Bottom line is broken by a fixed landing gear or floats. Tall triangular fin and rudder.

INTEREST: Known as "The eyes of the Navy", the principal function of the Kingfisher is to spot gunfire for the fleet. Some versions are equipped with wheels for scouting operations from land bases. Fitted with a single float, the Kingfisher is designed for catapulting from battleships or cruisers.

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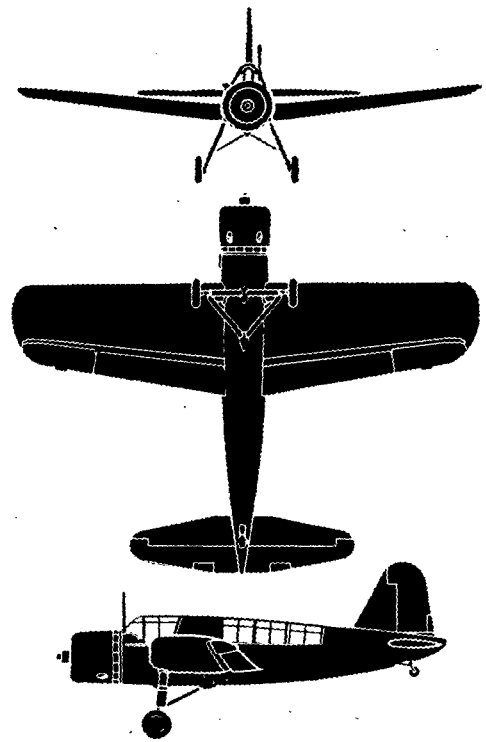
FROM DATA CURRENTLY AVAILABLE

WAR DEPARTMENT FM 30-30
NAVY DEPARTMENT BUAER 3

OS2U "KINGFISHER"

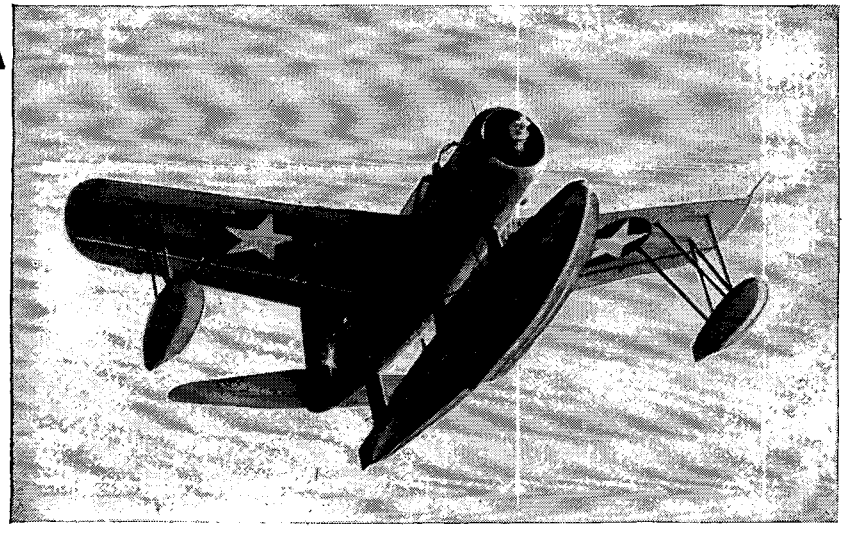


SPAN: 36 ft.
LENGTH: 33 ft. 10 in. as seaplane
30 ft. 1 in. as landplane
APPROX. MAX. SPEED: 175 m. p. h.

SERVICE CEILING:
about 12,000 ft.

[redacted]

A



C

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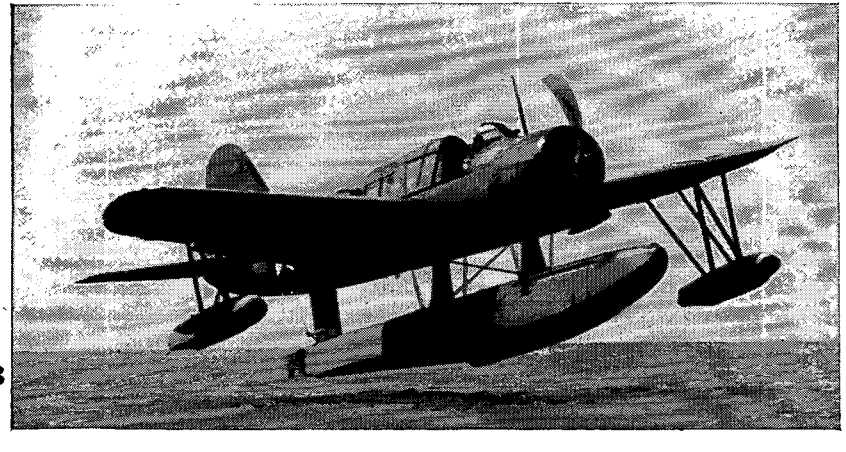


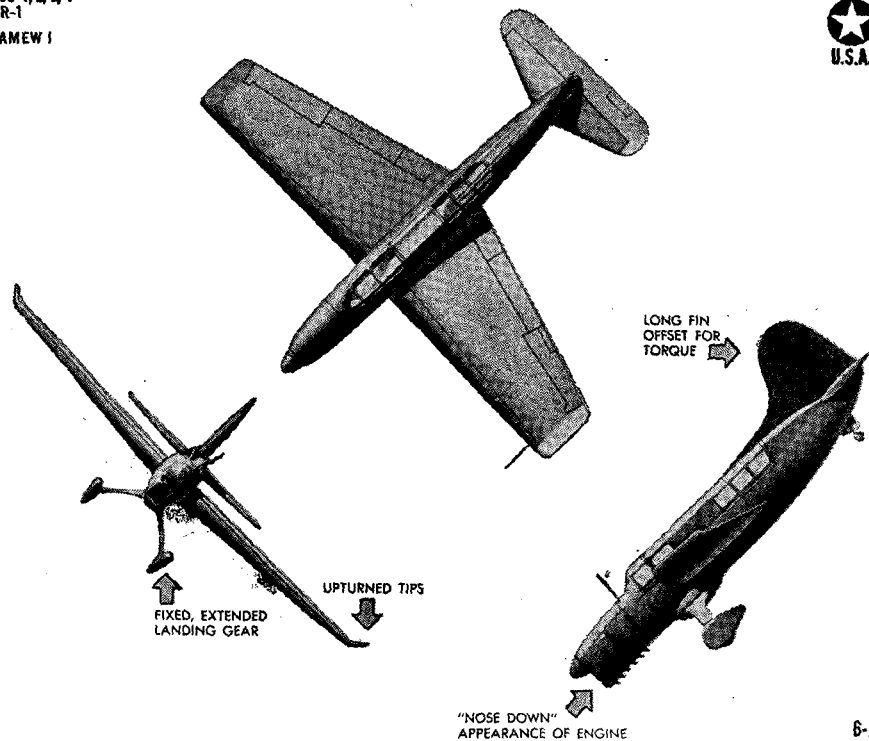
D

NAVY: SO3C-2
SO3C-1, 2, 3, 4
SOR-1

F.A.A.: SEAMEW I

RECONNAISSANCE

U.S.A. U.K.



CURTISS
U. S. A.

SCALE
6-FOOT MAN

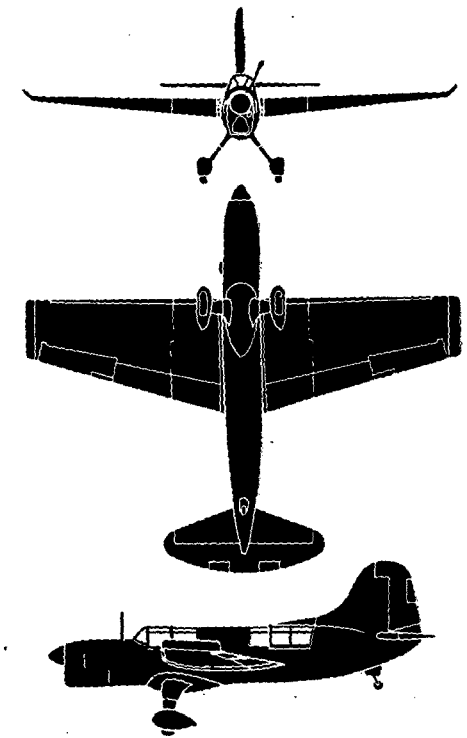
DISTINGUISHING FEATURES: Single-engine mid-wing monoplane. Fixed landing gear or single large float with fixed wing floats. In-line engine and large spinner. Slightly dihedral wings which have straight leading edge and tapered trailing edge. Wing tips square and turned up. Long high cockpit enclosure. Large fin and rudder.

INTEREST: One of the newest battleship and cruiser based airplanes in service, the Seagull is designed for operation as gun spotter for the fleet. It can also be used for anti-submarine patrol on the coast. An interesting feature of the Seagull is that it is powered by an in-line engine which is air-cooled. Equipped for catapult launching, the Seagull can be easily landed in rough waters and is known for its long range. Some versions with fixed landing gear, can be used on carriers. Seagulls now being added to the British Fleet Air Arm are to be known as "Seamews."

APRIL 1943
FROM DATA CURRENTLY AVAILABLE

WAR DEPARTMENT FM 30-30
NAVY DEPARTMENT BUAER 3

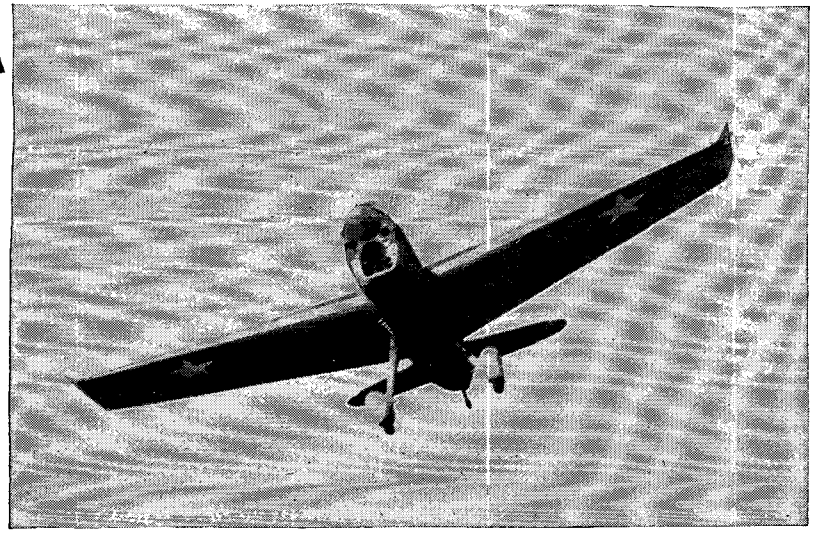
SO3C "SEAGULL"



SPAN: 38 ft.
LENGTH: 34 ft.
APPROX. MAX. SPEED: 180 m. p. h.

SERVICE CEILING:
18,000 ft.

A



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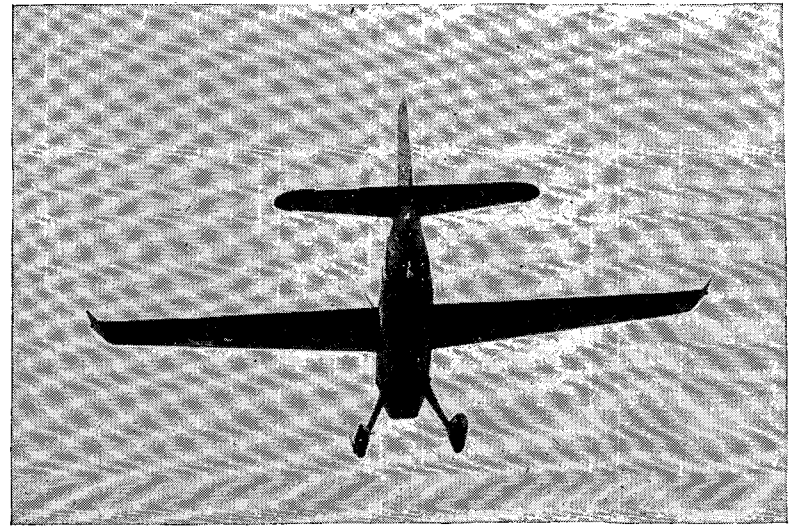

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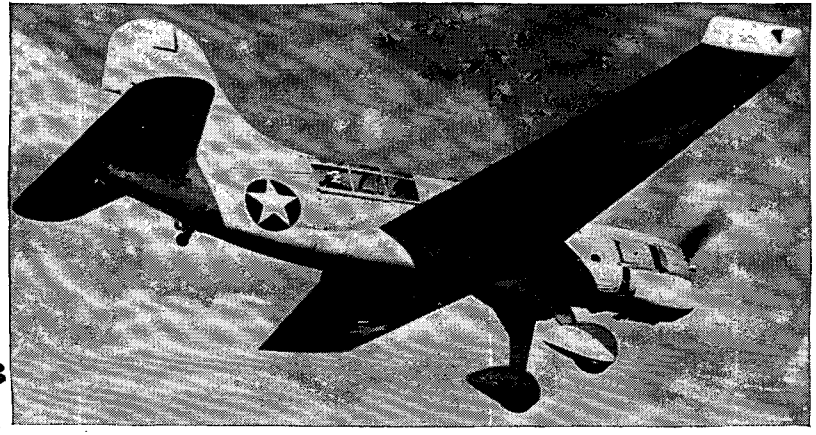

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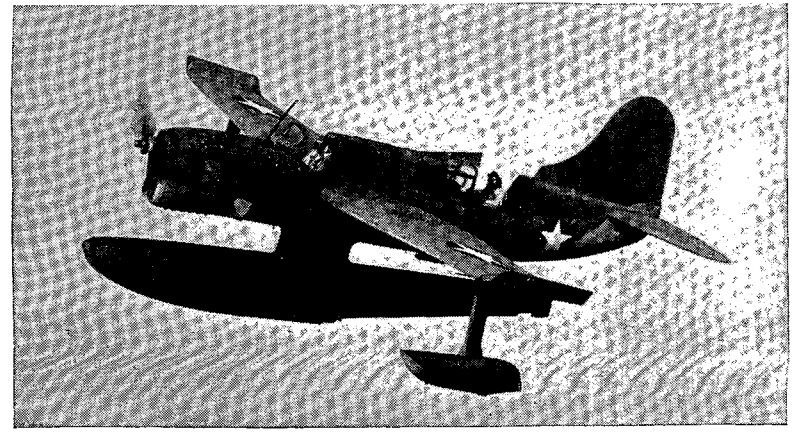
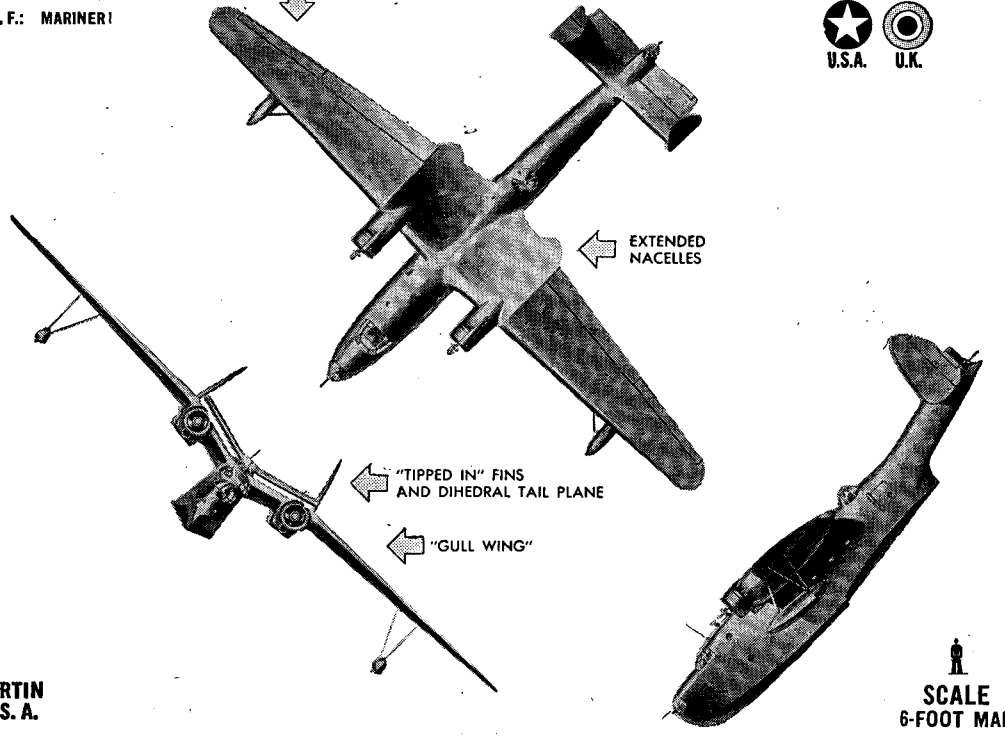


NAVY: PBM-3
PBM-1, 3, 4
R.A.F.: MARINER

LONG, THIN WING

PATROL BOMBER—TRANSPORT

U.S.A. U.K.



MARTIN
U. S. A.

SCALE
6-FOOT MAN

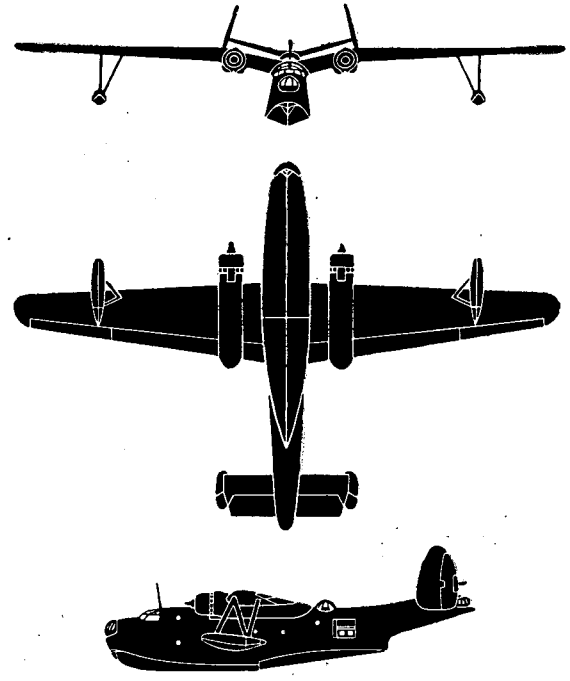
DISTINGUISHING FEATURES: High gull-wing monoplane with twin radial engines. Wings tapered on trailing edge with small rounded tips. Twin toed-in triangular fin and rudders set outboard of dihedral tail plane. Hull tapers back toward tail with sharp step on underside.

INTEREST: The Mariner is an extremely serviceable long-range flying boat. It has been giving excellent results over rough seas and under otherwise strenuous operating conditions. This aircraft was first designed, built, and flown in miniature. Two torpedoes or equivalent weight in bombs are carried under the wings inboard of the engines. On the PBM-3, fixed wing floats have replaced the retractable floats of the two previous models. At present, some Mariners are being used for over-water transport airplanes. These converted airplanes, with armament removed, will be designated as PBM-3R's. The latest model (not here shown) has 3 power-driven turrets and is called the PBM-3C.

APRIL 1943
FROM DATA CURRENTLY AVAILABLE

WAR DEPARTMENT FM 30-30
NAVY DEPARTMENT BUAER 3

PBM "MARINER"

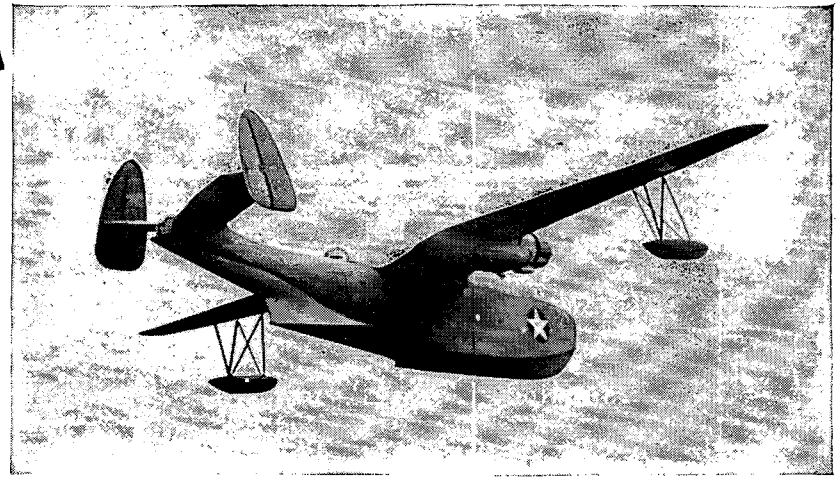


SPAN: 118 ft.
LENGTH: 80 ft.
APPROX. MAX. SPEED: 205 m. p. h.

SERVICE CEILING:
17,000 ft.

RESTRICTED

A



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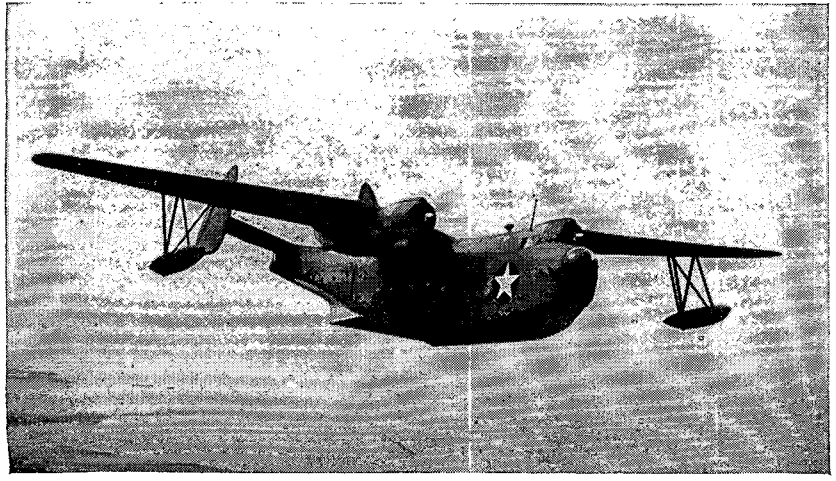

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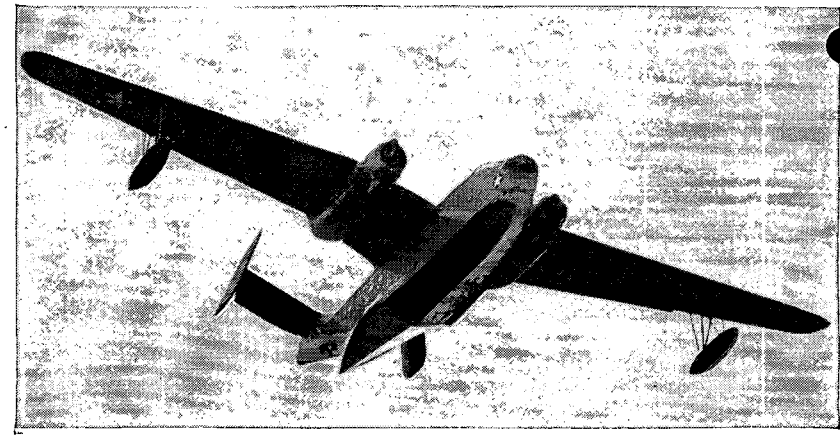

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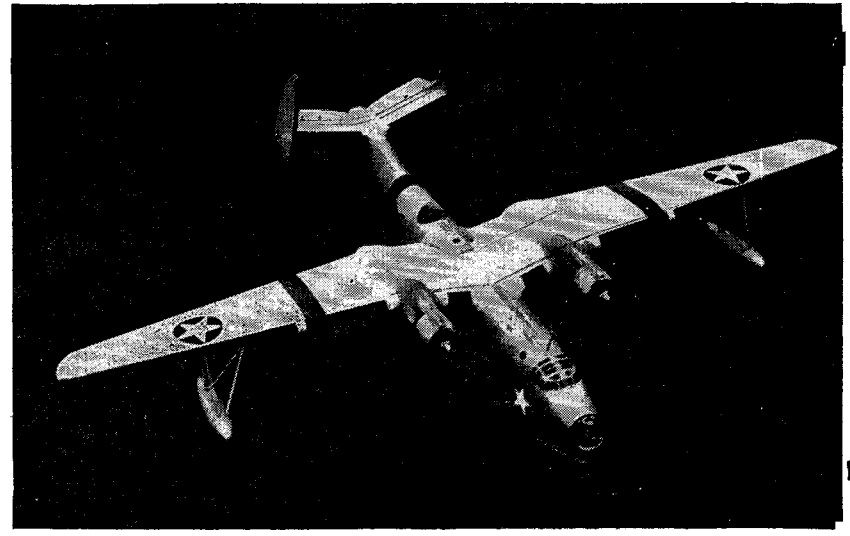
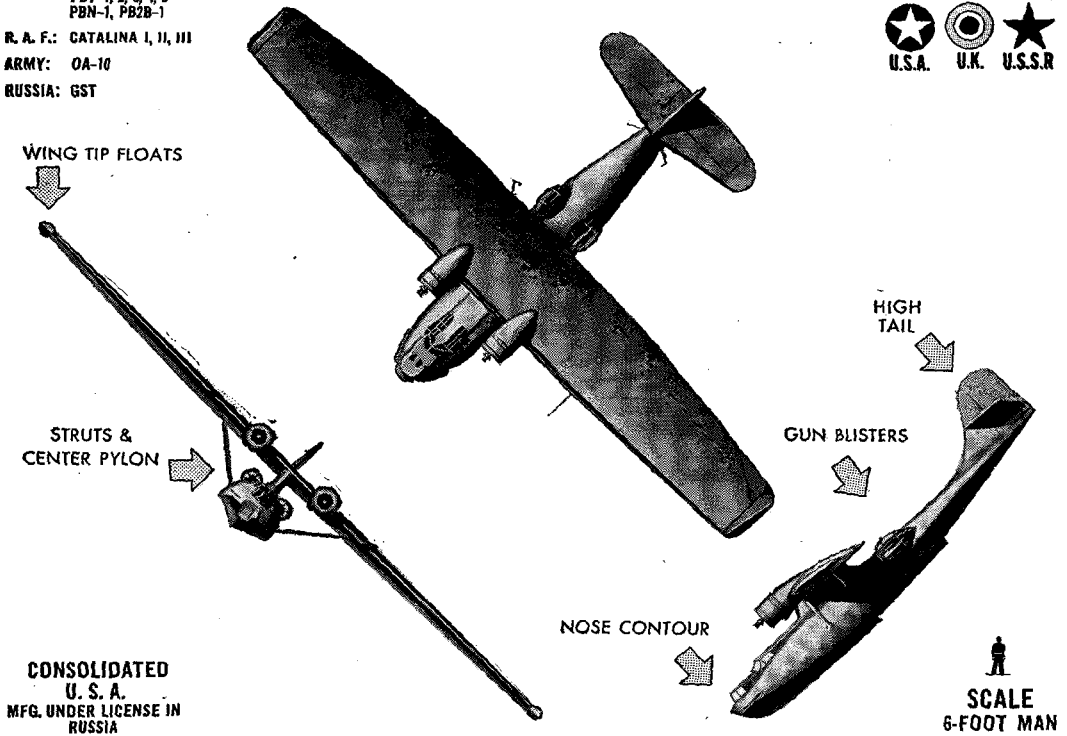


NAVY: PBY-5
PBY-1, 2, 3, 4, 5
PBN-1, PB2B-1
R. A. F.: CATALINA I, II, III
ARMY: OA-10
RUSSIA: GST

PATROL BOMBER

U.S.A. U.K. U.S.S.R



CONSOLIDATED
U. S. A.
MFG. UNDER LICENSE IN RUSSIA

SCALE
6-FOOT MAN

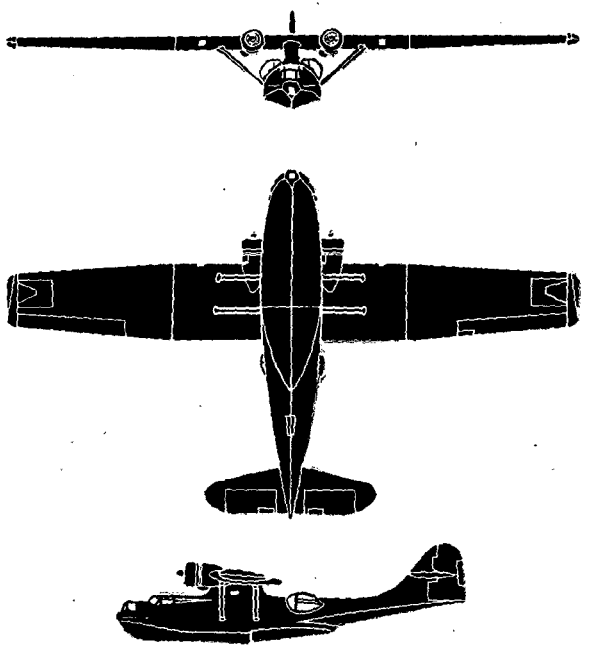
DISTINGUISHING FEATURES: Two-engine parasol-wing monoplane with nearly rectangular wings having square tips. The wing is mounted above the hull on a streamlined superstructure and braced by struts. Wing tip floats are retractable. Two large blister turrets behind wing on hull. Bottom of hull has two steps and sweeps upward to high single fin and rudder.

INTEREST: The "Cat" spotted the German battleship "Bismarck" after the sinking of the British battleship "Hood." Its capacity to stay long hours in the air makes this aircraft ideally suited for its long sub-spotting and convoy-guarding patrols. In the Aleutians and Solomons, the PBY is reported to have been used as a torpedo bomber, carrying two torpedoes under the wing. Alternatively, it can carry eight 325-lb. depth charges or two 2,000-lb. bombs under the wing. The Catalina is built under license in Russia with some modification in armament and engines. The Russian designation is GST.

APRIL 1943
FROM DATA CURRENTLY AVAILABLE

WAR DEPARTMENT FM 30-30
NAVY DEPARTMENT BUAER 3

PBY "CATALINA"

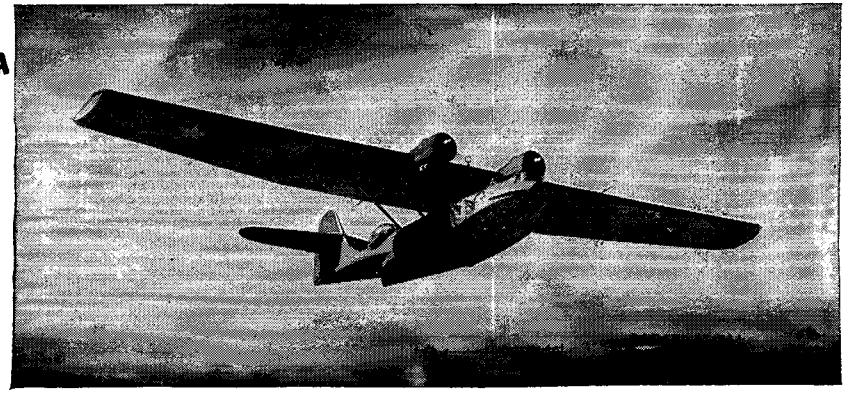


SPAN: 104 ft.
LENGTH: 63 ft. 11 in.
APPROX. MAX. SPEED: 170 m. p. h.

SERVICE CEILING
19,000 ft

[redacted]

A



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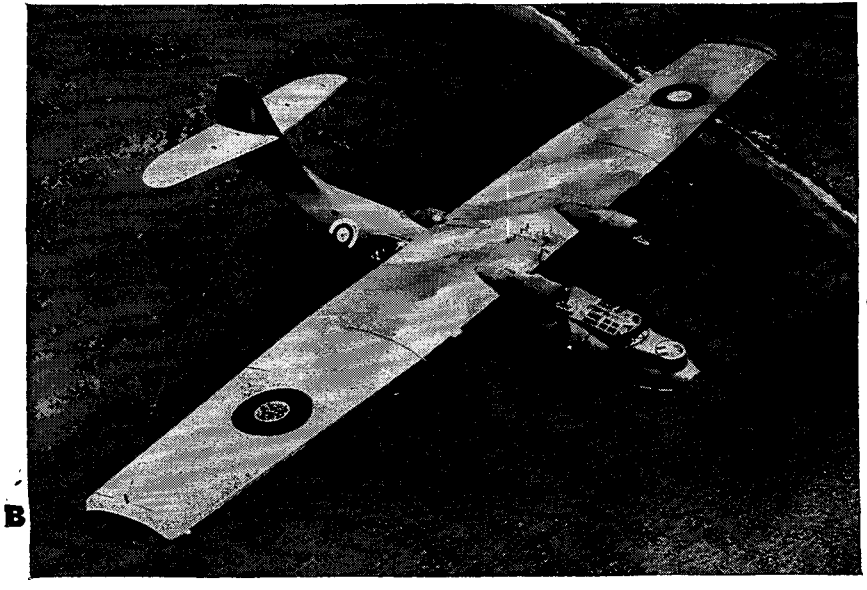

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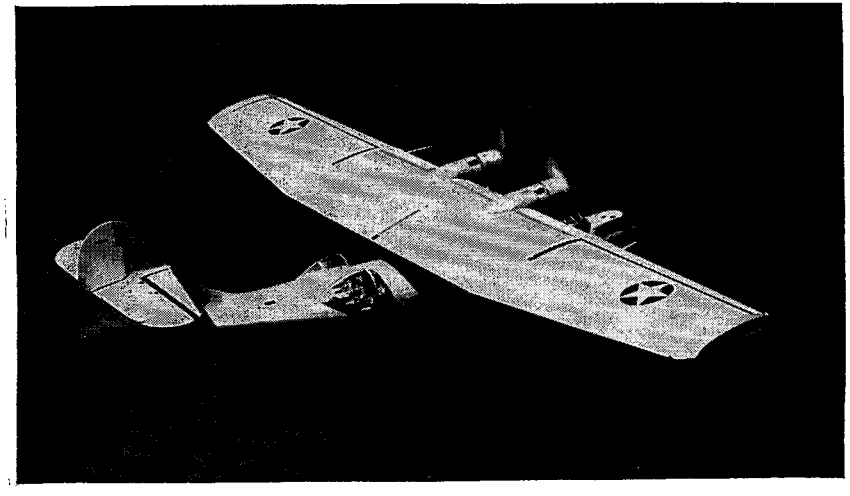
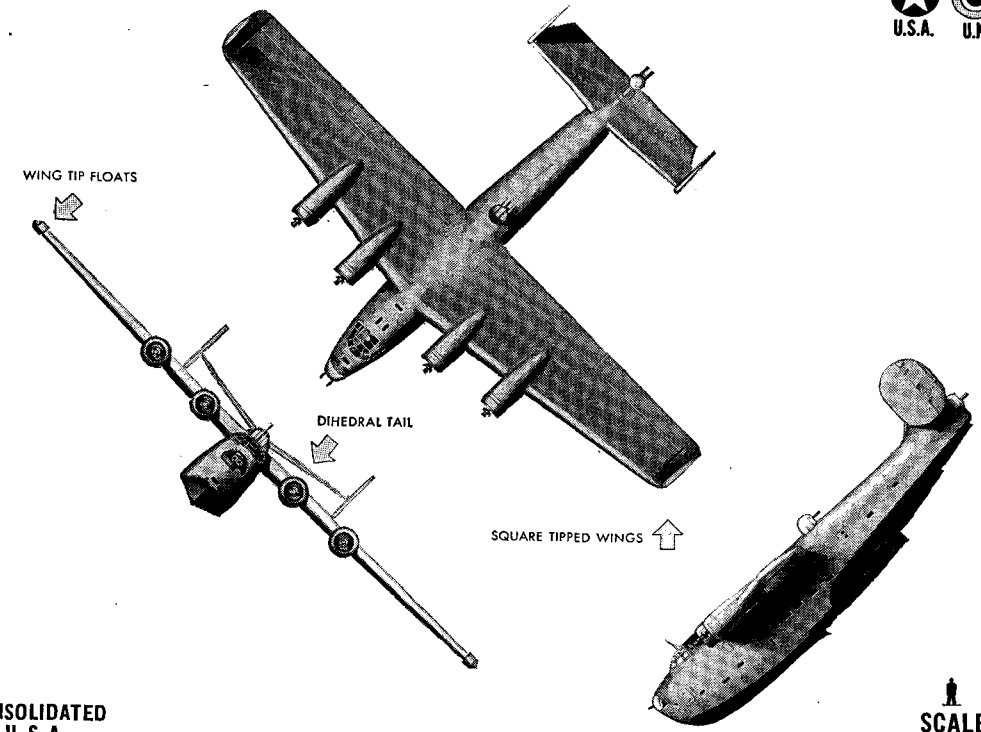


NAVY: PB2Y-3
PB2Y-2, 3
R. A. F.: CORONADO

PATROL BOMBER

U.S.A. U.K.



CONSOLIDATED
U. S. A.

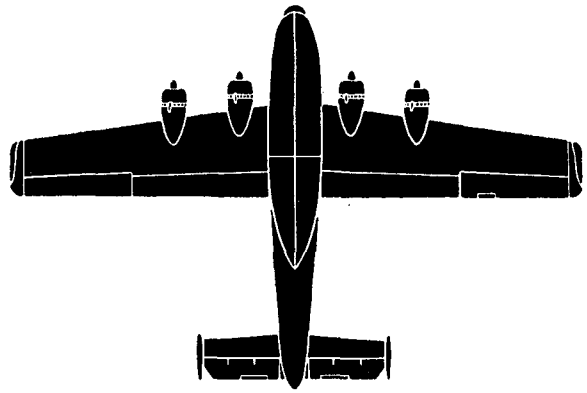
SCALE
6-FOOT MAN

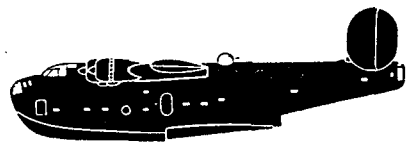
DISTINGUISHING FEATURES: Four-engine high-wing monoplane. Deep hull with prominent steps tapering toward rear. Leading edge of wing is tapered. Trailing edge straight. Square wing tips. Large rounded twin outboard rudders mounted on a dihedral tail plane. **INTEREST:** The Coronado is a long-range four-engine seaplane of great size, power, and range. It is used mainly as a patrol bomber but in many instances it has been converted for transport purposes in which case it is called the PB2Y–3R. The transport version has gun positions removed and fuselage faired in. The wing tip floats are retractable. The twin fins and rudders are practically identical with those of the B–24 Liberator which is made by the same company.

APRIL 1943
FROM DATA CURRENTLY AVAILABLE

WAR DEPARTMENT FM 30–30
NAVY DEPARTMENT BUAER 3

PB2Y "CORONADO"

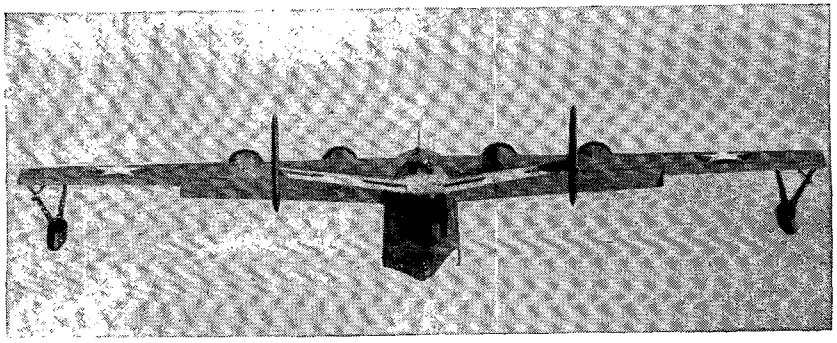




SPAN: 115 ft.
LENGTH: 79 ft. 3 in.
APPROX. MAX. SPEED: 219 m. p. h.

SERVICE CEILING:
20,000 ft.

[redacted]



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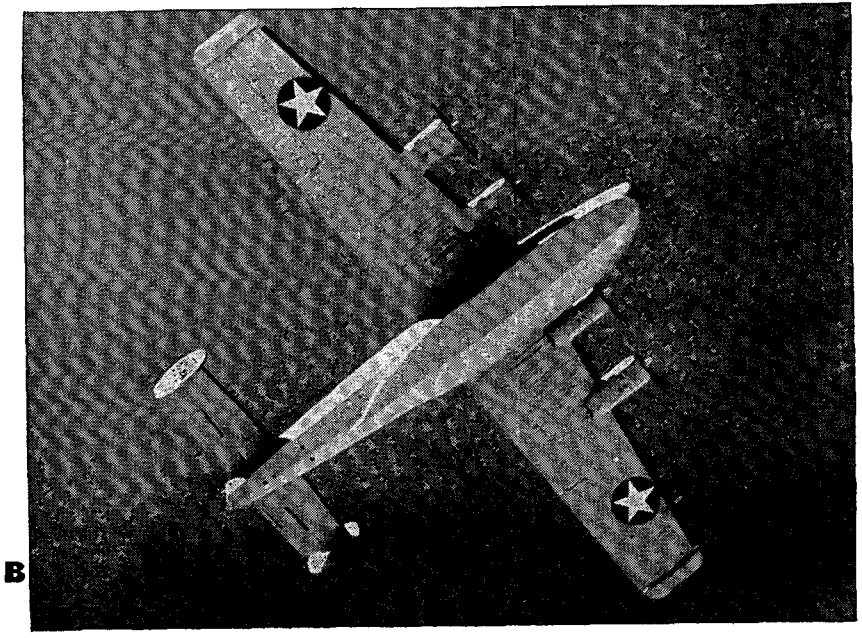

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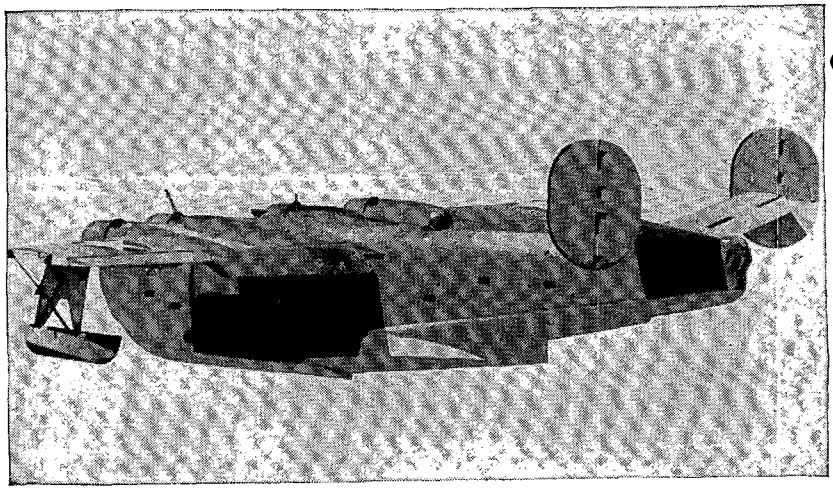

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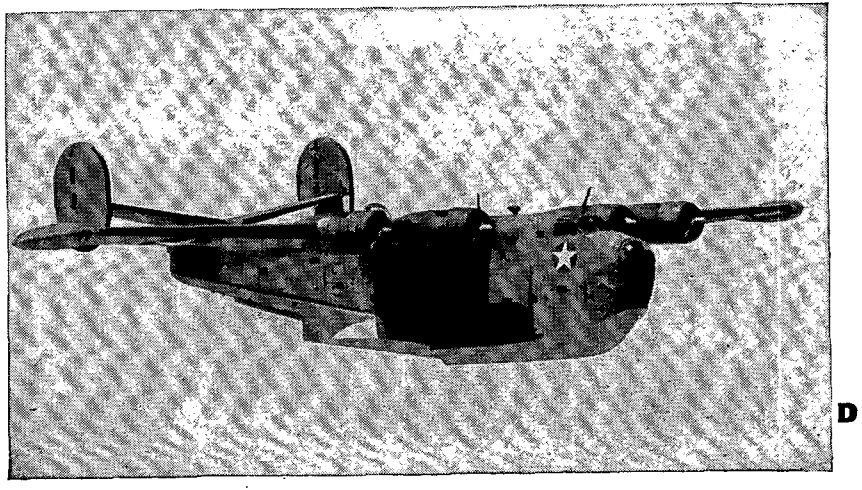
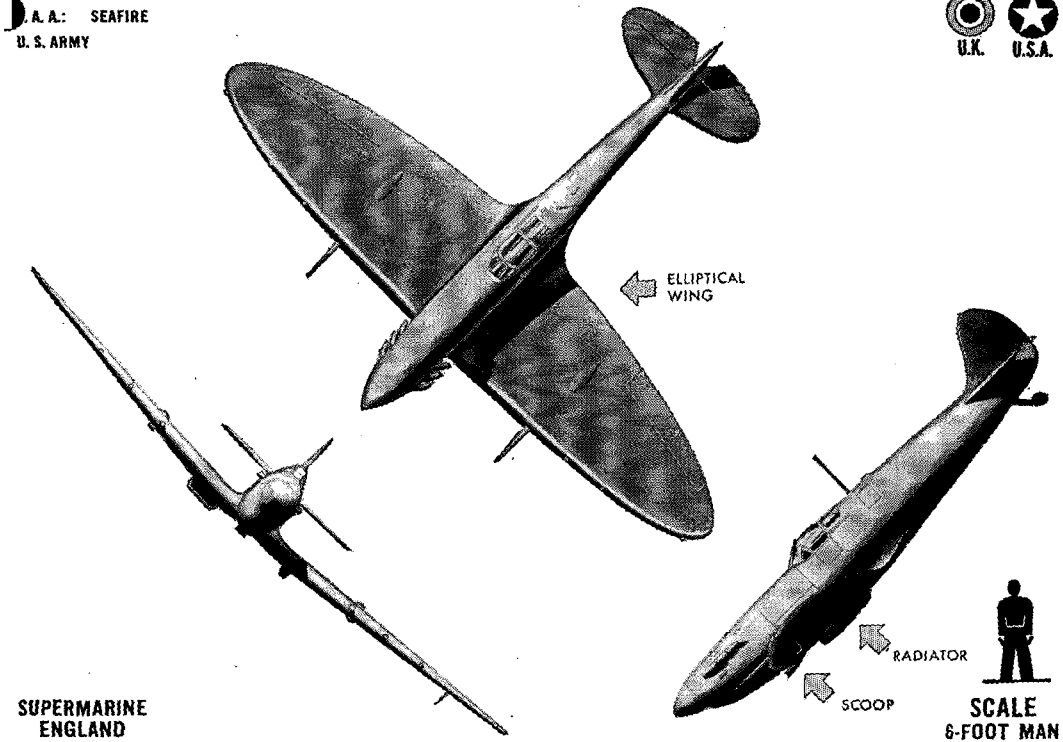


D

R. A. F.: SPITFIRE V
SPITFIRE series
A. A.: SEAFIRE
U. S. ARMY

FIGHTER

U.K. U.S.A.



SUPERMARINE
ENGLAND

SCALE
6-FOOT MAN

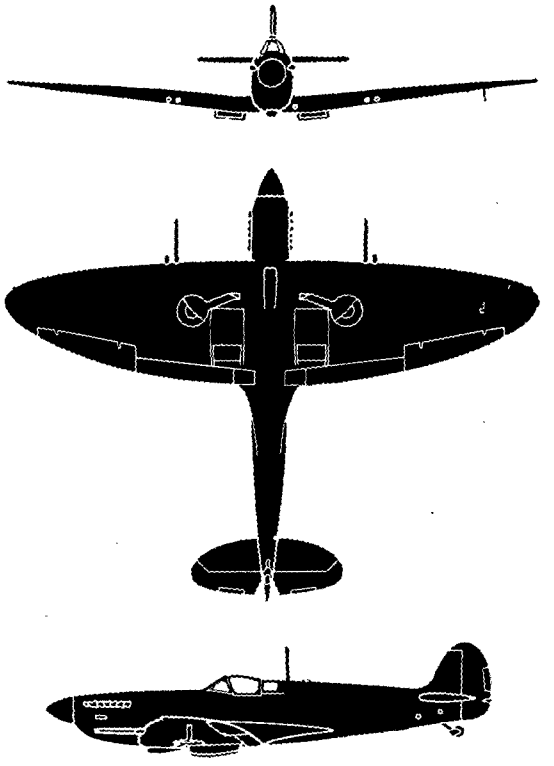
DISTINGUISHING FEATURES: Low-wing monoplane with full dihedral and characteristic elliptically curved wing outline. Radiator intake off-set on underside of wing. Mark IX has radiator intake under both wings. Single in-line engine with large pointed spinner and long narrow fuselage. Stabilizer and elevator are set high on fuselage, with elliptical curved outline and cut-out in trailing edge. The fin and rudder are small and rounded.

INTEREST: The "Spit" played a great part in defeating the Luftwaffe in the Battle of Britain. Its speed, rate of climb, superior maneuverability, and great fire power make it one of the finest single-engine fighters in the world. A carrier-based version, the "Seafire", has been used in the Mediterranean and to protect convoys to Russia. Three latest type "Spits" are reported to have brought down three Ju-86 P pressure cabin aircraft from nearly 50,000 feet in November 1942.

APRIL 1943
FROM DATA CURRENTLY AVAILABLE

WAR DEPARTMENT FM 30-30
NAVY DEPARTMENT BUAER 3

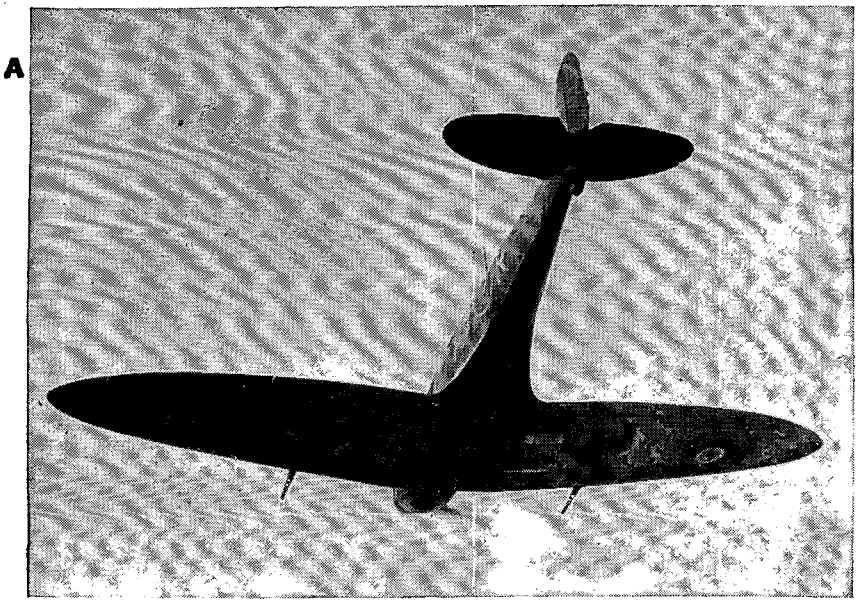
"SPITFIRE"



SPAN: 36 ft. 10 in.
LENGTH: 30 ft. 4 in.
MAX. SPEED: 375 m. p. h. at 20,250 ft.

SERVICE CEILING:
37,700 ft.

[redacted]



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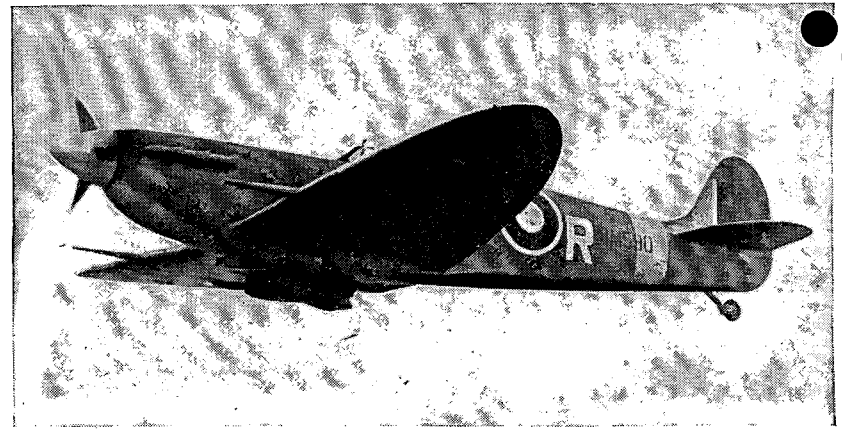

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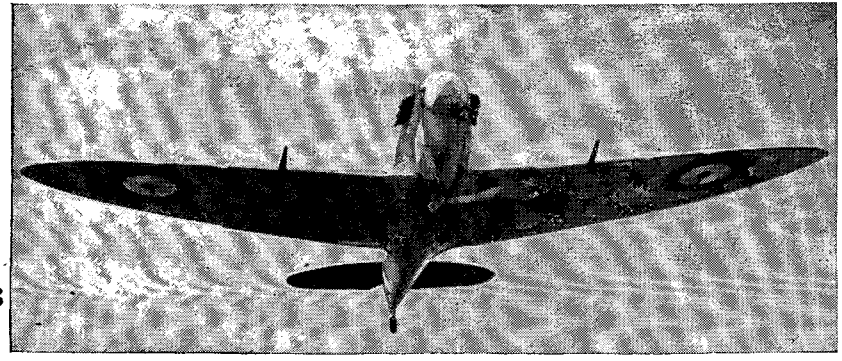

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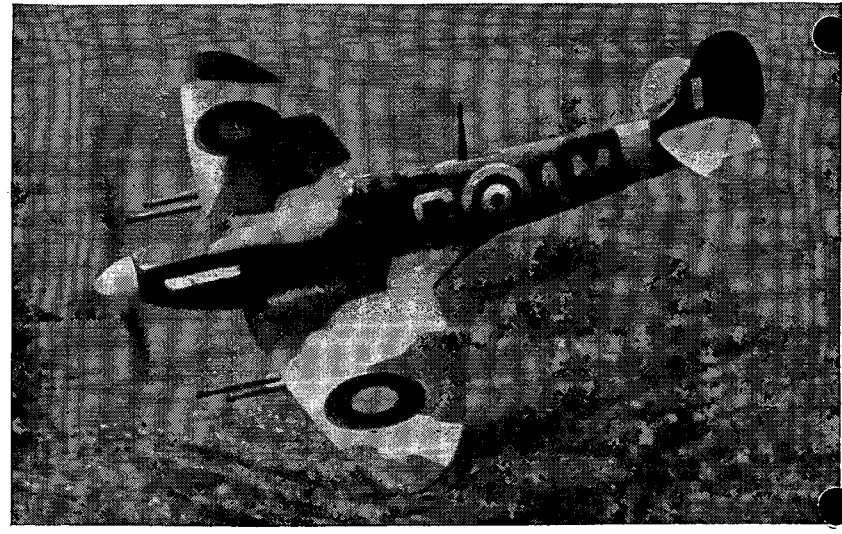


D

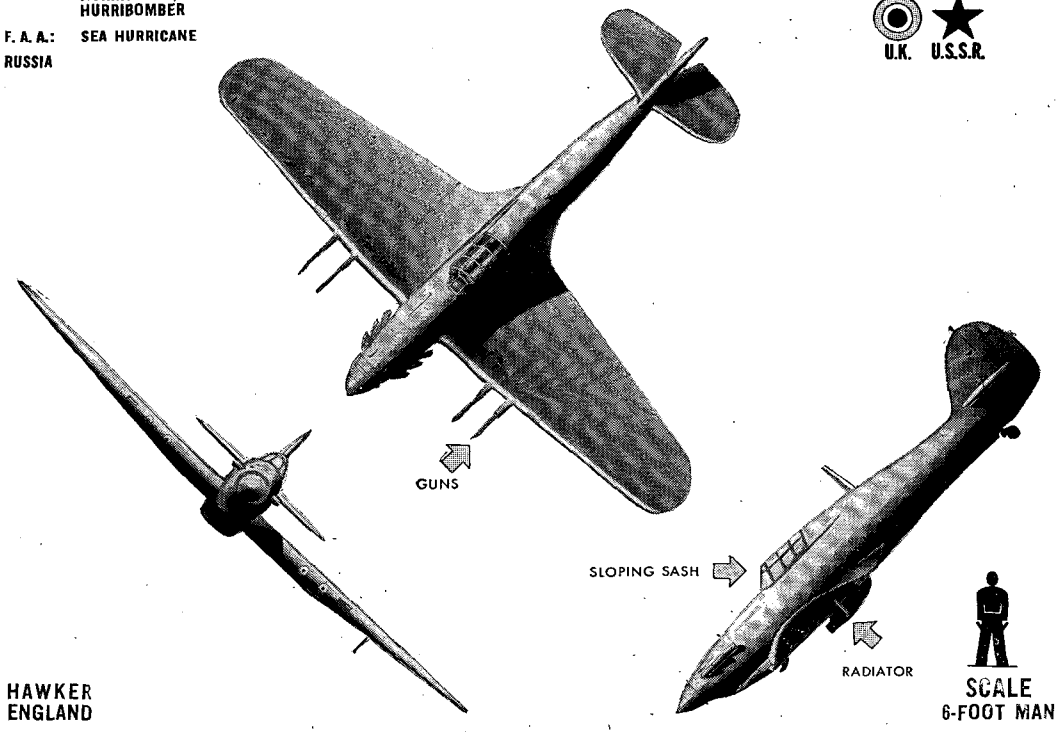
R. A. F.: **HURRICANE IIc**
HURRICANE I, II
HURRIBOMBER

F. A. A.: SEA HURRICANE

RUSSIA

FIGHTER—LIGHT BOMBER

U.K. U.S.S.R.



SCALE
6-FOOT MAN

HAWKER
ENGLAND

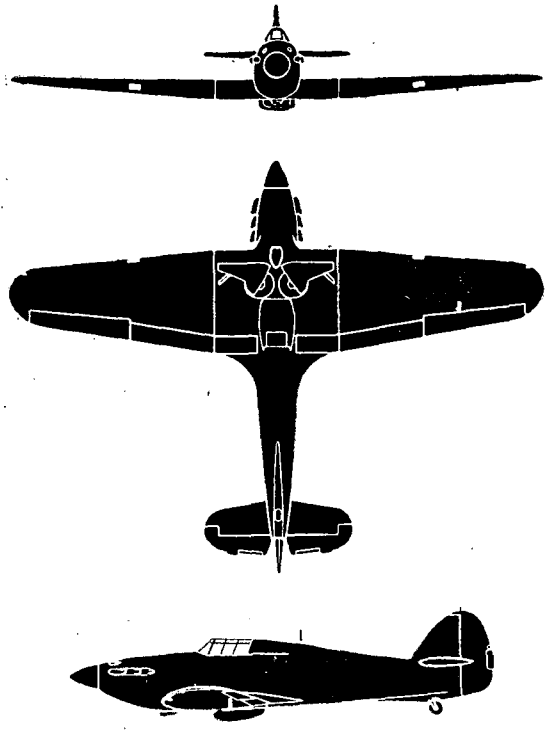
DISTINGUISHING FEATURES: Low-wing monoplane with single in-line engine. Wings have slight dihedral and equal taper in outer section, with rounded tips. Fuselage has hump-back effect and pointed nose, with large air-scoop on underside below cockpit. Very large rounded fin and rudder. Stabilizer and elevator have rounded tips with cut-away in trailing edge.

INTEREST: Hurricanes, along with Spitfires, played an outstanding role in the Battle of Britain. In fact, Hurricanes shot down more aircraft than all other types put together. Although early models were used almost exclusively for interception at high altitudes, more recently this aircraft has been used for low-level bombing, dive bombing, and night fighting. As a carrier-based fighter with the Fleet Air Arm, it has done outstanding work in protecting convoys to Russia. Some versions carry as many as 12 machine guns, while others mount four 20-mm. cannon. For tropical service the Hurricane is equipped with a large scoop under the nose.

APRIL 1943
FROM DATA CURRENTLY AVAILABLE

WAR DEPARTMENT FM 30–30
NAVY DEPARTMENT BUAER 3

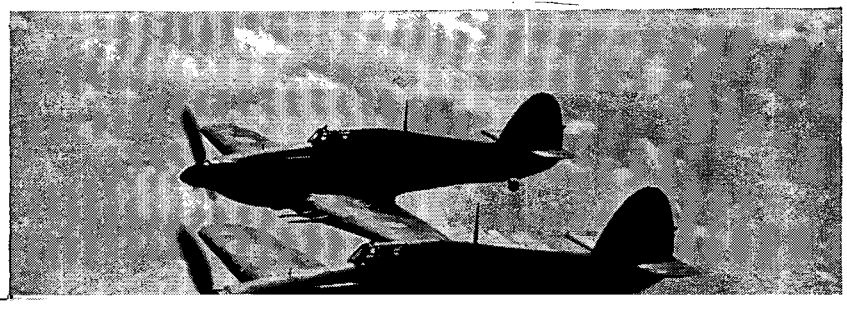
"HURRICANE"



SPAN: 40 ft.
LENGTH: 31 ft. 5 in.
APPROX. SPEED: 335 m. p. h. at 22,000 ft.
SERVICE CEILING: 36,600 ft.

RESTRICTED

A



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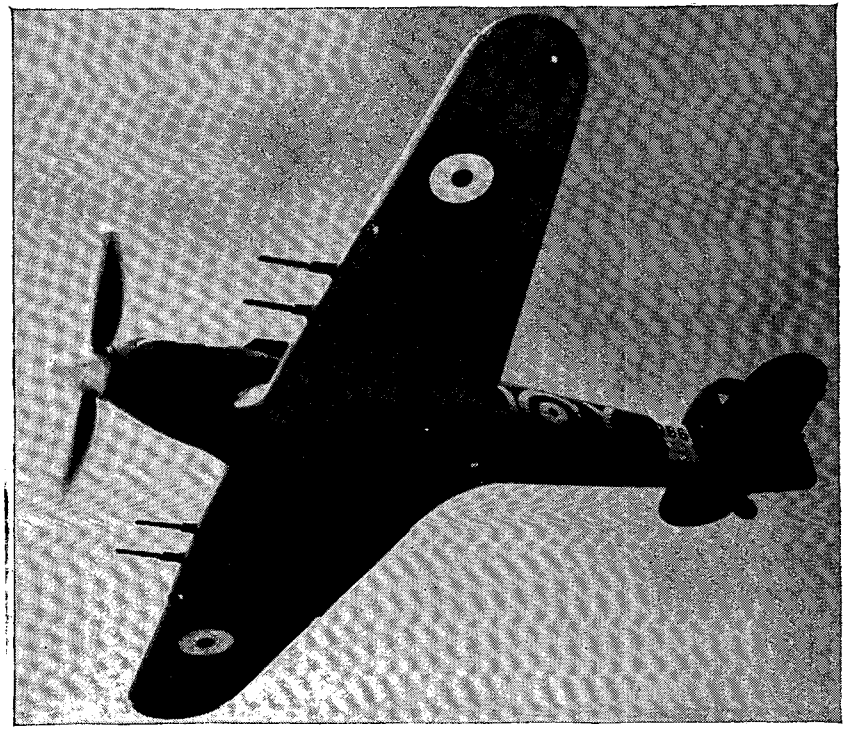
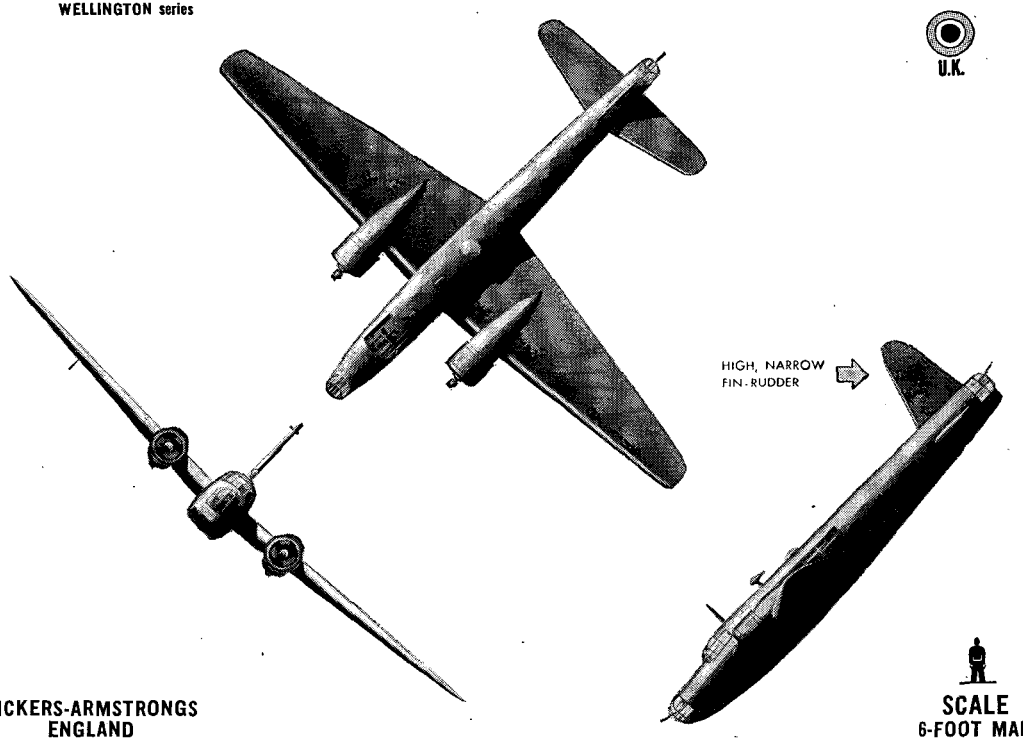


R. A. F.: WELLINGTON IV
WELLINGTON series

MEDIUM BOMBER

U.K.



VICKERS-ARMSTRONGS
ENGLAND

SCALE
6-FOOT MAN

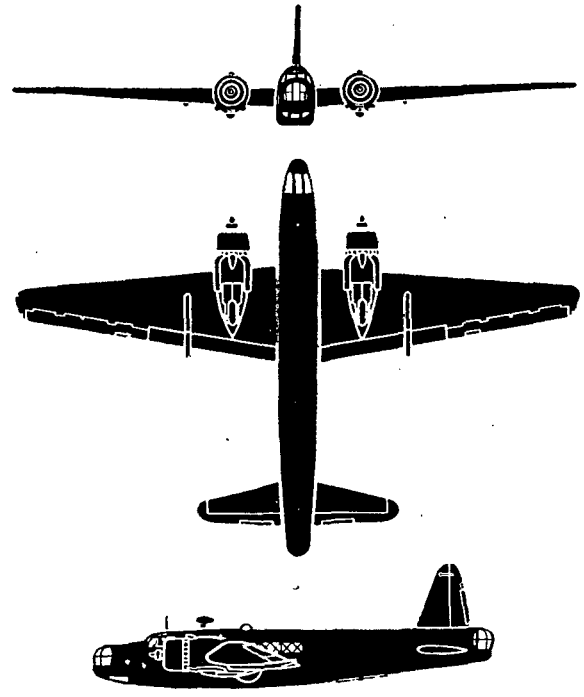
DISTINGUISHING FEATURES: Twin engined, mid-wing monoplane. Wellington II has in-line engines; Wellington III, radial engines. Slight dihedral from root of wings. Wings tapered on both edges with raked tips. Deep, heavy fuselage with blunt nose and bulbous tail turret. High triangular fin-and-rudder set in from tail turret. Tail-plane tapered on leading edge with round tips.

INTEREST: The Wellington is one of the most used British bombers. Although heavier and larger aircraft are now being produced, Wellingtons are still constructed in great numbers. Numerous versions, with varying fuselage lengths, have been brought out since the war began. Its geodetic construction (meta lbasket-weave type of framework) make Wellingtons hard to shoot down. They have often returned safely to their bases with enormous holes in wings or fuselage.

APRIL 1943
FROM DATA CURRENTLY AVAILABLE

WAR DEPARTMENT FM 30-30
NAVY DEPARTMENT BUAER 3

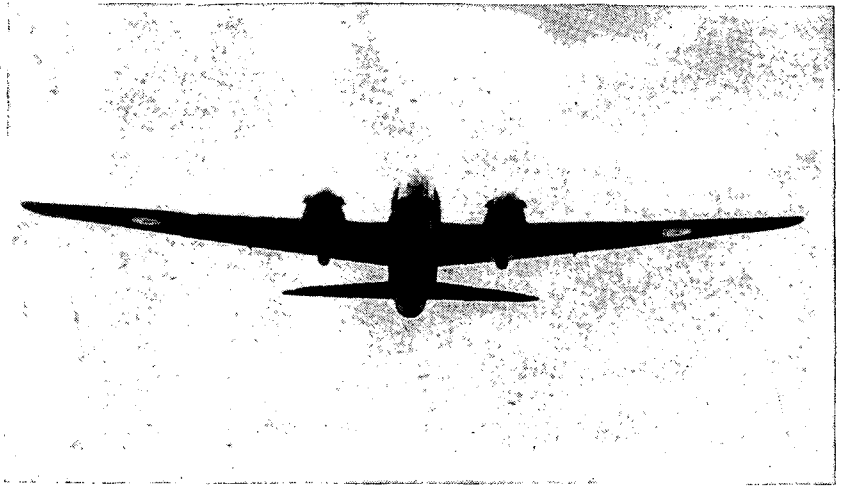
"WELLINGTON"



SPAN: 86 ft. 2 in.
LENGTH: 61 ft. (II)
61 ft. 6 in. (III)
APPROX. MAX. SPEED: 244 m. p. h. at 17,000 ft. (II)
SERVICE CEILING:
(II) 18,000 ft. (overload)

RESTRICTED

A



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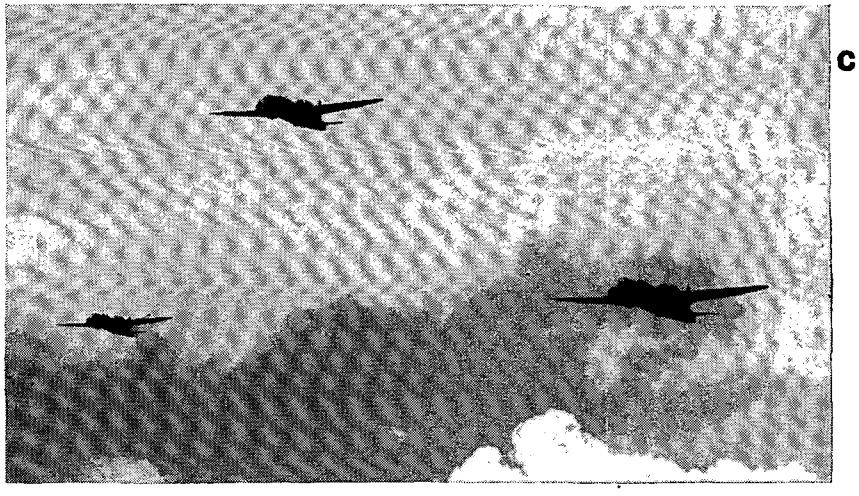

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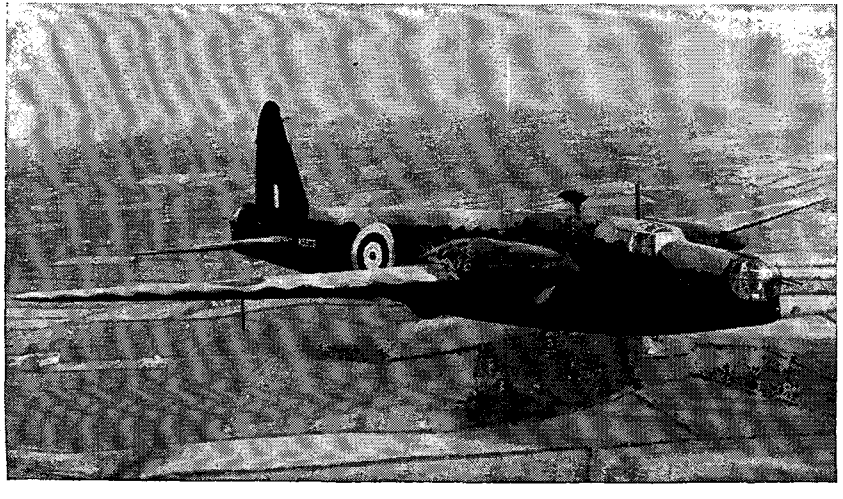

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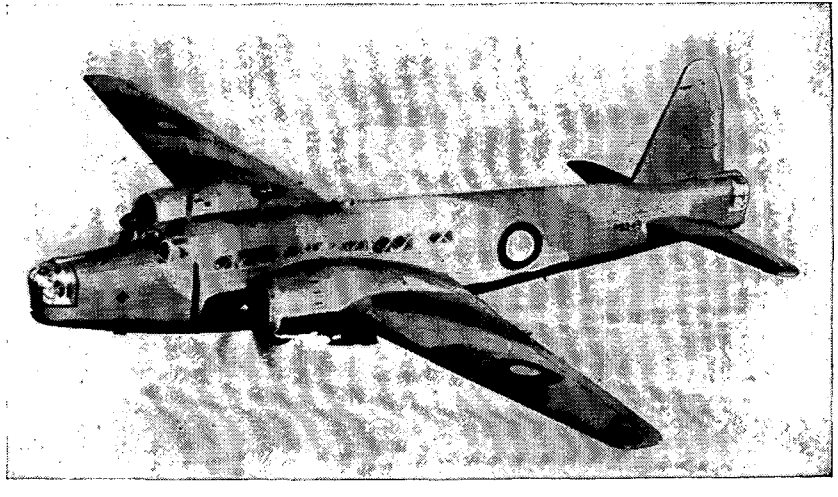


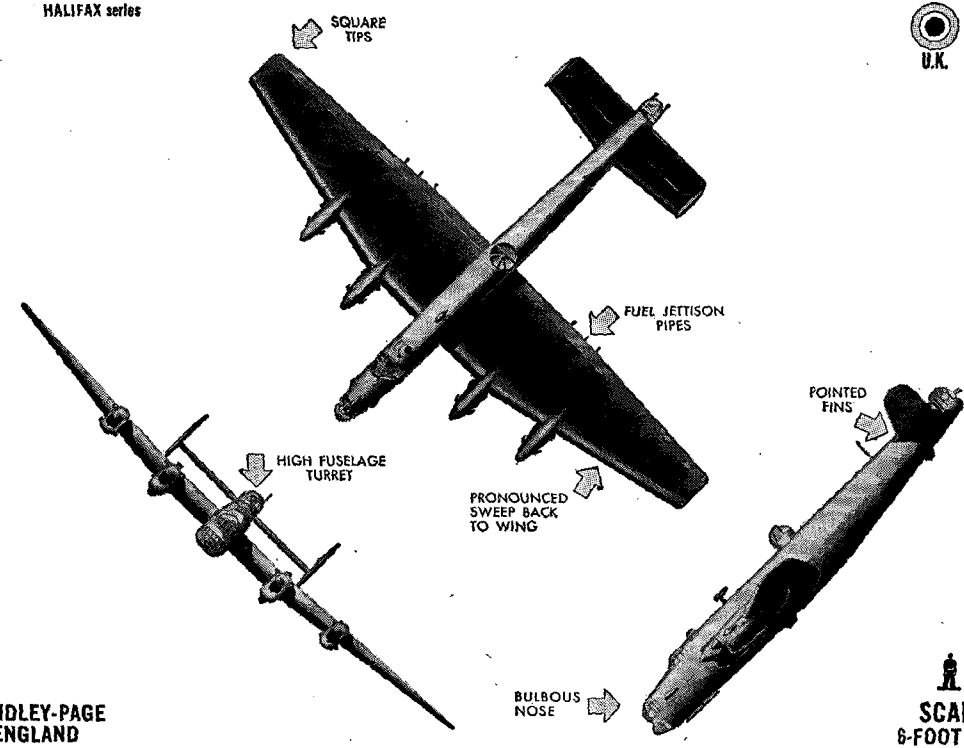
R. A. F.: HALIFAX I, II

HALIFAX series

HEAVY BOMBER

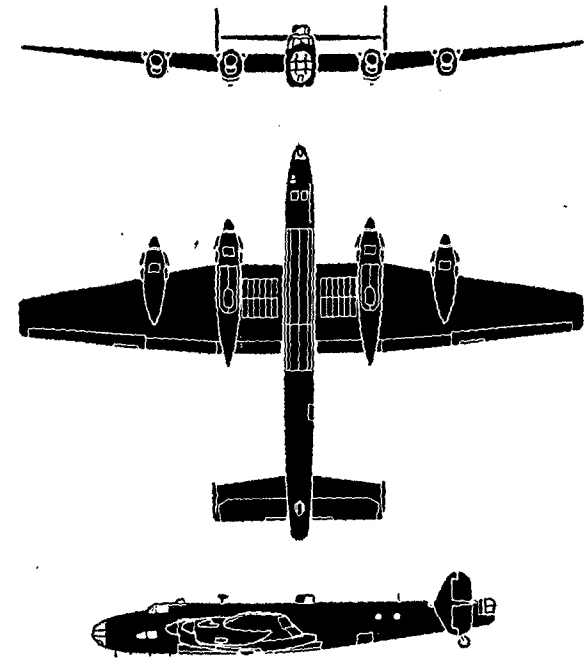
U.K.

"HALIFAX"



HANDLEY-PAGE
ENGLAND

SCALE
6-FOOT MAN



DISTINGUISHING FEATURES: Mid - wing monoplane with four in-line engines underslung. Dihedral on outer wing panels. Equi-taper on outer wing panels and square tips. Elongated fuselage. Twin fin and rudders, with V-shaped leading edges.

INTEREST: This seven-place, long-range heavy bomber can carry very large bomb loads for great distances. It was designed for production-line speed rather than air speed, and is not as fast as the Lancaster or American heavy bombers of the same type. It has been in use in the Middle East and extensively over Germany, where its "block busting" bombs have caused considerable damage. This bomber was christened by Lord Halifax, the present British Ambassador to the United States. Pilots call the aircraft the "Halibag." Maximum bomb load is approximately 11,000 lbs. The nose is currently being altered to a simple oval form, largely transparent.

SPAN: 99 ft.
LENGTH: 71 ft. 7 in.
MAX. SPEED: 262 m. p. h. at 17,750 ft.

SERVICE CEILING:
17,800 ft. (overload)

APRIL 1943
FROM DATA CURRENTLY AVAILABLE

WAR DEPARTMENT FM 30-30
NAVY DEPARTMENT BUAER 8

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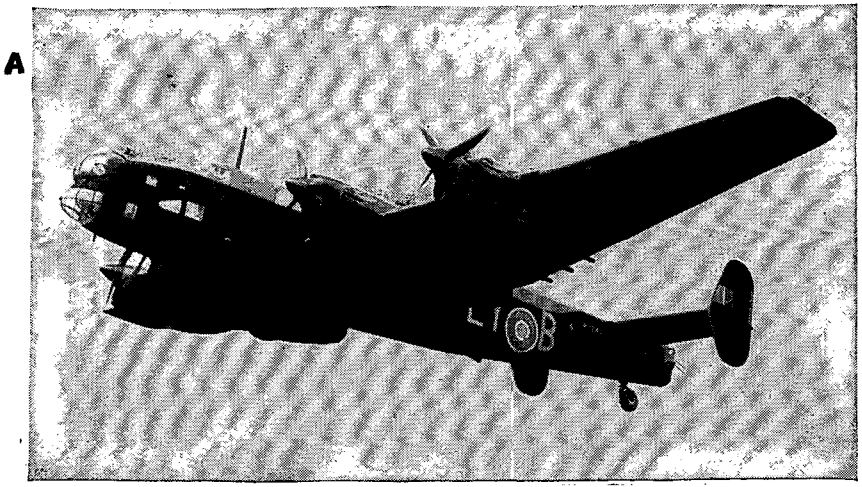

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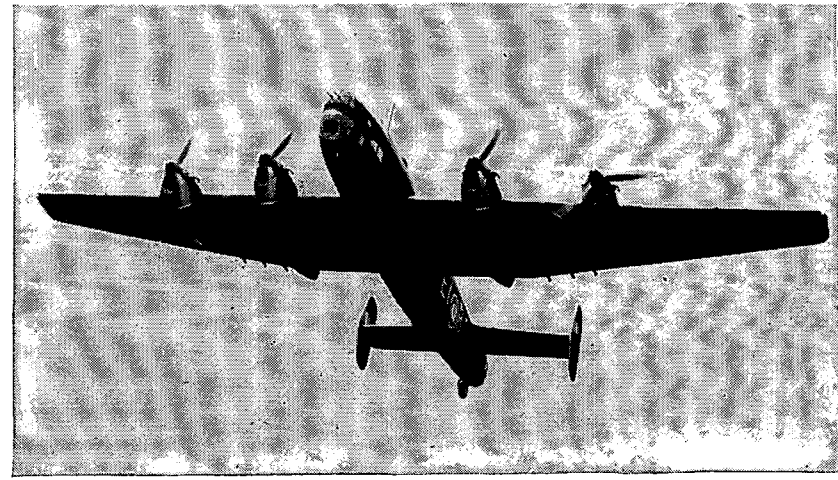

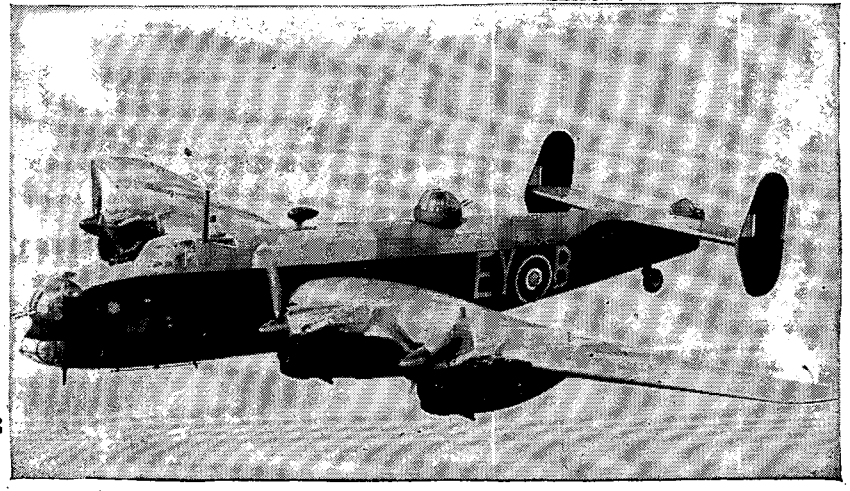

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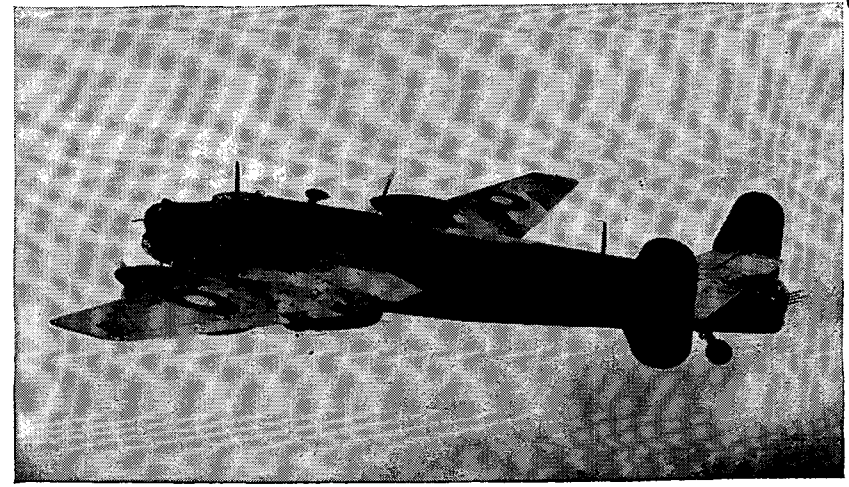
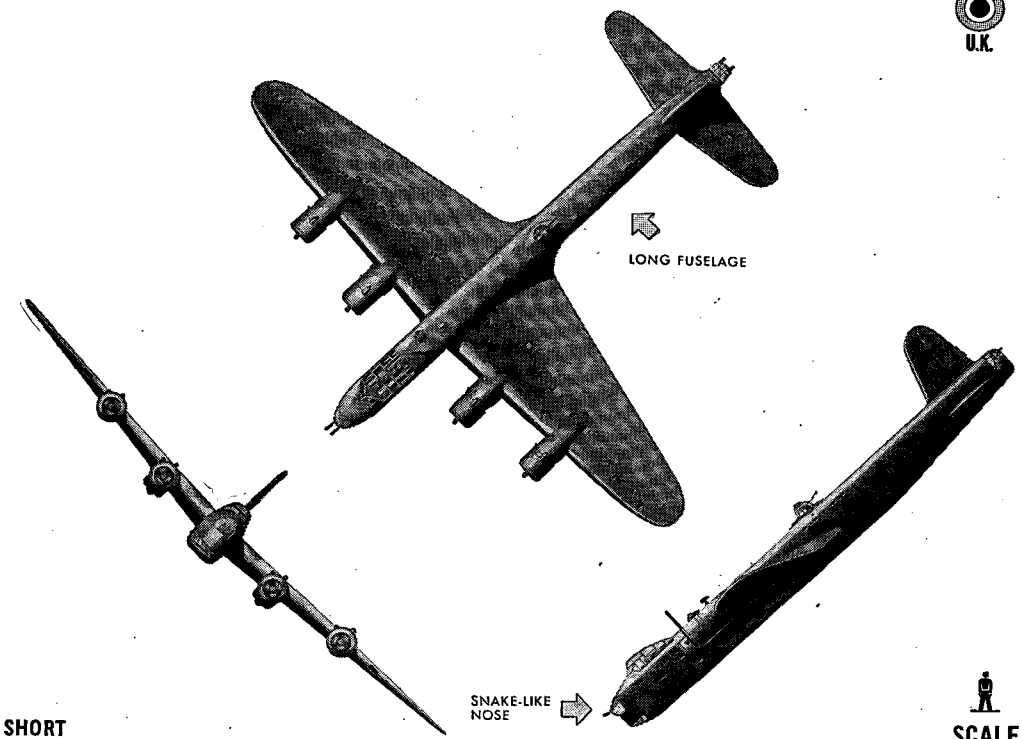


D

R. A. F.: STIRLING I, II

HEAVY BOMBER

U.K.



SHORT
ENGLAND

SCALE
6-FOOT MAN

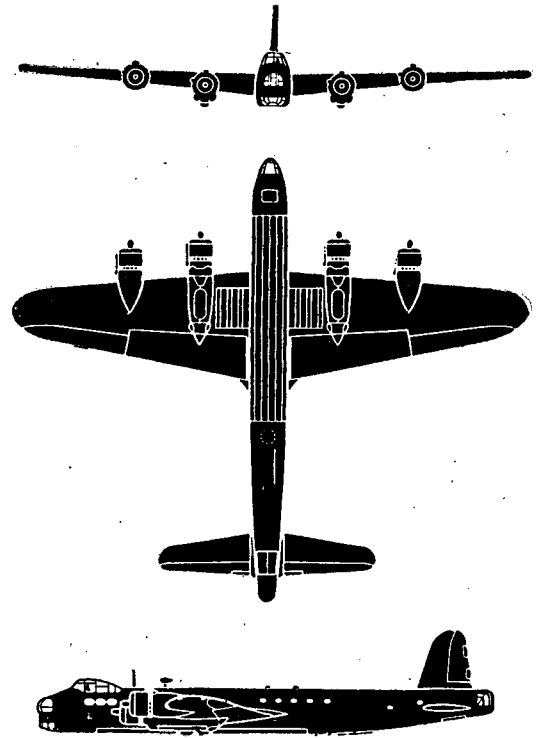
DISTINGUISHING FEATURES: Mid - wing monoplane with four radial engines. Inboard engines underslung. Dihedral from wing roots. Wing equally tapered with sharply rounded tips. Long slab-sided fuselage with small greenhouse placed high on nose. Tall single fin-and-rudder forward of tail turret.

INTEREST: The Short "Stirling" was the first of the big British four-engined bombers to go into service, becoming operational early in 1941. It has taken part in many night raids on Germany and many daylight sorties over France. This aircraft can carry over 8 tons of bombs, one of the heaviest loads of any bomber in operation today.

APRIL 1943
FROM DATA CURRENTLY AVAILABLE

WAR DEPARTMENT FM 30–30
NAVY DEPARTMENT BUAER 3

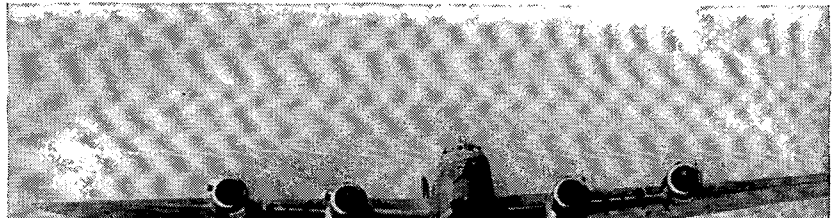
"STIRLING"



SPAN: 99 ft.
LENGTH: 87 ft. 3 in.
APPROX. MAX. SPEED: 272 m. p. h. at 14,000 ft.
SERVICE CEILING: 18,000 ft. (overload)

RESTRICTED

A

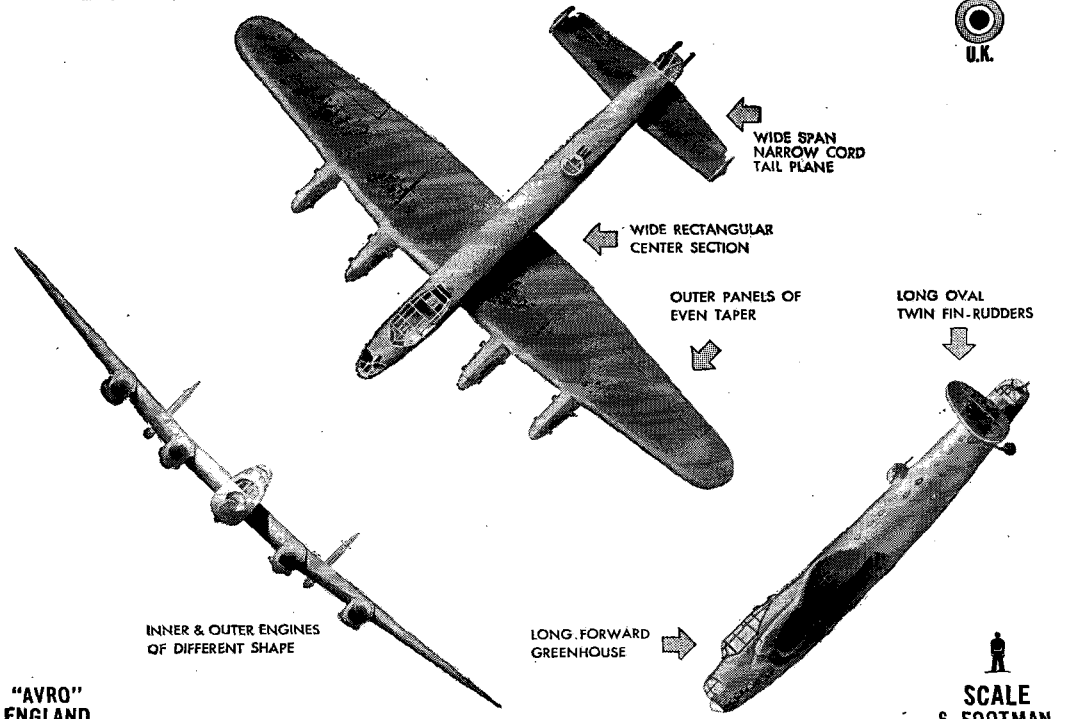


C

R. A. F.: LANCASTER I
LANCASTER I, II

HEAVY BOMBER

U.K.



"AVRO"
ENGLAND

SCALE
6- FOOTMAN

DISTINGUISHING FEATURES: Mid - wing monoplane. Slight dihedral on outer wing panels. Four in-line engines underslung. Wings equally tapered on outer panels with round tips. Long boxlike fuselage with cockpit enclosure set well forward and prominent tail turret aft. Tall oval twin fins and rudders set outboard of tail plane.

INTEREST: The existence of this 30-ton long range heavy bomber was not publicized until it participated in a daring daylight raid in 1942 on the Diesel works which were producing engines for submarines at Augsburg, Germany. Reputed to be one of the easiest of contemporary aircraft to build, it is now in large scale production. It has an outside range of nearly 3,000 miles. It can carry a bomb load of over 6 tons. This bomber carries machine guns in 4 power turrets. The Lancaster I is powered by liquid cooled in-lined engines, while the Mark II has air cooled radials.

APRIL 1943
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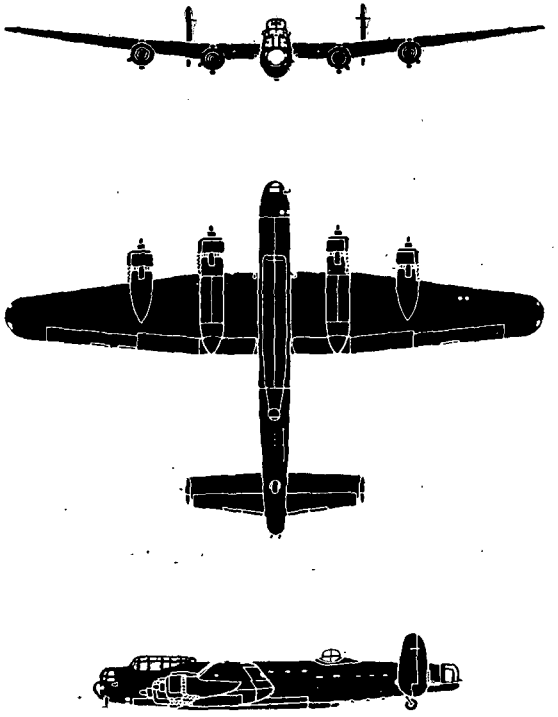
WAR DEPARTMENT FM 30–30
NAVY DEPARTMENT BUAER 3

"LANCASTER"

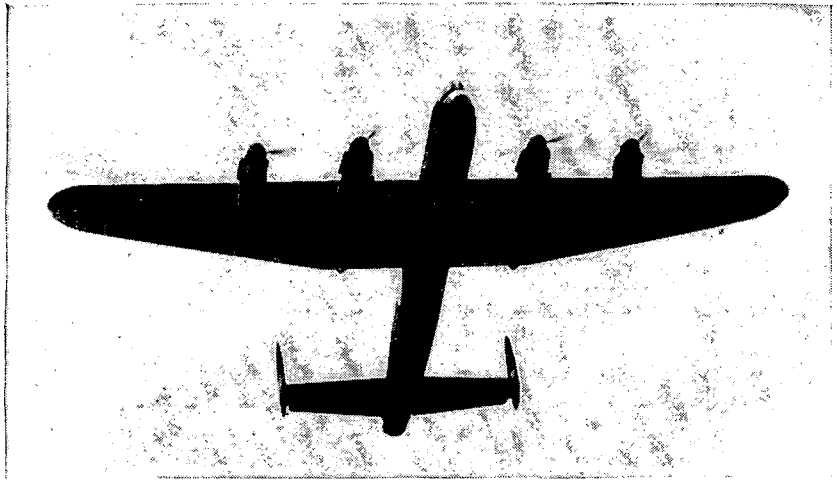


SPAN: 102 ft.
LENGTH: 69 ft. 6 in.
MAX. SPEED: 280 m. p. h.

SERVICE CEILING:
25,800 ft.

RESTRICTED

A



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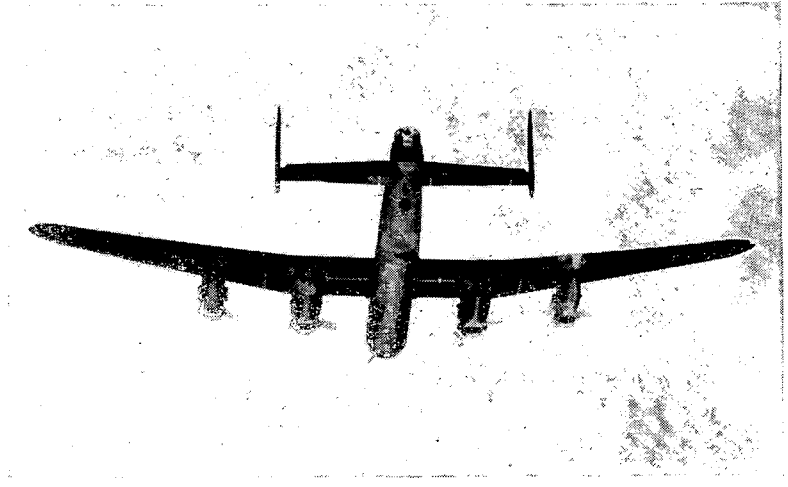

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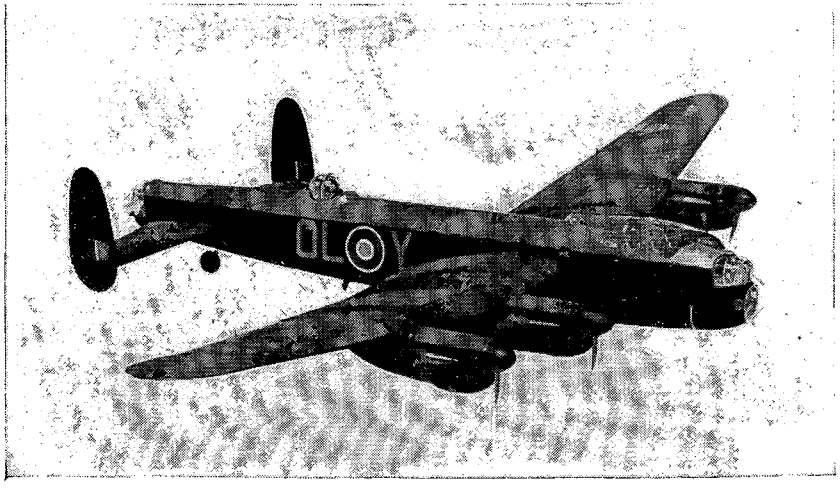

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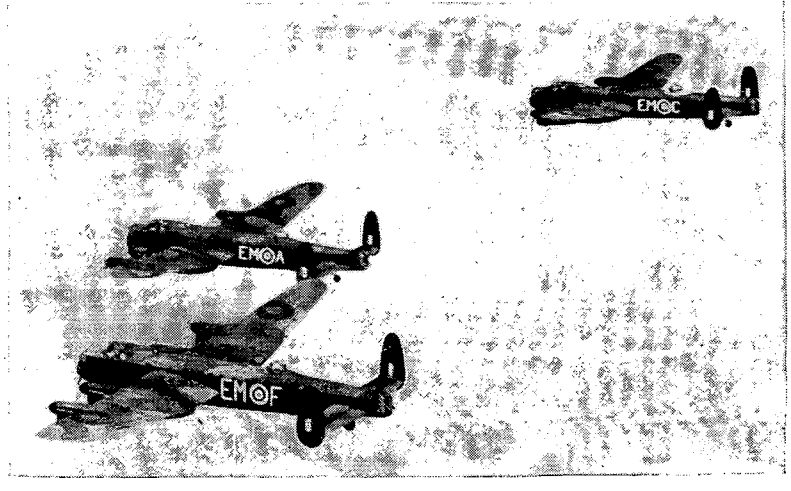
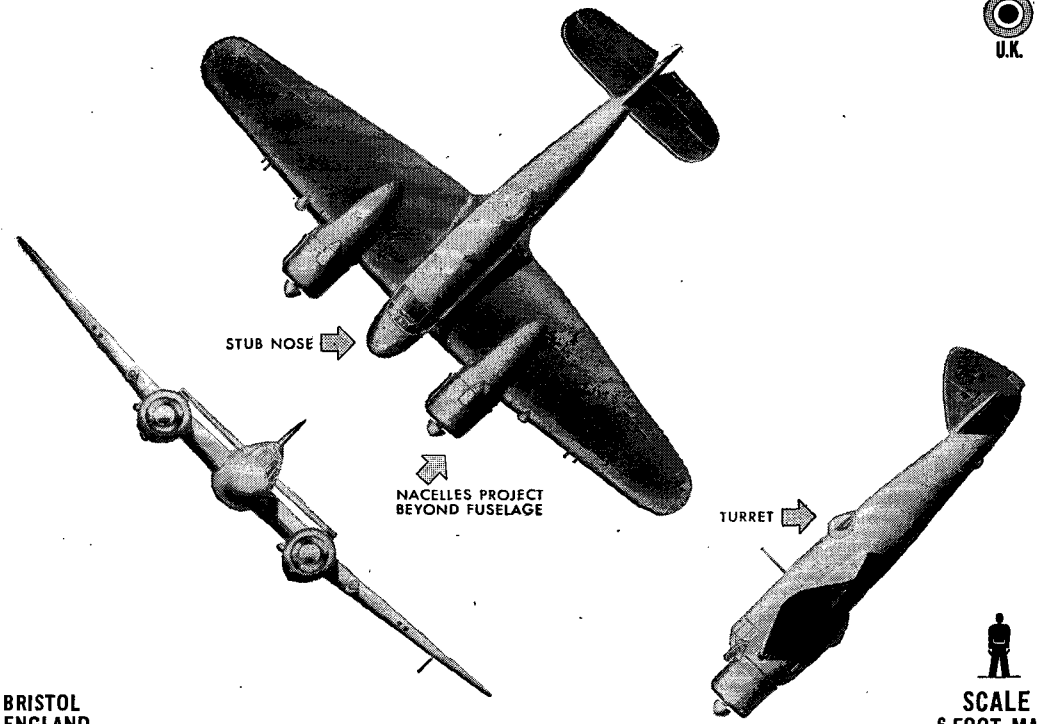


R. A. F.: BEAUFIGHTER I
BEAUFIGHTER I, II, VI

FIGHTER

U.K.



BRISTOL
ENGLAND

SCALE
6-FOOT MAN

DISTINGUISHING FEATURES: Twin engine, mid-wing monoplane. Wing has equal taper in outer sections with wide flat center section and rounded tips. The twin radial engines protrude beyond the very short stubby nose. Fin and rudder are of the broad triangular Bristol type. Tail plane has marked dihedral with slight taper on trailing edge and V cut-out.

INTEREST: The Beaufighter was developed from the Beaufort bomber to fill the need for a heavily armed twin engine long range fighter. Although used principally as a night fighter, it rivals the Hurricane for versatility, being used also as a day fighter, a "tank buster," and with the British Coastal Command. It is well liked as a fighter and ground strafer in the Middle East. To counteract swing during take-offs, all Beaufighters are now fitted with a dihedral tail plane. The Beaufighter II has in-line instead of radial engines.

APRIL 1943
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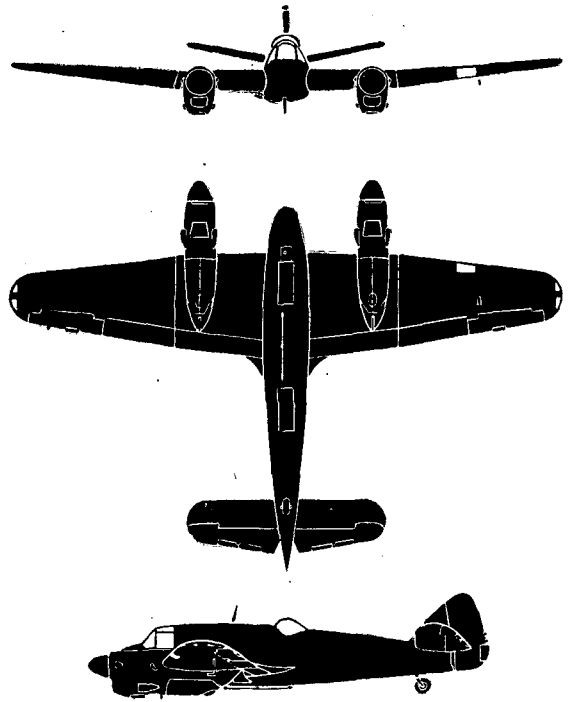
WAR DEPARTMENT FM 30-30
NAVY DEPARTMENT BUAER 3

"BEAUFIGHTER"

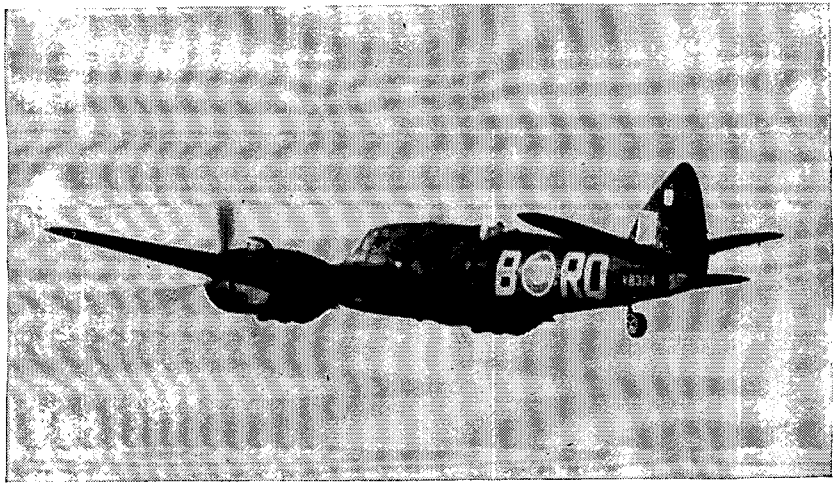


SPAN: 57 ft. 10 in.
LENGTH: 40 ft. 11 in.
MAX. SPEED: 323 m. p. h. at 14,400 ft.

SERVICE CEILING:
29,700 ft.

RESTRICTED

A



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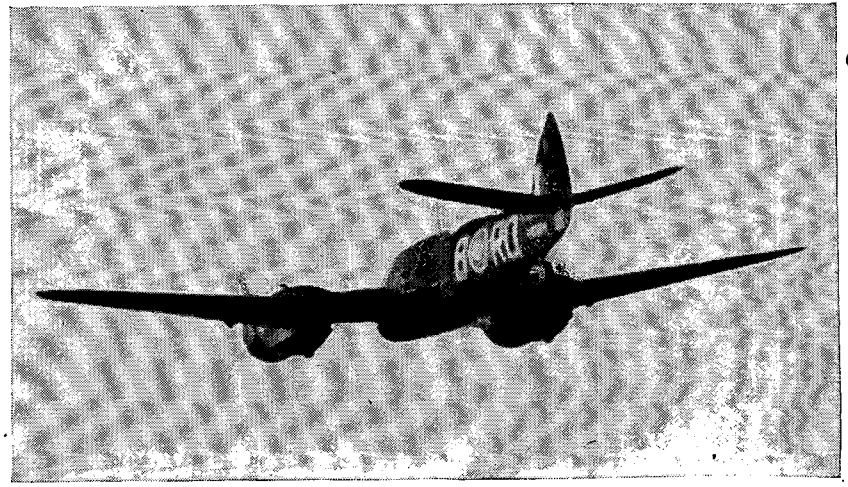

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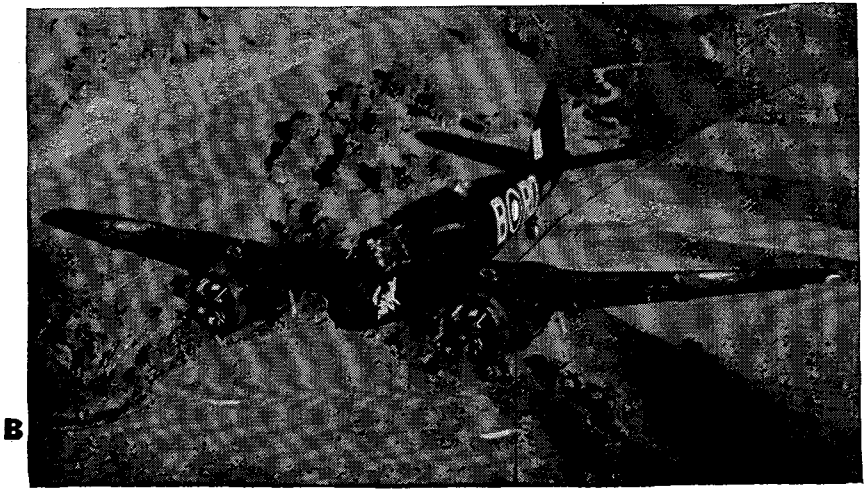

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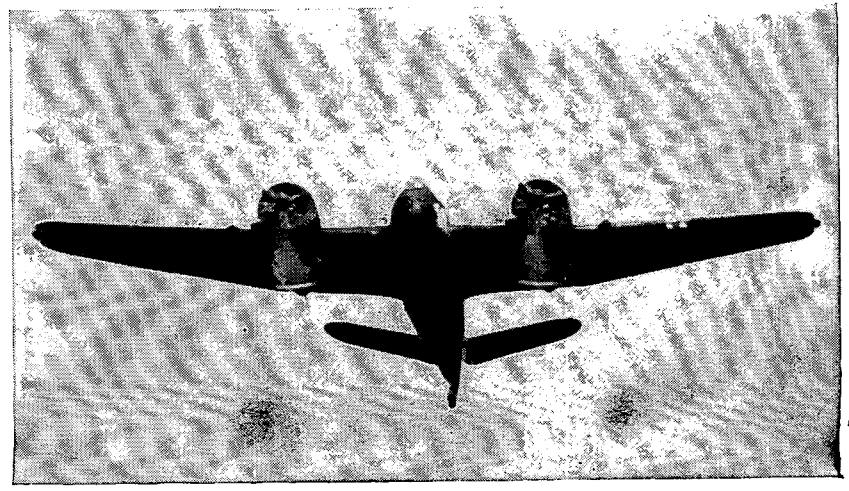
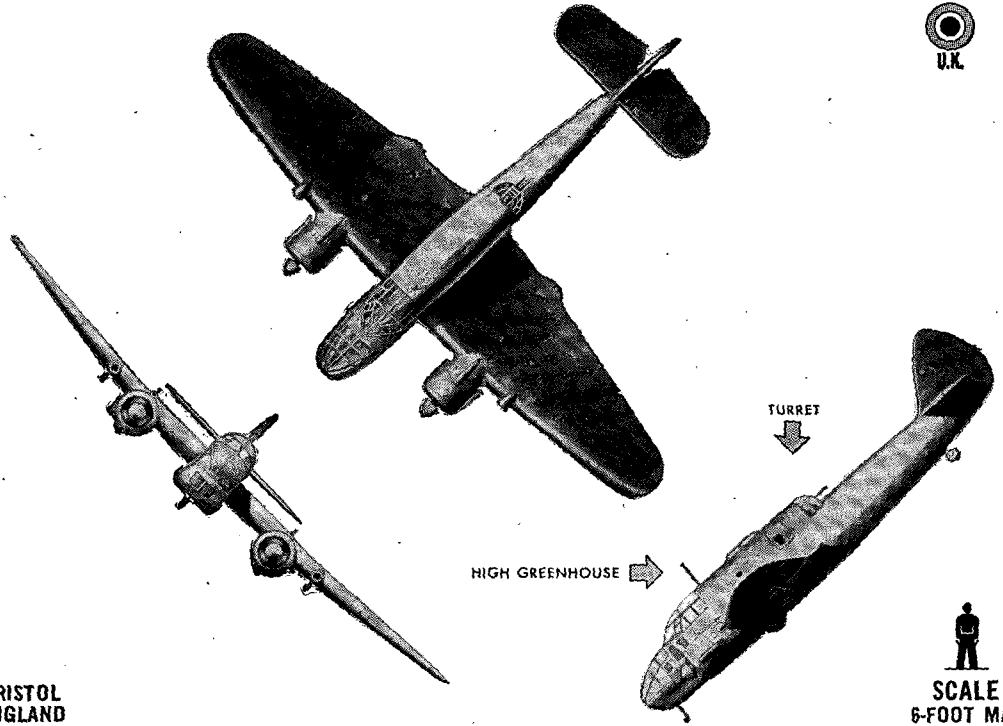


R. A. F.: BEAUFORT I, II

LIGHT BOMBER

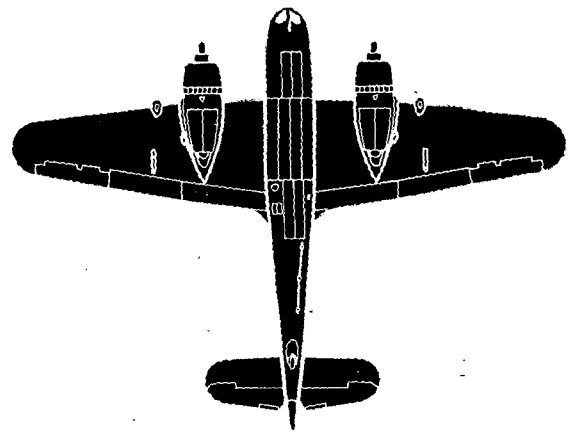
U.K.



BRISTOL
ENGLAND

SCALE
6-FOOT MAN

"BEAUFORT"



SPAN: 57 ft. 10 in.
LENGTH: 44 ft. 2 in.
MAX. SPEED: 275 m. p. h. at 6,500 ft.

SERVICE CEILING:
19,000 ft. (overload)

DISTINGUISHING FEATURES: Mid-wing monoplane with twin radial engines underslung. Bell shaped fuselage section. Dihedral on outer wing panels. Equitapered wings with rounded tips. Tapered trailing edge to elevator with V cut-out. Mid-turret faired into cabin. Fin and rudder are of the broad Bristol type.

INTEREST: The Beaufort is one of the principal reconnaissance aircraft of the R. A. F. Coastal Command. It is used for torpedo attacks on coastal shipping, for mine laying and for low level bombing of German occupied ports. The success of this aircraft led to the use of its basic design for development of the Beaufighter. For torpedo attacks, the Beaufort is faster than the Albacore torpedo bombers of the British Fleet Air Arm. Not being equipped with dive brakes, it usually uses a low flat approach to keep its speed low enough to launch the torpedo successfully. The newer models do not have the rounded plates projecting beyond the trailing edge of the wing.

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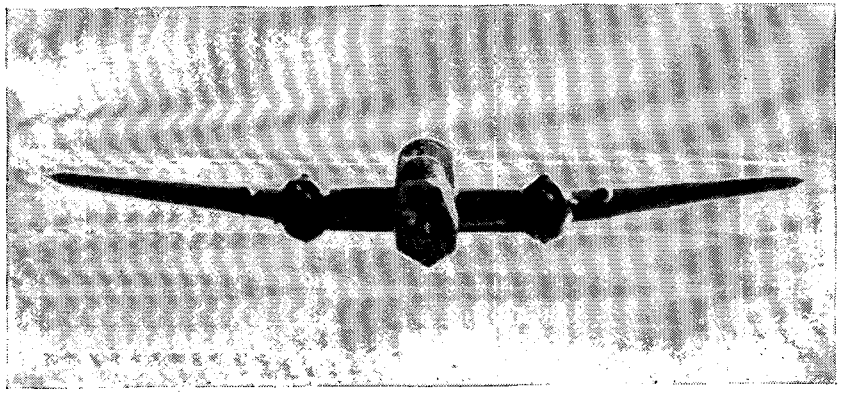
WAR DEPARTMENT FM 30-30
NAVY DEPARTMENT BUAER 3

RESTRICTED

A



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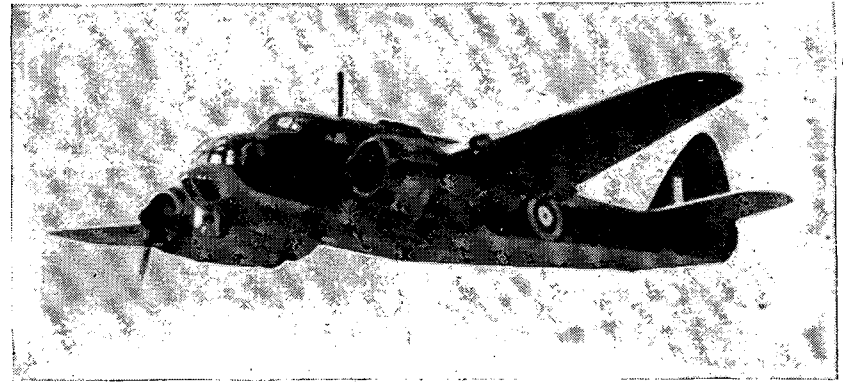

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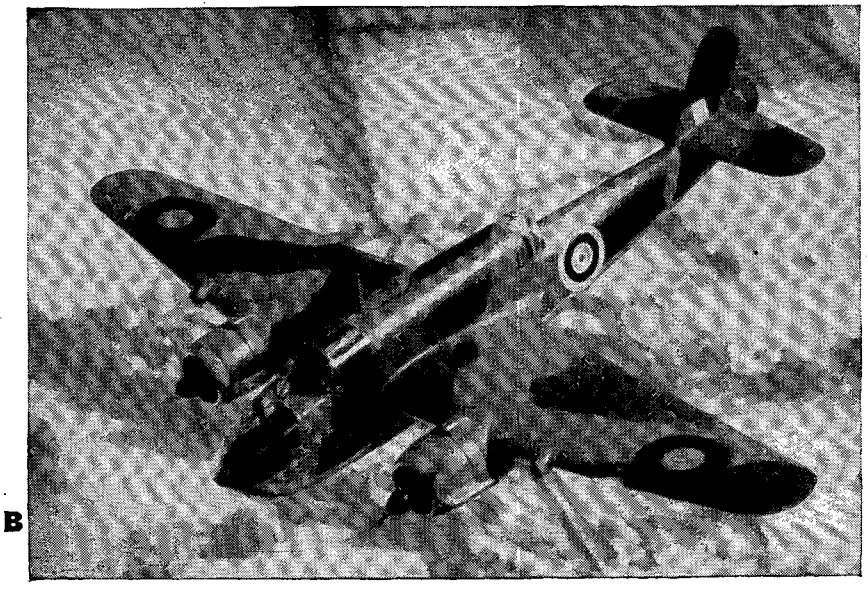
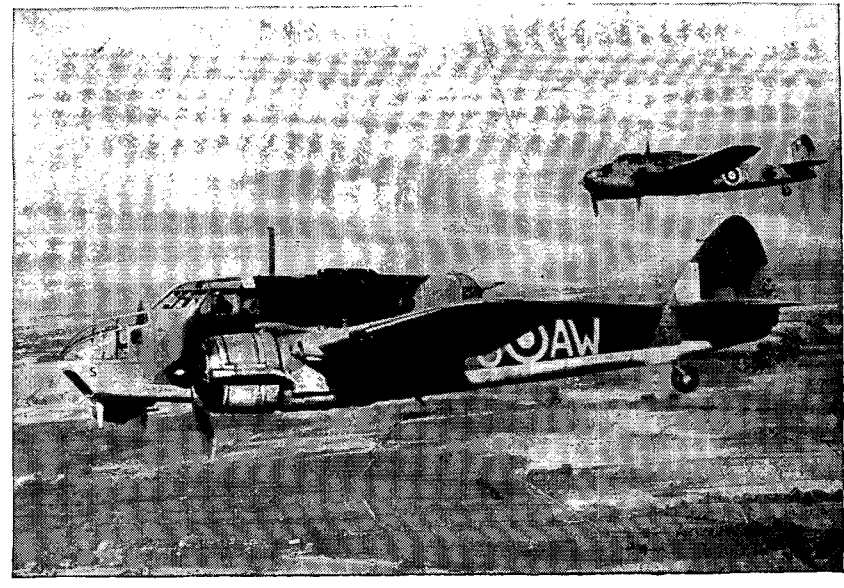


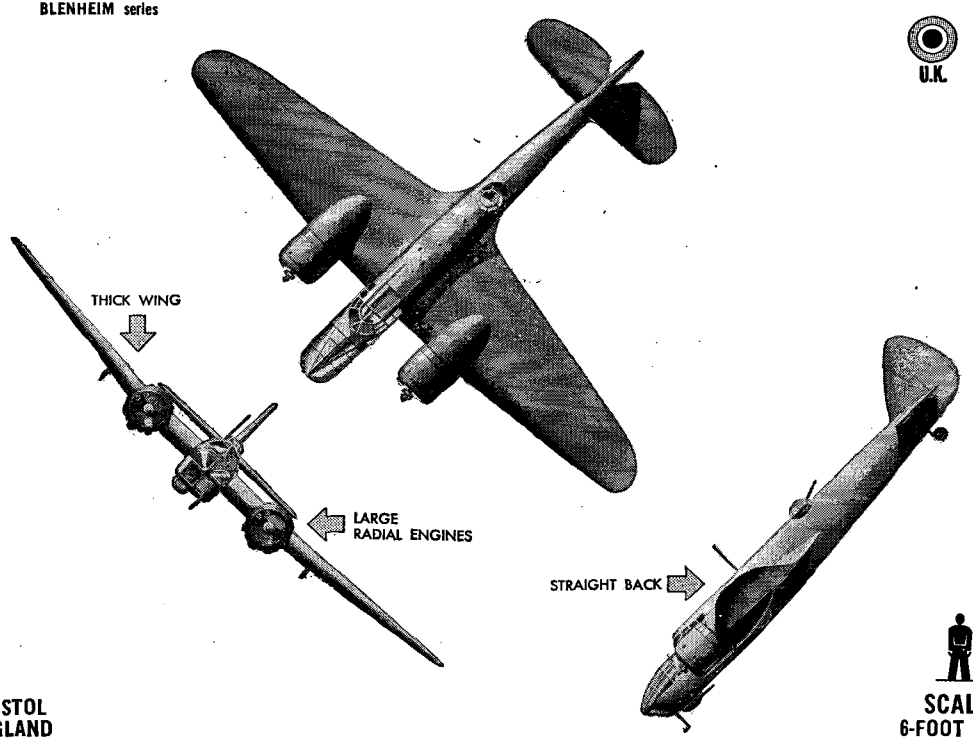


D

R. A. F.: BLENHEIM IV
BLENHEIM series

MEDIUM BOMBER

U.K.



BRISTOL
ENGLAND

SCALE
6-FOOT MAN

DISTINGUISHING FEATURES: Mid-wing monoplane with twin radial engines. Dihedral on outer wing panels. Equally tapered wing with elliptically curved tips. Cutaway in trailing edge of typical Bristol stabilizer and elevator. Partly retractable dorsal turret and high pointed fin and rudder.

INTEREST: The Blenheim was a standby of the R. A. F. in the early part of the war when it performed admirably as a bomber and as a long-range fighter over France and Norway. After the Norwegian campaign, not much was heard of the Blenheim until it was used in the North African campaigns and in the Middle East. The most recent version, the Mark V, is chiefly adapted for close support work with ground troops. One interesting feature of some Blenheims is the offset blister under the nose containing a rear firing gun which the navigator, who faces forward, controls by a system of mirrors. The Blenheim I has a much shorter nose, the fuselage length being 39 ft. 9 in.

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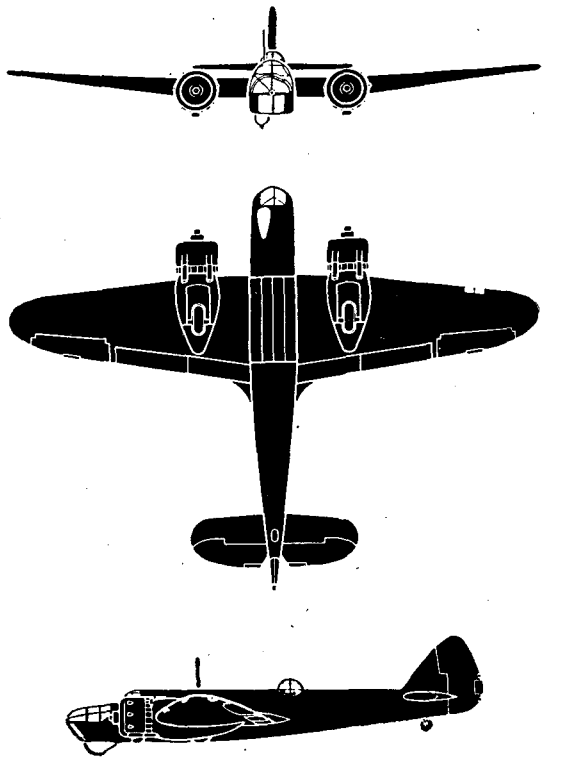
WAR DEPARTMENT FM 30-30
NAVY DEPARTMENT BUAER 3

"BLENHEIM"

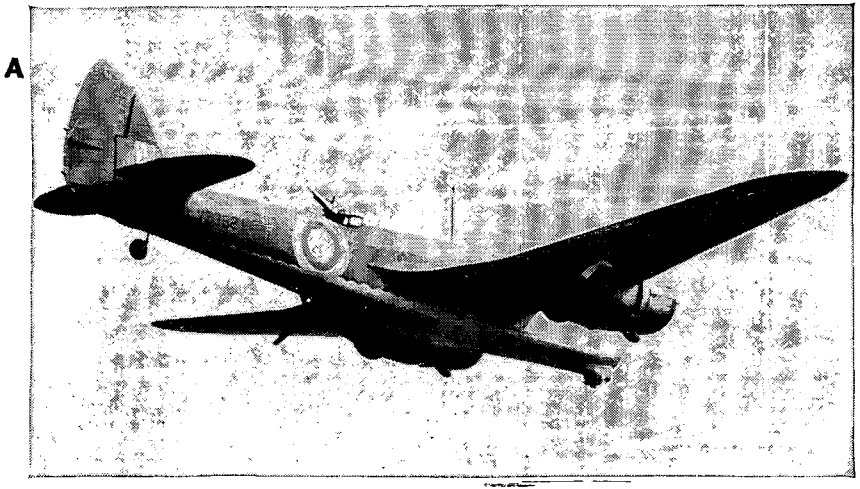


SPAN: 56 ft.
LENGTH: 42 ft. 7 in.
MAX. SPEED: 260 m. p. h. at 12,000 ft.

SERVICE CEILING:
26,500 ft.

RESTRICTED

A



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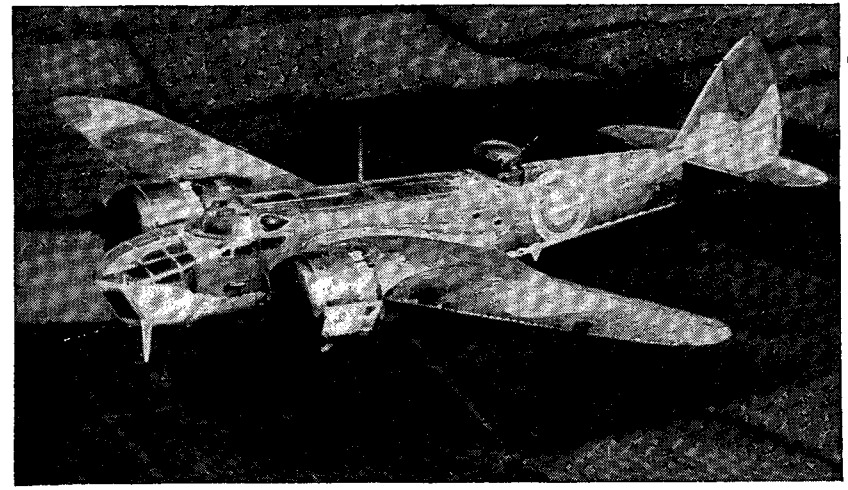

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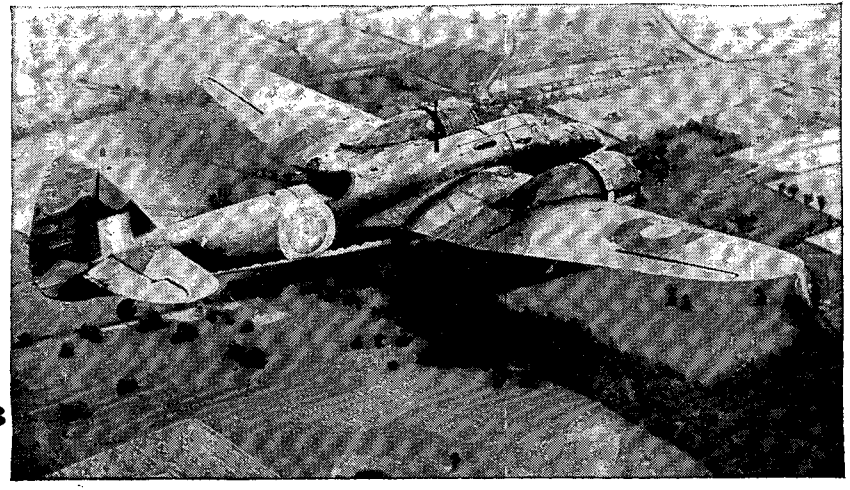

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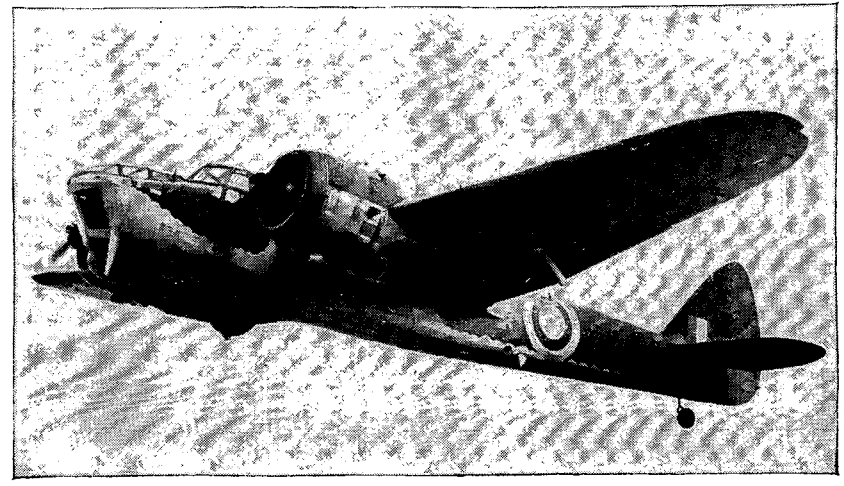
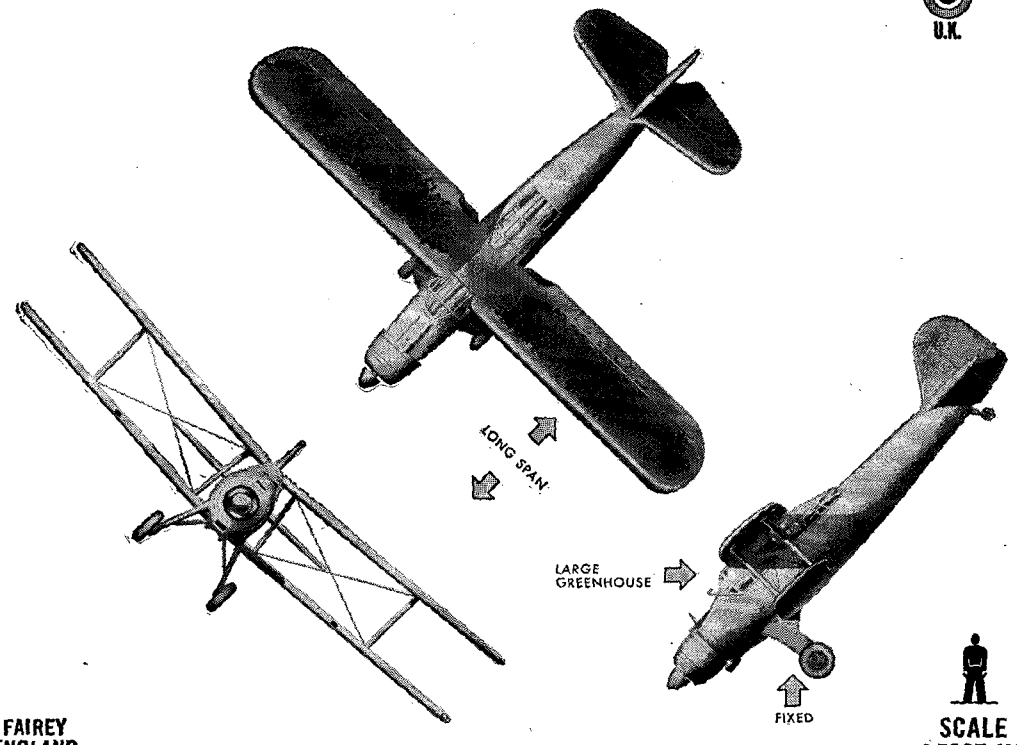


F. A. A.: ALBACORE

TORPEDO BOMBER

U.K.



FAIREY
ENGLAND

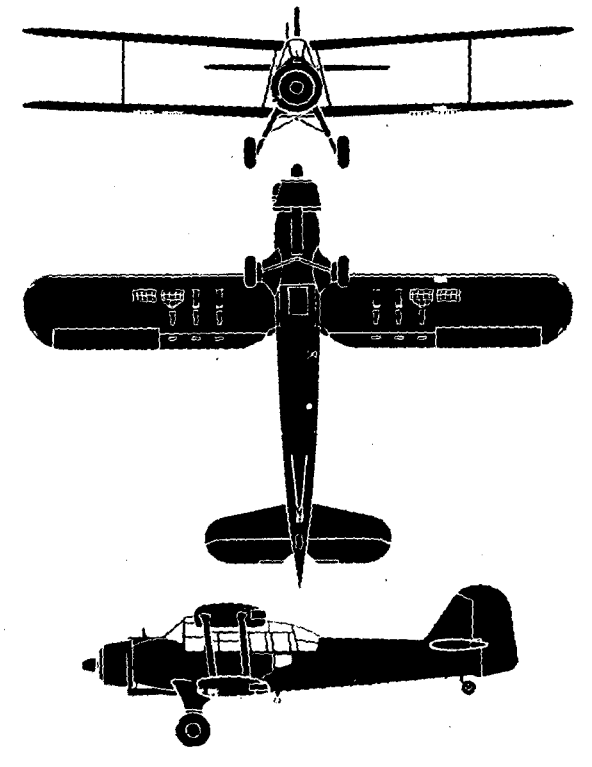
SCALE
6-FOOT MAN

DISTINGUISHING FEATURES: Single bay bi-plane with radial engine. Straight, round tipped wings of equal span. Fixed landing gear. Long high greenhouse. Large single fin and rudder with rounded top.
INTEREST: Nicknamed by the British "The Applecore," this three-place aircraft was designed for operation from carriers or, on floats, from cruisers. Relatively slow and maneuverable, it is well adapted to the diving approach used by the British Fleet Air Arm in daylight torpedo attacks. Developed from the "Swordfish" it is being used to replace that torpedo bomber until modern torpedo carrying aircraft, now being developed, come into use. Compared to most present day torpedo bombers, the Albacore is an obsolete aircraft.

APRIL 1943
FROM DATA CURRENTLY AVAILABLE

WAR DEPARTMENT FM 30-30
NAVY DEPARTMENT BUAER 3

"ALBACORE"



SPAN: 50 ft.
LENGTH: 40 ft.
MAX. SPEED: 172 m. p. h. at 4,800 ft.
SERVICE CEILING: 18,000 ft.

[redacted]

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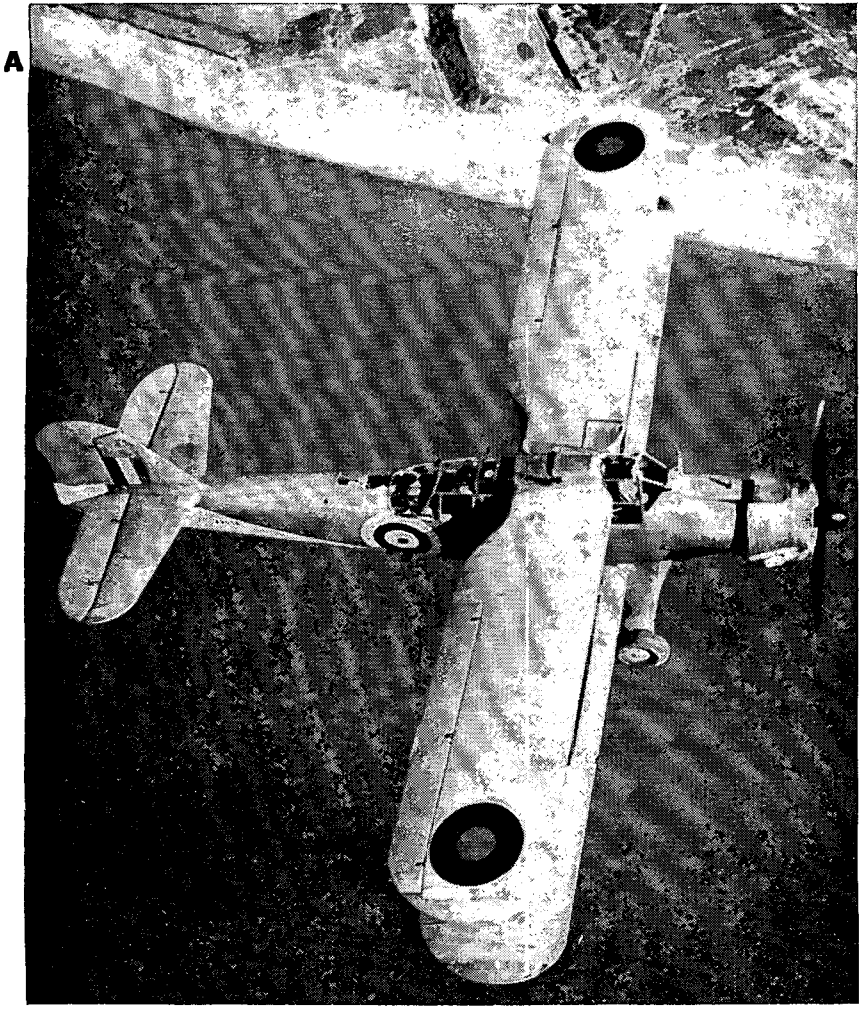

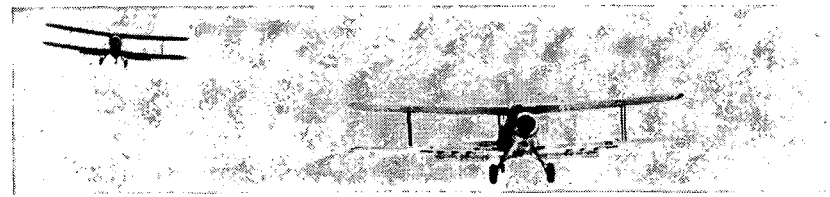

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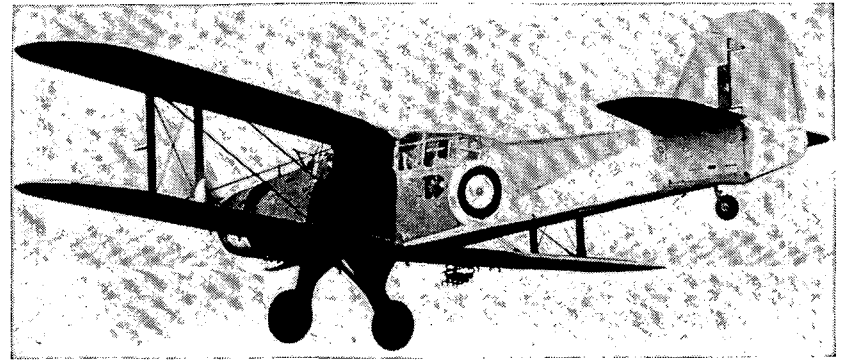

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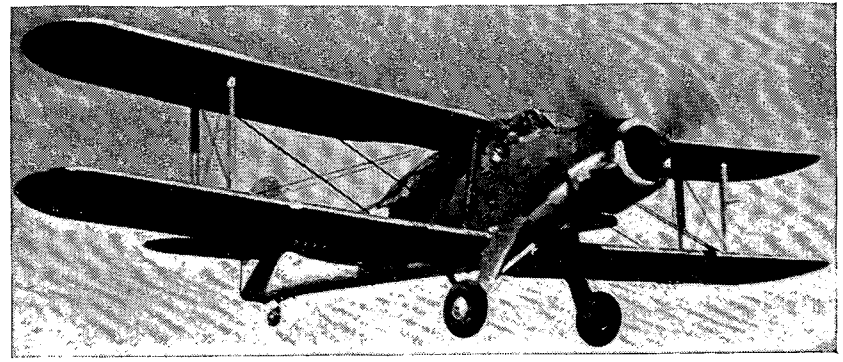
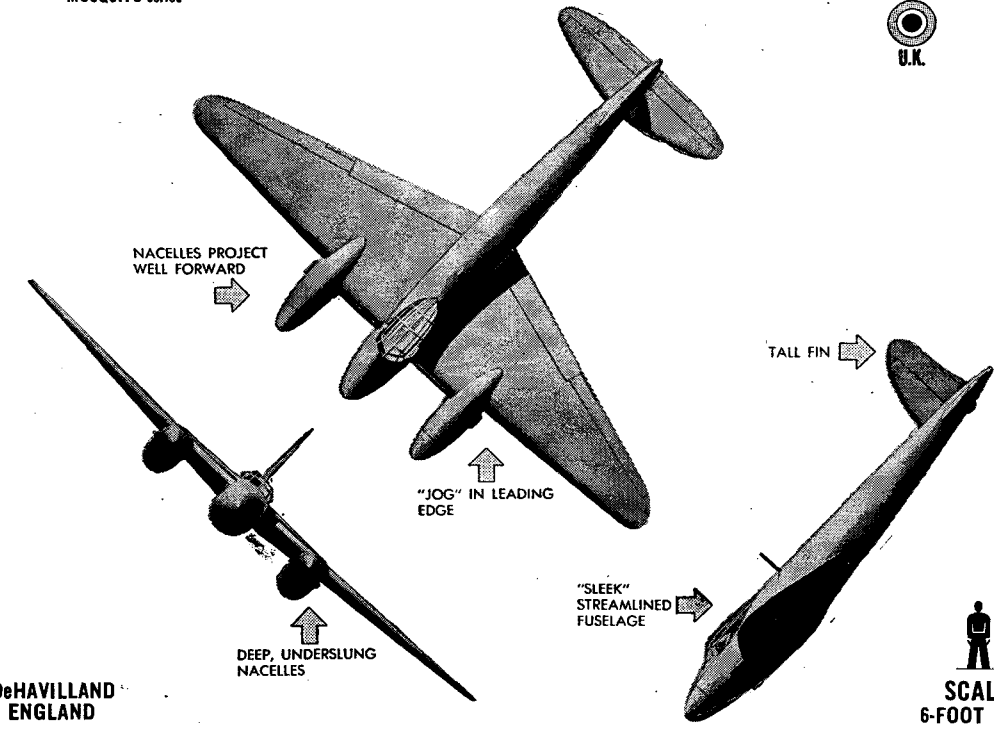


D

R. A. F.: **MOSQUITO IV**
MOSQUITO series

LIGHT BOMBER—FIGHTER

U.K.



DeHAVILLAND
ENGLAND

SCALE
6-FOOT MAN

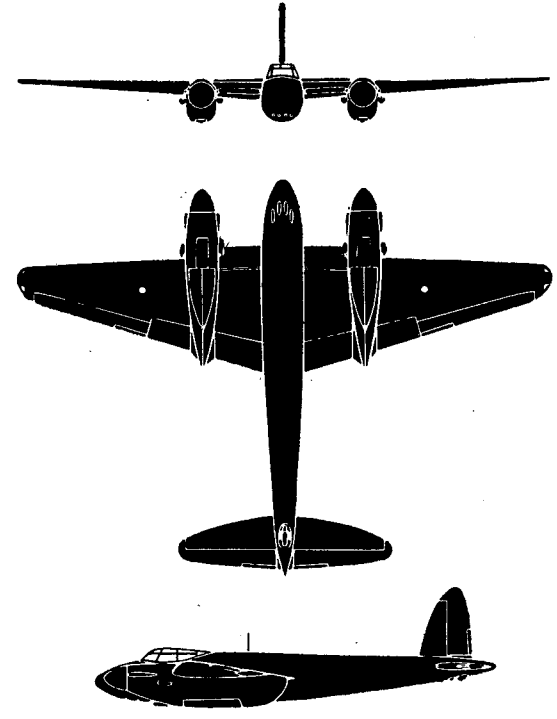
DISTINGUISHING FEATURES: Twin engine, high mid-wing monoplane. Leading edge of wing inboard of engines is farther forward than outer section. Trailing edge of wing has pronounced taper with rounded tips. In-line engines are underslung and protrude forward nearly as far as the short nose. Fuselage is long and narrow with wide raised cockpit forward of wings. Extremely tall single fin and rudder set forward. In certain models the engine nacelles protrude beyond the trailing edge.

INTEREST: This reconnaissance bomber, one of the fastest aircraft of its type, became operational during the latter part of 1942. In raids over Europe it has outdistanced the F. W. 190's sent up to intercept it. It attracted considerable attention when it was used to bomb Berlin on the first daylight raid on that city. A particularly clean aircraft in appearance, the Mosquito is constructed for the most part of plywood. There is also a multi-seat fighter version with nontransparent nose.

APRIL 1943
FROM DATA CURRENTLY AVAILABLE

WAR DEPARTMENT FM 30–30
NAVY DEPARTMENT BUAER 3

"MOSQUITO"

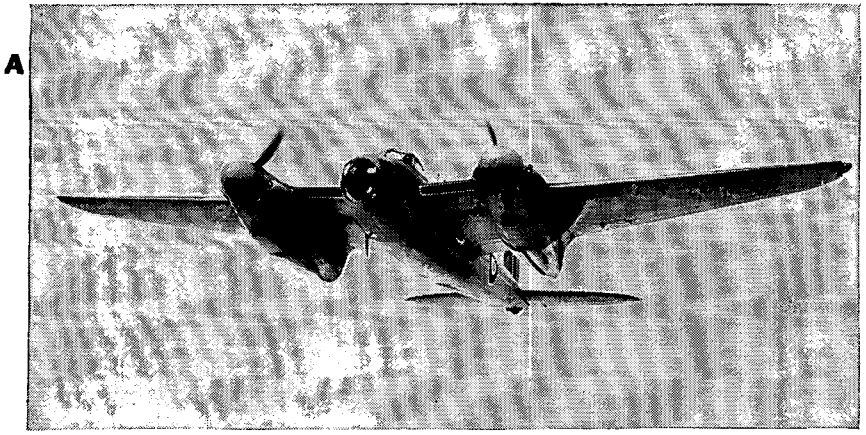


SPAN: 54 ft. 2 in.
LENGTH: 40 ft. 9½ in.
MAX. SPEED:

SERVICE CEILING:

[redacted]

A



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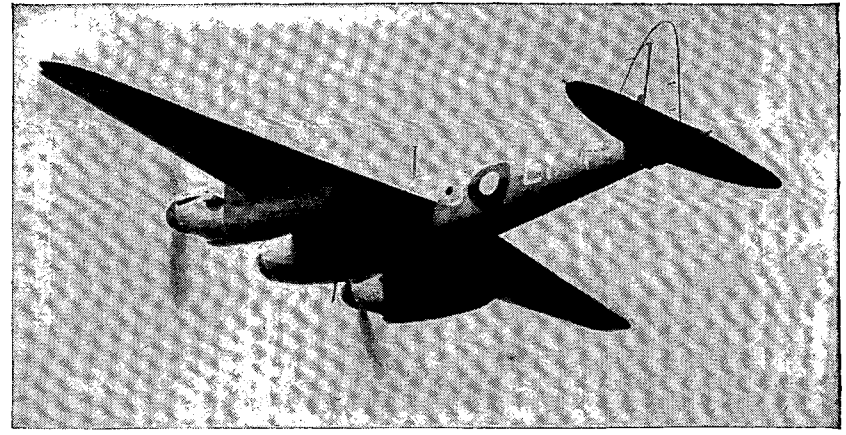

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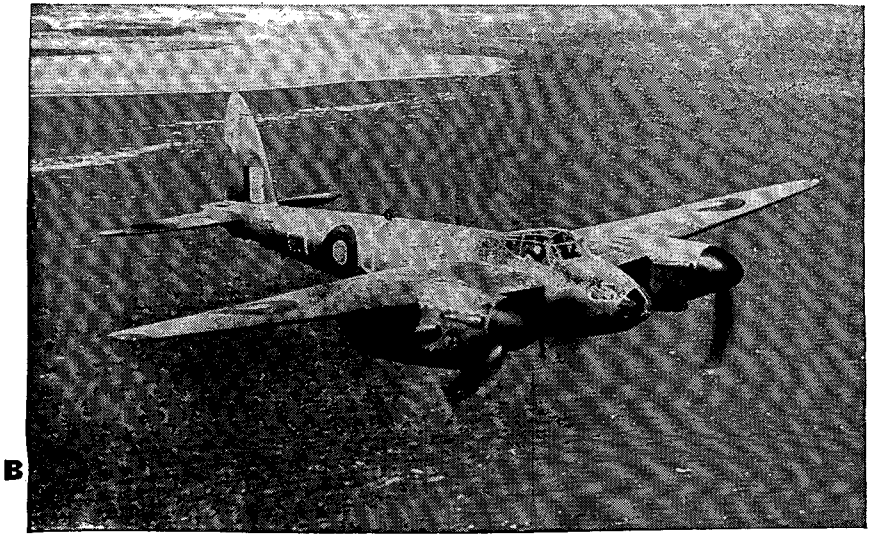

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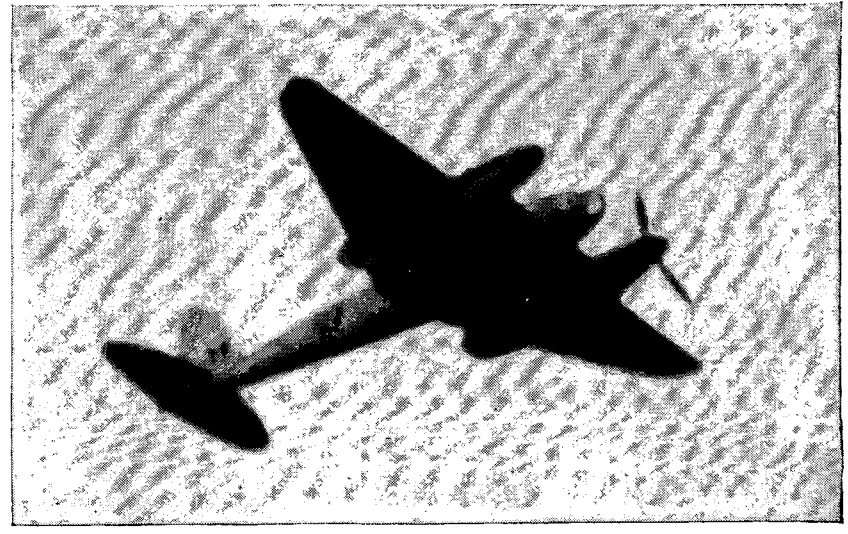
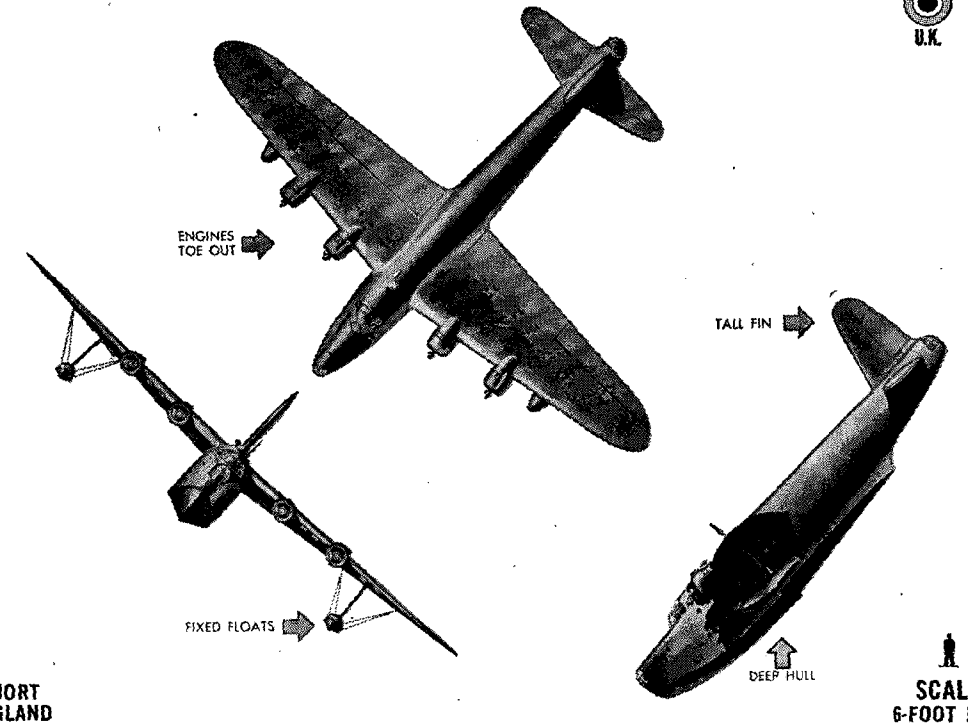


R. A. F.: SUNDERLAND I, II

PATROL BOMBER

U.K.



SHORT
ENGLAND

SCALE
6-FOOT MAN

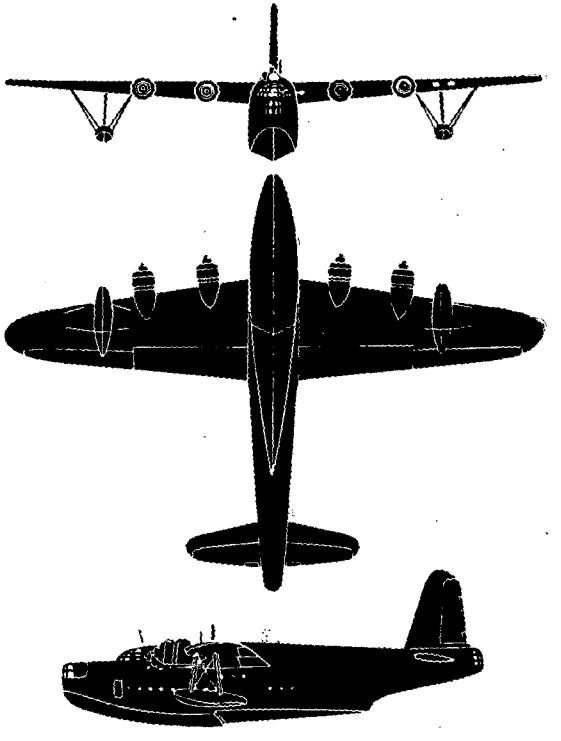
DISTINGUISHING FEATURES: High-wing four-engined monoplane. Very slight dihedral to a thick tapered wing. Deep hull with V bottom and rounded top. Two steps lead up to narrow tail, housing a gun position. Four radial engines have small nacelles. Stabilizer and elevator similar in shape to wing. Tall fin and rudder with leading edge tapered.

INTEREST: This large aircraft has performed many and varied duties. One of its tasks is to patrol the ice far North of the Arctic Circle, reporting movement of the icebergs. It was used in the evacuation of Greece and Crete. These flying boats have cruised far out over the Atlantic protecting convoys to Britain. The Sunderland has shown qualities of reliability and endurance equal to the importance of its duties. A Sunderland forced down in the South Atlantic was towed hundreds of miles by a naval corvette through very stormy weather.

APRIL 1943
FROM DATA CURRENTLY AVAILABLE

WAR DEPARTMENT FM 30-30
NAVY DEPARTMENT BUAER 3

"SUNDERLAND"

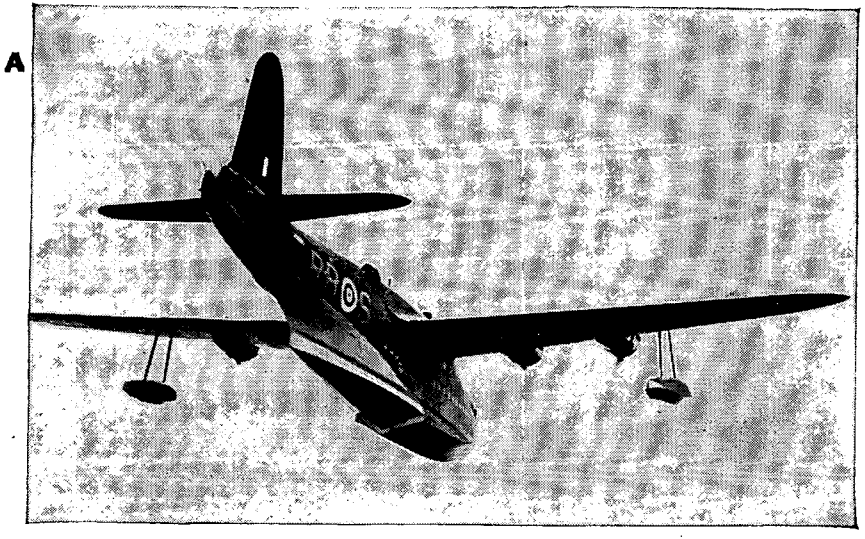


SPAN: 112 ft. 9½ in.
LENGTH: 85 ft. 4 in.
MAX. SPEED: 204 m. p. h. at 5,000 ft.

SERVICE CEILING:
14,100 ft.

RESTRICTED

A



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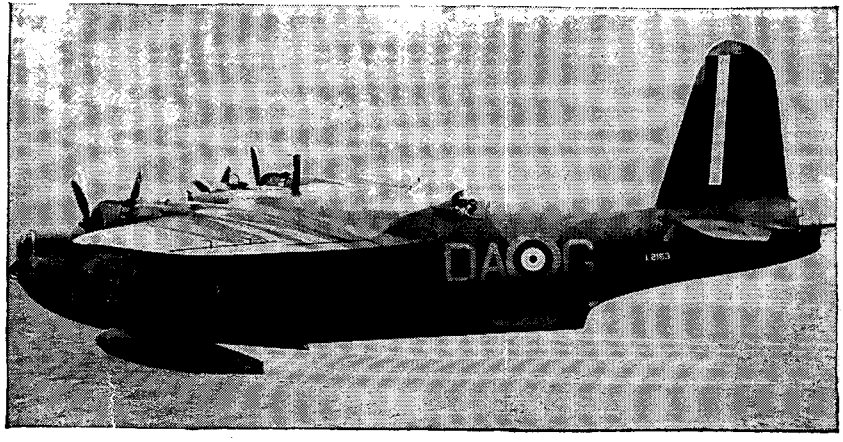

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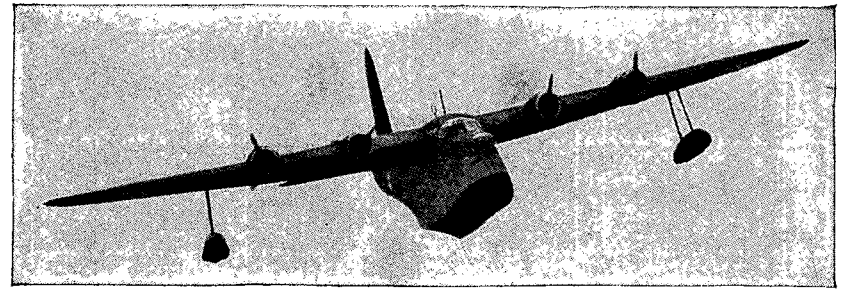
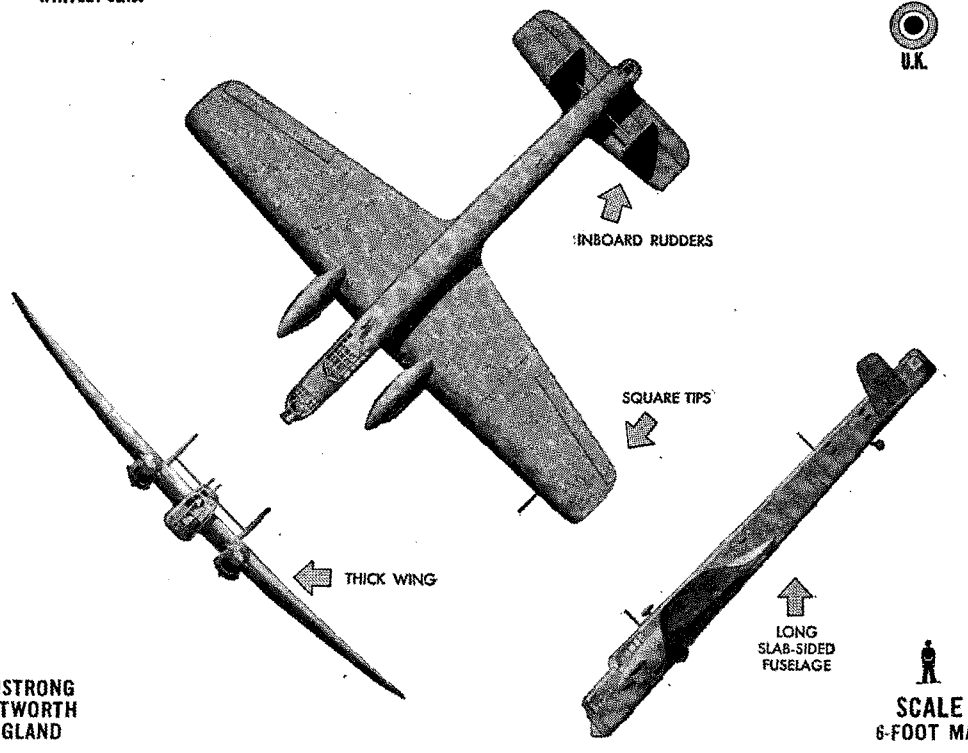


D

R. A. F.: **WHITLEY V**
WHITLEY Series

MEDIUM BOMBER

U.K.



ARMSTRONG WHITWORTH ENGLAND

SCALE
6-FOOT MAN

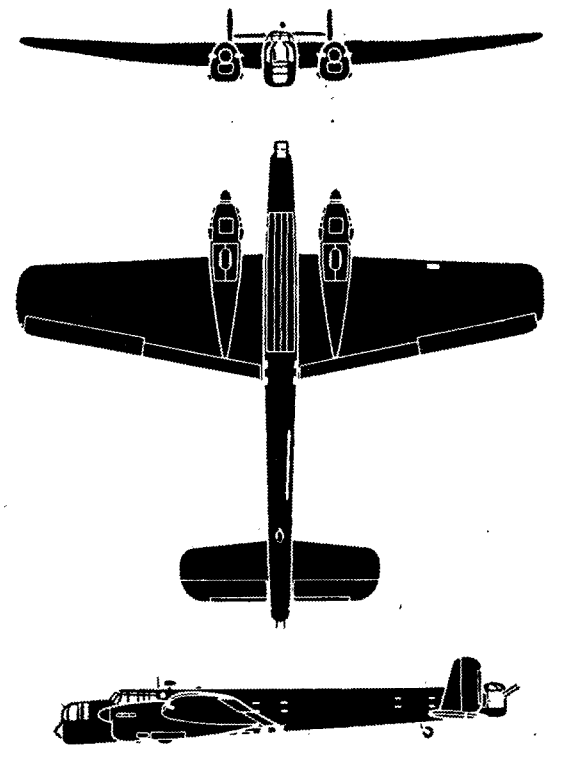
DISTINGUISHING FEATURES: Mid - wing monoplane with twin in-line engines close to fuselage. Wings have marked taper on trailing edge with rounded, blunt tips. Fuselage is long and narrow, tapering upward in a straight line from nose to tail. Dihedral in outboard panels only. Blunt nose with under-slung appearance. Engines underslung. Nearly rectangular stabilizer and elevator set very low with twin fins and rudders set atop and well inboard. Large tail gun position.

INTEREST: The first British bombs of the present war to fall on the soil of the German mainland were dropped on the night of May 11, 1940, when a force of 18 Whitley bombers attacked railroad communications behind the lines of the German advance across the low countries. The latest Whitleys, the Mark V's, are still in operation with the British Coastal Command doing anti-submarine duty and minelaying. The Whitley I, II, and III, now obsolescent, have radial engines and wider fins with curved leading edge.

APRIL 1943
FROM DATA CURRENTLY AVAILABLE

WAR DEPARTMENT FM 30-30
NAVY DEPARTMENT BUAER 3

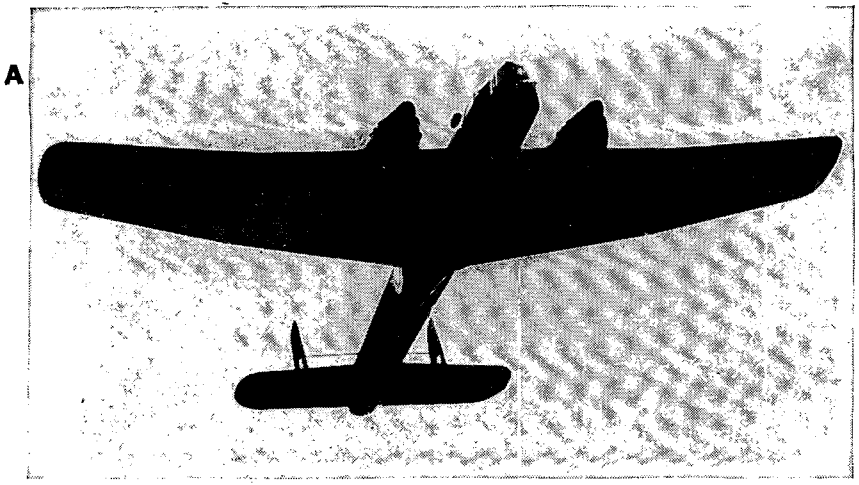
"WHITLEY"



SPAN: 84 ft
LENGTH: 72 ft. 6 in.
MAX. SPEED: 221 m. p. h. at 17,750 ft.

SERVICE CEILING:
20,000 ft. (overload)

~~RESTRICTED~~



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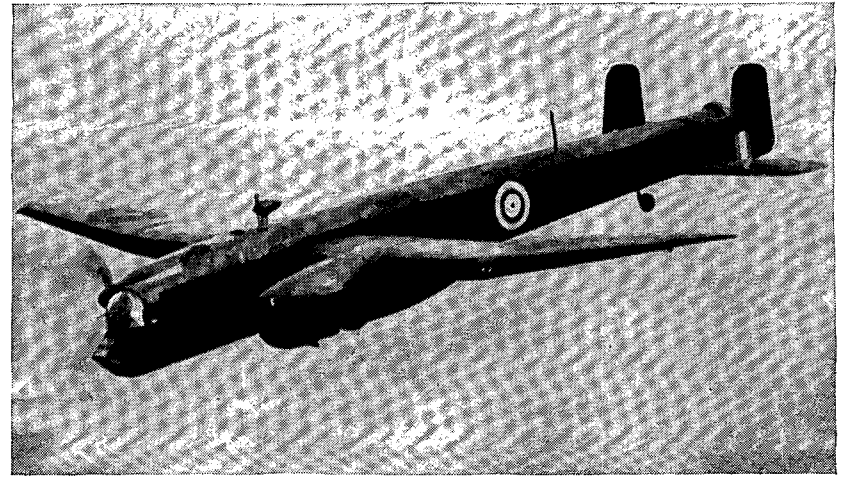

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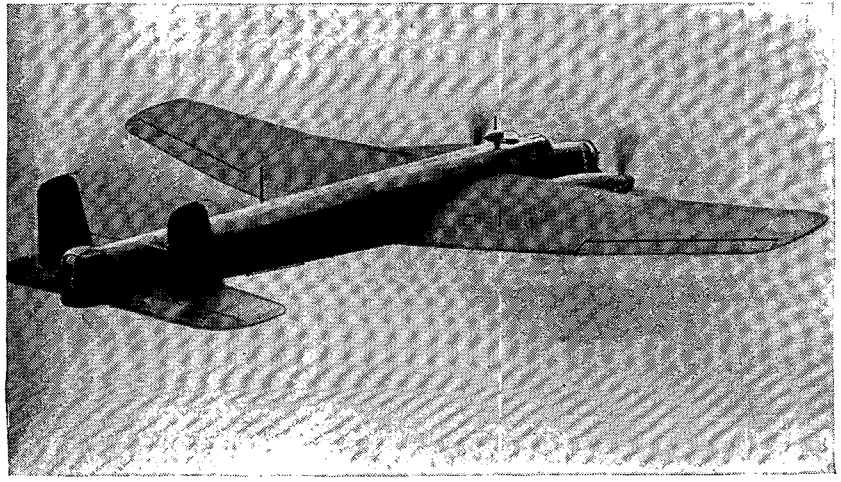

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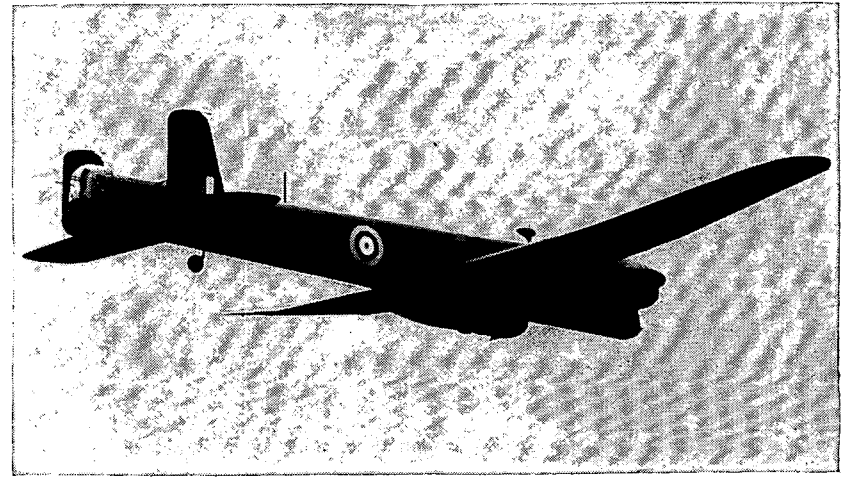
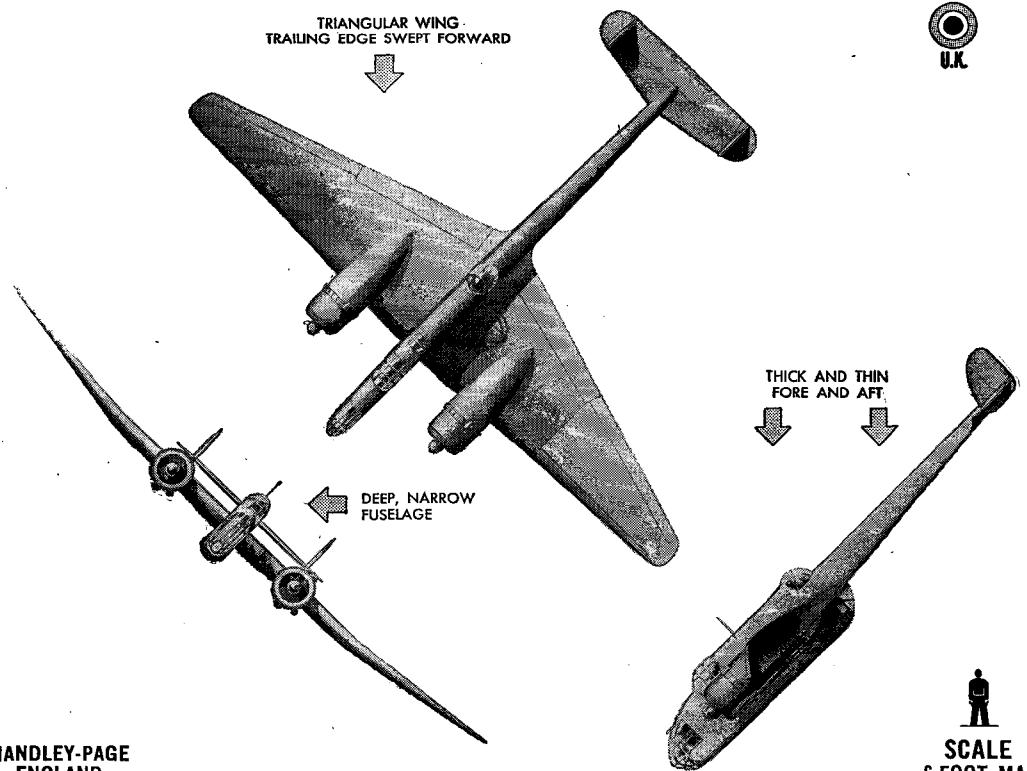


D

R. A. F.: HAMPDEN

LIGHT BOMBER

U.K.



HANDLEY-PAGE
ENGLAND

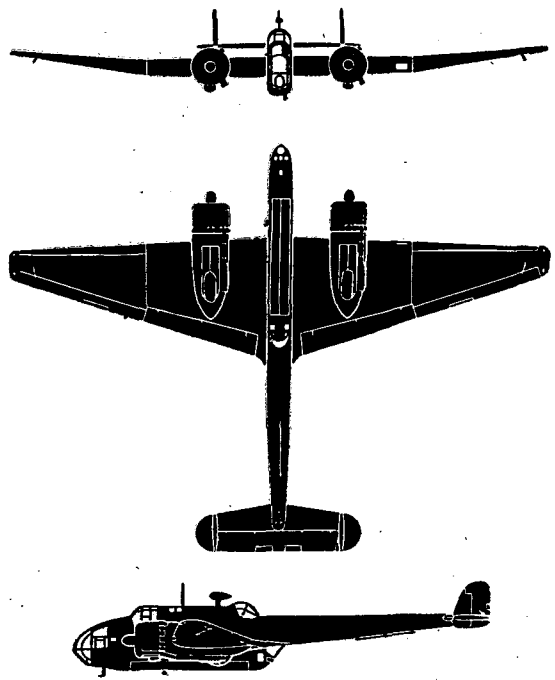
SCALE
6-FOOT MAN

DISTINGUISHING FEATURES: Mid - wing monoplane with two radial engines. Wing has marked taper on trailing edge with small raked tips. Fuselage is extremely long and narrow in plan. In side elevation, the fuselage is deep to trailing edge of wing where there is a sharp step on both top and bottom. Aft of the wing, the fuselage is very small, tapering back to the stabilizer. Twin fins and rudders are set slightly inboard on stabilizer. Stabilizer has slight taper on leading edge. Straight trailing edge and round tips.
INTEREST: A veteran among twin-engined bombers, the Hampden, although retiring in favor of improved Beauforts and Blenheims, is still doing good work as a mine layer. The Hampden carriers a crew of four.

APRIL 1943
FROM DATA CURRENTLY AVAILABLE

WAR DEPARTMENT FM 30–30
NAVY DEPARTMENT BUAER 3

"HAMPDEN"

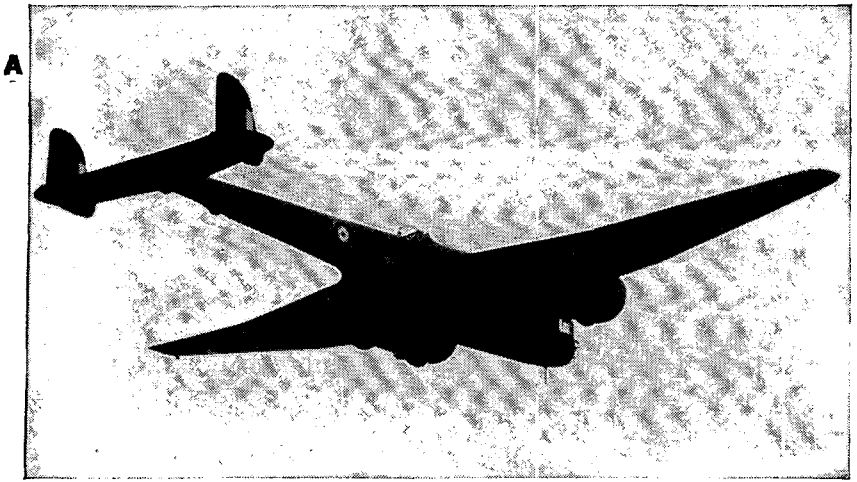


SPAN: 69 ft. 4 in.
LENGTH: 53 ft. 7 in.
MAX. SPEED: 247 m. p. h. at 13,800 ft.

SERVICE CEILING:
19,000 ft. (max. load)

RESTRICTED

A



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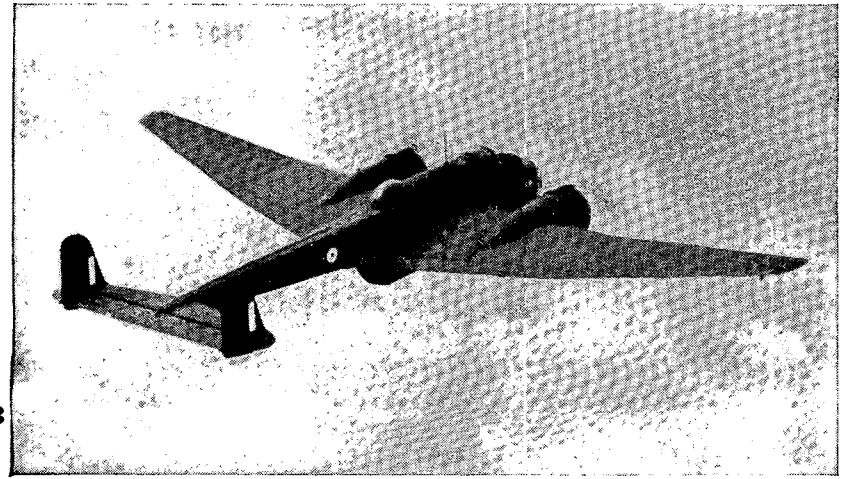

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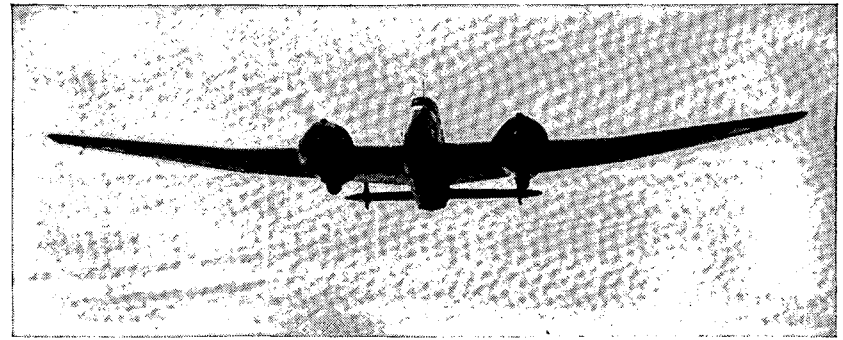

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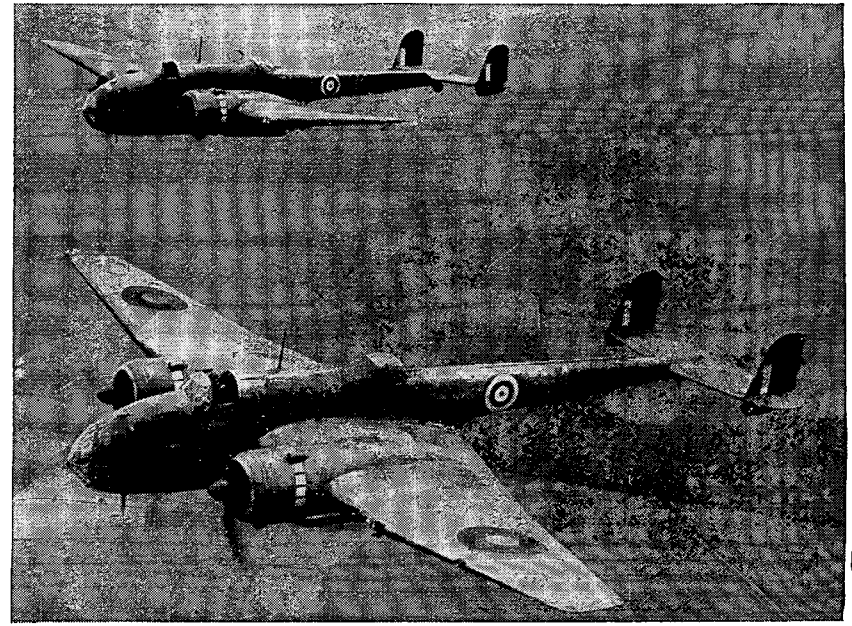
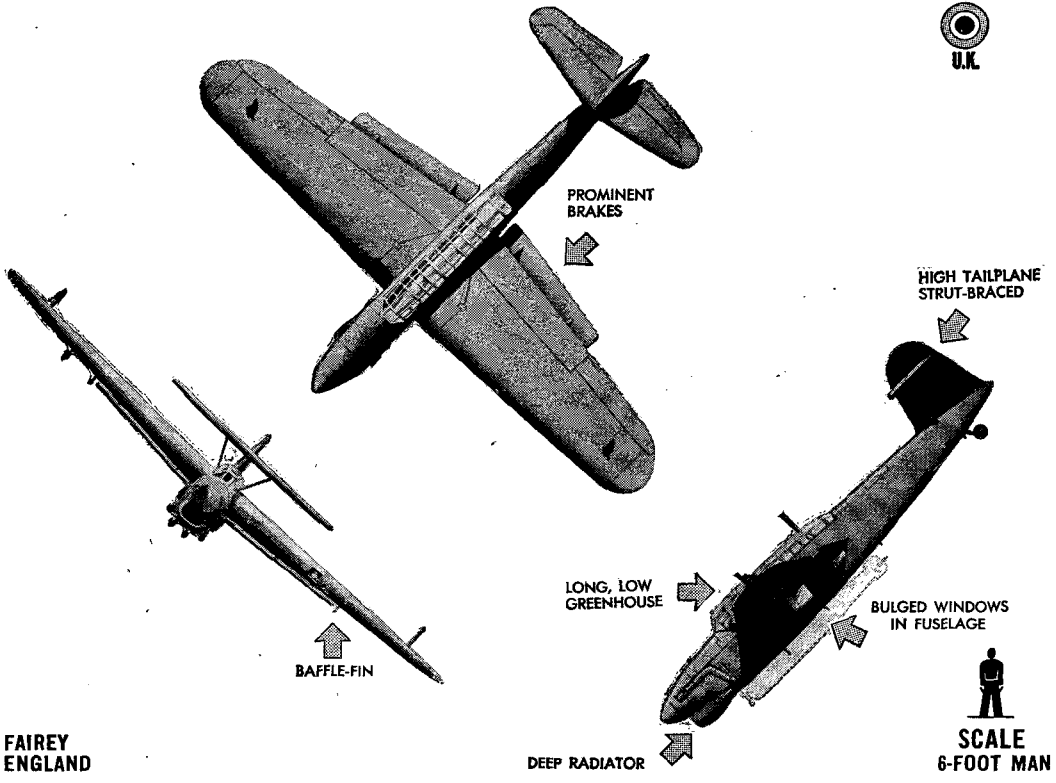


F. A. A.: BARRACUDA

RECONNAISSANCE

U.K.



SCALE
6-FOOT MAN

FAIREY
ENGLAND

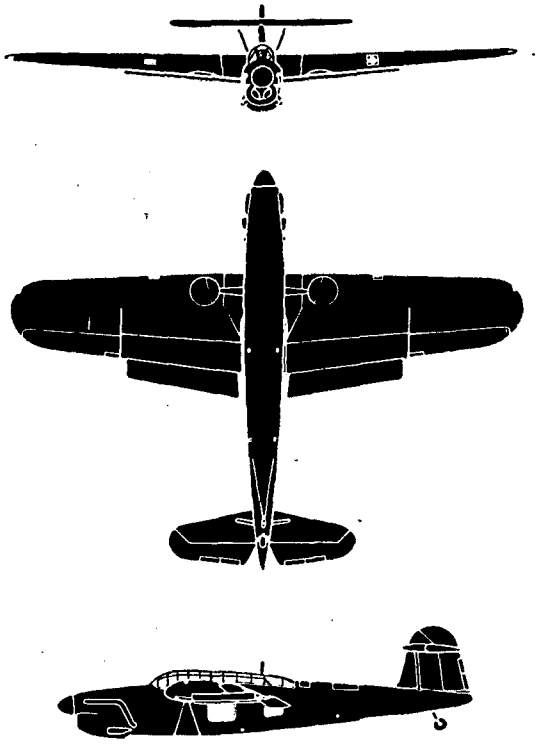
DISTINGUISHING FEATURES: Single in-line engine, high-wing monoplane. Wings have slight dihedral and taper with large rounded tips. Prominent flaps project beyond trailing edge of wings. Narrow diamond-shaped stabilizer and elevator with rounded tips is set high, being mounted on upper part of fin and rudder. Stabilizer is externally braced. Large radiator directly under medium-sized spinner. Fuselage tapers back gradually and has a long sloping cockpit enclosure commencing at leading edge and extending aft of trailing edge of wing. High fin and rudder with rounded top.

INTEREST: This new aircraft is powered with a Rolls Royce Merlin engine. One modification of this plane is in service with fixed landing gear.

APRIL 1943
FROM DATA CURRENTLY AVAILABLE

WAR DEPARTMENT FM 30–30
NAVY DEPARTMENT BUAER 3

"BARRACUDA"

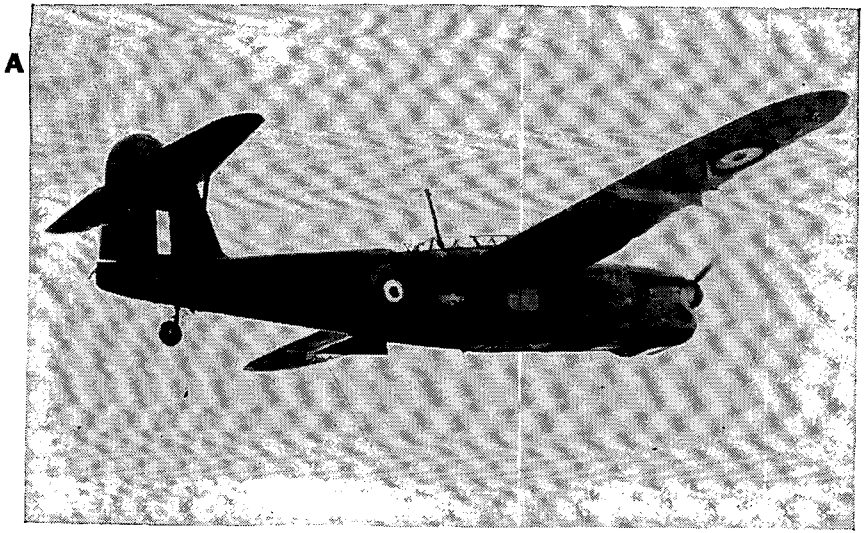


SPAN: 49 ft. 2 in.
LENGTH: 40 ft. 7 in.
MAX. SPEED:

SERVICE CEILING:

[redacted]

A



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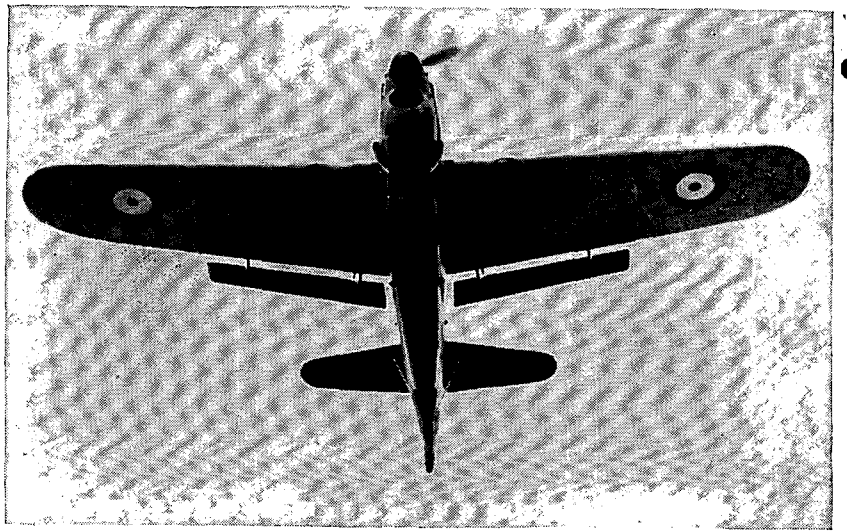

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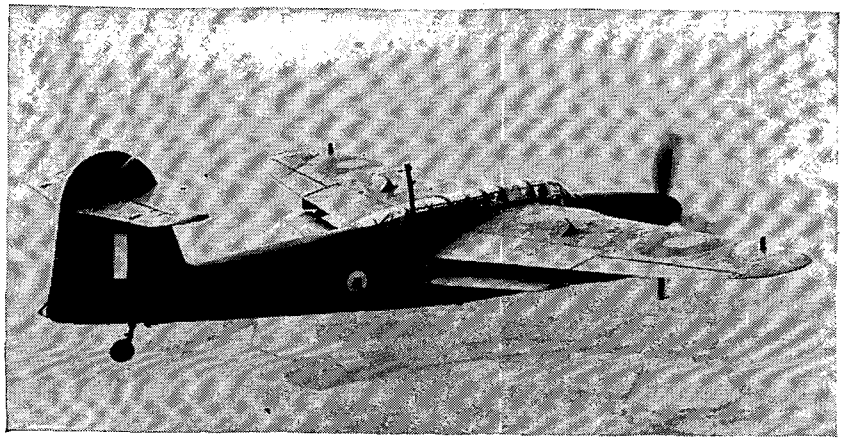

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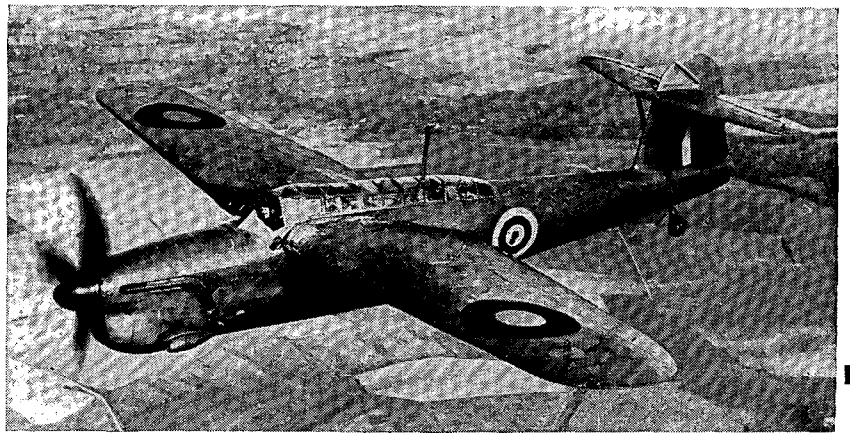
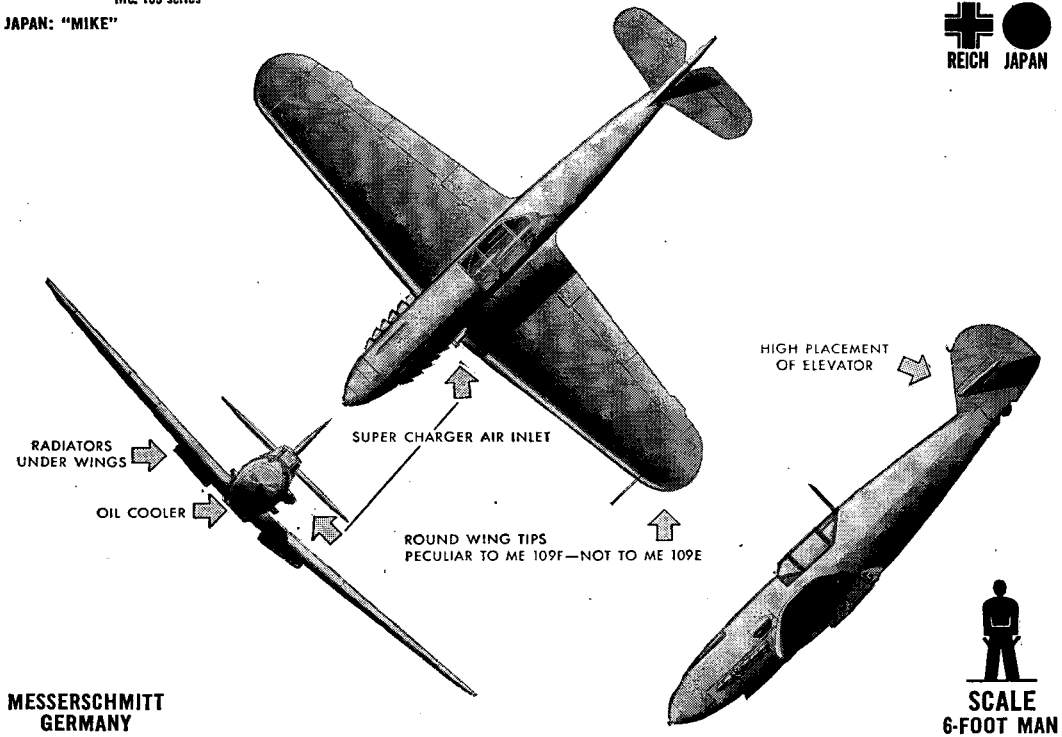


GERMANY: Me. 109F
Me. 109 series

JAPAN: "MIKE"

FIGHTER

REICH JAPAN



SCALE
6-FOOT MAN

MESSERSCHMITT
GERMANY

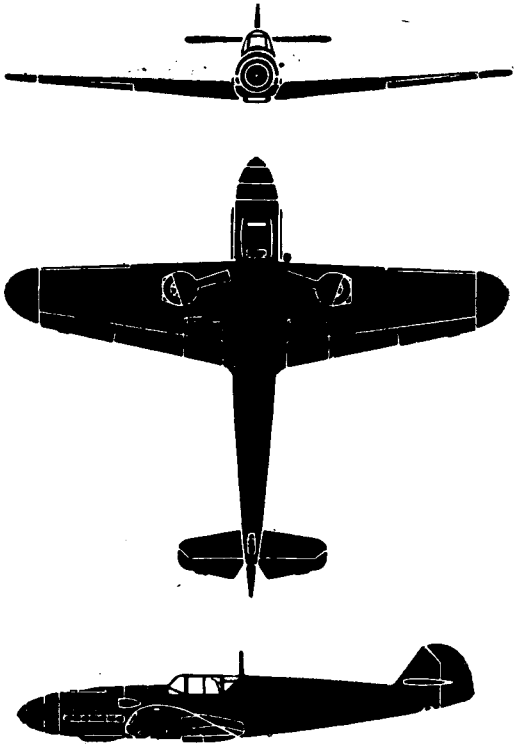
DISTINGUISHING FEATURES: Low - wing monoplane with single in-line engine and thick nose. Air scoops under each wing and under nose. Wings tapered with rounded tips and dihedral from roots. Stabilizer set high on small fin and rudder. Long fuselage with low cock-pit.

INTEREST: The Messerschmitts swarmed over England during the Battle of Britain and they have been in the thick of action on every front where the Luftwaffe has operated. This fighter has maneuverability, climbing ability, and its ceiling is higher than some of the Allied fighters sent against it. This aircraft also is used at times as a light bomber in support of ground troops and, in the Southwest Pacific where this aircraft is used by the Japs, it is known as "Mike." A high altitude version, the Me. 109G is now coming into use. It is very similar in appearance to the Me. 109F. An earlier model, the Me. 109E, has square wing tips with a span of 32 ft. 6 in. and stabilizer struts. The 109E is now obsolescent and is going out of service.

APRIL 1943
FROM DATA CURRENTLY AVAILABLE

WAR DEPARTMENT FM 30–30
NAVY DEPARTMENT BUAER 3

MESSERSCHMITT "ME. 109"



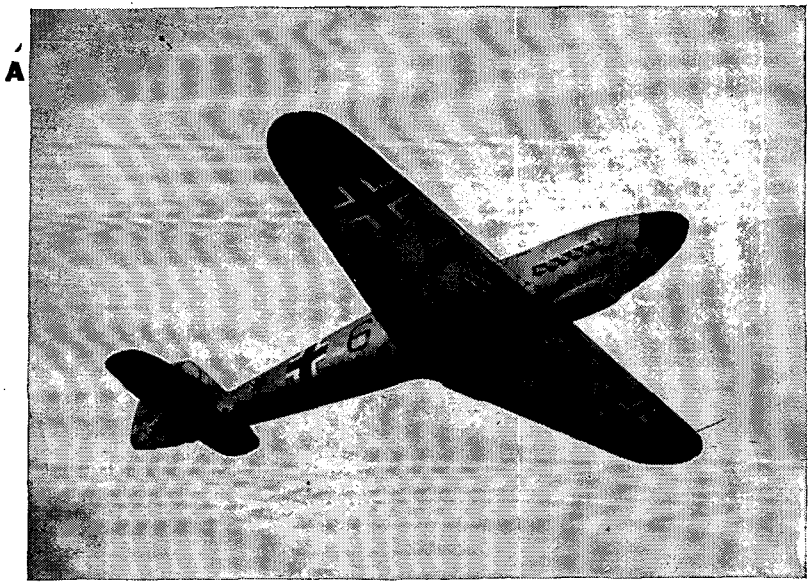
SPAN: 32 ft. 9 in.
LENGTH: 29 ft. 10 in.

SERVICE CEILING:
38,000 ft.
(with normal load, 37,000 ft.)

MAX. SPEED: 370 m. p. h. at 22,000 ft.

[redacted]

A



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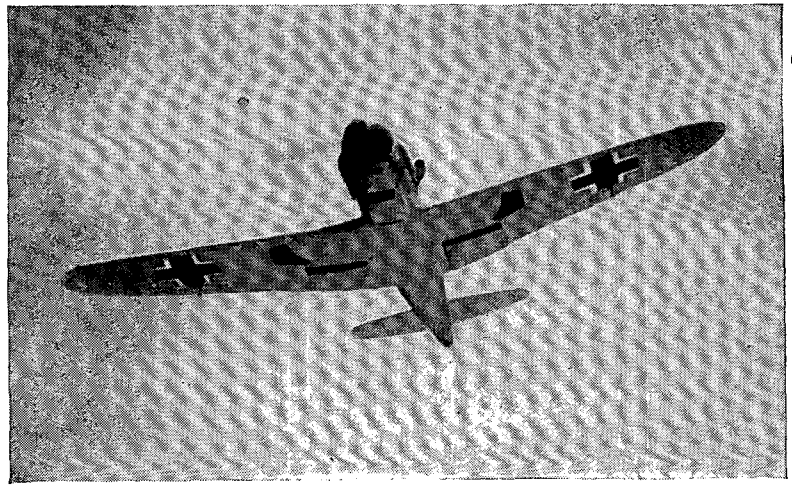

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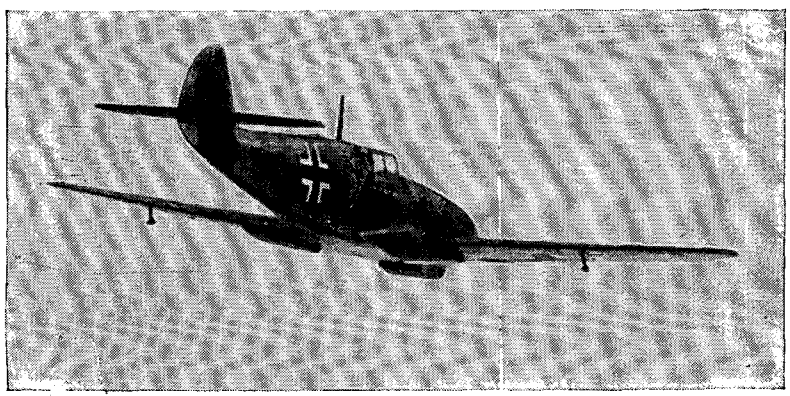

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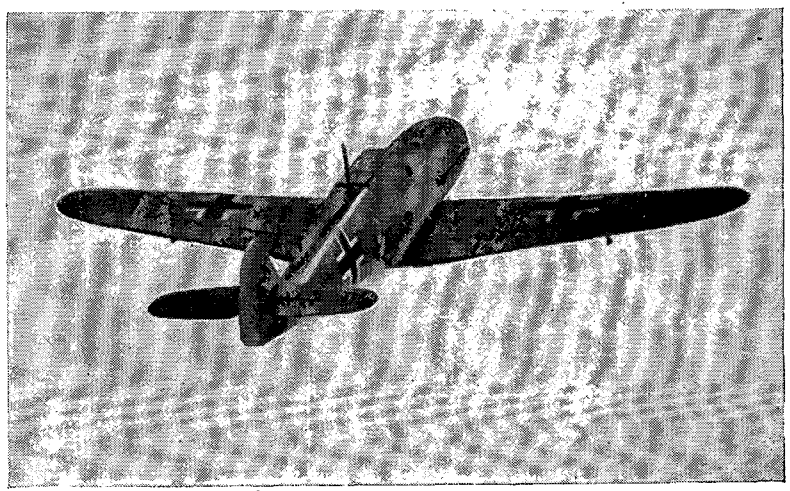
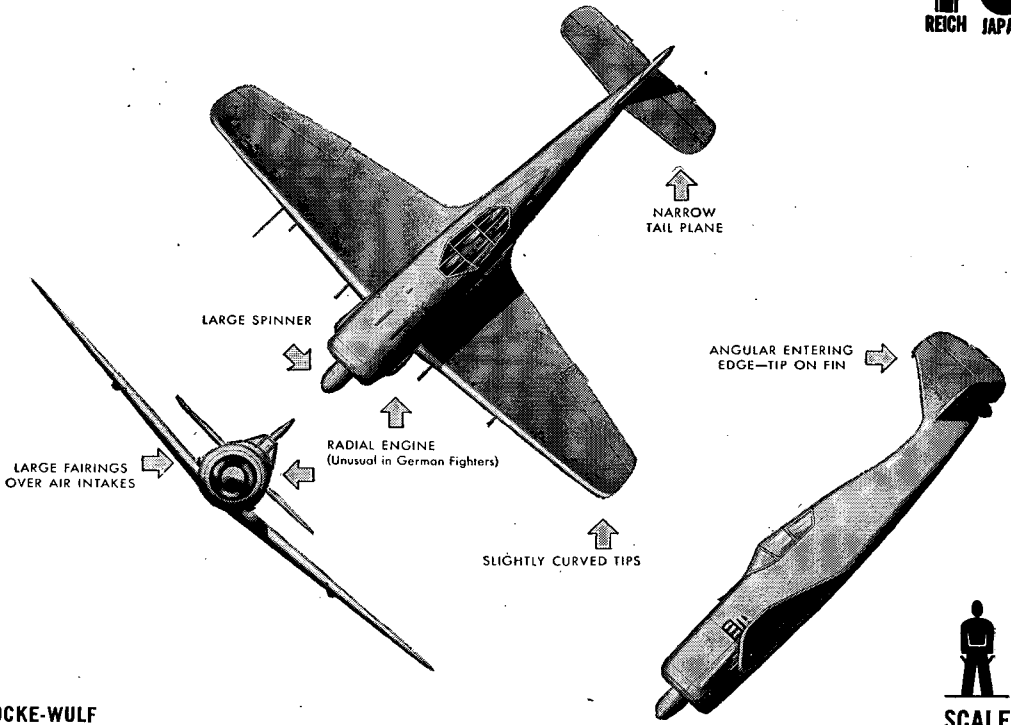


GERMANY: F. W. 190A-3
F. W. 190 series

JAPAN: "FRED"

FIGHTER

REICH JAPAN



FOCKE-WULF
GERMANY

SCALE
6-FOOT MAN

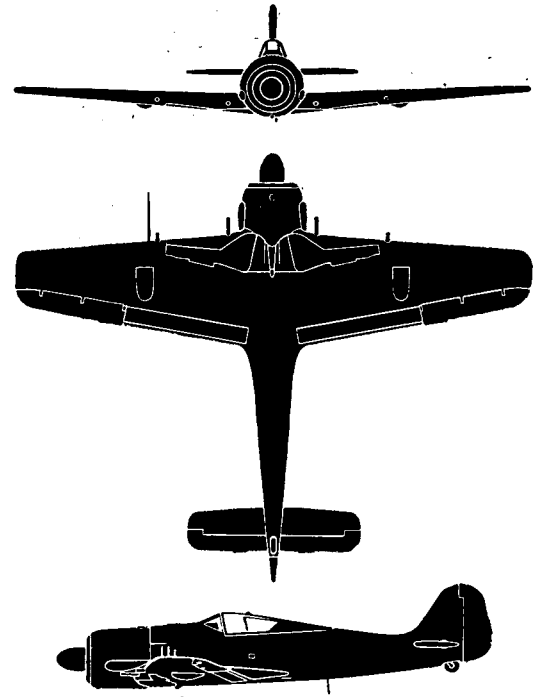
DISTINGUISHING FEATURES: Short blunt nose with large spinner. Short thin tapered wings with blunt tips. Fuselage narrow aft of wings. Rectangular stabilizer and tail plane. Tall fin and rudder. Small low cockpit tapering into fuselage.

INTEREST: This is the only single-engine German fighter with a radial engine. The use of an air-cooled engine represents a radical change in German fighter philosophy. The "190" looks more like an American plane than any previous German design. First used over Europe in the summer of 1941, the "190" is now also said to be in use by the Japanese Air Force in the Southwest Pacific where it is known as "Fred."

APRIL 1943
FROM DATA CURRENTLY AVAILABLE

WAR DEPARTMENT FM 30-30
NAVY DEPARTMENT BUAER 3

FOCKE-WULF "F. W. 190"



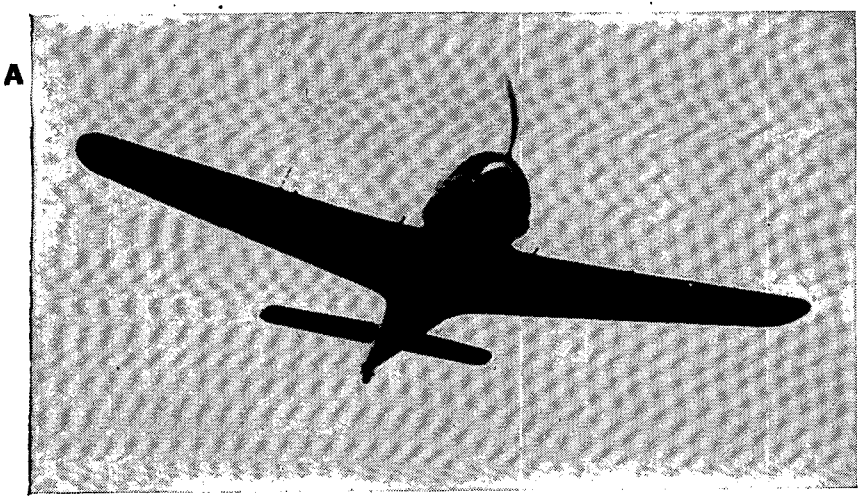
SPAN: 34 feet 6 in.
LENGTH: 29 ft. 1 in.

SERVICE CEILING:
37,000 ft. (not loaded)
36,000 ft. (normal load)

MAX. SPEED: 395 m. p. h. at 17,000 ft.

RESTRICTED

A



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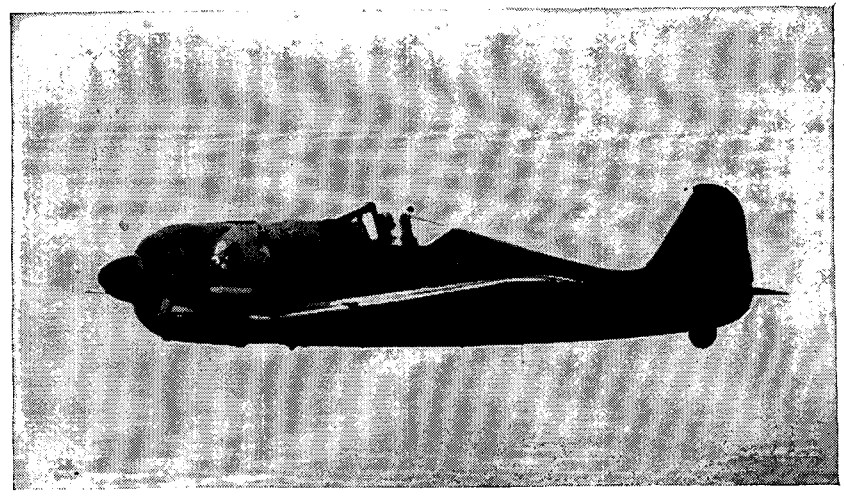

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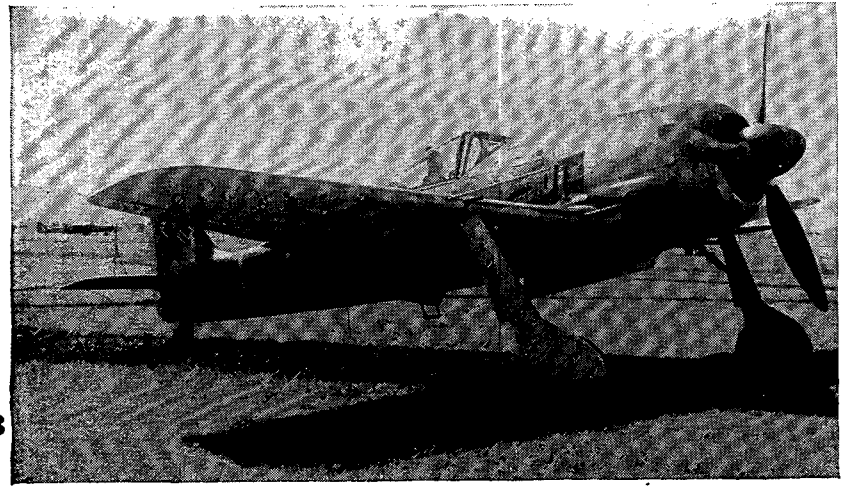

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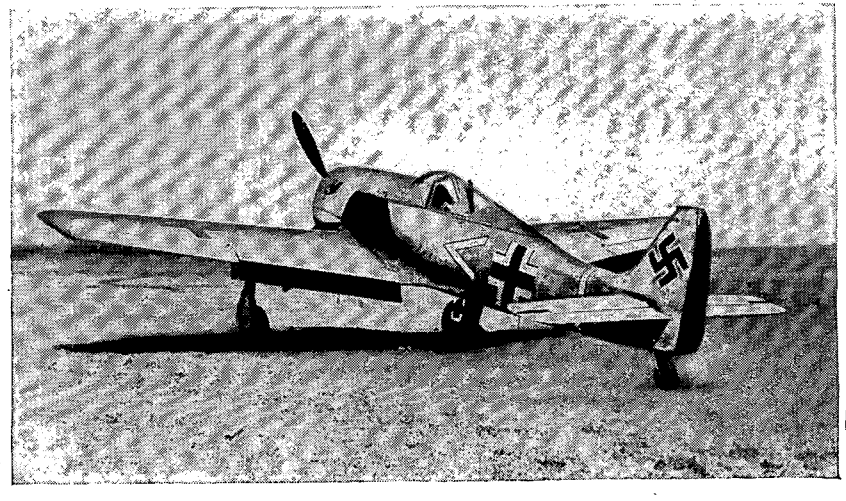
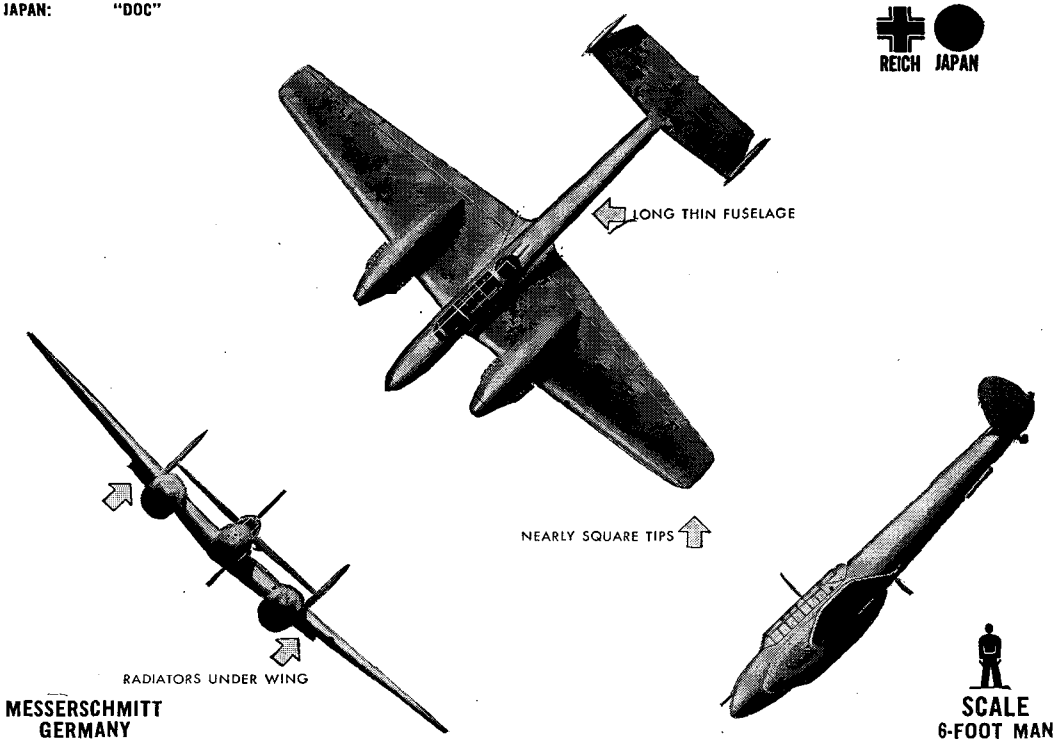


GERMANY: Me. 110
JAPAN: "DOC"

FIGHTER—LIGHT BOMBER

REICH JAPAN



MESSERSCHMITT
GERMANY

SCALE
6-FOOT MAN

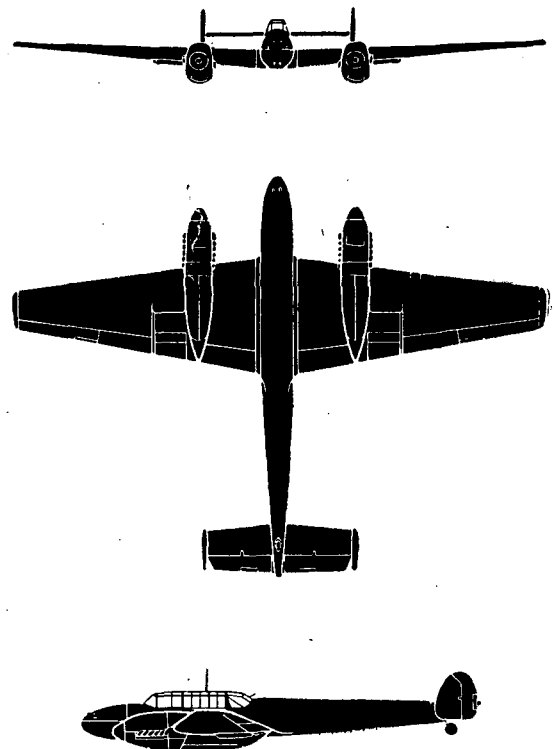
DISTINGUISHING FEATURES: Twin-engine, low-wing monoplane. Tapered wings have full dihedral and square tips. Twin in-line engines are underslung. Fuselage is slim with long cockpit enclosure. Twin fins and rudders, oval in shape with flattened bottoms, are set outboard of stabilizer and elevator.

INTEREST: The Me 110 first flew in 1938. Although it is a fast aircraft, its inferior maneuverability make it somewhat more vulnerable than the Me 109, and it is now infrequently used as a fighter on the European front. It has been used extensively, however, as a day and night fighter on the Russian front and in Libya. The Me 110 is also being used for bombing and for ground attacks. Certain reconnaissance squadrons are now equipped with them. Some long-range fighter versions are equipped with a special blister tank under the fuselage in addition to two jettisonable wing tanks.

APRIL 1943
FROM DATA CURRENTLY AVAILABLE

WAR DEPARTMENT FM 30-30
NAVY DEPARTMENT BUAER 3

MESSERSCHMITT "ME. 110"



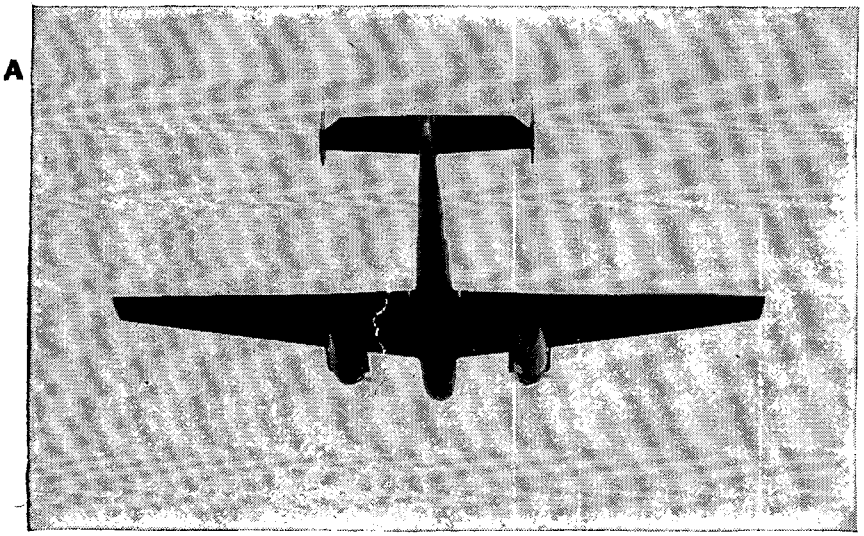
SPAN: 53 ft. 11 in.
LENGTH: 40 ft. 4 in.

SERVICE CEILING:
34,000 ft. (not loaded)
32,000 ft. (normal load)

APPROX. SPEED: 350 m. p. h. at 22,000 ft.

REGISTERED

A



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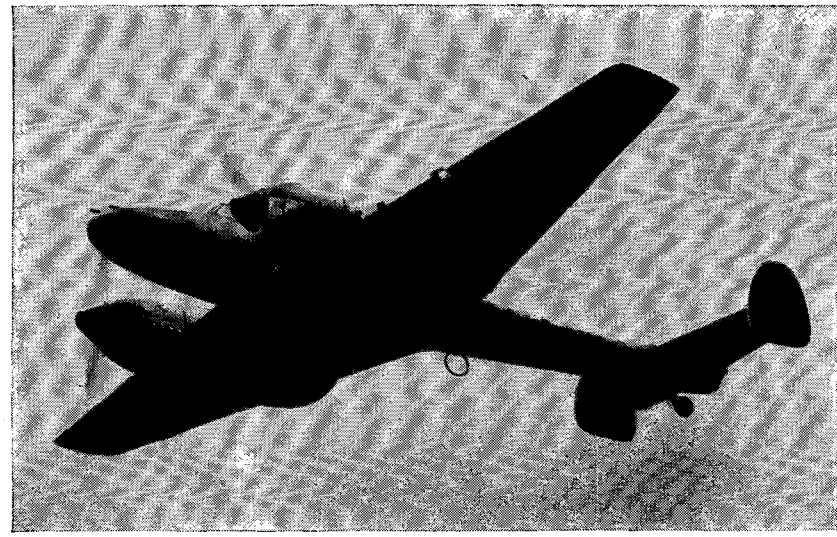

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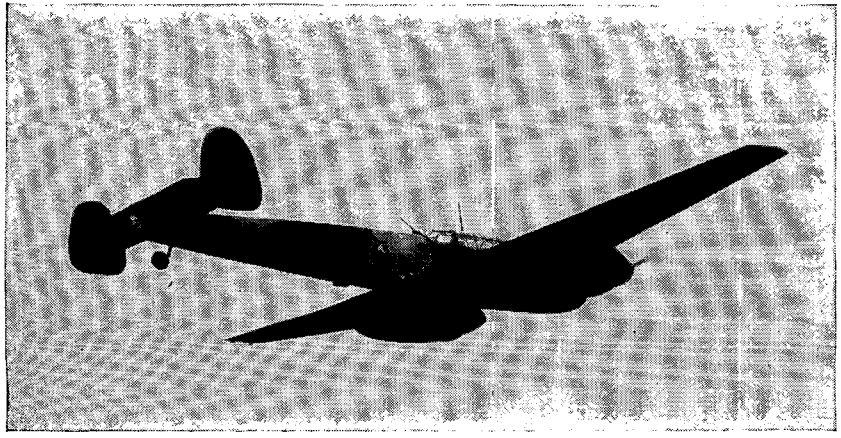

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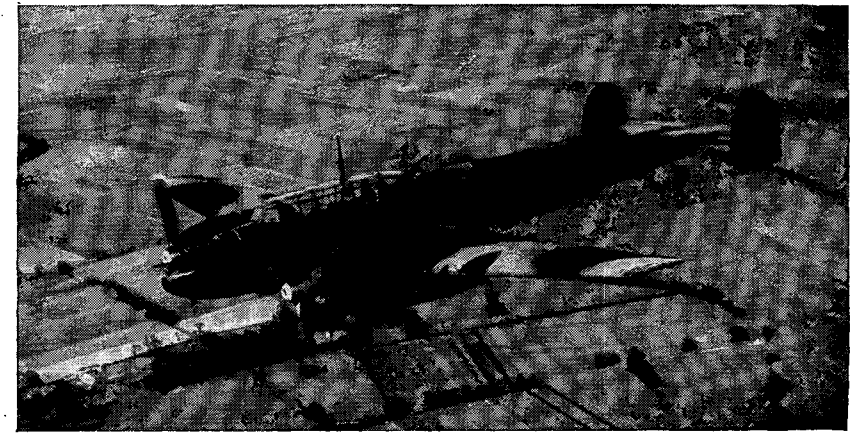
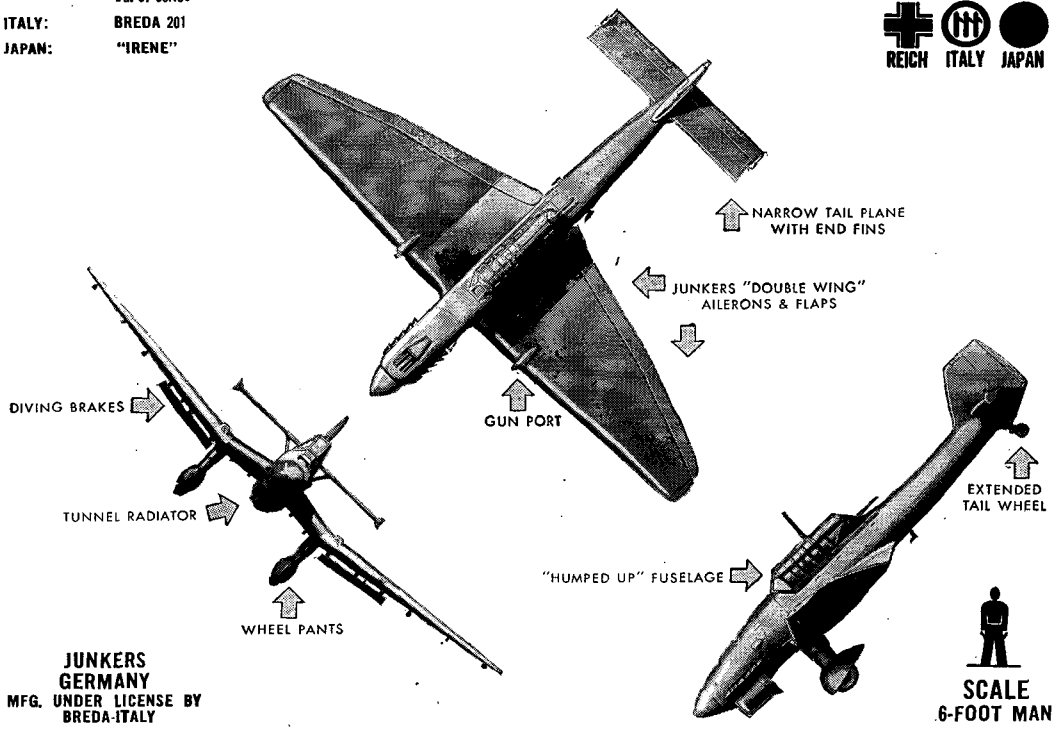


GERMANY: Ju. 87B
Ju. 87 series
ITALY: BREDA 201
JAPAN: "IRENE"

DIVE BOMBER

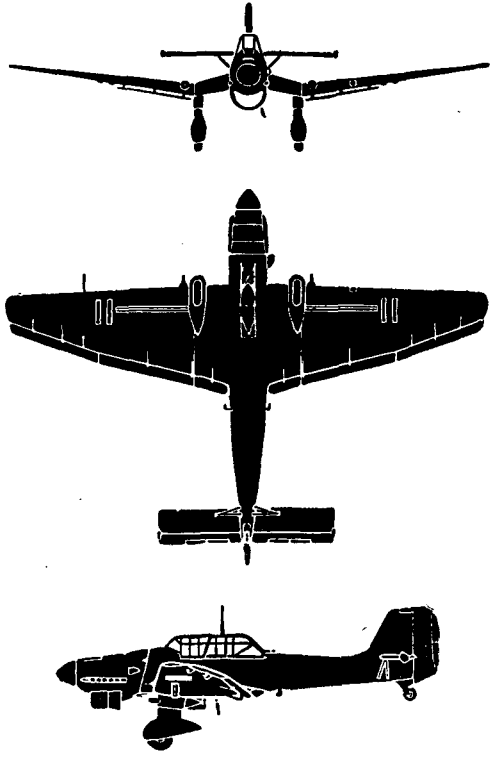
REICH ITALY JAPAN



JUNKERS
GERMANY
MFG. UNDER LICENSE BY BREDA-ITALY

SCALE
6-FOOT MAN

JUNKERS "JU. 87" "STUKA"



SPAN: 45 ft. 4 in.
LENGTH: 36 ft. 6 in.

SERVICE CEILING:
30,000 ft. (not loaded)
25,000 ft. (normal load)

MAX. SPEED: 225 m. p. h. at 15,000 (with load)
245 m. p. h. at 15,000 (bombs unloaded)

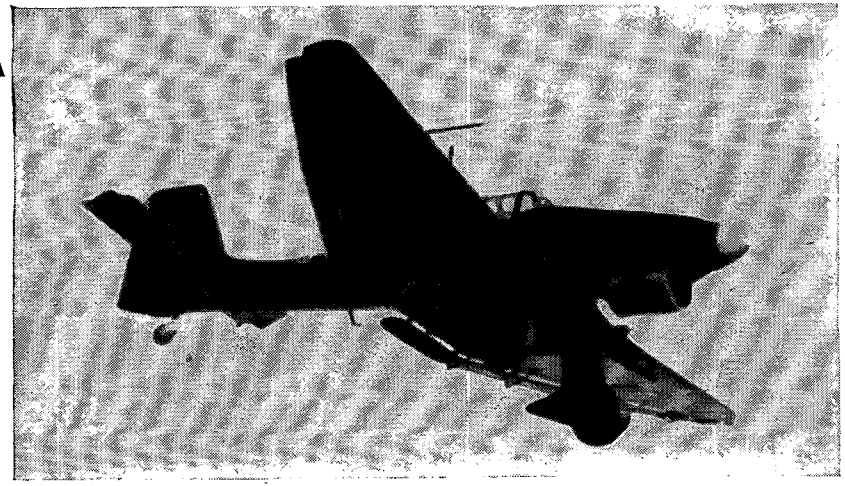
DISTINGUISHING FEATURES: Low inverted gull-wing monoplane, with in-line engine. Long nose and large spinner. Big rounded radiator below nose. Fixed landing gear with wheel fairings. Prominent square cut single fin and rudder with taper to leading edge of fin. Braced rectangular stabilizer and elevator.

INTEREST: One of the most widely used German planes, the "Stuka" has proved to be extremely vulnerable. Hundreds of these planes have been shot down by Allied air pilots and by A. A. fire. During the fighting in Poland and the Low Countries, this dive bomber earned a reputation as ugly as its appearance. A later model, the JU 87D is now in use (Photo B). It has a modified cockpit cover and a less conspicuous radiator. The plane is also manufactured by Breda in Italy and is then known as the BR 201. A captured report indicates that one modification, the Ju 87C–1, has jettisonable undercarriage that can be dropped to get increased speed in an emergency.

APRIL 1943
FROM DATA CURRENTLY AVAILABLE

WAR DEPARTMENT FM 30–30
NAVY DEPARTMENT BUAER

R[redacted]ED



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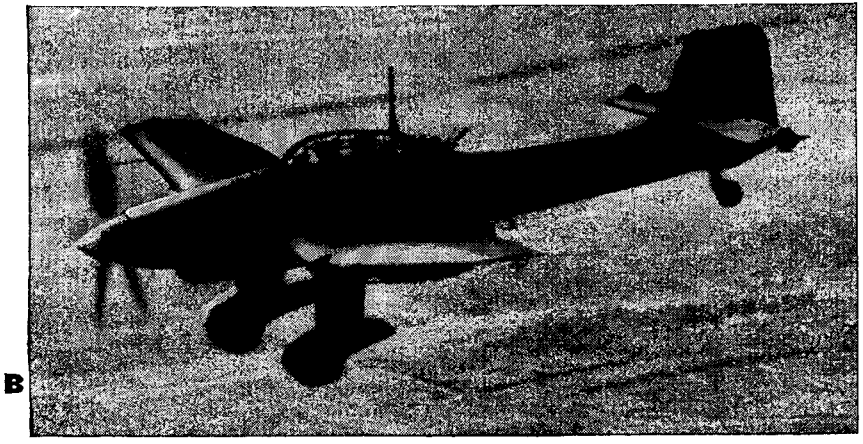


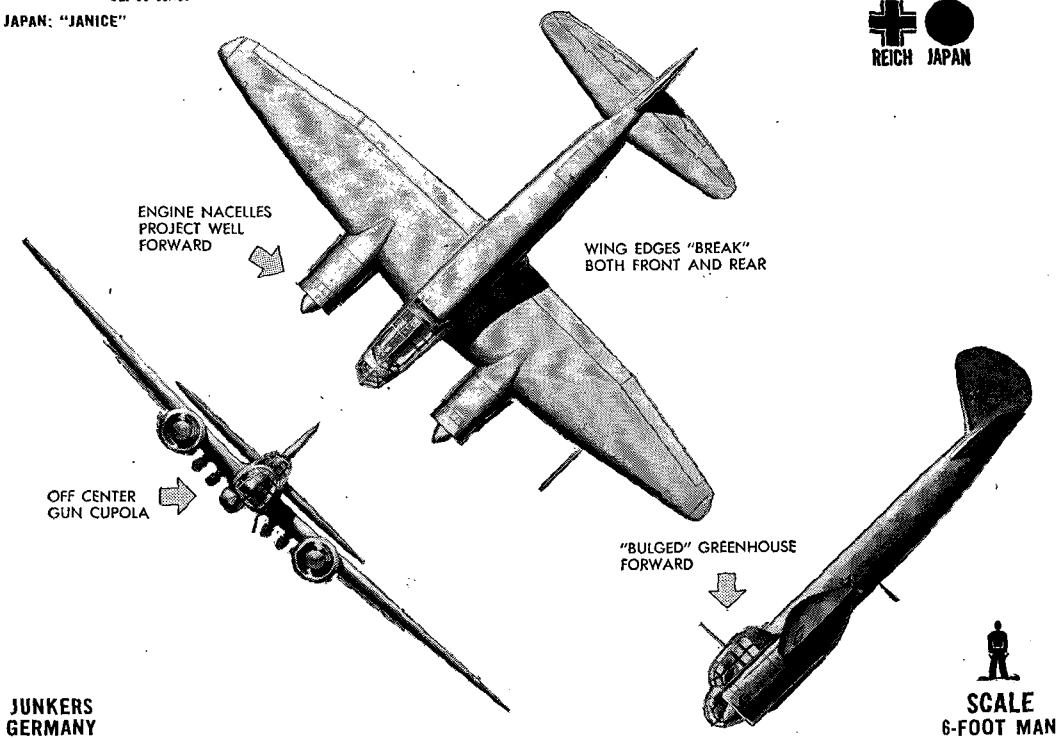
B

C

GERMANY: Ju. 88A-6
Ju. 88 series
JAPAN: "JANICE"

MEDIUM BOMBER–FIGHTER

REICH JAPAN



JUNKERS
GERMANY

SCALE
6-FOOT MAN

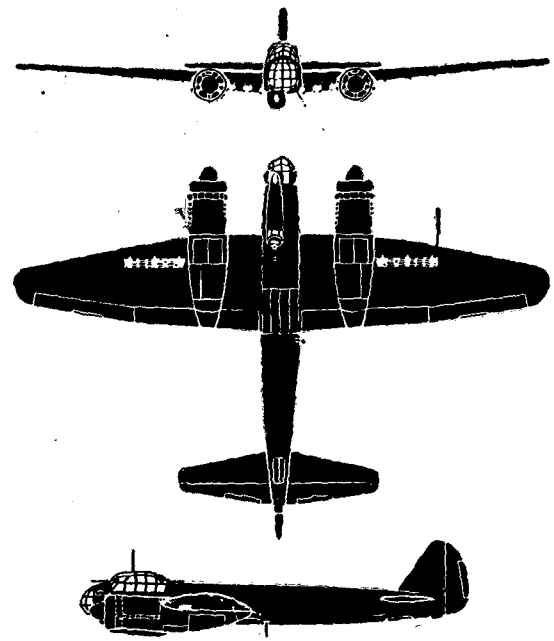
DISTINGUISHING FEATURES: Twin-engine low-wing monoplane. Heavy radial-type engine nacelles protrude well out from wing. Engines in line with nose. Narrow fuselage with off-center bomber's position under nose. Wings tapered in outer panels with rounded tips. Cockpit well forward. Tapered stabilizer and elevators with blunt tips. Single fin and rudder. Rudder projects well beyond elevators.

INTEREST: The Ju-88 is one of the chief offensive weapons of the Nazis. In service on all fronts, it is used as a day and night fighter and for dive and level bombing of both land and sea targets. Its liquid-cooled engines resemble radials because of the circular radiators. The bomber version of this aircraft can be fitted with jettisonable rocket devices under the wings to assist in take-off. Because of the many uses to which the Ju-88 is put, there are a number of different arrangements in armament and some structural variations.

APRIL 1943
FROM DATA CURRENTLY AVAILABLE

WAR DEPARTMENT FM 30–30
NAVY DEPARTMENT BUAER

JUNKERS "JU. 88"



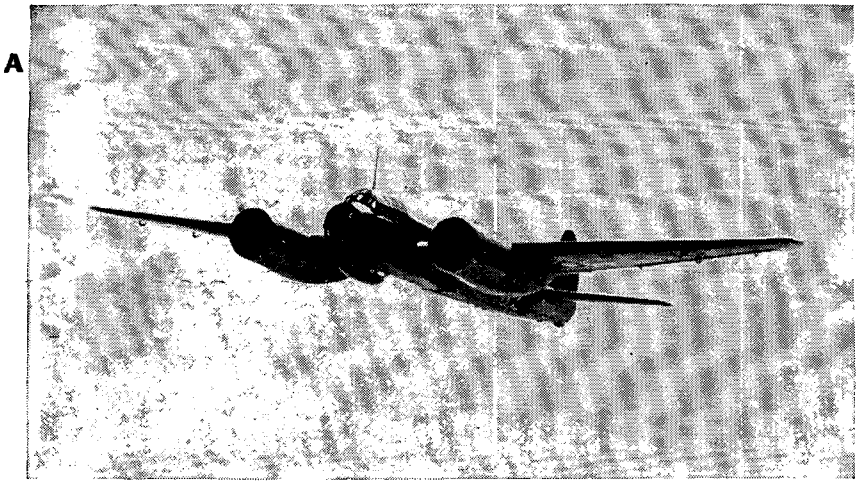
SPAN: 66 ft.
LENGTH: 47 ft.

SERVICE CEILING:
30,000 ft. (no load)
19,000 ft. (normal load)

MAX. SPEED: 287 m. p. h. at 14,000 ft. (no load)
269 m. p. h. at 14,000 ft. (loaded)

RESTRICTED

A



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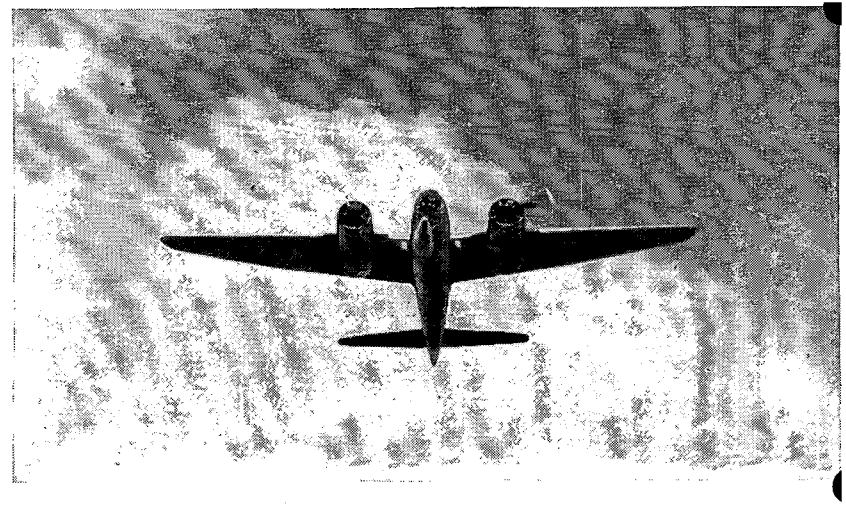

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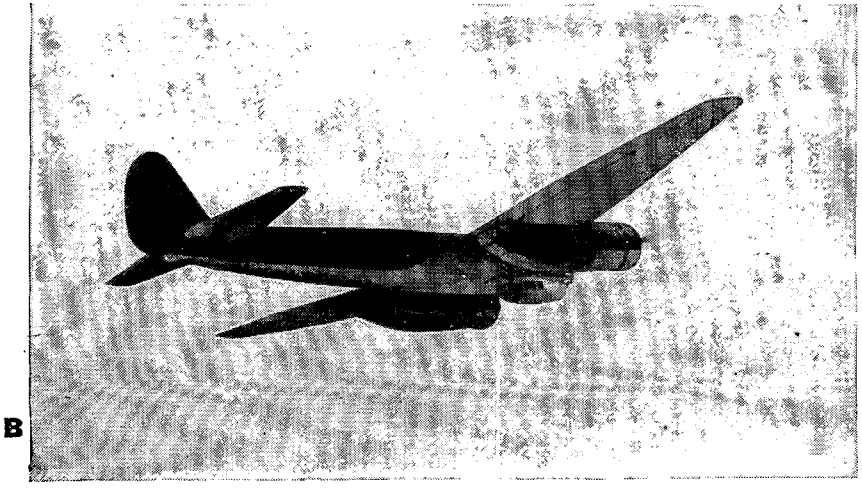
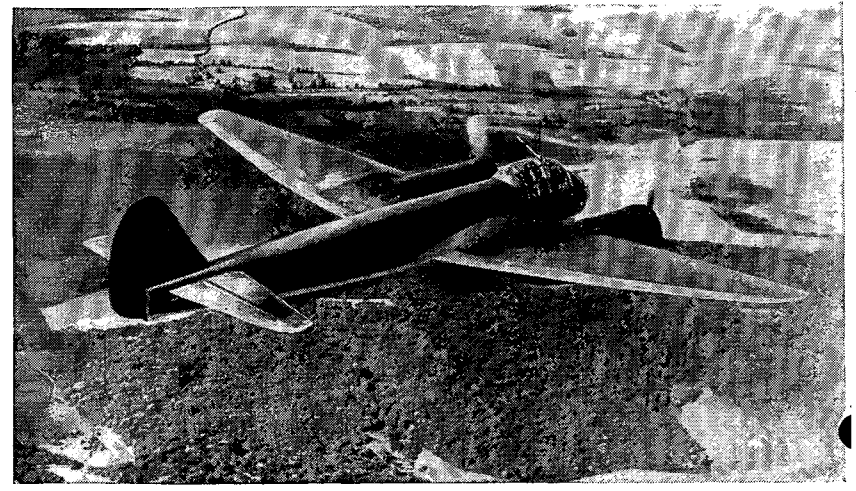
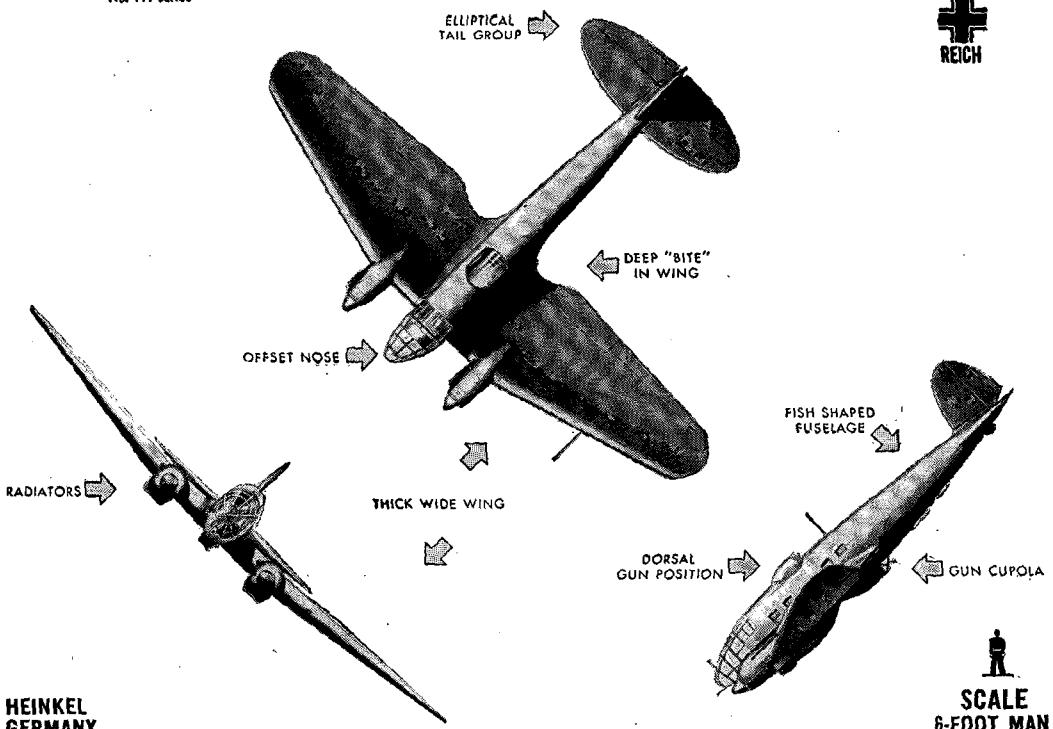




GERMANY: He. 111K
He. 111 series

MEDIUM BOMBER

REICH



HEINKEL
GERMANY

SCALE
6-FOOT MAN

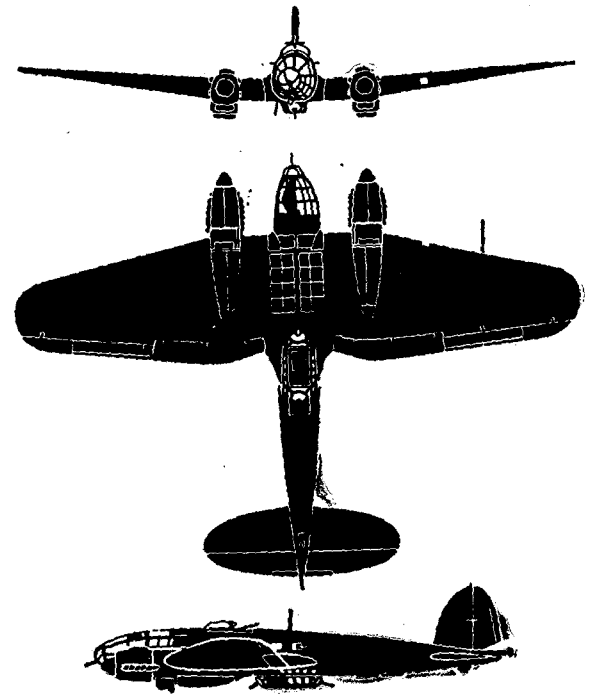
DISTINGUISHING FEATURES: Twin-engine low-wing monoplane with pronounced taper on leading edge of wing. Slightly tapered trailing edge, with "bite" at wing roots. Twin in-line engines underslung and protruding forward nearly as far as nose. Fuselage broken by ventral gun position just aft of wings, and by dorsal gun position above wings. Large transparent nose is off center to allow pilot vision past nose gunner. Large curved fin and rudder with cut-out to allow free elevator movement. Large elliptical stabilizer and elevator.

INTEREST: This bomber has undergone continuous improvement since it first appeared in 1935. The latest version, He 111 H-6 carries bombs or 2 torpedoes and has been used against Russian-bound convoys and in the Mediterranean. The aircraft is sometimes provided with rocket or some other type of "assisted take-off" equipment.

APRIL 1943
FROM DATA CURRENTLY AVAILABLE

WAR DEPARTMENT FM 30-30
NAVY DEPARTMENT BUAER 3

HEINKEL "HE. 111"



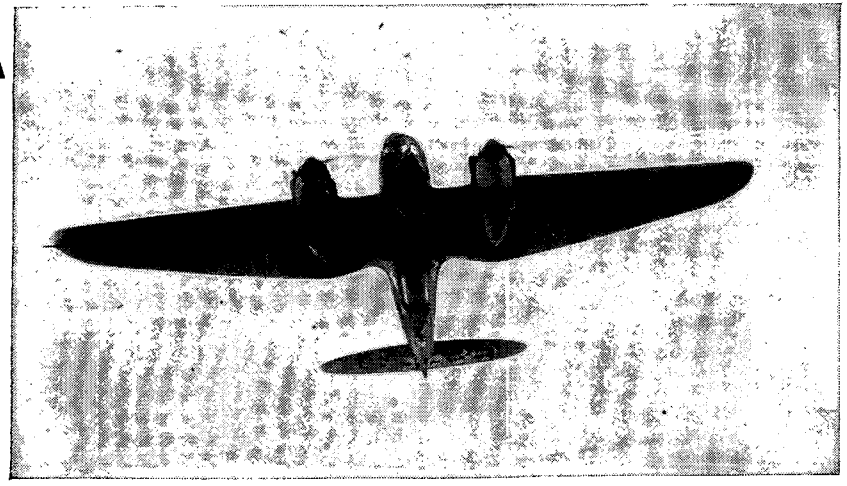
SPAN: 73 ft. 11 in.
LENGTH: 53 feet 8 in.

SERVICE CEILING:
31,500 feet (not loaded)
26,500 feet (*normal load*)

MAX. SPEED: 255 m. p. h. at 16,000 ft.

[redacted]

A



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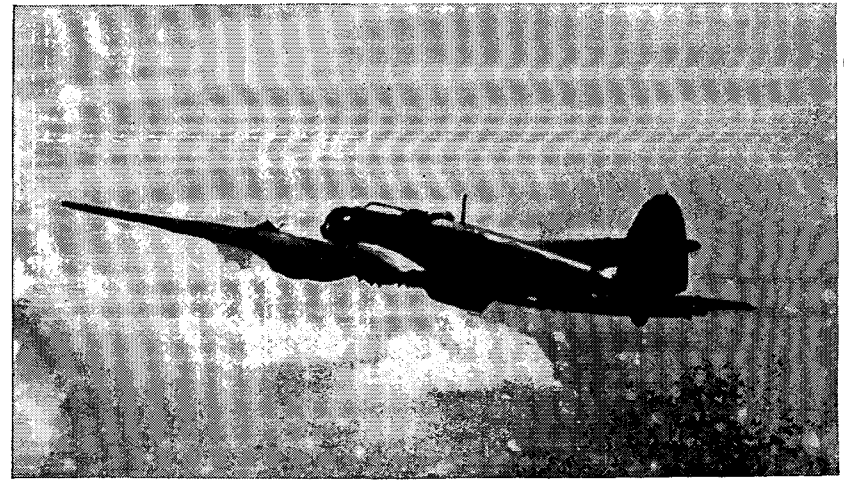

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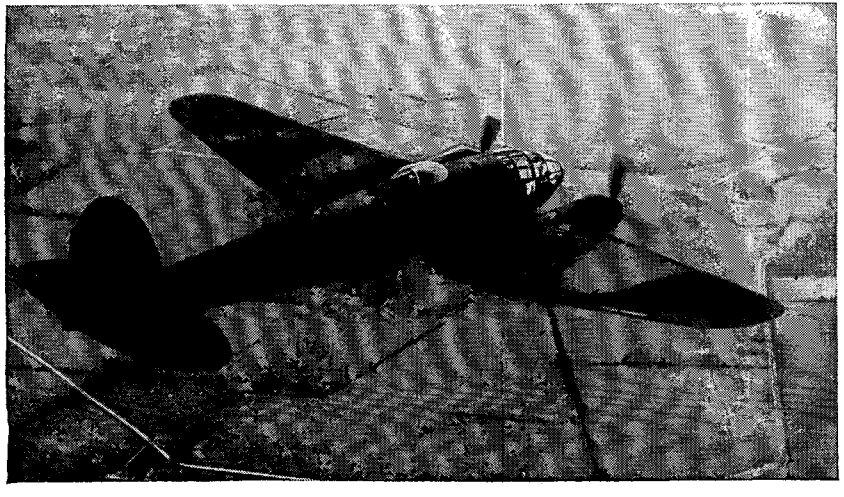

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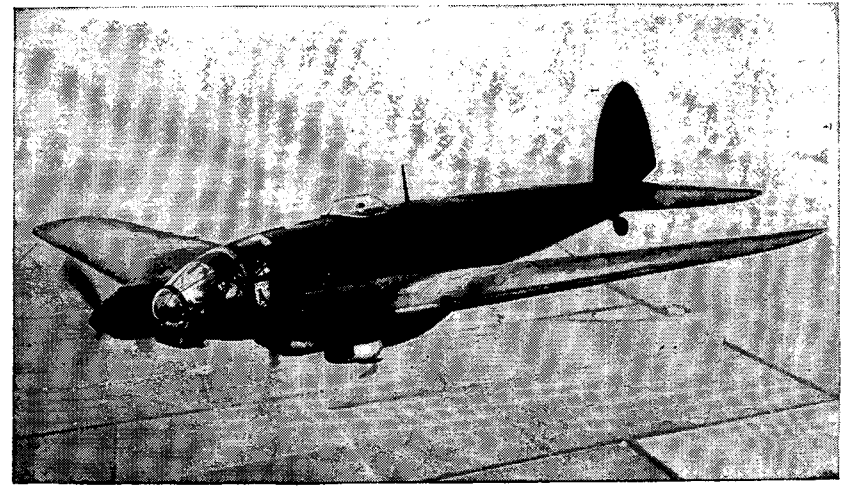
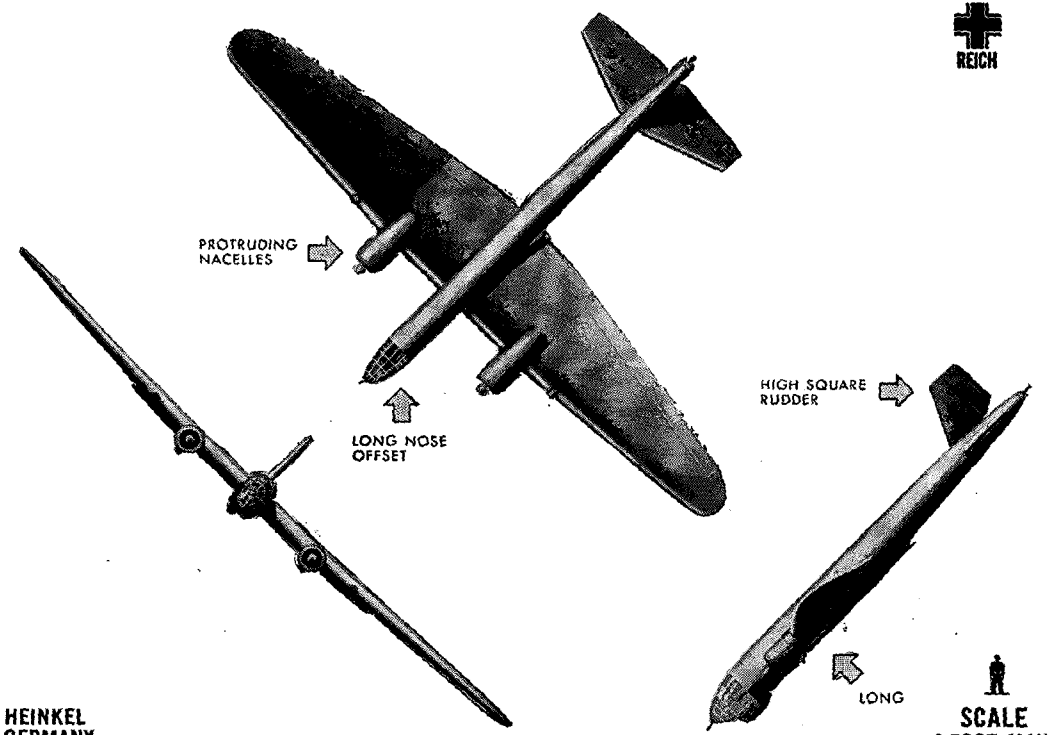


HEAVY BOMBER

REICH



SCALE
6-FOOT MAN

HEINKEL
GERMANY

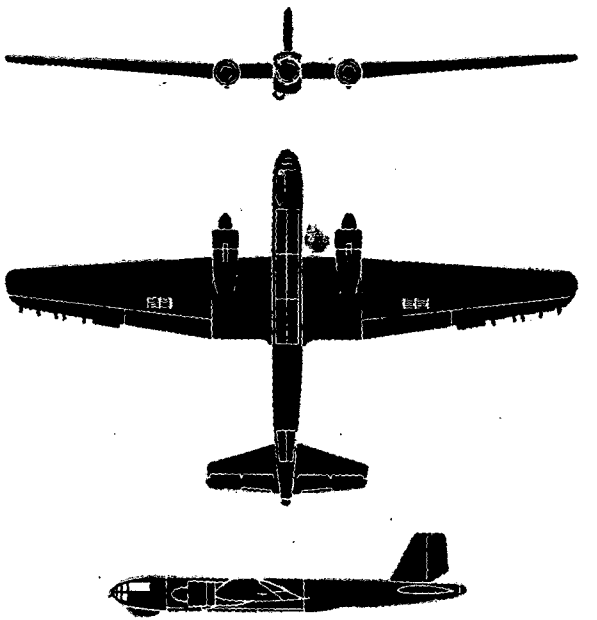
DISTINGUISHING FEATURES: Mid-wing monoplane with two radial-type engine nacelles. Wings tapered on outer panels. Long fuselage with rounded nose projecting far beyond engine nacelles. Single fin and rudder, large and angular as also are the stabilizer and elevators.

INTEREST: This aircraft became operational late in 1941. Designed primarily as a long-range "anti-blockade" aircraft, the He 177 may be employed also for short and medium range bombing, dive bombing, mine laying, torpedo dropping, and reconnaissance. A unique feature of this bomber is that each of its two engine nacelles contains really two engines geared to drive a single four blade propeller. The landing gear under each nacelle consists of 2 wheels which apparently retract spanwise and in opposite directions into the wings. Reports refer to a special high altitude version with pressure cabin.

APRIL 1943
FROM DATA CURRENTLY AVAILABLE

WAR DEPARTMENT FM 30–30
NAVY DEPARTMENT BUAER 3

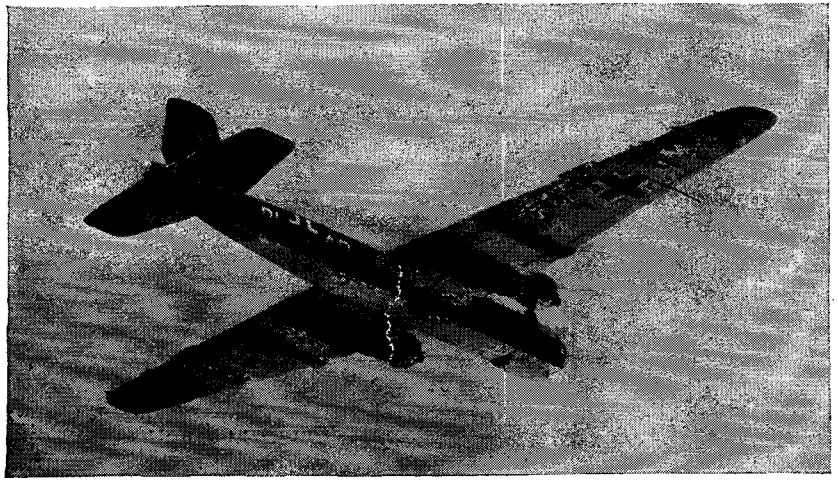
HEINKEL "HE. 177"



SPAN: approx. 103 ft.
LENGTH: approx. 65 ft.
MAX. SPEED: 300 m. p. h. at 18,000 ft. (est.)
SERVICE CEILING: 23,500 ft.

DESTROYED

A



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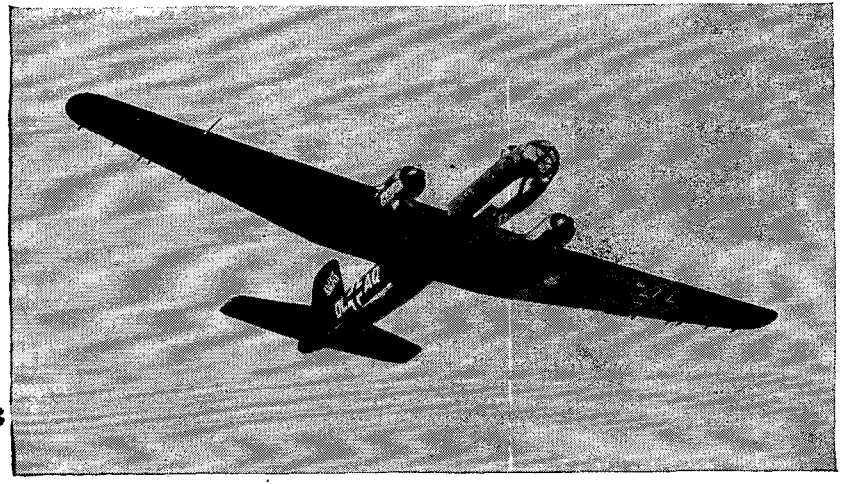

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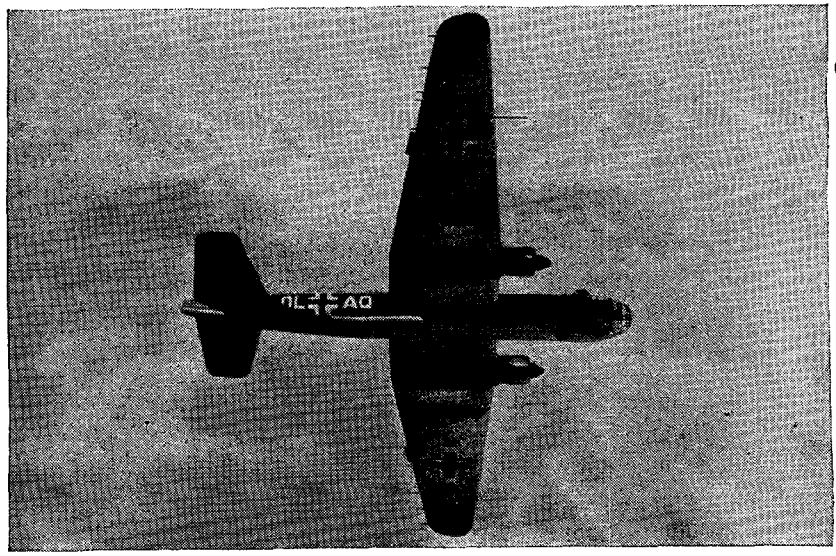

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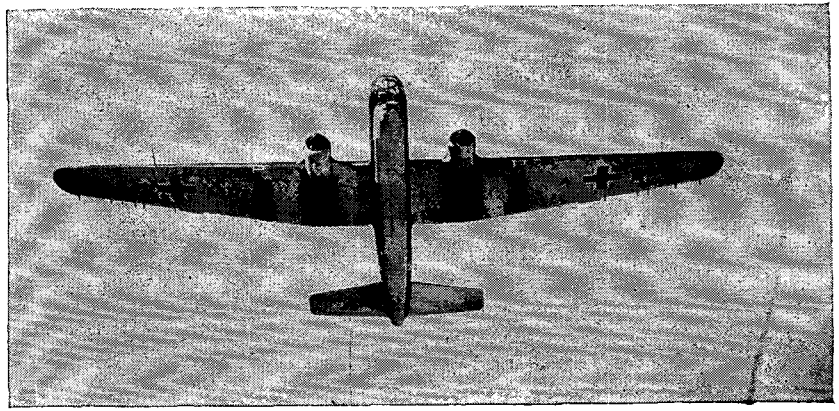
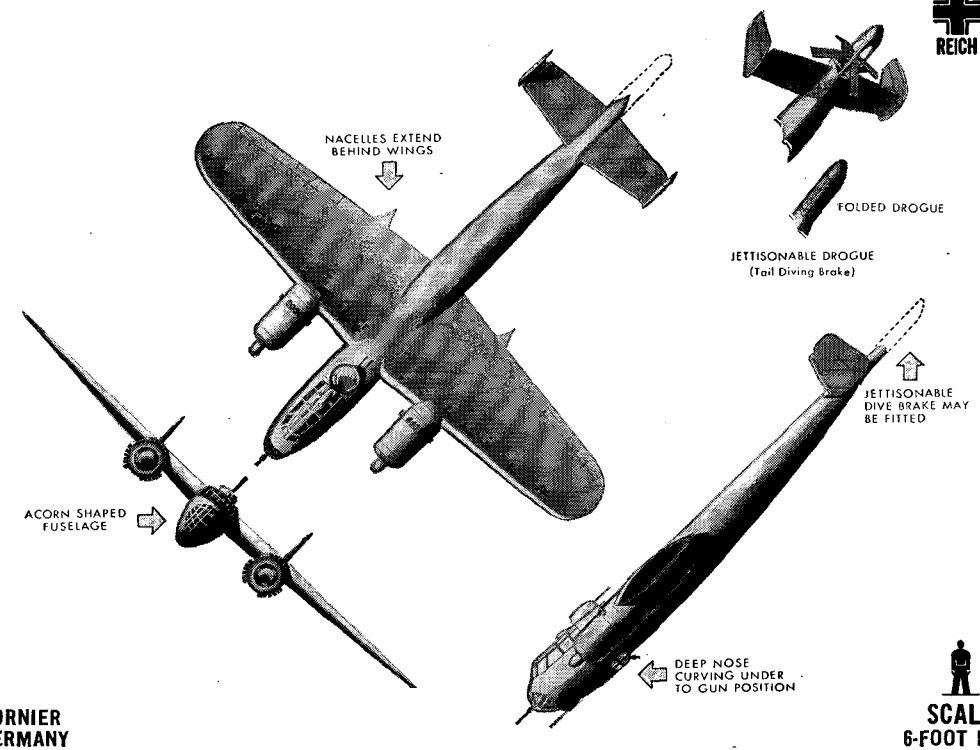


GERMANY: Do. 217 E-2
Do. 217 series

HEAVY BOMBER

REICH



SCALE
6-FOOT MAN

DORNIER
GERMANY

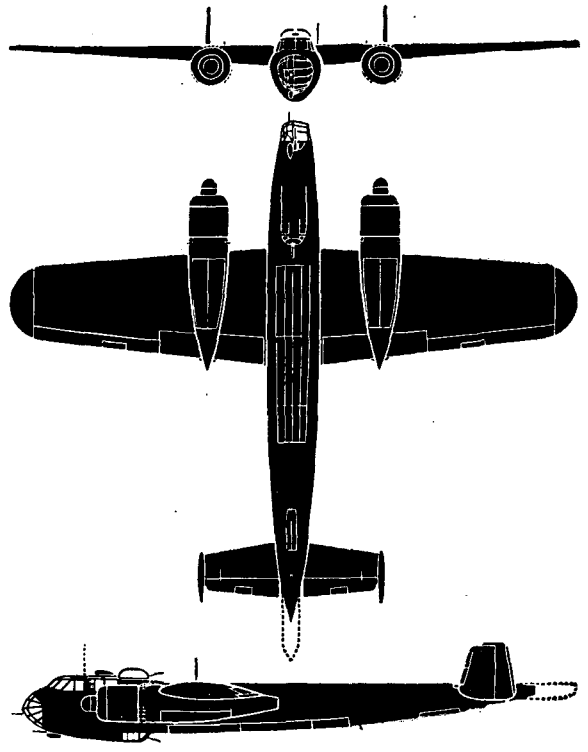
DISTINGUISHING FEATURES: Twin-engine, shoulder-wing monoplane. Short tapered wings with round tips. No dihedral. In side view, a long thin fuselage with thick nose. Dorsal turret in rear of cockpit. Twin fins and rudders set outboard of stabilizer.

INTEREST: This aircraft was introduced during the first part of 1942. It is used for level precision bombing and has also been in action as a torpedo bomber against convoys. In addition, this Dornier operates as a dive bomber and for this purpose may carry a novel "umbrella"-type jettisonable diving brake in its tail, used to slow its speed. The Do 217's are very formidable airplanes and it takes the most modern of fighters to deal with them. They are the current Dornier bomber, the older Do 17Z being obsolete. Several modifications differing somewhat in detail are in use.

APRIL 1943
FROM DATA CURRENTLY AVAILABLE

WAR DEPARTMENT FM 30-30
NAVY DEPARTMENT BUAER 3

DORNIER "DO. 217"



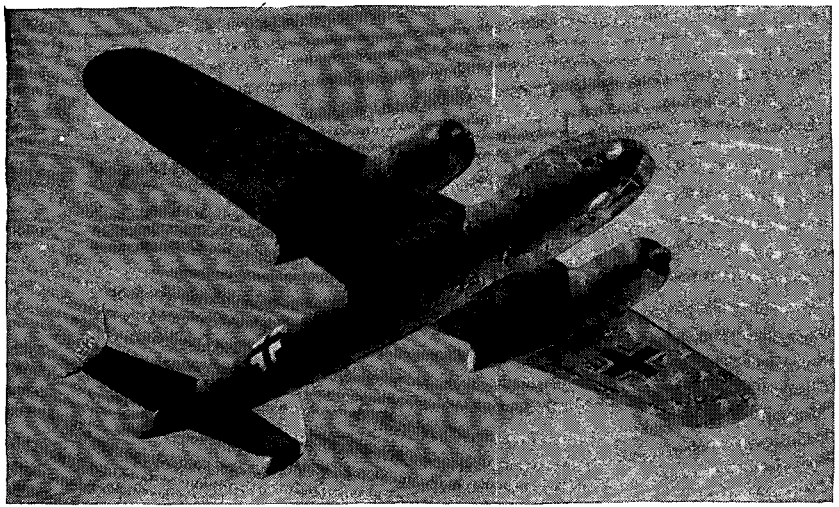
SPAN: 62 ft. 5 in.
LENGTH: 56 ft. 6 in.

SERVICE CEILING:
29,000 ft.
(with normal load, 22,500 ft.)

APPROX. SPEED: 325 m. p. h. at 17,000 ft.

[redacted]

A



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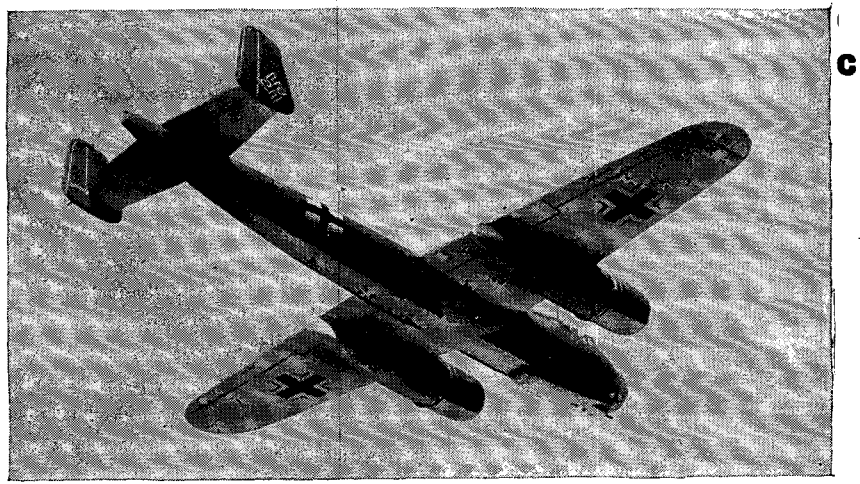

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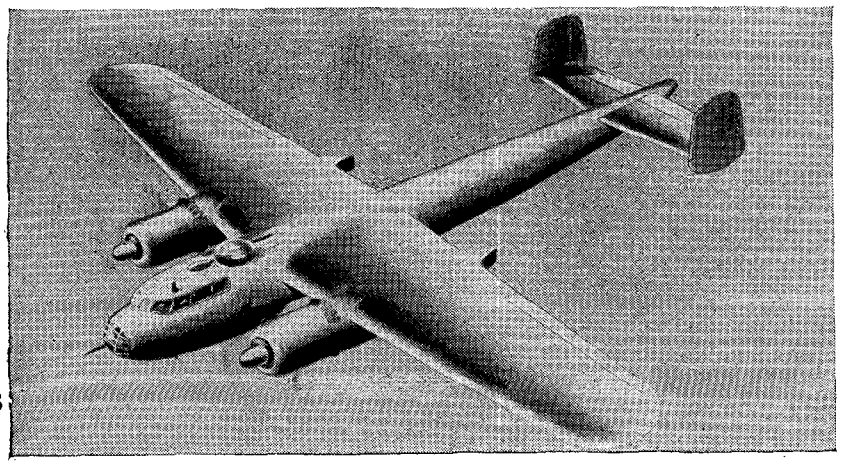

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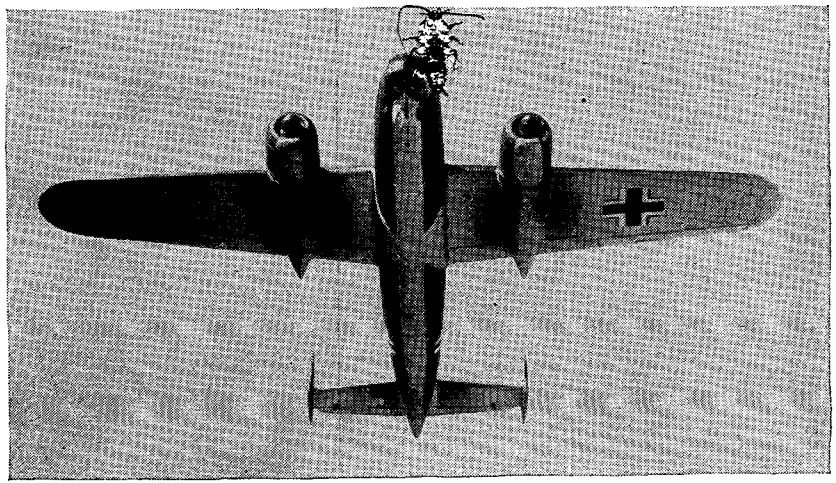
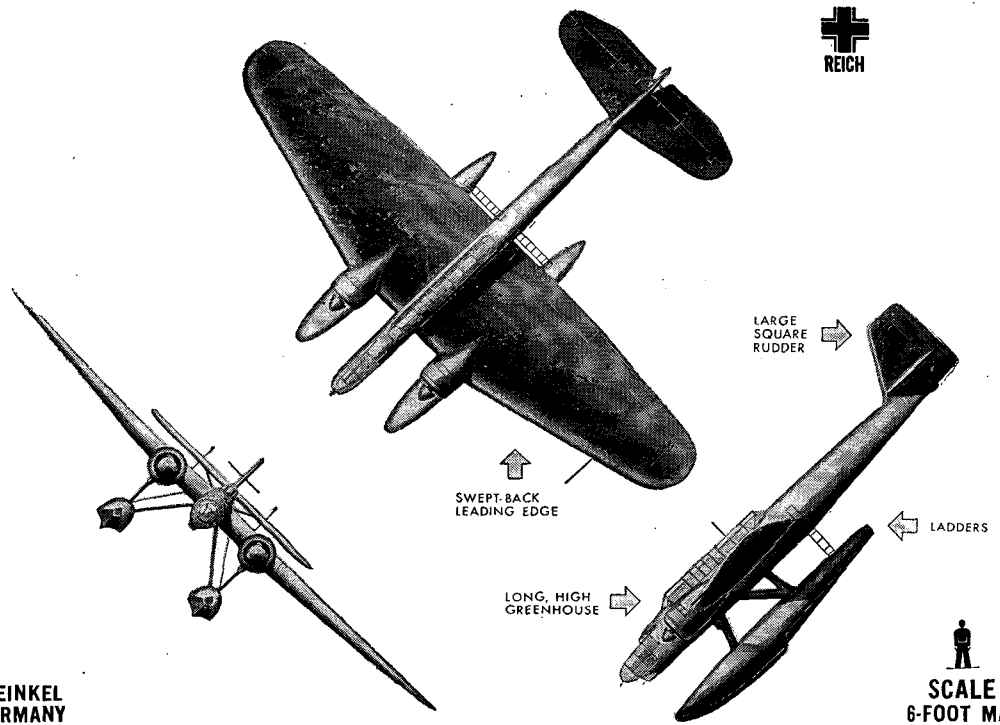


GERMANY: He. 115K

TORPEDO BOMBER—RECONNAISSANCE

REICH



HEINKEL
GERMANY

SCALE
6-FOOT MAN

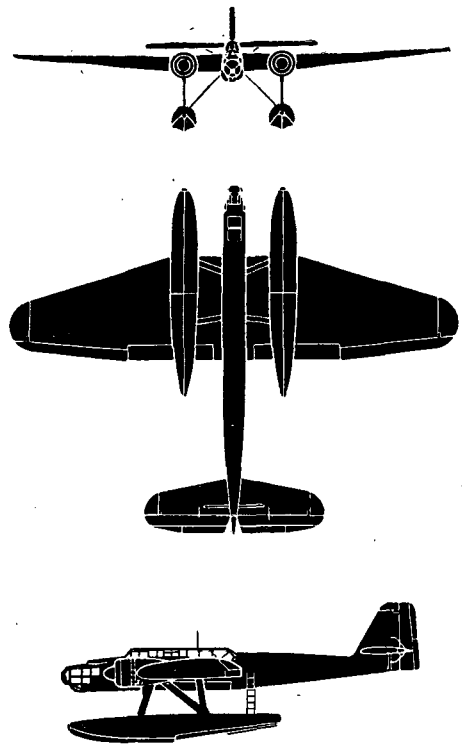
DISTINGUISHING FEATURES: Twin-engined, mid-wing monoplane with twin floats. Wings have pronounced taper on leading edge and rounded tips. Twin radial engines in wings above floats. Long slim fuselage with long cockpit enclosure and transparent nose. Tall angular single fin and rudder. Stabilizer has tapered leading edge, curved tips; elevators have "V" cut-out.

INTEREST: The He 115 has undergone many revisions since it first flew as a mail plane in 1937. The He 115 K–2, which appeared in 1939, is used for torpedo dropping, mine laying, and long range overseas reconnaissance. It was the first plane to lay the widely publicized German magnetic mine, and can be equipped also for laying smoke screens and spraying gas. By reinforcing the floats, this aircraft has been operated from snow-covered airdromes, and floats can be equipped with "skates" for landing on ice. One interesting feature of the He 115 is the installation of the fixed machine guns, one in the rear of each engine nacelle, firing aft.

APRIL 1943
FROM DATA CURRENTLY AVAILABLE

WAR DEPARTMENT FM 30–30
NAVY DEPARTMENT BUAER 3

HEINKEL "HE. 115"



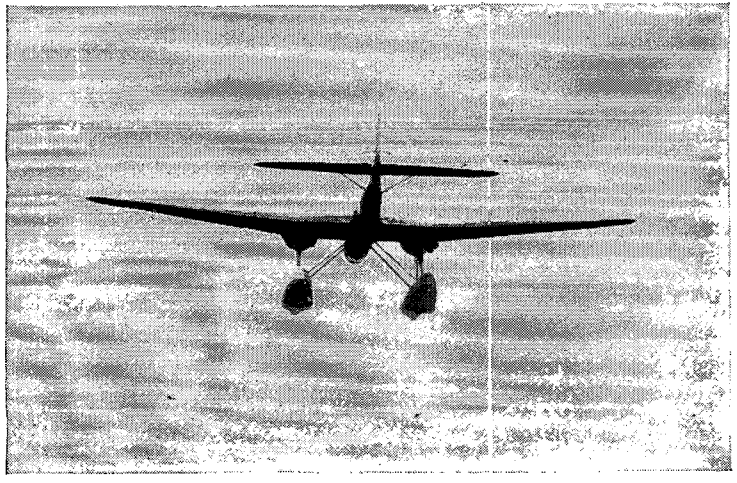
SPAN: 72 ft. 10 in.
LENGTH: 56 ft. 8 in.

SERVICE CEILING:
27,000 ft. (not loaded)
18,500 ft. (with load)

MAX. SPEED: 206 m. p. h. at 11,500 ft.

RESTRICTED

A



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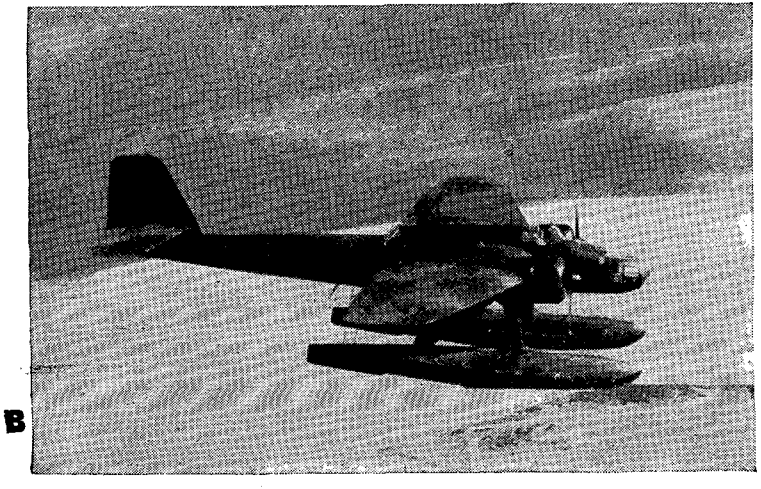

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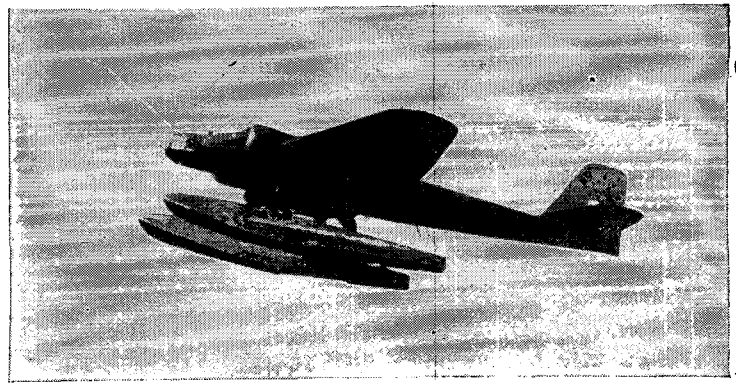

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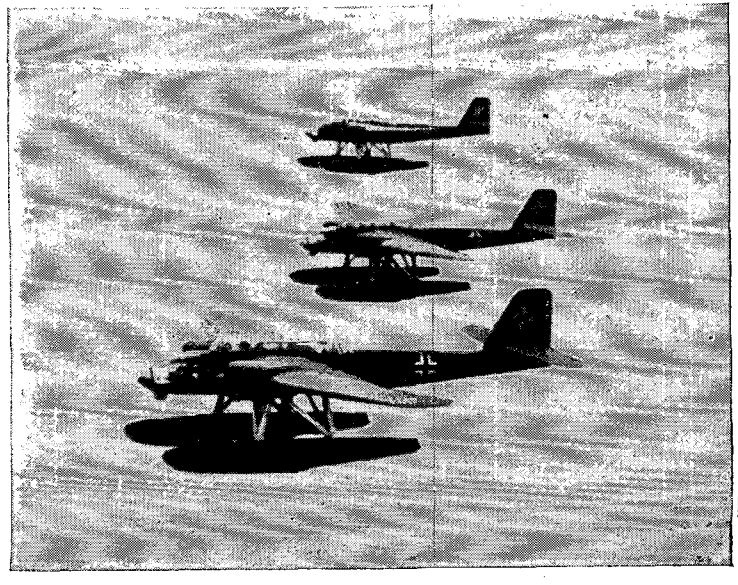
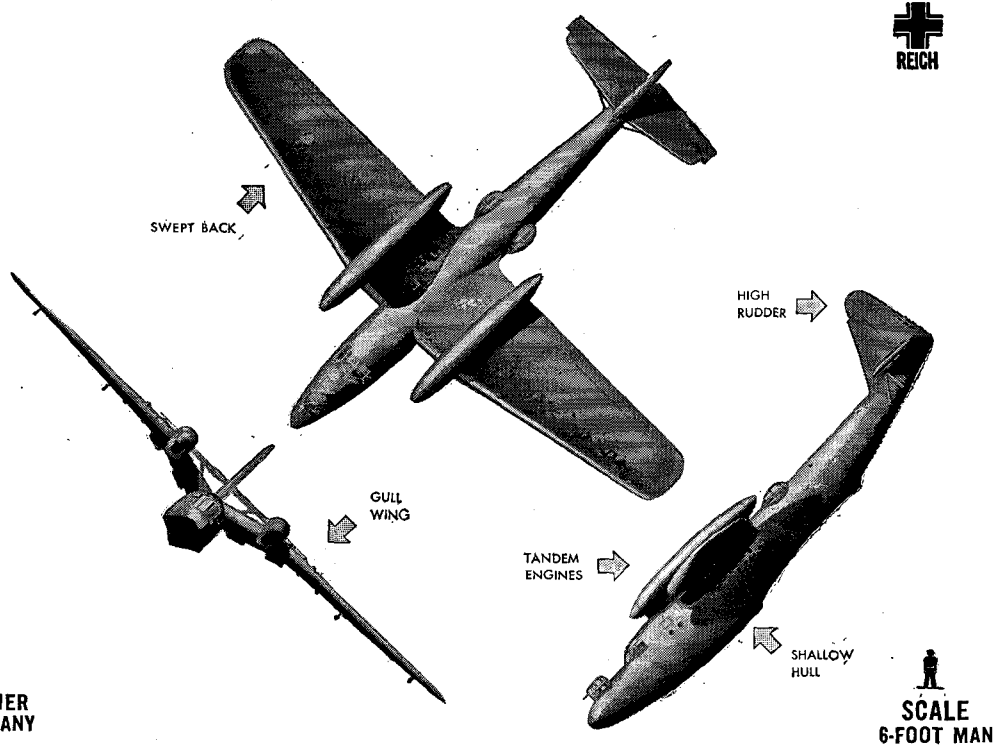


PATROL BOMBER

REICH



DORNIER
GERMANY

SCALE
6-FOOT MAN

DISTINGUISHING FEATURES: Four in-line engines in tandem pairs, propellers fore and aft. Engines are mounted on top of wings. High gull wing with tapered leading edge, straight trailing edge and blunt tips. Long flying boat hull. High triangular fin and rudder. Stabilizer and elevator set high.

INTEREST: The DO–26 is the only four-engined liquid-cooled flying boat which is ranked as a first-line plane. For recognition purposes, this aircraft is to be considered as a two-engined airplane since it has only two nacelles, the four Diesel engines being mounted in tandem. It is a militarized version of an aircraft which was originally designed for Trans-Atlantic Mail Service, but completed too late for use. Its estimated range is approximately 3,470 miles. In spite of its weight (44,000 lbs.), the Germans launch the DO–26 from catapults. Its wing floats retract inward into the wings.

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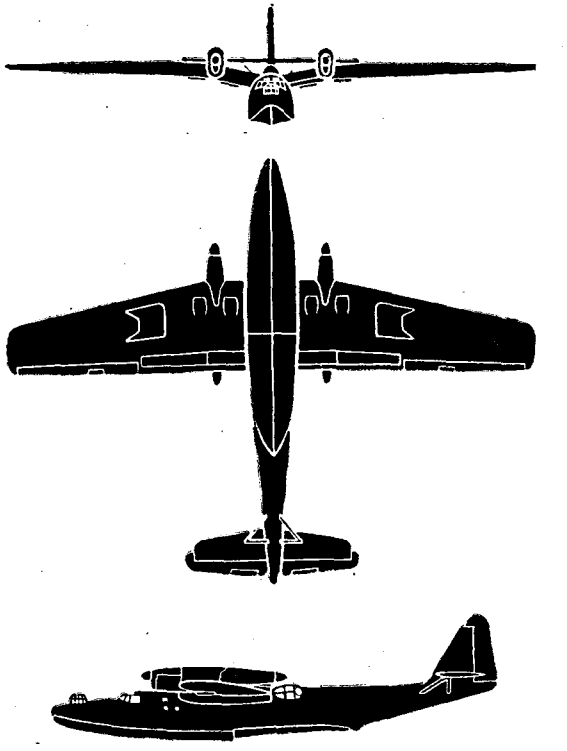
NAVY DEPARTMENT BUAER 3

DORNIER "DO. 26"



SPAN: 98 ft. 6 in.
LENGTH: 80 ft. 6 in.
MAX. SPEED: 200 m. p. h.

SERVICE CEILING:
16,000 ft.

RESTRICTED

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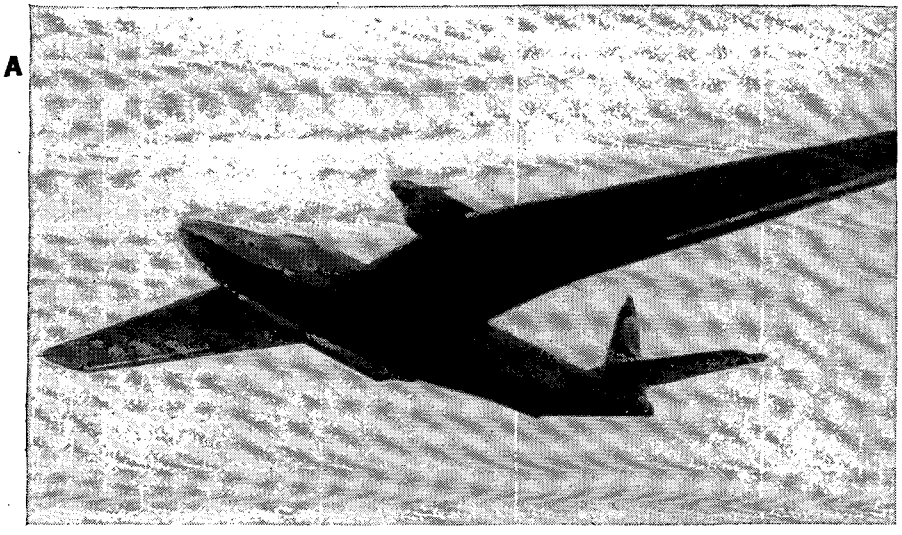


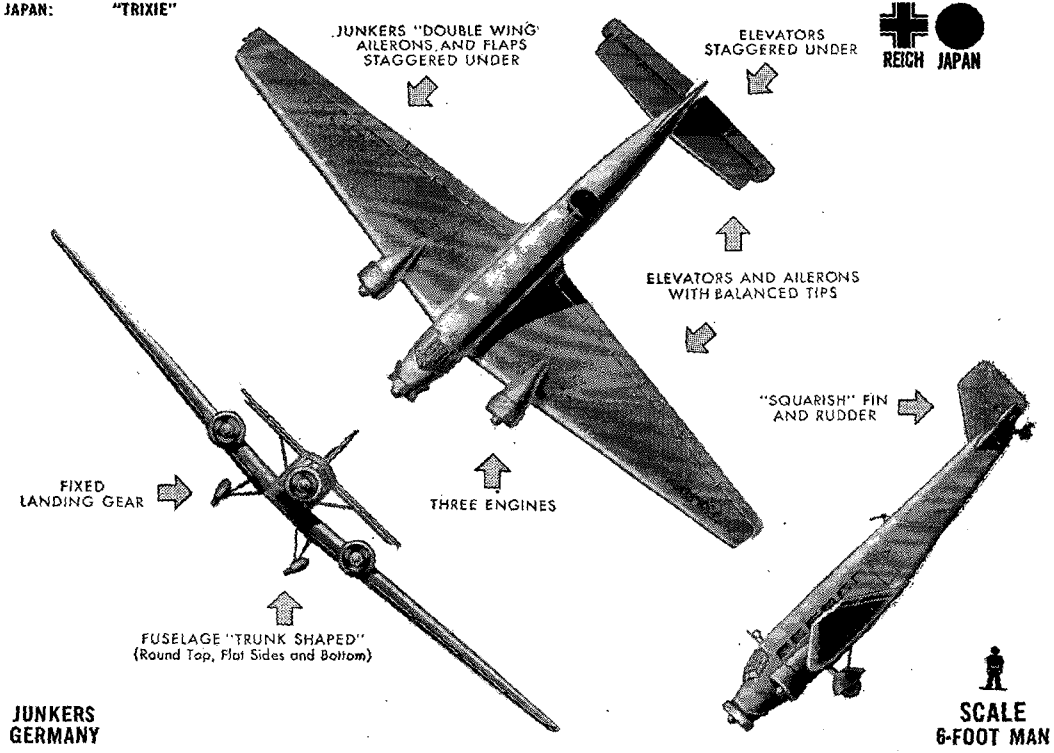
B

GERMANY: Ju. 52

JAPAN: "TRIXIE"

TRANSPORT—GLIDER TUG

REICH JAPAN



JUNKERS
GERMANY

SCALE
6-FOOT MAN

DISTINGUISHING FEATURES: Low-wing three-engined monoplane. Wing has equal taper on both edges with square tips. Outer engines diverge slightly. Note Junkers "Double-wing" construction. Fixed landing gear. Heavy fuselage. Large angular fin and rudder and wide angular stabilizer.

INTEREST: The most widely used German transport plane, the Ju 52, although old-fashioned in design, is one of the most efficient troop and cargo carriers in operation. The Germans used it for carrying paratroops in their invasion of Holland, Norway, and Crete. More recently it has played a prominent part in carrying reinforcements to the German garrisons in Tunis. It also serves as a glider tug. In troop transport work these planes carry from 14 to 20 men, with equipment; as a paratroop transport, it can accommodate from 10 to 14 men. A seaplane version is identical apart from having twin pontoons.

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WAR DEPARTMENT FM 30–30
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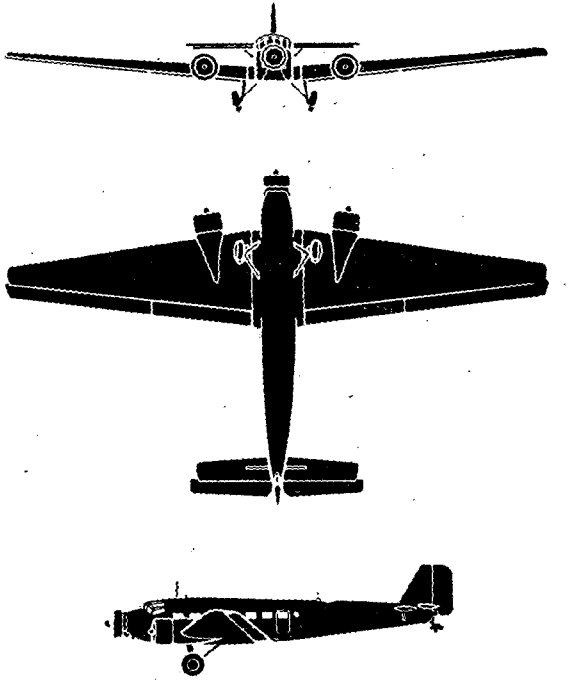
JUNKERS "JU. 52"



SPAN: 96 ft.
LENGTH: 62 ft.

SERVICE CEILING:
21,000 ft. (without load)
16,000 ft. (max. load)

MAX. SPEED: 165 m. p. h. at sea level

RESTRICTED

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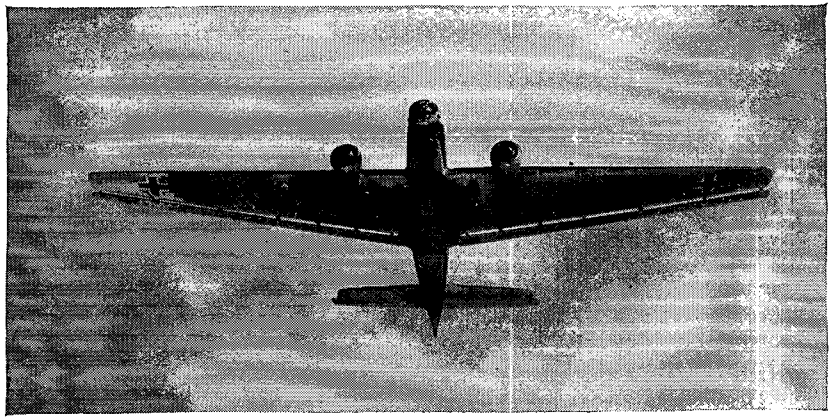

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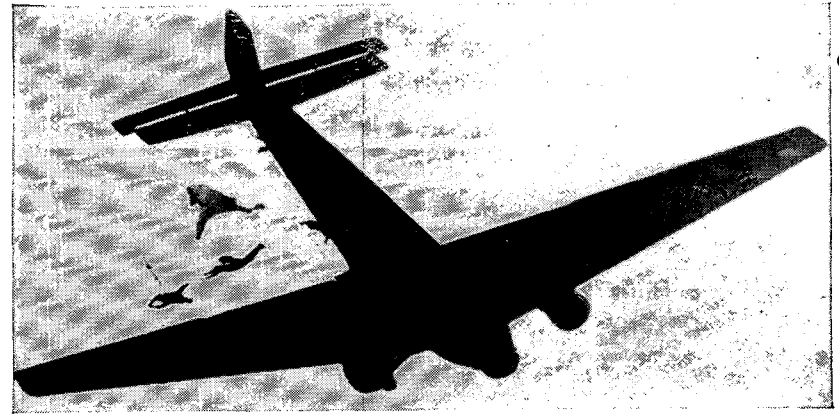

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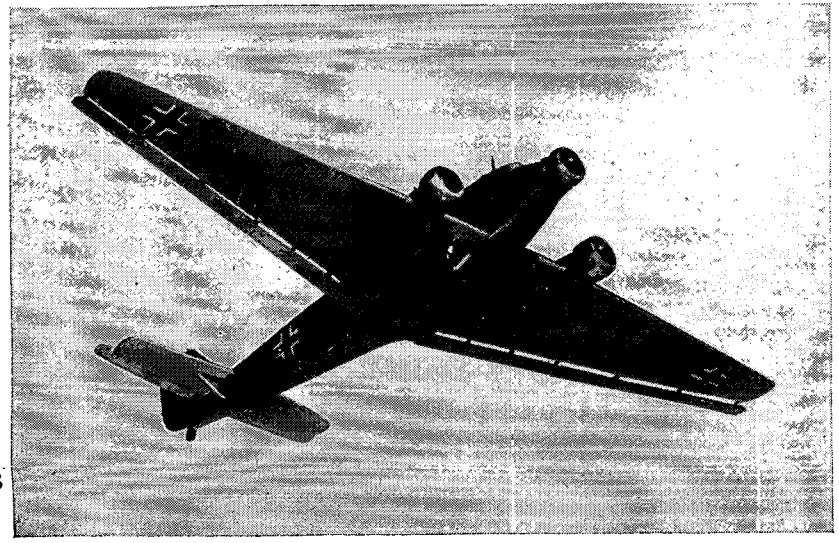
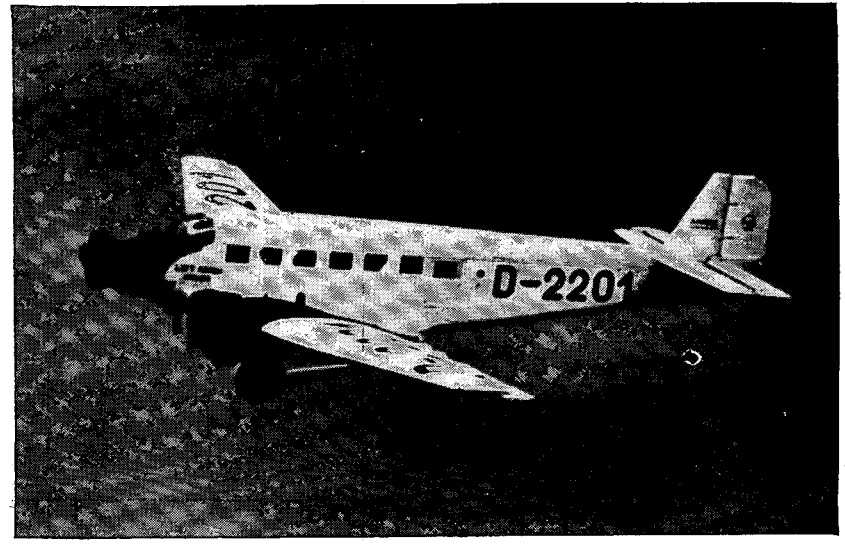


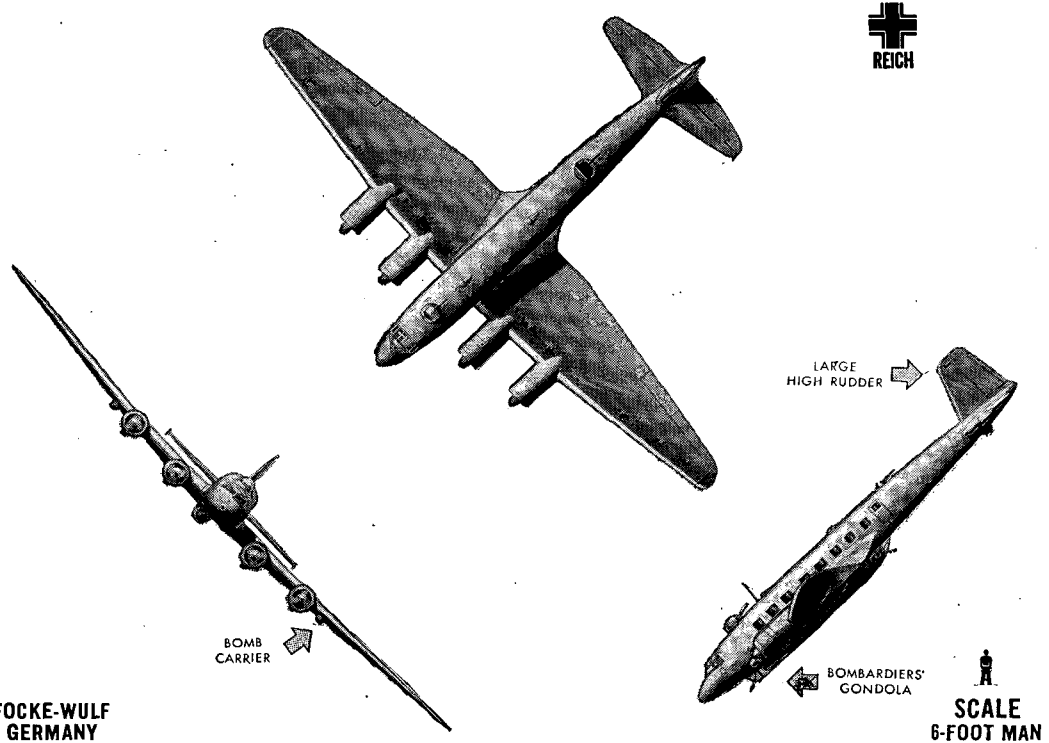


D

GERMANY: F. W. 200K

HEAVY BOMBER—TRANSPORT

REICH



FOCKE-WULF
GERMANY

DISTINGUISHING FEATURES: Low-wing monoplane with four radial engines. Tapered wing has wide span and small round tips. Fuselage is long and tapering with long offset bomb compartment on under side. Large fin and rudder with blunt top. Tapered stabilizer and elevators have rounded tips.

INTEREST: Used extensively over the North Atlantic, this 6-place bomber carries out long-range reconnaissance, mine-laying, and convoy attacks. Against Russian-bound convoys, it has been used as a torpedo plane. Known as the "Kurier," this aircraft is a military adaptation of the "Condor," a civil transport, and this accounts for the addition of the long off-center bomb compartment under the fuselage. German submarine "Wolf Packs" are frequently in radio communication with the "Kuriers," which inform them of the courses and location of Allied convoys.

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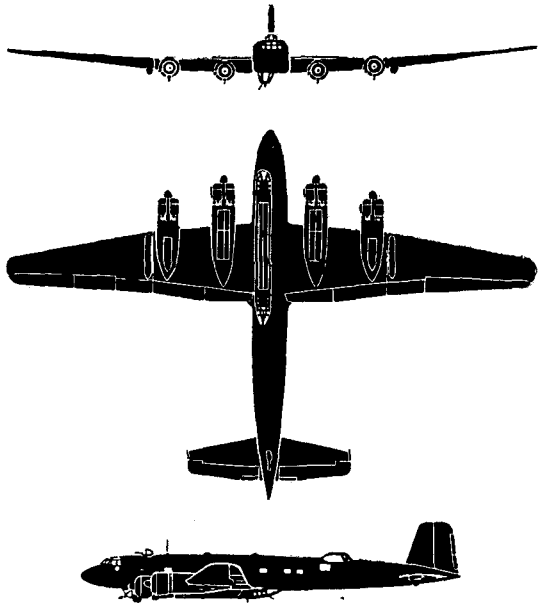
NAVY DEPARTMENT BUAER 3

FOCKE-WULF "F.W. 200"



SPAN: 108 ft.
LENGTH: 78 ft.

SERVICE CEILING:
30,000 ft. (not loaded)
21,500 ft. (fully loaded)

MAX. SPEED: 235 m. p. h. at 13,000 ft. (loaded)
250 m. p. h. at 13,000 ft. (bombs unloaded)

RESTRICTED

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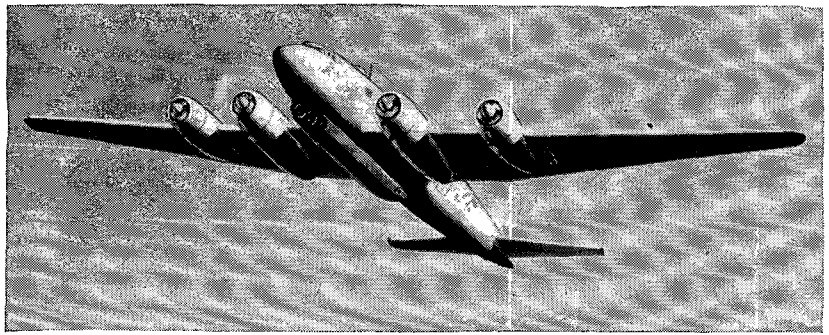

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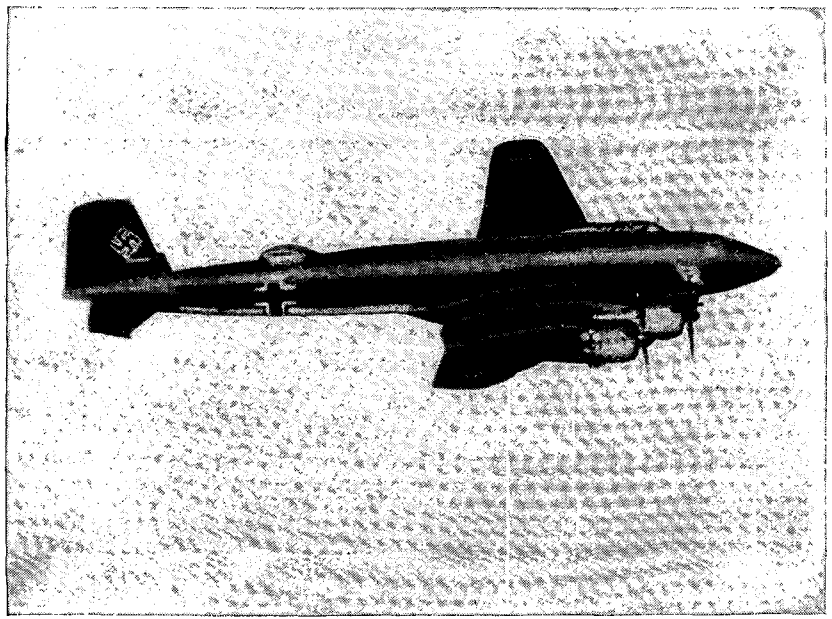

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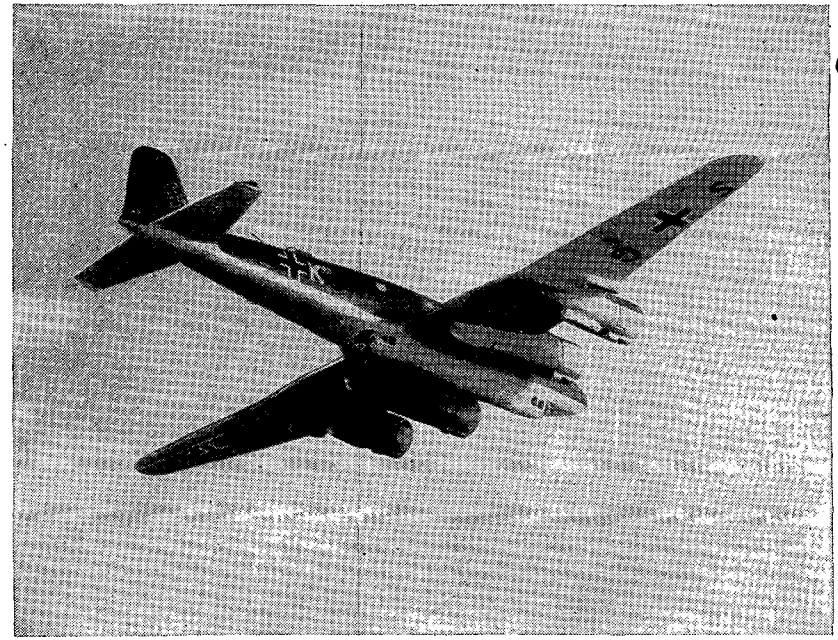

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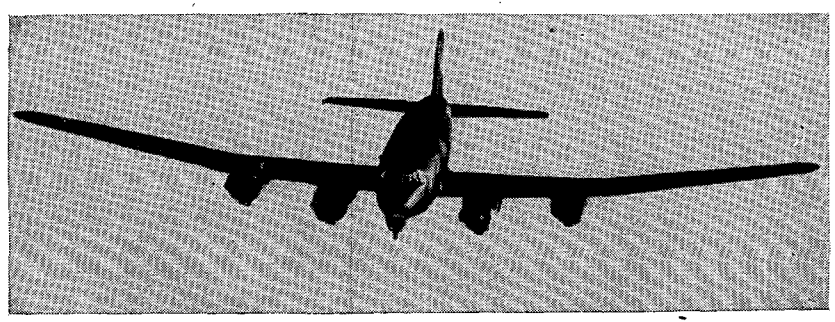
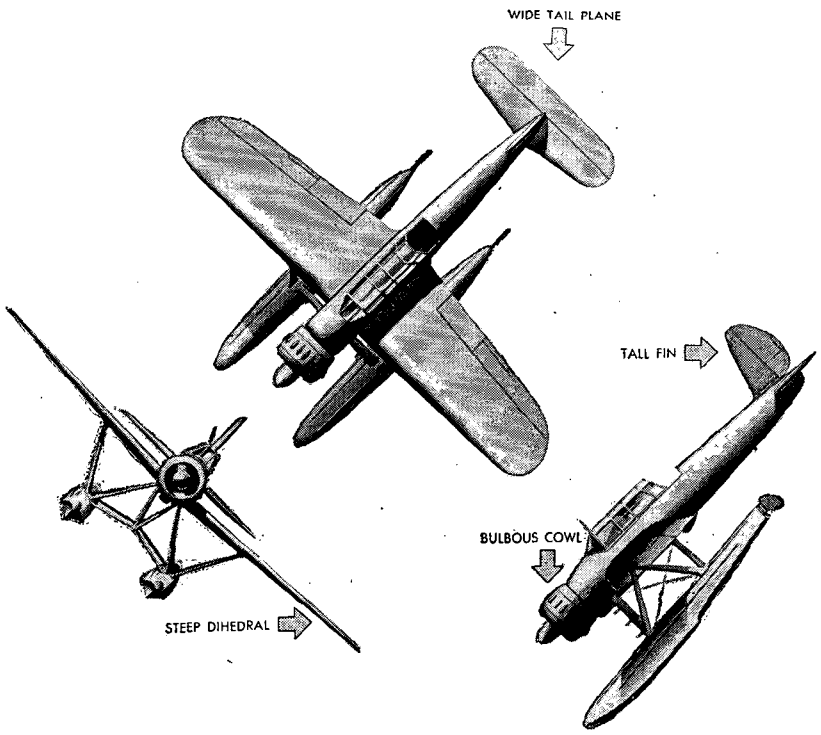


RECONNAISSANCE

REICH



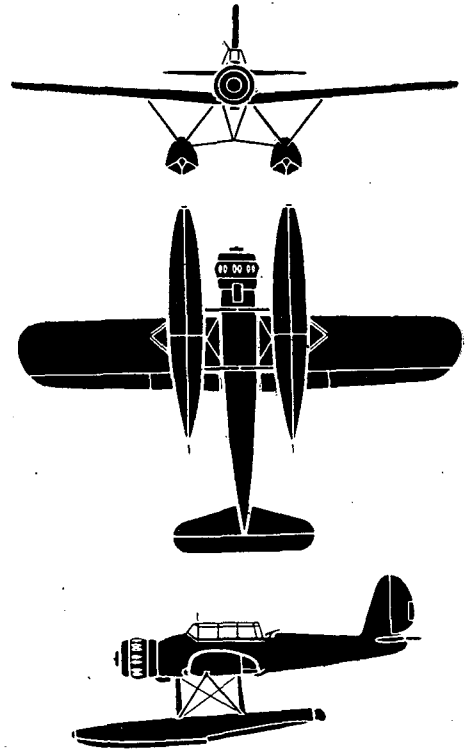
"ARADO 196"

ARADO
GERMANY

SCALE
6-FOOT MAN

DISTINGUISHING FEATURES: Single radial engine, low-wing monoplane with twin floats. There is also a single-float model with small wing-tip floats (Photo B.) Wing has full dihedral, with slight taper on trailing edge and rounded tips. Stabilizer is tapered on leading edge with rounded tips.

INTEREST: The Arado first attracted attention by its association with the Graf Spee action in December 1939. One was carried on the German battleship but failed to take off at any time during the battle against the British cruisers. The Bismarck carried several Arados, which took off to attack the Catalinas after these American-made flying boats had spotted the German warship. Operating from bases along the French coast, AR 196's have been used to harass antisub patrols of the British Coastal Command, and against light naval vessels.



SPAN: 41 ft.
LENGTH: 36 ft. 1 in.
MAX. SPEED: 195 m. p. h. at 3,000 ft.

SERVICE CEILING:
21,500 ft.

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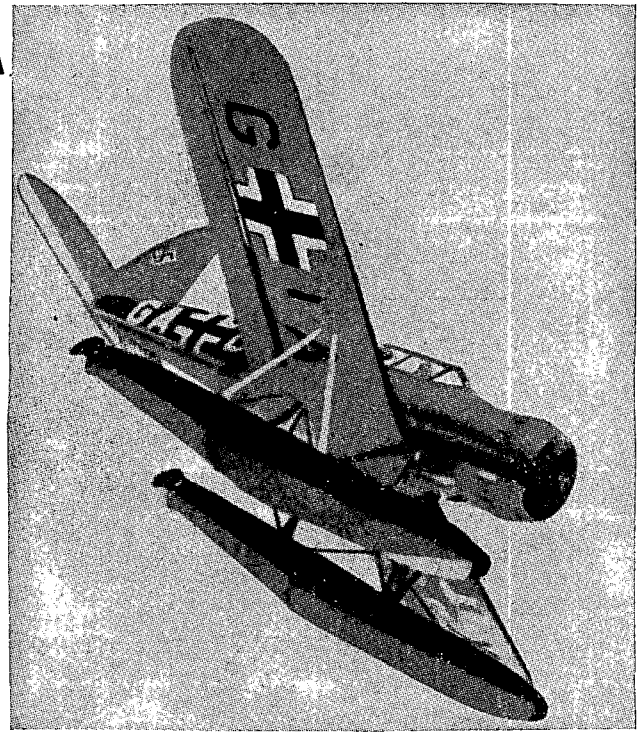
A



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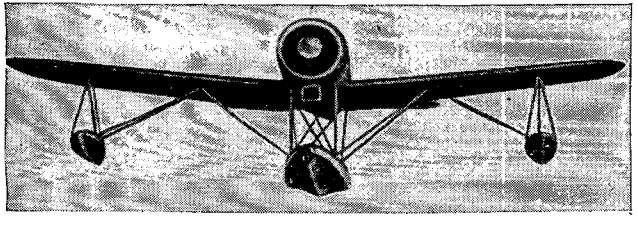

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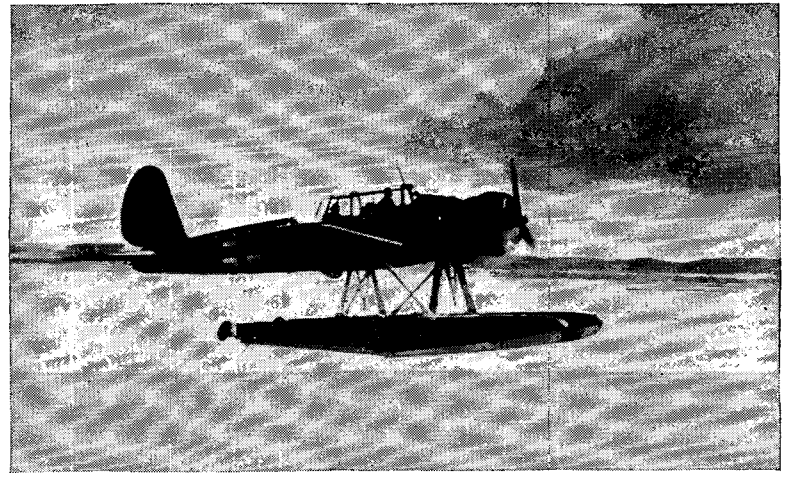

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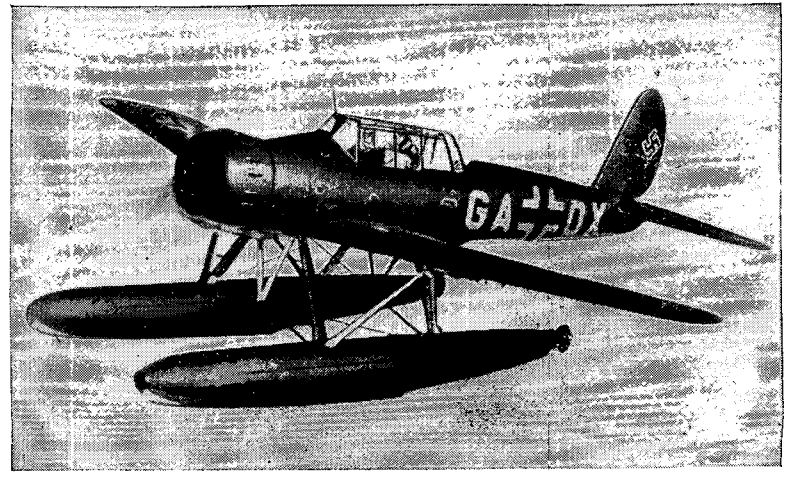
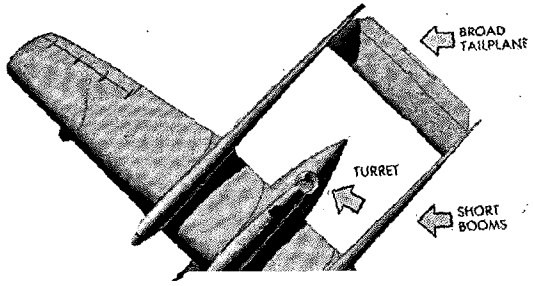
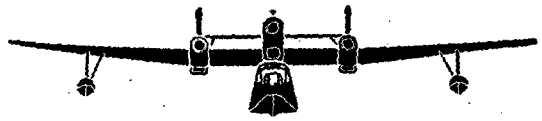




PATROL BOMBER

REICH

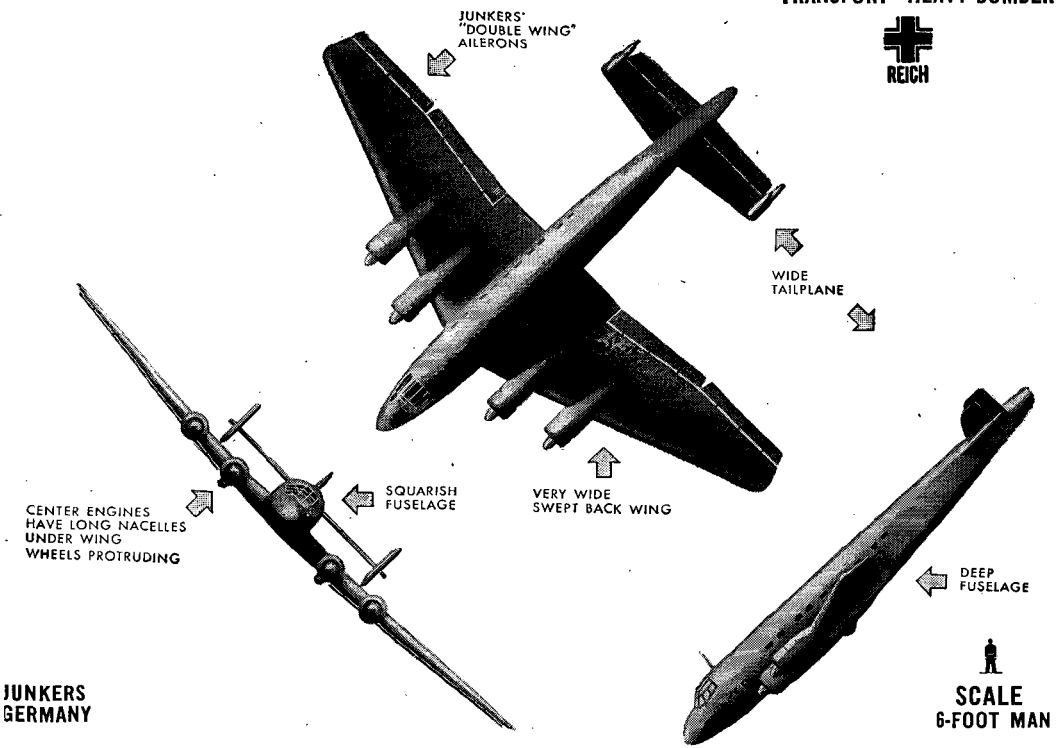
BLOHM & VOSS "HA. 138"



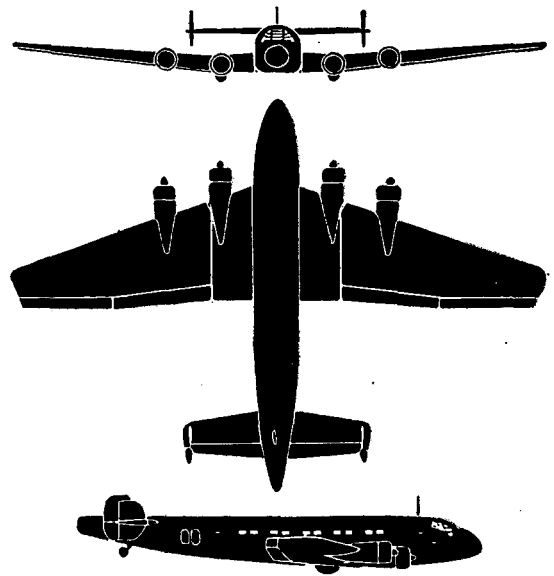
JUNKERS "JU. 90"

TRANSPORT—HEAVY BOMBER

REICH



JUNKERS
GERMANY



SPAN: 115 ft. 6 in.
LENGTH: 85 ft.

SERVICE CEILING:
radial engines, 15,000 ft.
in-line engines, 24,000 ft.

MAX. SPEED: radial engines, 218 m. p. h. at 3,500 ft.
in-line engines, 260 m. p. h. at 15,000 ft.

DISTINGUISHING FEATURES: Low-wing monoplane with four engines (radial or in-line). Wings are broad and decidedly swept-back with raked tips and fitted with typical Junkers "double wing" ailerons and flaps. Engine nacelles are staggered. Fuselage is broad and long with ventral line swept up to tail. Stabilizer set forward and high with equal taper on both edges. Twin fins and rudders set outboard of stabilizer.

INTEREST: Formerly Germany's largest land plane. This transport carries a crew of five and accommodates forty soldiers. A larger type of Junkers transport, known as the Ju. 290, is coming into limited use. The maximum range of this aircraft is 1,960 miles at 200 miles per hour. In addition to troop carrying and glider towing, the Ju. 90 can be pressed into service as a bomber, provision being made for stowage of a maximum bomb load of 7,700 pounds. The model having in-line engines is referred to as the "New Ju. 90."

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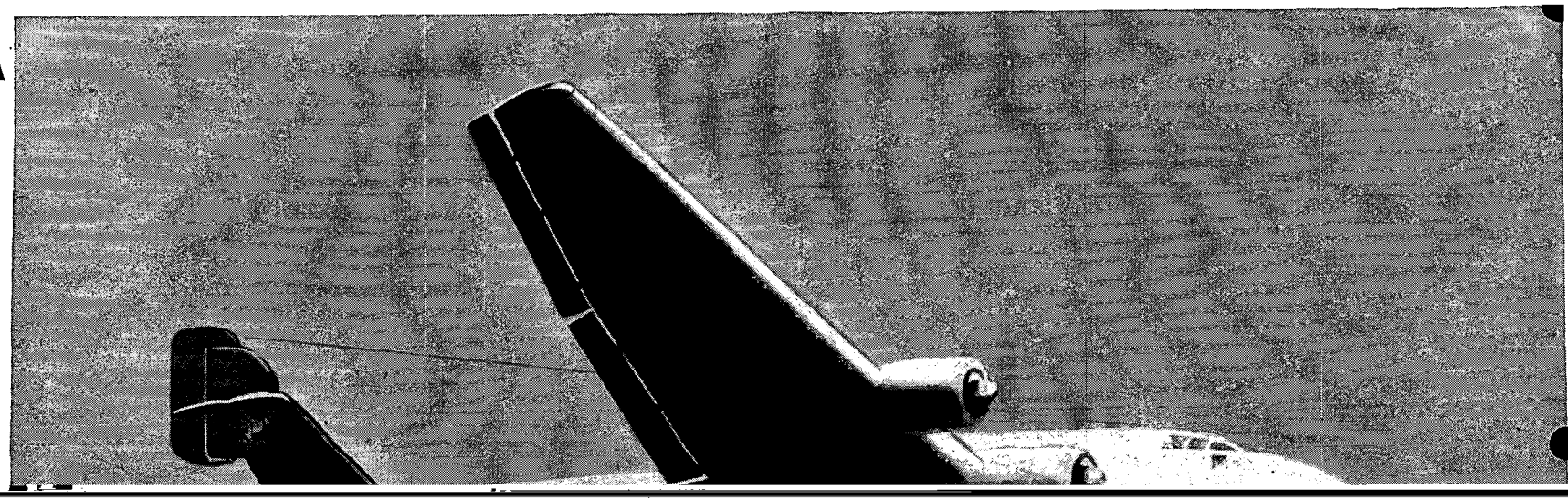
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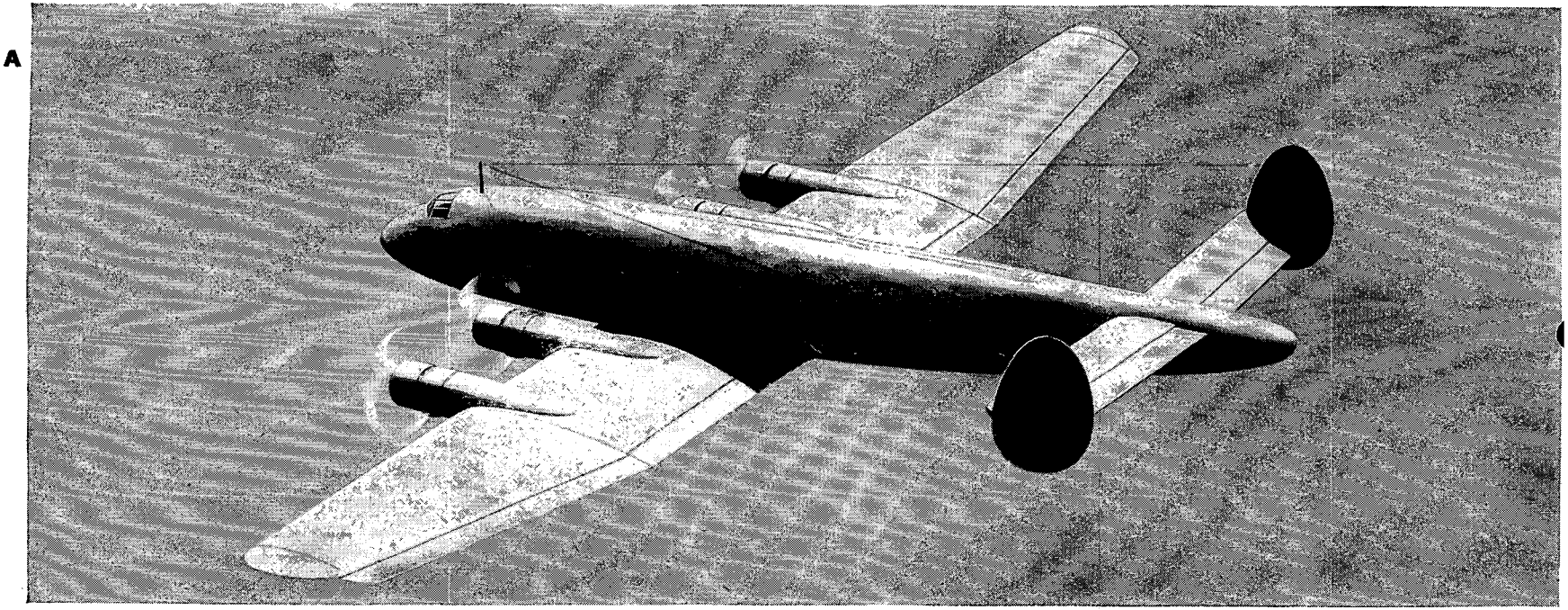
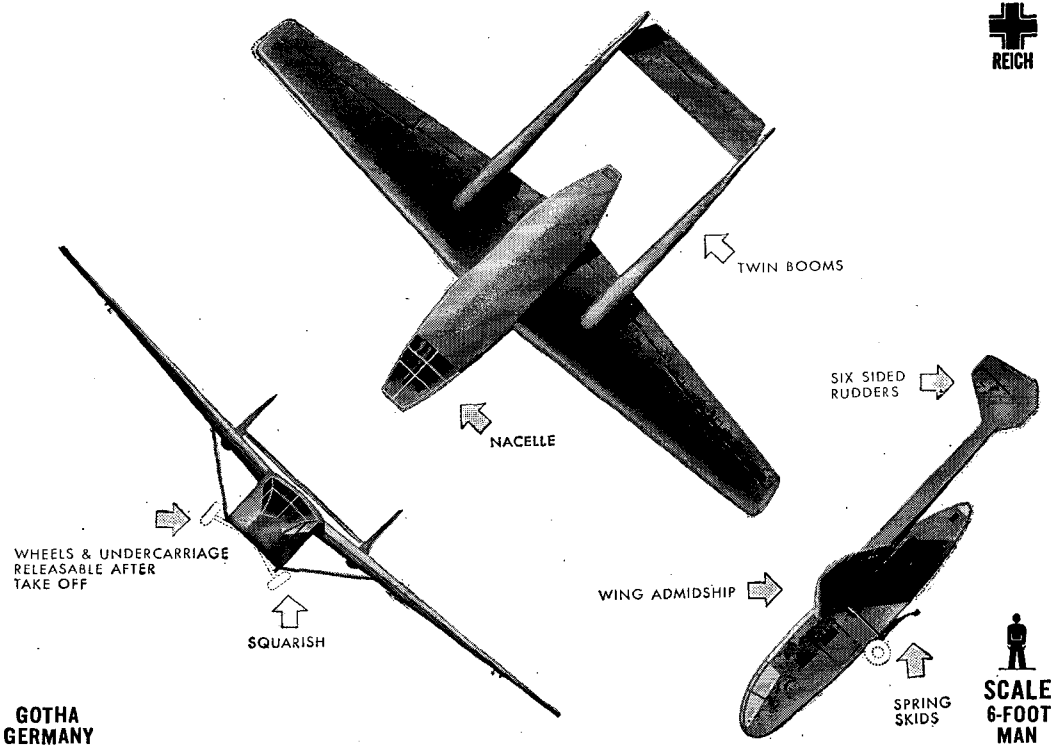


GLIDER

REICH



GOTHA
GERMANY

DISTINGUISHING FEATURES: High-wing, twin-boom monoplane. Wing equally tapered with square tips. Fuselage wide and deep with square cross section. Long massive nose. Twin booms support rectangular stabilizer and twin fins and rudders of angular outline.

INTEREST: This glider is normally towed by one Junkers Ju 52 transport. The glider flies about 15 feet above the tug in order to keep clear of the slip-stream and to avoid stalling the tug by pulling its tail down. It carries 2 pilots and 21 soldiers or freight (maximum freight capacity is 5,300 pounds). It lands on three spring skids, the forward one retracting during flight. There are two powered versions of this glider, one apparently with radial engines and the other with int line engines. Reports from the Russian front state tha- these gliders can transport field artillery, moving as many as 20 batteries in one morning.

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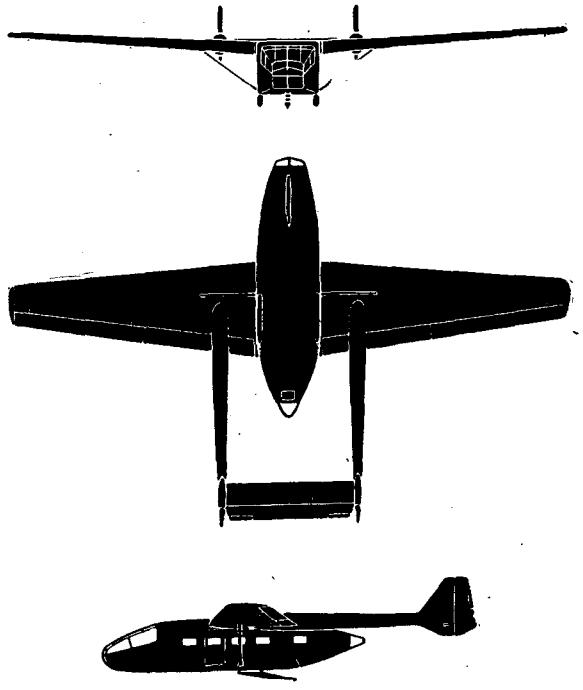
"GOTHA 242"



SPAN: 79 ft.
LENGTH: 52 ft. 6 in.
MAXIMUM TOWING SPEED: 149 m. p. h.

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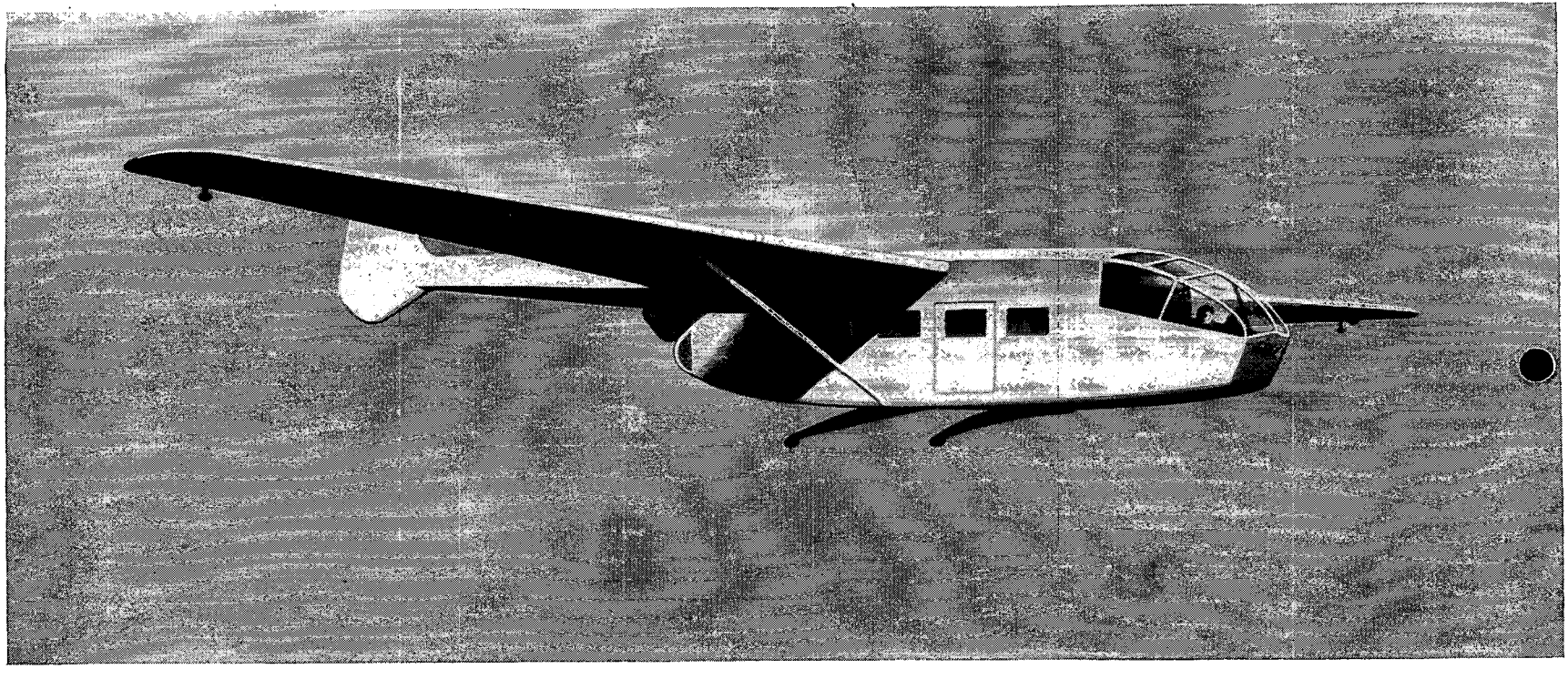
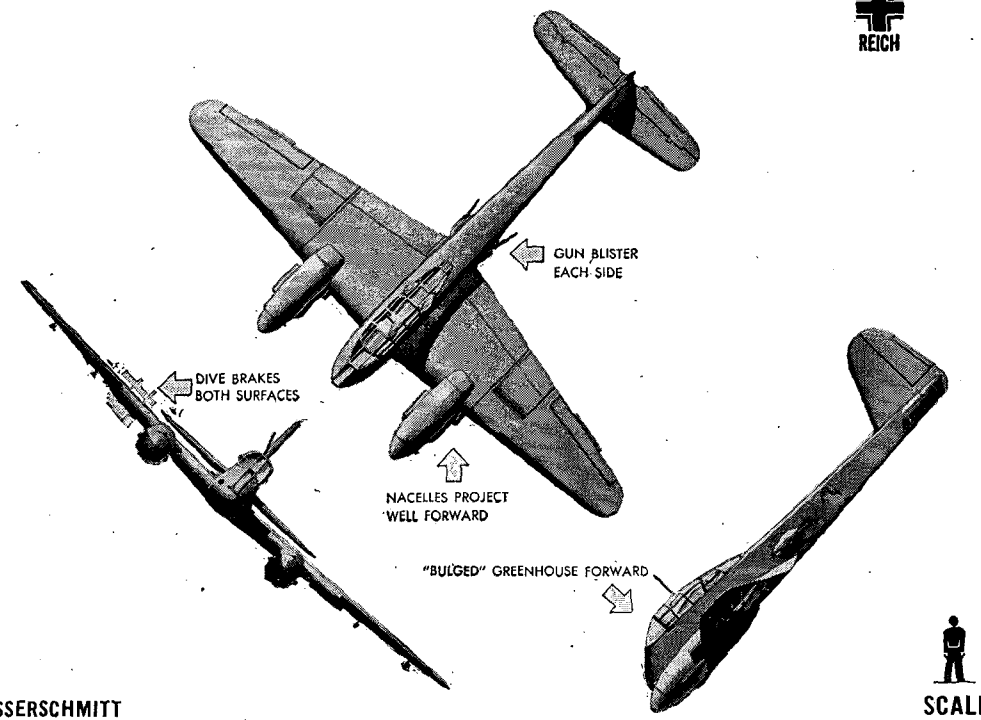


FIGHTER—LIGHT BOMBER

REICH



MESSERSCHMITT
GERMANY

SCALE
6-FOOT MAN

DISTINGUISHING FEATURES: Twin in-line engine, low-wing monoplane. Wing has dihedral from the roots and equal taper to small round tips. The engines extend slightly beyond the short nose. Slim tapering fuselage with high and long streamlined cockpit enclosure. Side gun blisters. Tall prominent single fin and rudder.

INTEREST: The first aircraft of this type was examined in September 1942. Some call it the German answer to the Mosquito. A maximum of 3,300 lbs. in bombs can be carried. The sides of the fuselage contain movable guns in revolving blisters. They are remotely controlled by the radio operator. The guns have a wide cone of fire. Sighting is done by means of a reflector sight.

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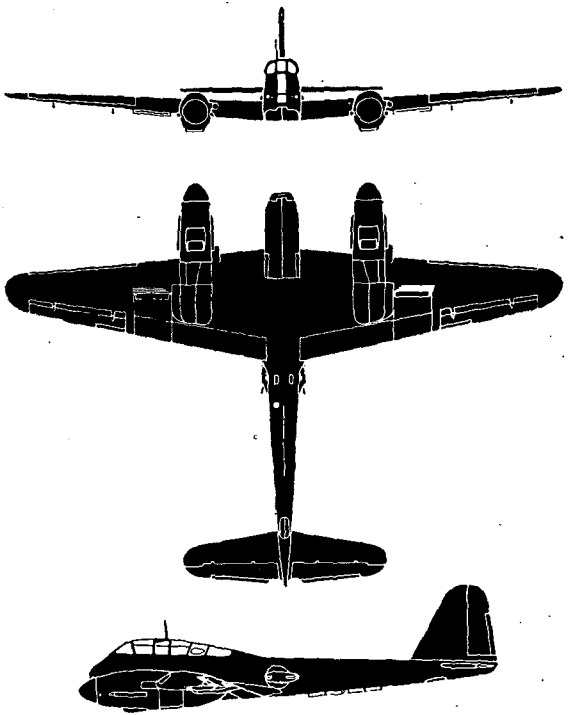
NAVY DEPARTMENT BUAER 3

MESSERSCHMITT "ME. 210"



SPAN: 53 ft. 6 in.
LENGTH: 40 ft. 3 in.
MAX. SPEED: 368 m. p. h. at 20,000 ft. (as fighter)
SERVICE CEILING: 28,500 ft. (no bombs)

~~RESTRICTED~~

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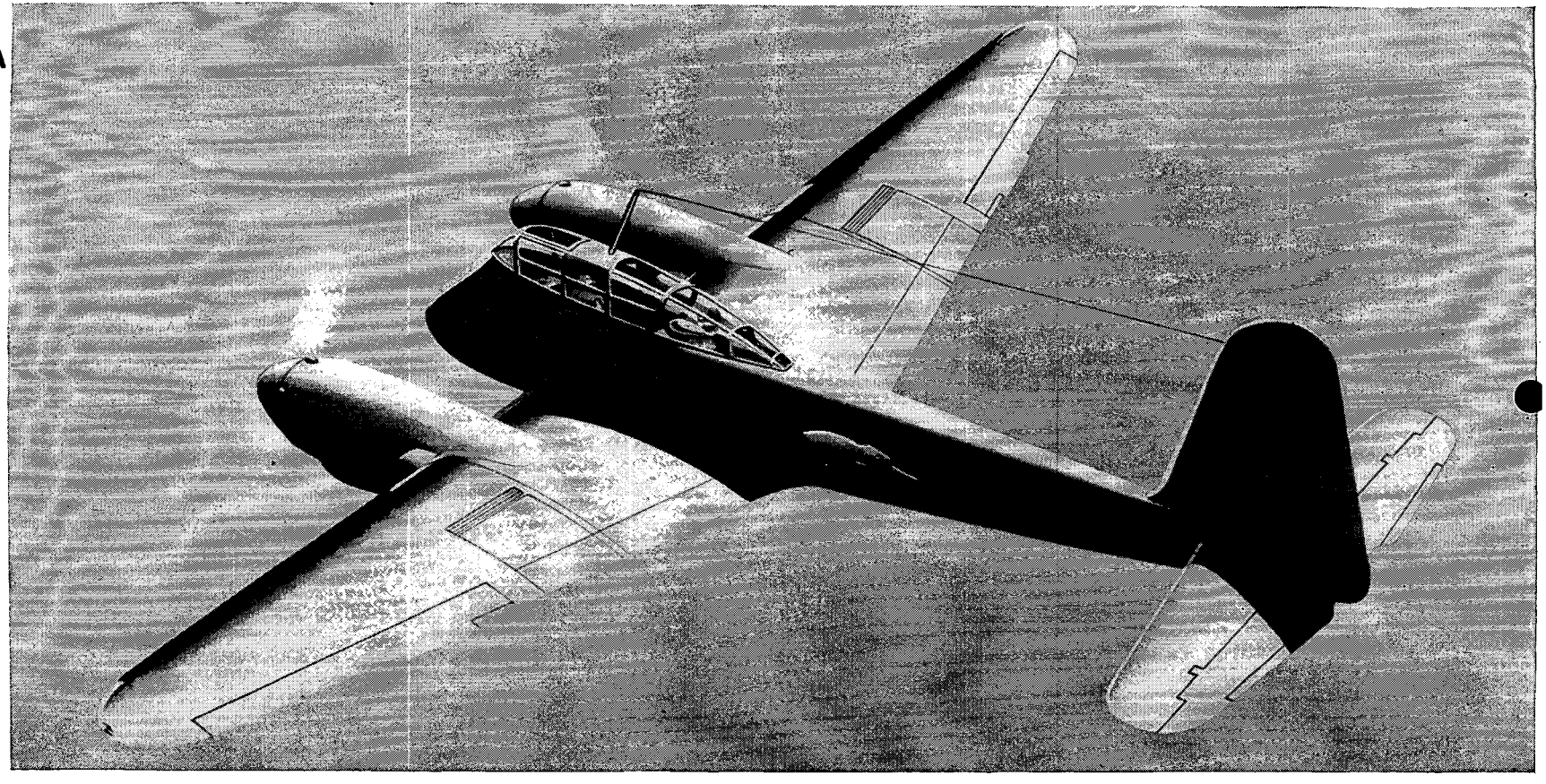
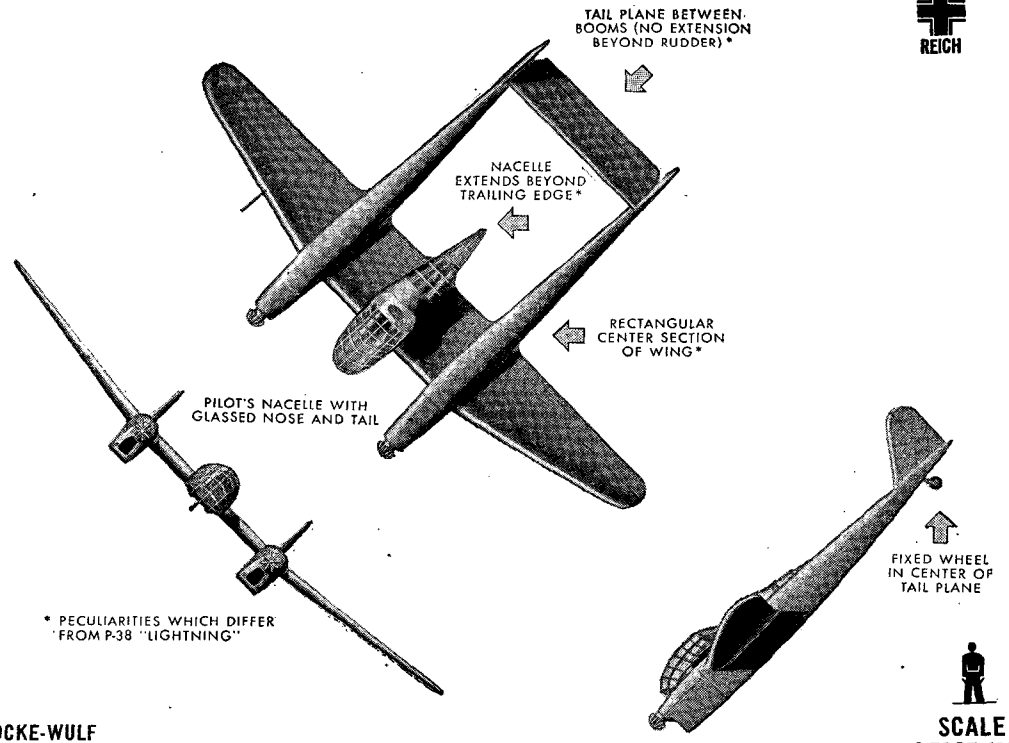


RECONNAISSANCE

REICH



SCALE
6-FOOT MAN

FOCKE-WULF
GERMANY

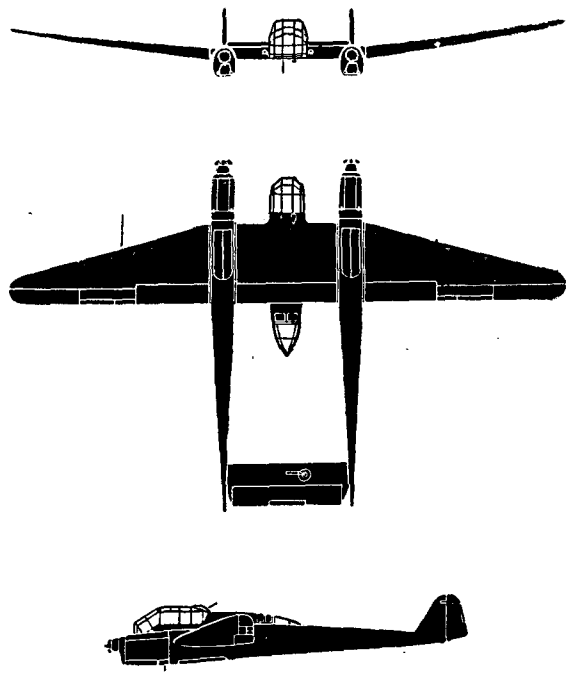
DISTINGUISHING FEATURES: Low-wing monoplane with two in-line engines. Engines extend forward of fuselage nose. Fuselage is well glazed, and extends to a point aft of trailing edge of wing. Wing is tapered on leading edge in outer panels with sharply rounded tips and has straight trailing edge. Engine nacelles extend aft as twin booms ending in twin fins and rudders. Rectangular stabilizer and elevator set between booms.

INTEREST: Called the "Flying Eye," these aircraft are used for army cooperation, ground attack, communications, advanced training, and as supply transports and ambulances. The normal crew is three. Take-off and landing runs are short and the landing gear is sufficiently robust for front-line flying fields of poor surface quality. It has proved extremely useful on the Russian front.

APRIL 1943
FROM DATA CURRENTLY AVAILABLE

WAR DEPARTMENT FM 30–30
NAVY DEPARTMENT BUAER 3

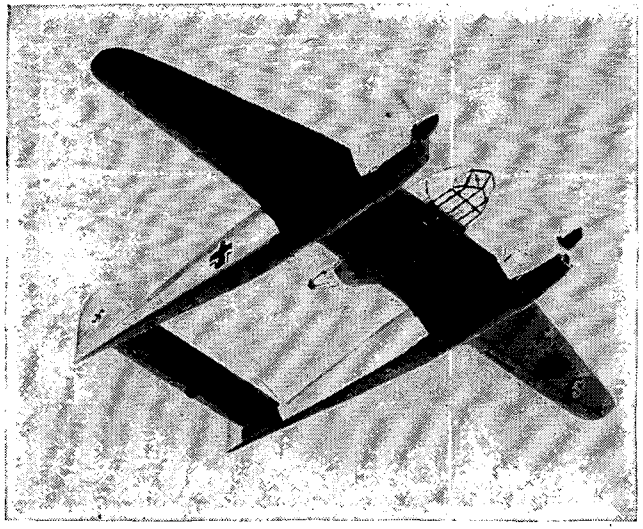
FOCKE-WULF "F. W. 189"



SPAN: 60 ft. 5 in.
LENGTH: 39 ft. 5 in.
MAX. SPEED: 210 m. p. h. at 8,530 ft.
SERVICE CEILING: 27,550 ft. (normal load)

~~RESTRICTED~~

A



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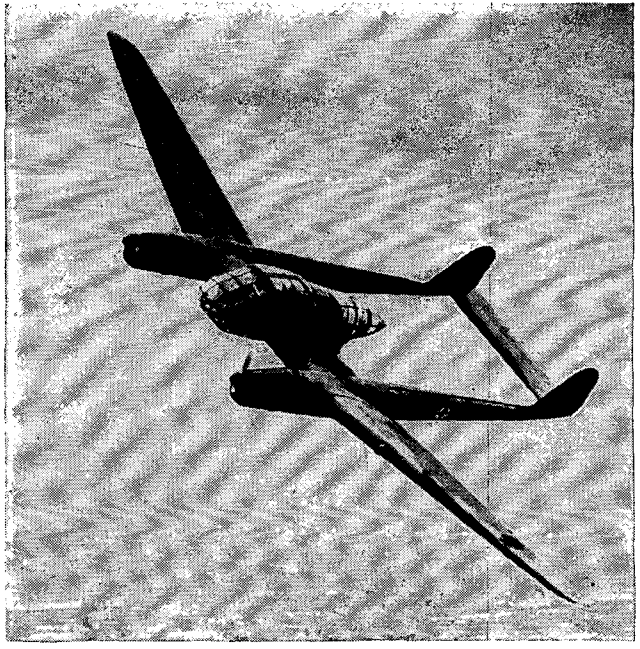

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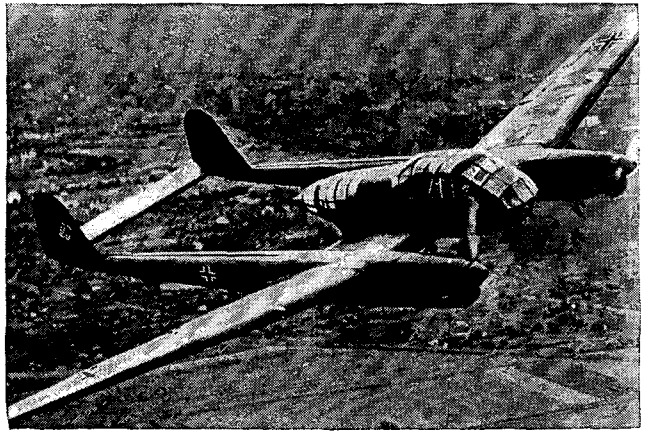
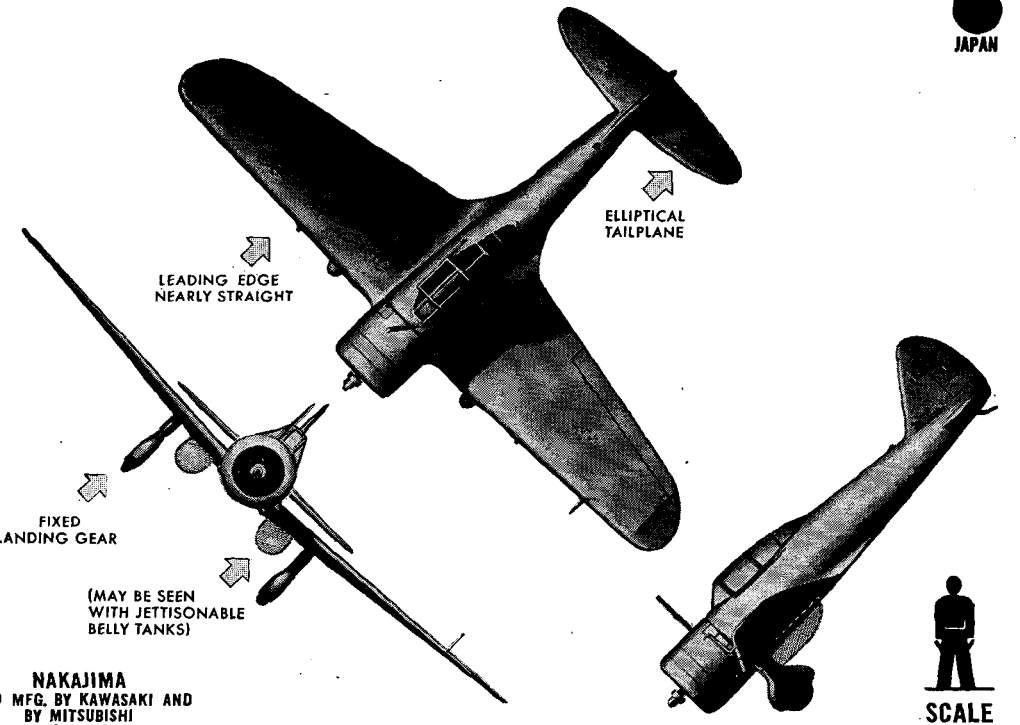


D

FIGHTER

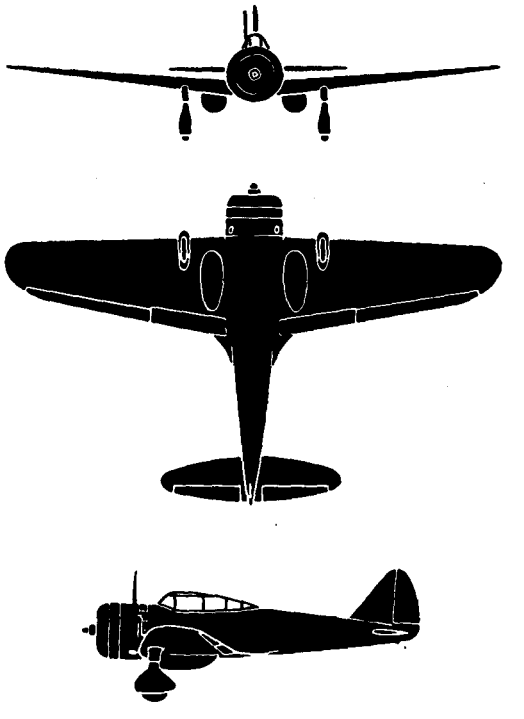
JAPAN

"NATE" TYPE 97 F



NAKAJIMA
ALSO MFG. BY KAWASAKI AND BY MITSUBISHI
JAPAN

SCALE
6-FOOT MAN



DISTINGUISHING FEATURES: Single radial engine low-wing monoplane. Wings have full dihedral. Both edges tapered with more pronounced taper on the trailing edge. Trailing edge fairs into fuselage. Stubby round nose. Two fuel tank bulges show below wings. Fuselage tapers back to tapered fin with oval rudder. Elliptical stabilizer and elevator. Fixed landing gear with wheel fairings. Rudder ends above fuselage.

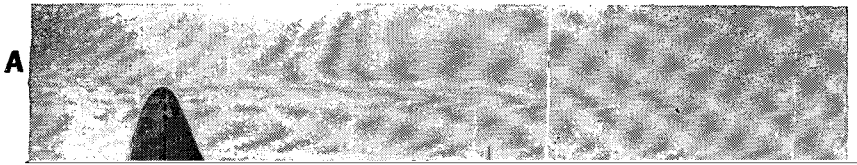
INTEREST: This single seat Japanese fighter has a high rate of climb and good maneuverability. Aircraft has nonretractable landing gear. As is the case with "Zeke," fuel tanks are not self-sealing. "Nate" has no armor protection for the pilot. Its armament consists of four 7.7-mm. machine guns. The type 1 SSF "Oscar" is probably a development of "Nate."

SPAN: 35 ft. 10 in.
LENGTH: 24 ft. 4 in.
APPROX. SPEED: 280 m. p. h. at 13,000 ft.
SERVICE CEILING: 33,000 ft.

APRIL 1943
FROM DATA CURRENTLY AVAILABLE

WAR DEPARTMENT FM 30–30
NAVY DEPARTMENT BUAER 3

RESTRICTED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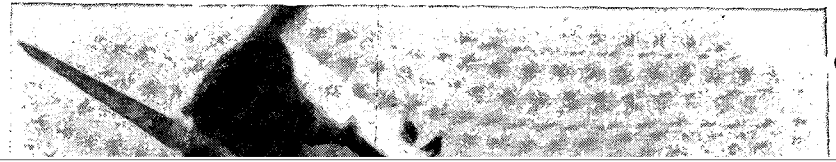
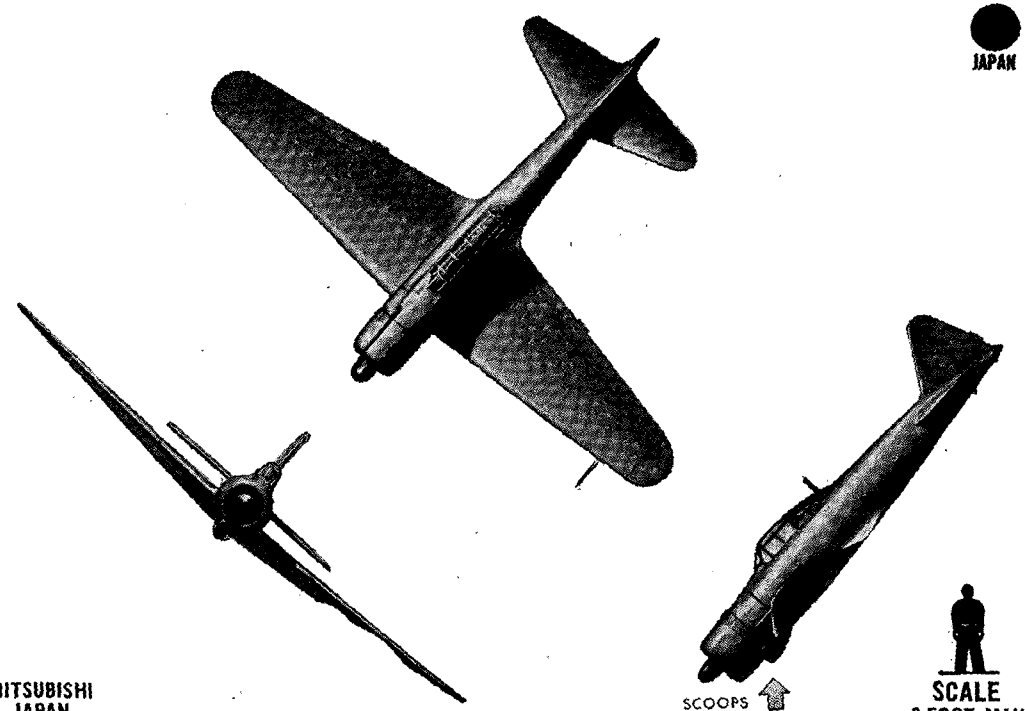

C

FIGHTER

JAPAN

"ZEKE" (ZERO) TYPE 0 MK. 1 F

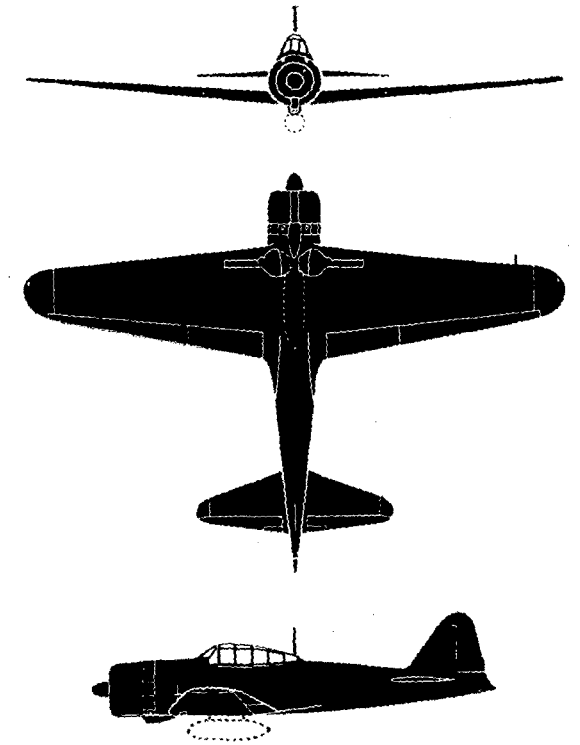


MITSUBISHI
JAPAN

SCALE
6-FOOT MAN

DISTINGUISHING FEATURES: Radial engine, low-wing monoplane. Wings have dihedral from the roots with nearly equal taper and rounded tips. Round nose with medium large spinner. Air scoops for oil cooler and carburetor show below cowling. Fuselage tapers back neatly to a point in rear of tail assembly. Cockpit canopy sits on top of fuselage. Rather large fin and rudder has pronounced taper on leading edge and slight taper on trailing edge.

INTEREST: This famous Japanese fighter, popularly known as the Zero and much respected by U. S. fliers, is the one most frequently shot down. Although "Zeke" is well built, its speed and maneuverability were obtained by light wing loading, largely through the omission of armor. Our fliers quickly found "Zeke's" weakness: no armor protection for pilots or fuel tanks. It has a steep angle of climb, and favors climbing tactics, but above 300 m. p. h., the aircraft is very difficult to roll.

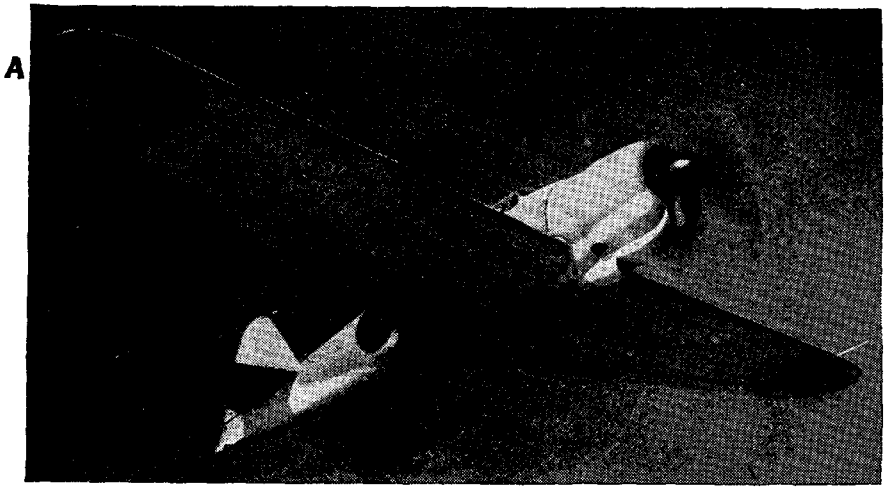


SPAN: 39 ft. 5 in.
LENGTH: 30 ft. 3 in.
APPROX. SPEED: 326 m. p. h. at 16,000 ft.

SERVICE CEILING:
38,500 ft.

APRIL 1943
FROM DATA CURRENTLY AVAILABLE

WAR DEPARTMENT FM 30-30
NAVY DEPARTMENT BUAER 8



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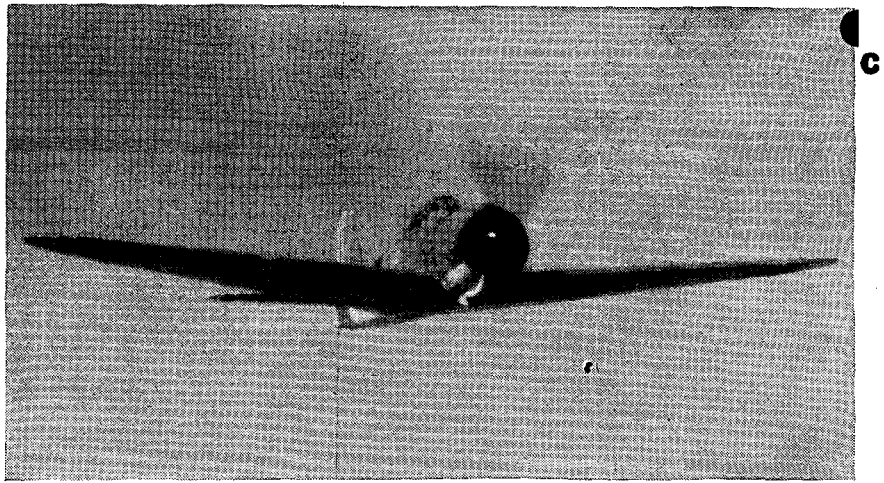

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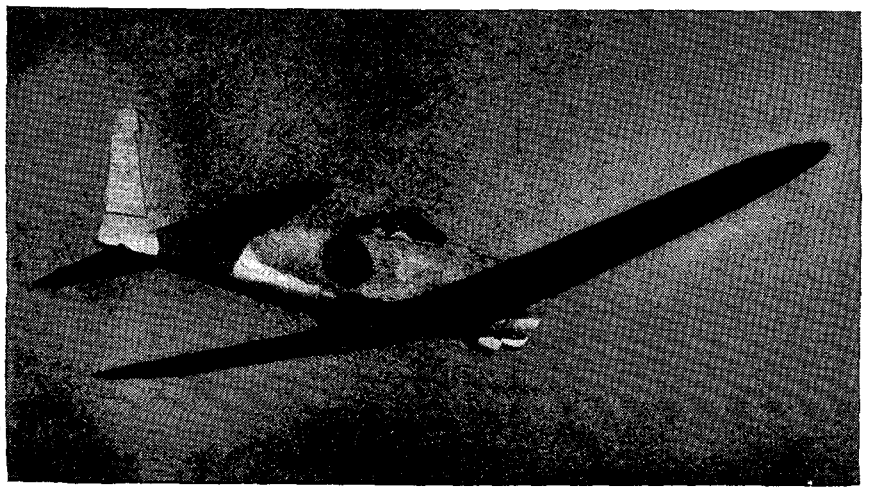

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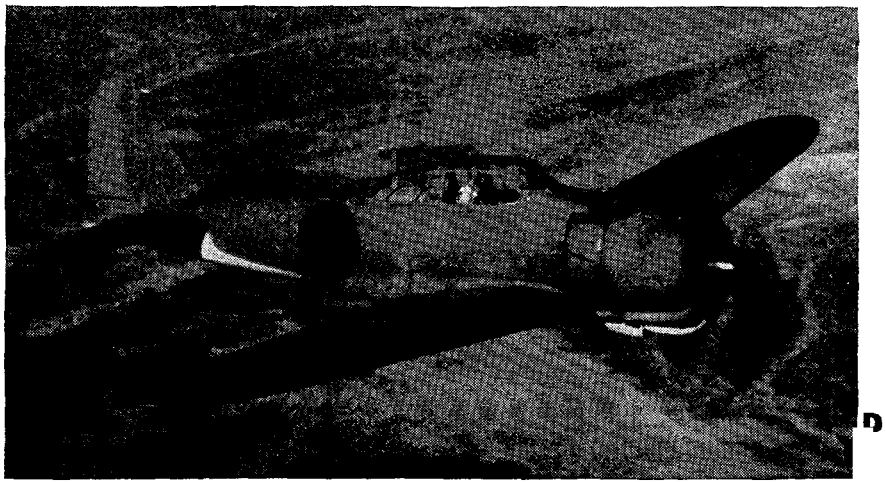
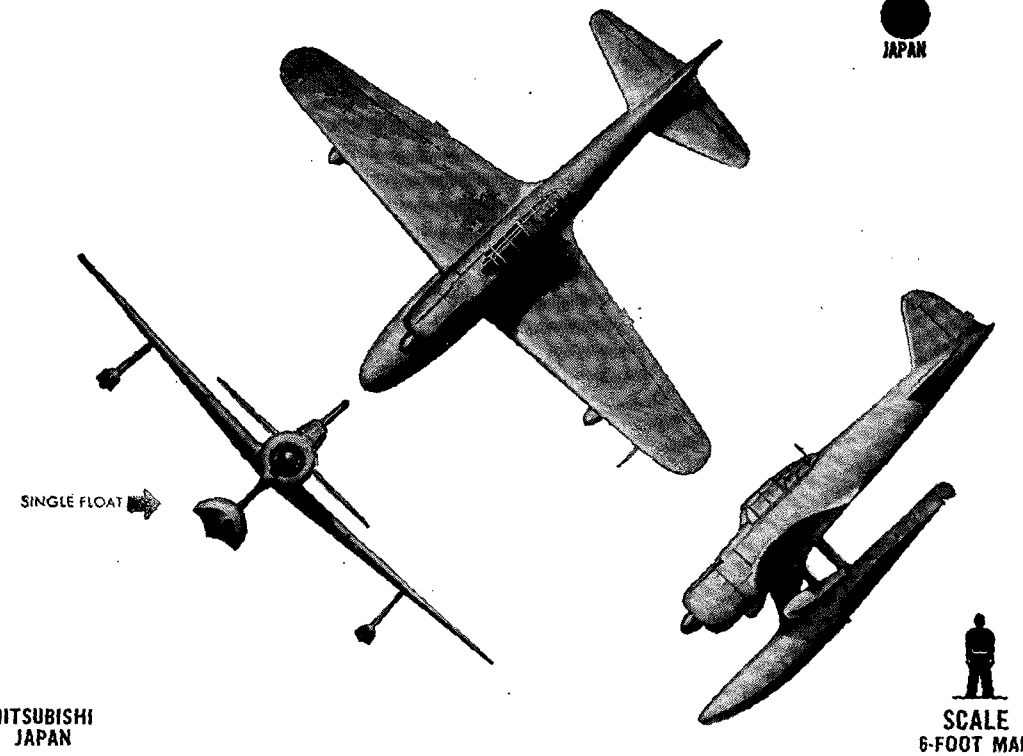


D

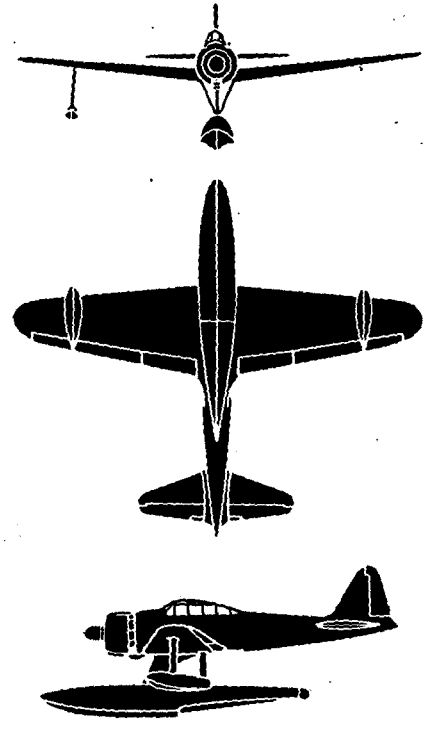
FIGHTER–RECONNAISSANCE

JAPAN

"RUFE" TYPE 0 MK.1 F-F/P



SCALE
6-FOOT MAN



MITSUBISHI
JAPAN

DISTINGUISHING FEATURES: Same as Type "O" SSF "Zeke" except for large central pontoon and wing-tip floats. Radial engine low-wing monoplane. Wings have dihedral from the roots with nearly equal taper and rounded tips. Round nose with medium large spinner. Oil cooler scoop and carburetor air scoop show below cowling. Fuselage tapers neatly back to a point in the rear of tail assembly. Cockpit canopy sits on top of fuselage. Rather large fin and rudder with pronounced taper to leading edge and slight taper to trailing edge.

INTEREST: The float plane version of the Zero, "Rufe" is also manufactured by Mitsubishi. The additional drag and weight of the floats are responsible for a decrease in speed of approximately 50 miles an hour. In other respects the float plane approximates the well-known "Zeke," although less maneuverable.

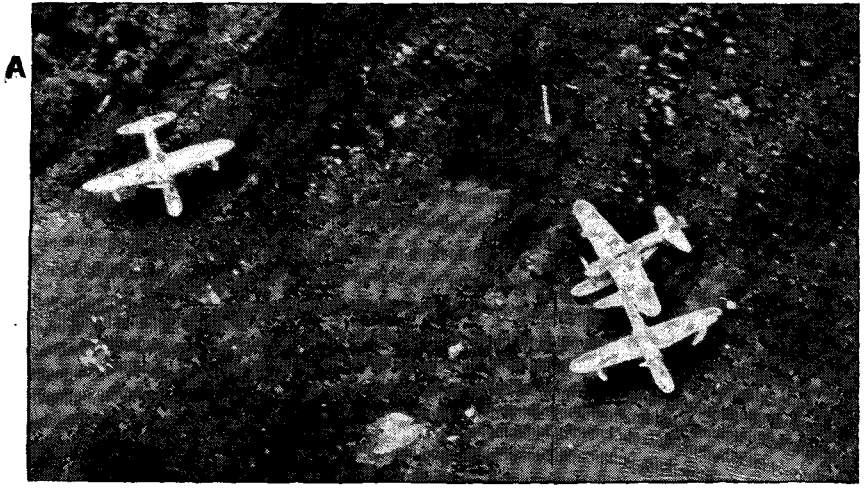
SPAN: 39 ft. 5 in.
LENGTH: 34 ft. 10 in.
APPROX. SPEED: 277 m. p. h. at 15,200 ft.
SERVICE CEILING: about 36,500 ft.

APRIL 1943
FROM DATA CURRENTLY AVAILABLE

WAR DEPARTMENT FM 30–30
NAVY DEPARTMENT BUAER 3

RESTRICTED

A



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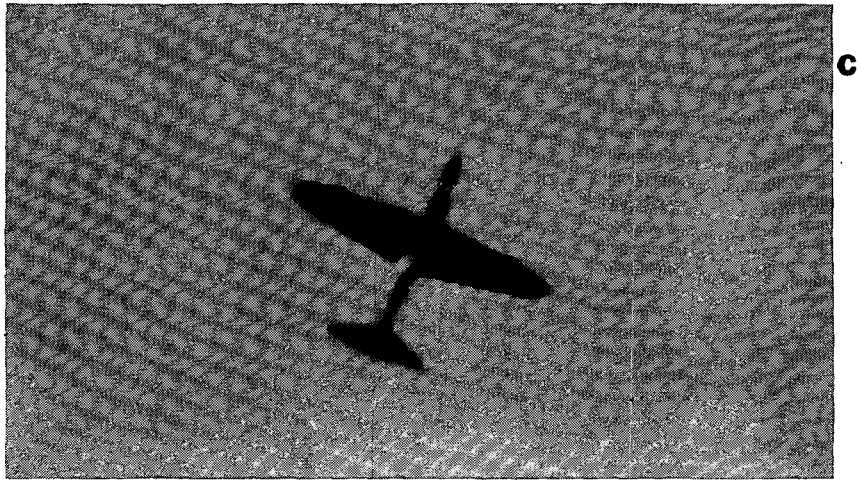

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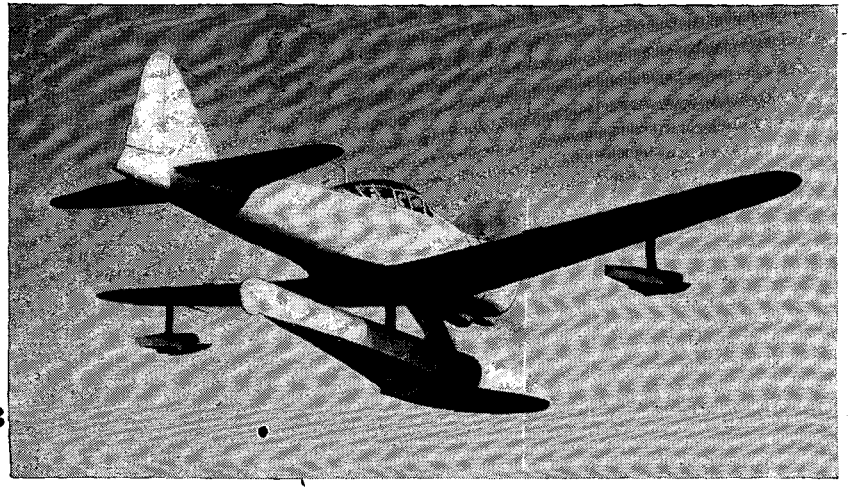

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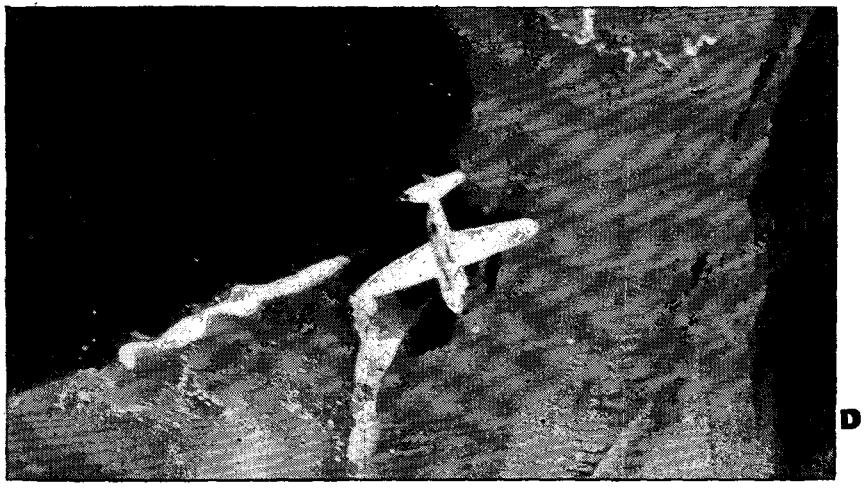
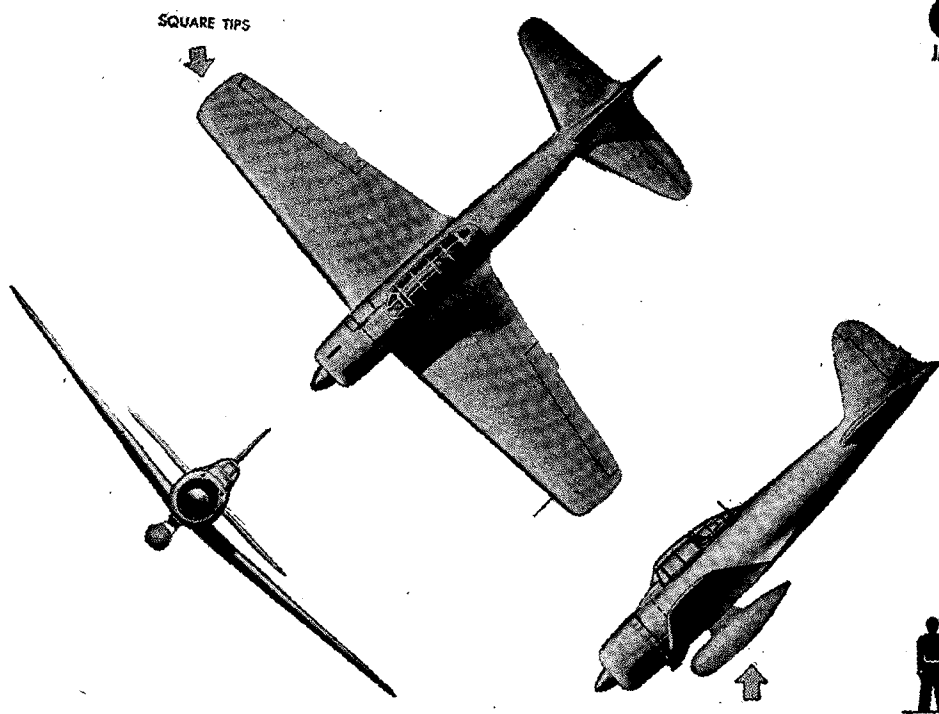
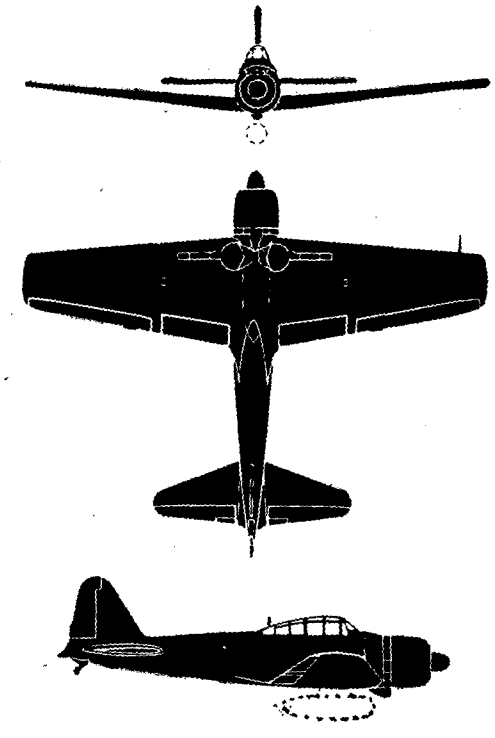


FIGHTER

JAPAN

"HAP" TYPE 0 MK.2 F





SCALE
6-FOOT MAN

MITSUBISHI
JAPAN

DISTINGUISHING FEATURES: Single radial engine low-wing monoplane. Similar to "Zeke" but with square wing tips and air scoop inside and at top of cowling.
INTEREST: This fighter appears to be more maneuverable than "Zeke." Its rate of climb is estimated to be 2,800 ft. per minute. The aircraft carries two 7.7-mm. machine guns, synchronized to fire through the propeller and two 20-mm. cannon, fixed, are in each wing. "Hap" is apparently a Mark II of "Zeke," with the folding wing tips removed and replaced by a blunt fairing. The position of the air scoop has also been changed, it now being in the top forward edge of the cowling instead of on the outside of the bottom of the cowling. The engine is a Nakajima "Sakae 21" instead of the Nakajima "Sakae 12" in "Zeke," and may develop more horsepower than the "Sakae 12."

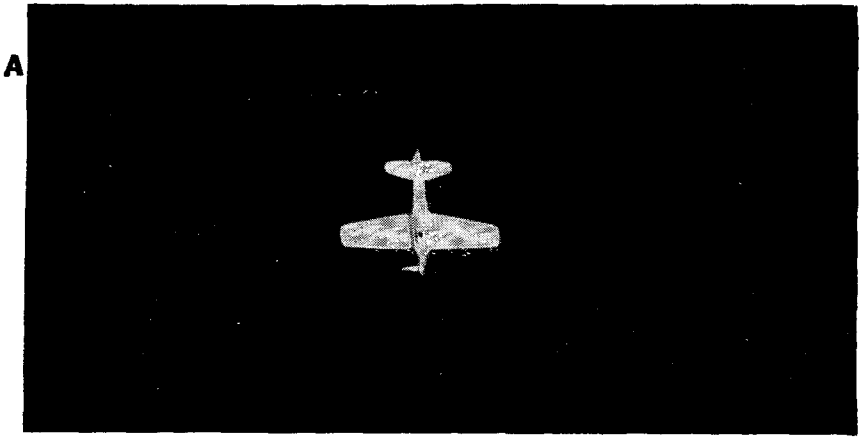
SPAN: 36 ft.
LENGTH: 28 ft.
APPROX. SPEED: 338 m. p. h. at 17,200 ft.
SERVICE CEILING: 38,800 ft.

APRIL 1943
FROM DATA CURRENTLY AVAILABLE

WAR DEPARTMENT FM 30-30
NAVY DEPARTMENT BUAER 3

RESTRICTED

A



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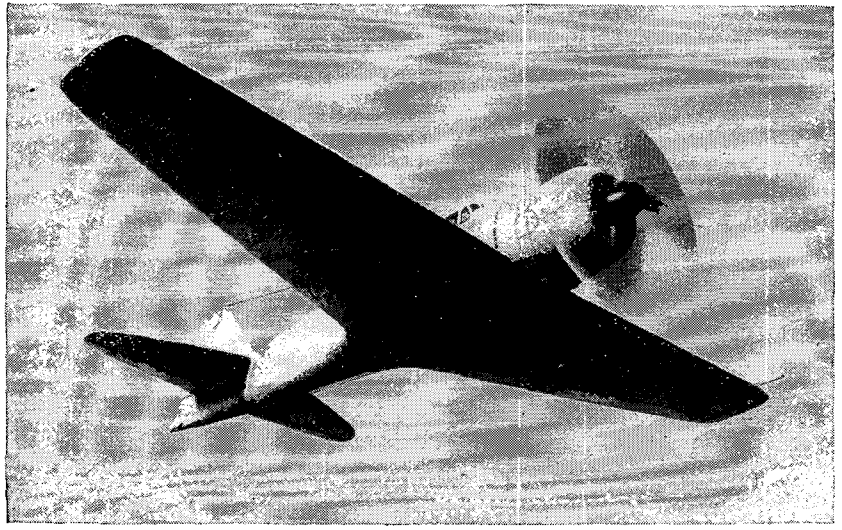

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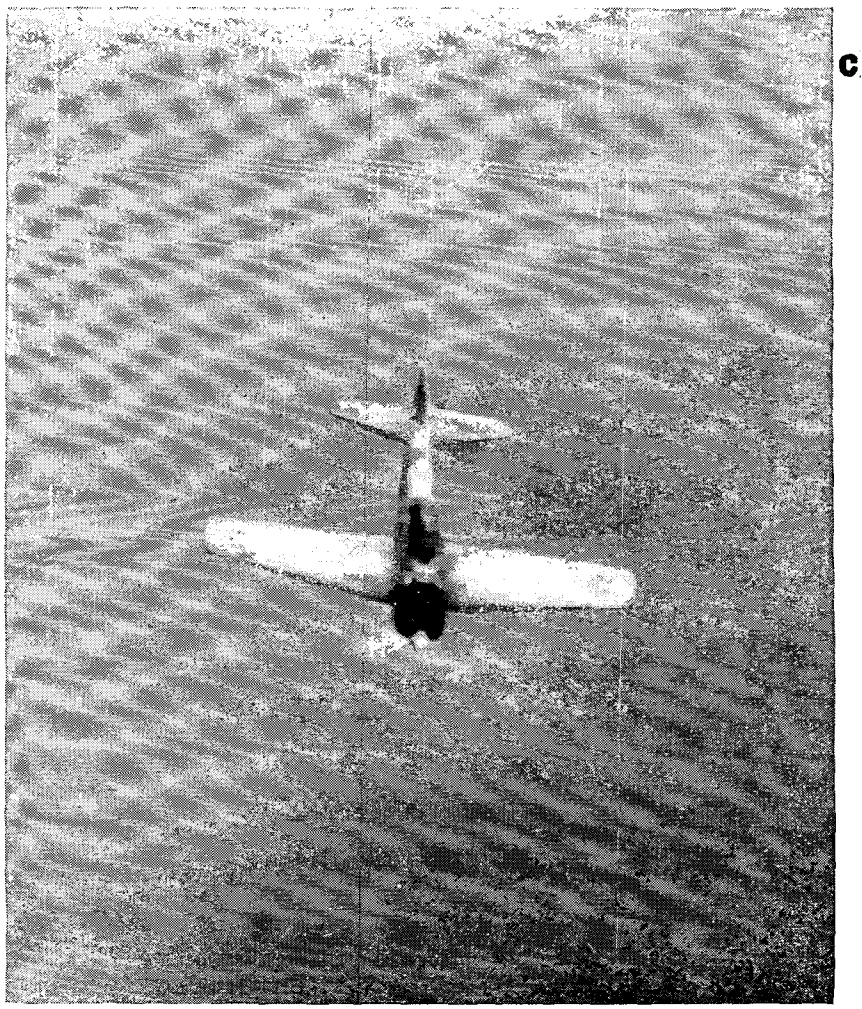
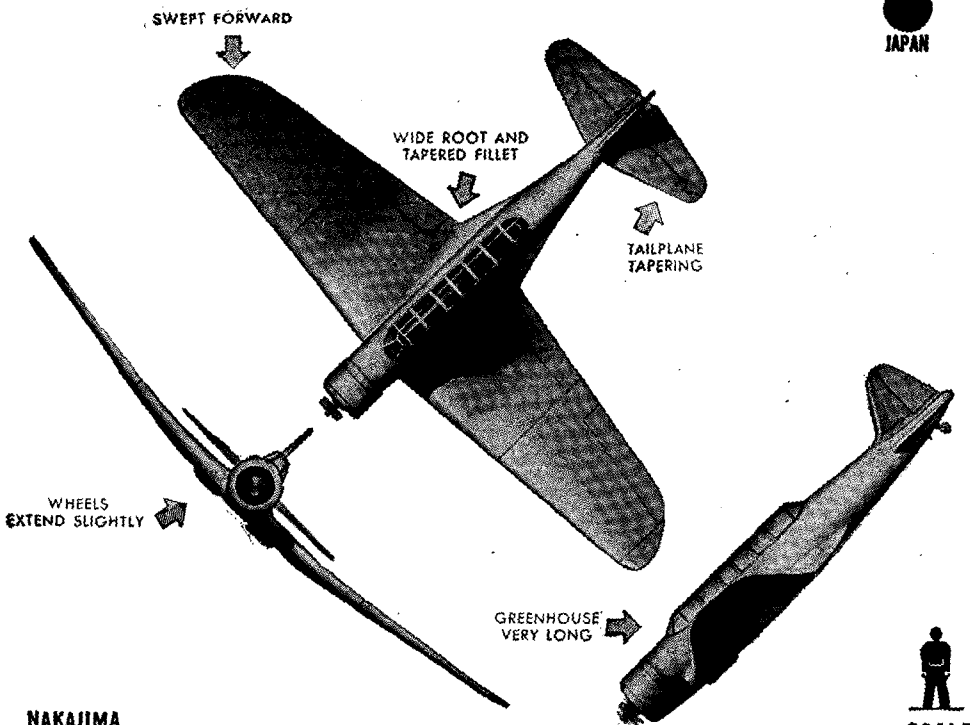


TORPEDO BOMBER

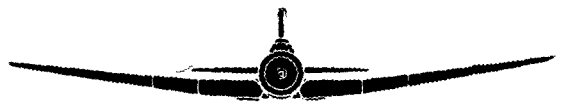
JAPAN

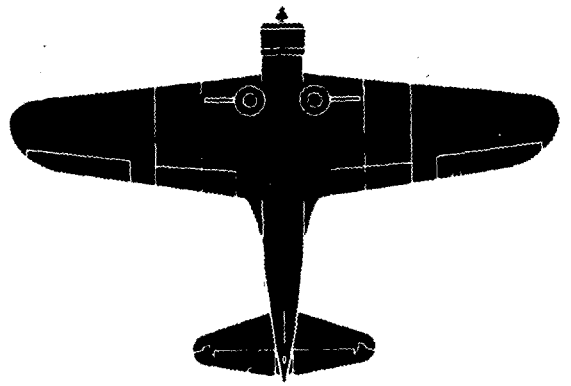
"KATE" TYPE 97 MK.3 TB



NAKAJIMA
(ALSO MFG. BY MITSUBISHI)
JAPAN

SCALE
6-FOOT MAN





SPAN: 52 ft.
LENGTH: 34 ft.
APPROX. SPEED: 225 m. p. h. at 8,000 ft.

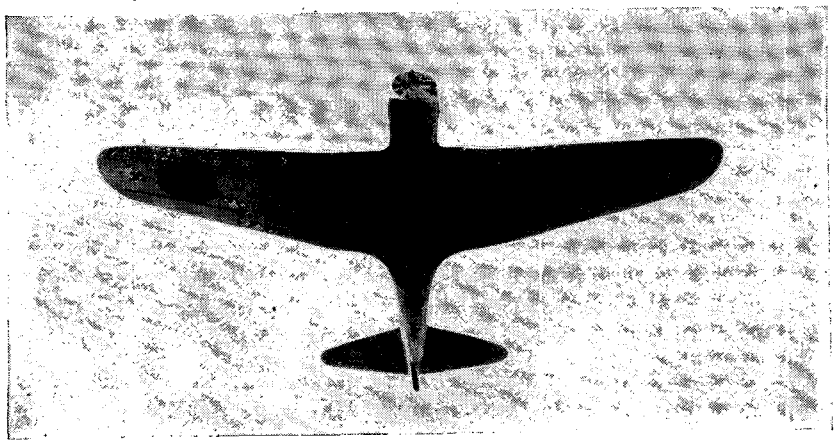
SERVICE CEILING:
27,500 ft

DISTINGUISHING FEATURES: Low-wing radial engine monoplane. Outer panels of wings have marked dihedral. Tapered wings with elliptical tips. Round fuselage, blunt nose. A long horizontal cockpit enclosure protrudes above fuselage. Triangular fin and rudder with rounded top.

INTEREST: This navy torpedo bomber, originally manufactured by Nakajima and now also made by Mitsubishi, carries a crew of two, when used as a torpebo bomber, and a crew of three when used on other bomding operations. It lacks self-sealing gas tanks and it has no armor. At a cruising speed of 190 miles per hour, it has a normal range of 495 miles. For armament it has two 7.7 mm. fixed machine guns above the engine cowling, and one 7.7 mm. flexible machine gun in the rear cockpit.

APRIL 1943
FROM DATA CURRENTLY AVAILABLE

WAR DEPARTMENT FM 30-30
NAVY DEPARTMENT BUAER 3



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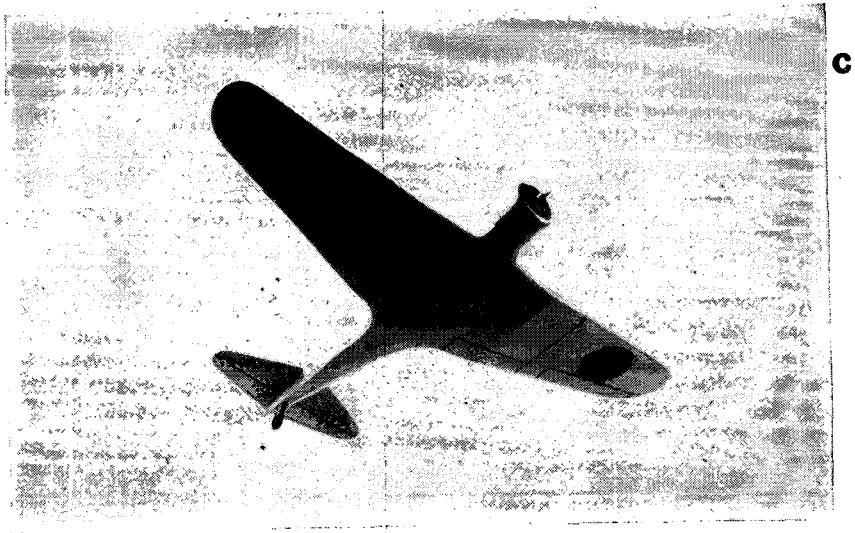

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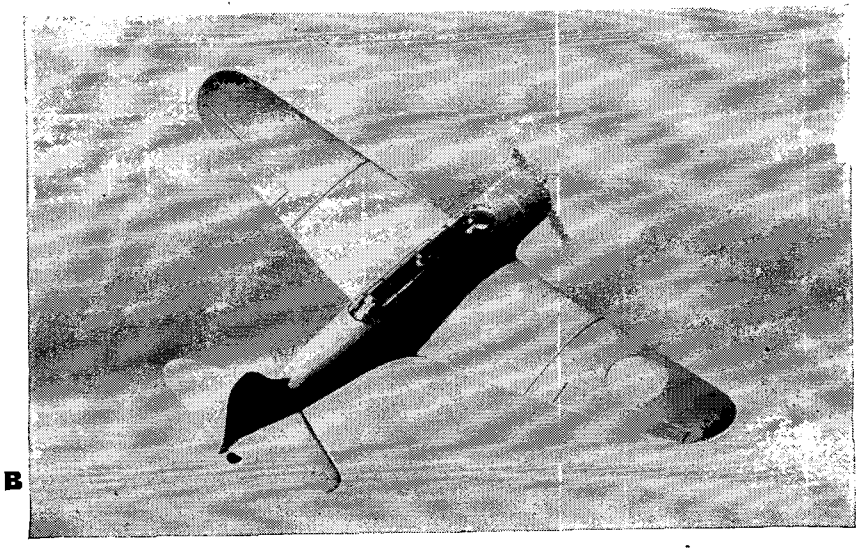

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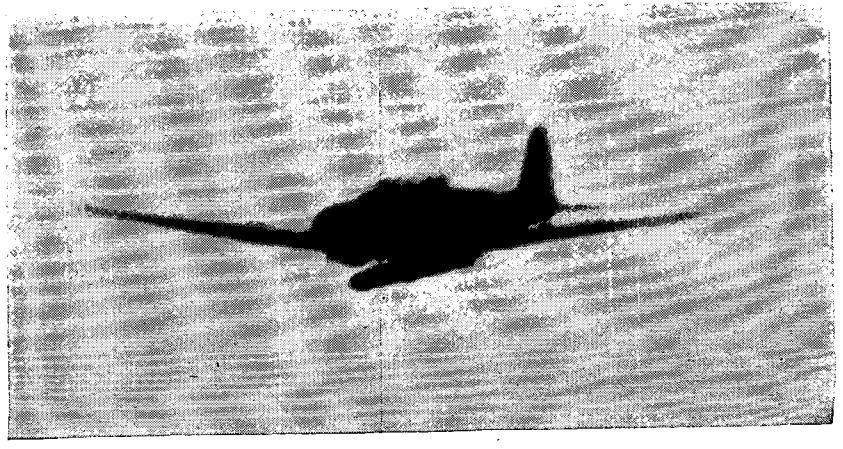
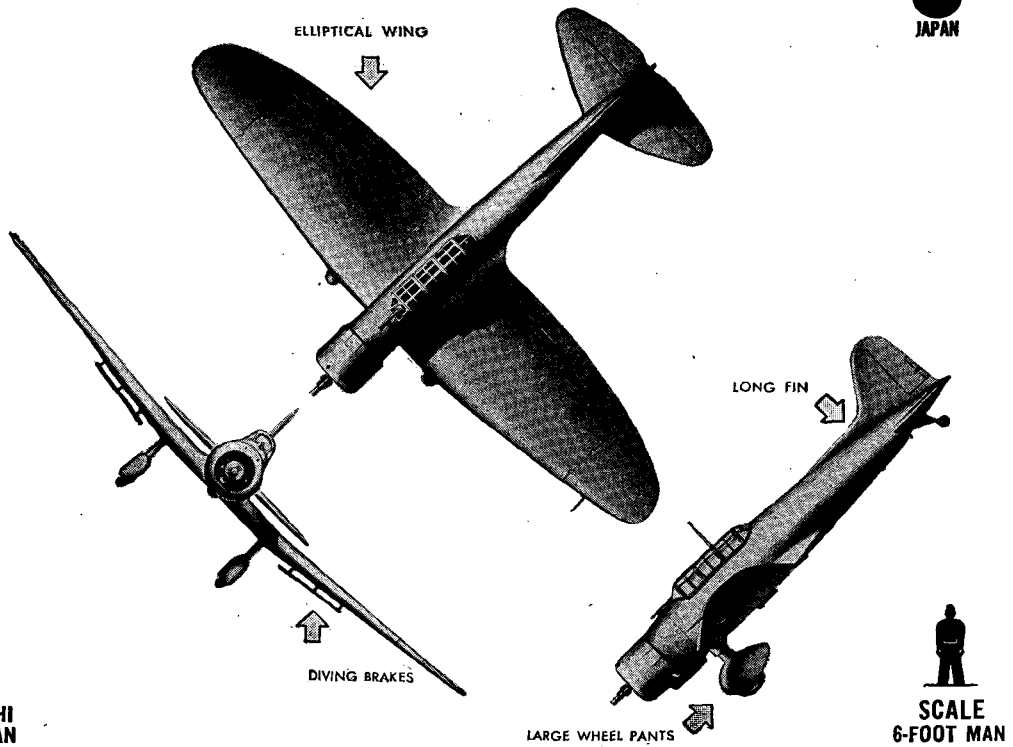


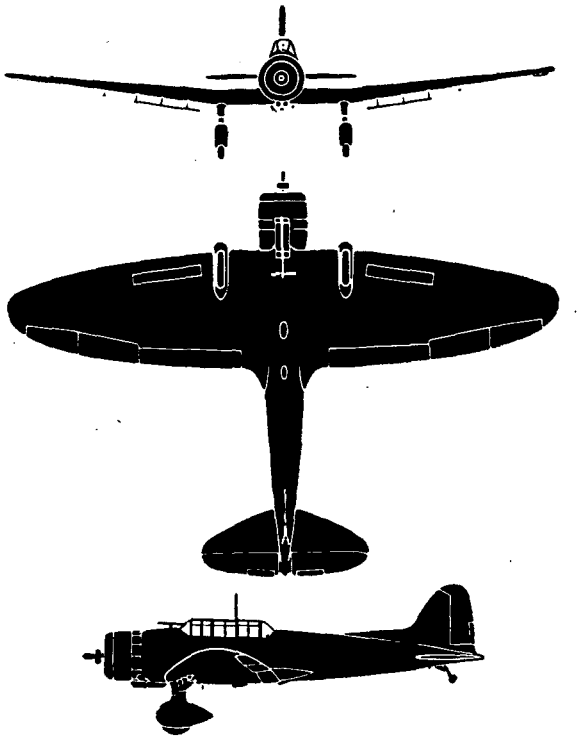
D

DIVE BOMBER

JAPAN

"VAL" TYPE 99 DB





AICHI
JAPAN

SCALE
6-FOOT MAN

DISTINGUISHING FEATURES: Radial engine low-wing monoplane. Fixed landing gear and junkers dive-brakes. Wings have medium taper and rounded tips. Slim tapering fuselage with protruding cockpit enclosure. Fin faired well forward on fuselage. Sharp taper to leading edge of stabilizer.

INTEREST: These Aichi-made planes were among those which struck so suddenly at Pearl Harbor defenses. It is the standard Jap Navy dive bomber, with two 7.7 mm. machine guns in the top forward cowling and one 7.7 mm. flexible gun in the rear cockpit. It has no armor nor does it have self-sealing gas tanks. Later models may possibly have retractable undercarriages.

SPAN: 47 ft. 7 in.
LENGTH: 32 ft. 10 in.
APPROX. SPEED: 220 m. p. h. at 7,500 ft.

SERVICE CEILING.
27,000 ft.

APRIL 1943
FROM DATA CURRENTLY AVAILABLE

WAR DEPARTMENT FM 30-30
NAVY DEPARTMENT BUAER 3

RESTRICTED

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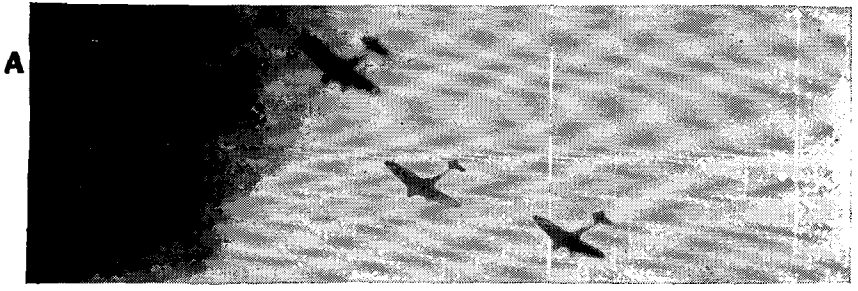

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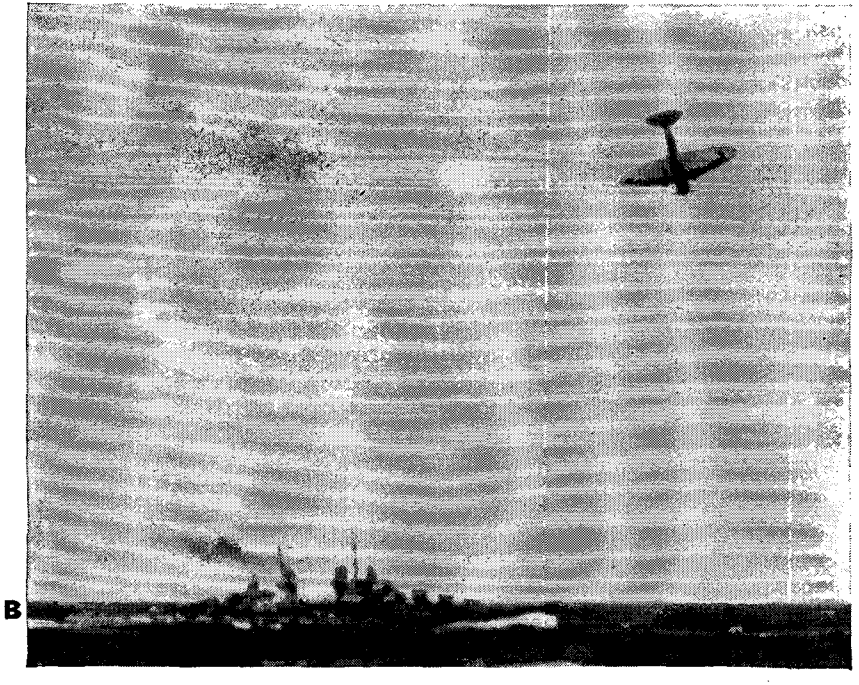

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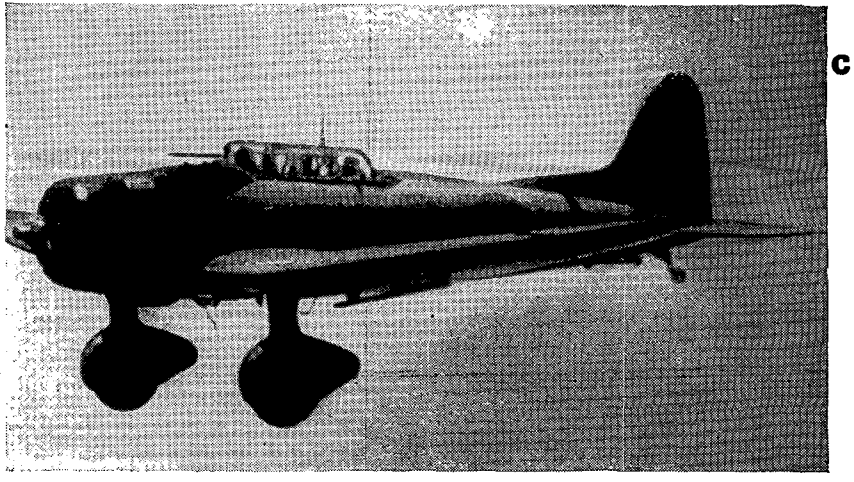

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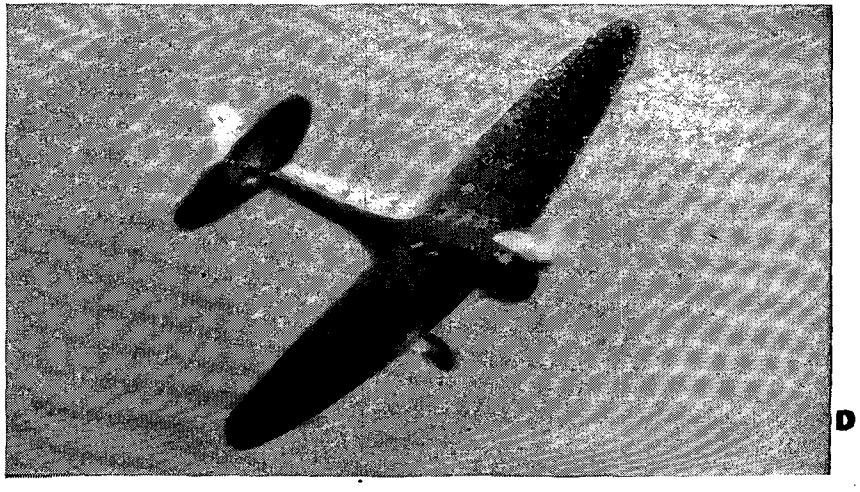
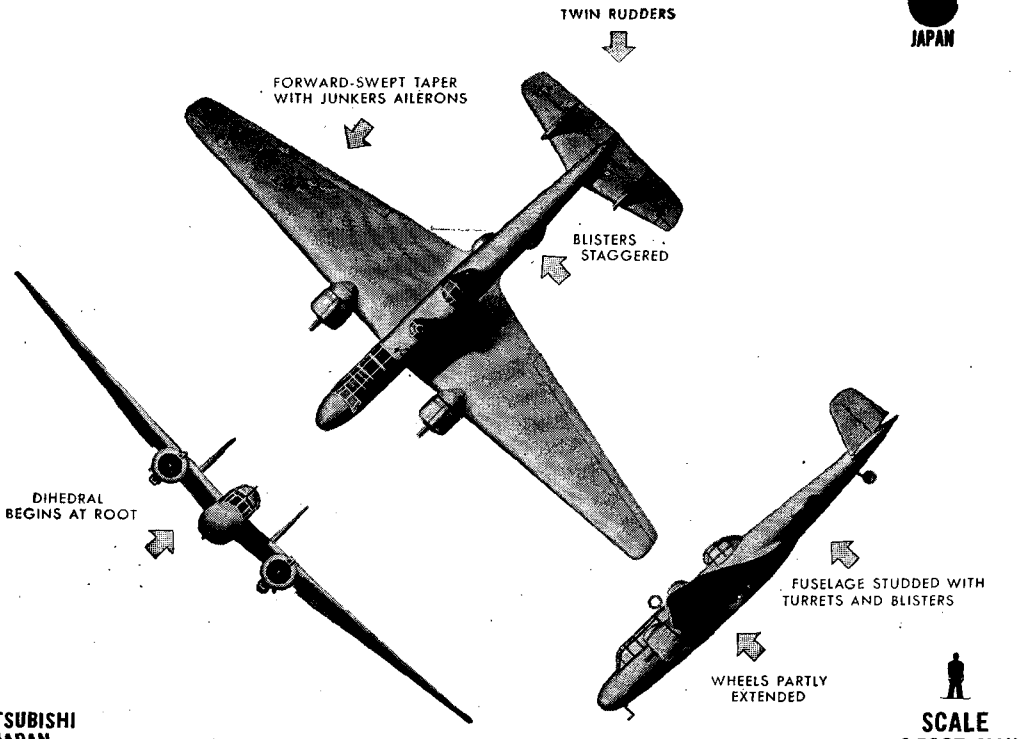


MEDIUM BOMBER

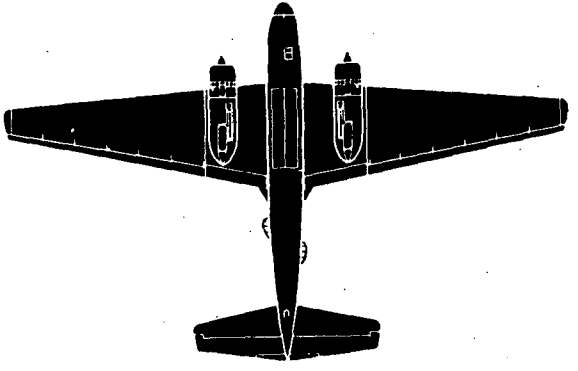
JAPAN

"NELL" TYPE 96 MK.4 MB



MITSUBISHI
JAPAN

SCALE
6-FOOT MAN



DISTINGUISHING FEATURES: Two engine mid-wing monoplane. Tapered wings with squared tips. Full-length Junkers type ailerons. Underslung engines. Twin fins and rudders set inboard..

INTEREST: The high level bombing and torpedo attacks made on H. M. S. *Prince of Wales* and H. M. S. *Repulse* were made by these planes. Though the resemblance is rather remote, they are said to have been developed from the Junkers 86 and are used largely for bombing, torpedo dropping, and reconnaissance. Ordinarily the crew was made up of four, but more recently it has been increased to seven. Normal armament is reported to be five 7.7 mm. machine guns. May carry one 20 mm. cannon in dorsal turret.

SPAN: 82 ft.
LENGTH: 54 ft.
APPROX. SPEED: 225 m. p. h. at 7,000 ft.
SERVICE CEILING. 28,000 ft.

APRIL 1943
FROM DATA CURRENTLY AVAILABLE

WAR DEPARTMENT FM 30–30
NAVY DEPARTMENT BUAER 3

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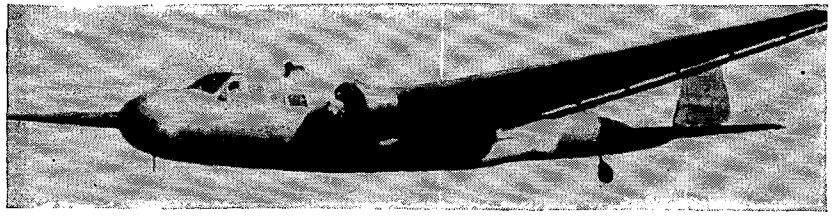

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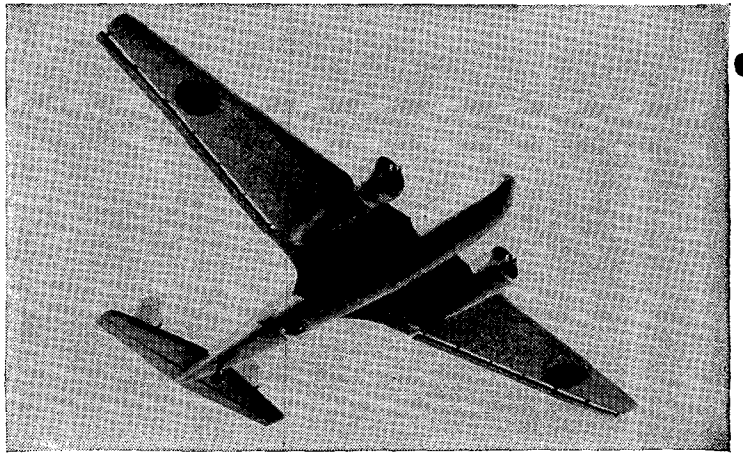

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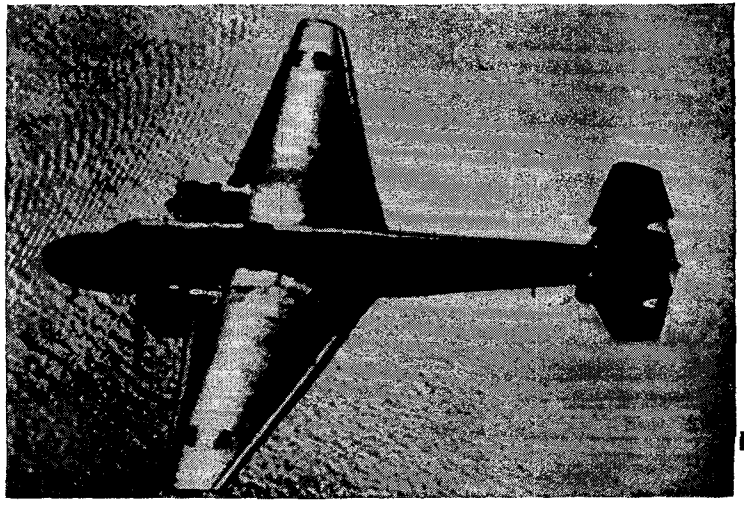
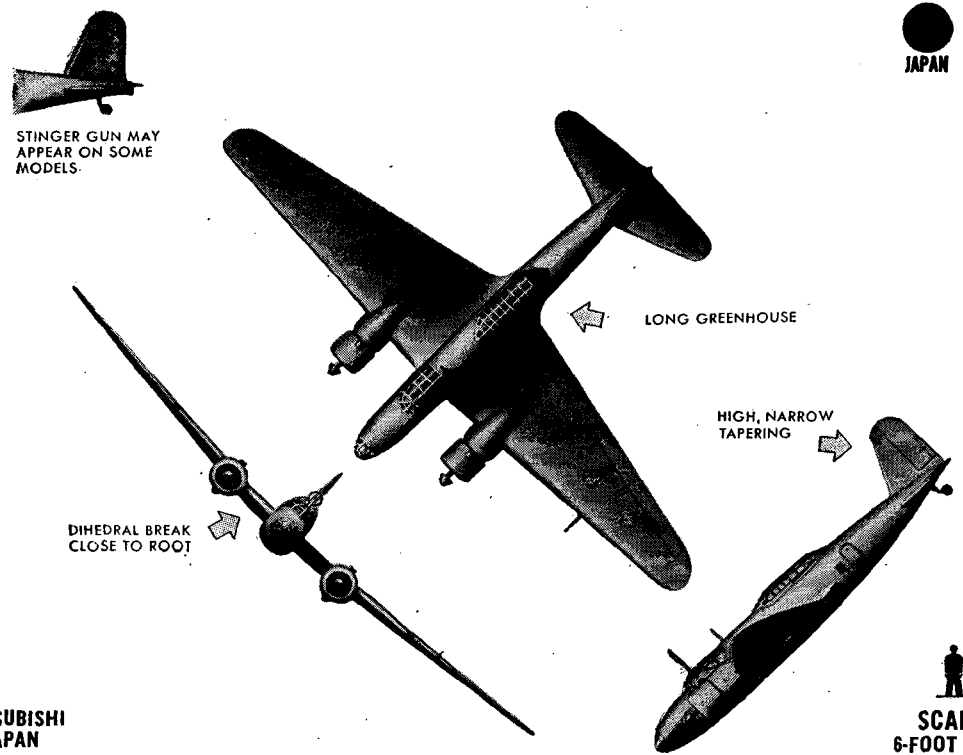


MEDIUM BOMBER

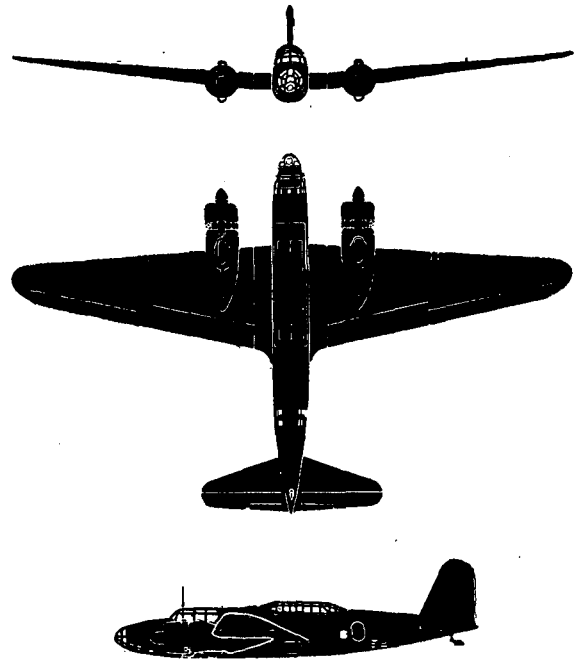
JAPAN

"SALLY" TYPE 97 MB



MITSUBISHI
JAPAN

SCALE
6-FOOT MAN



DISTINGUISHING FEATURES: Twin-engine low mid-wing monoplane. Full length dihedral in wings. Trailing edge tapers sharply forward. Elliptical tips. Transparent nose and long dorsal cockpit enclosure, in two sections, extending aft of trailing edge of wing. Single fin and rudder with decided taper on leading edge and vertical trailing edge.

INTEREST: Latest reports indicate little, if any, armor protection for the crew of from five to seven men. Its armament is made up of seven 7.7 mm. flexible machine guns, and sometimes includes a fixed tail gun. In bombing operations the maximum load carried is 4,400 lbs., or normal load of 2,200 lbs. for 670 miles. A development of this aircraft, called "Gwen," and believed to be the "Army Type O twin-engine bomber," has recently been reported.

SPAN: 72 ft.
LENGTH: 47 ft. (approx.)
APPROX. MAX. SPEED: 245 m. p. h. at 8,000 ft.
SERVICE CEILING. about 23,500 ft.

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APRIL 1943
FROM DATA CURRENTLY AVAILABLE

WAR DEPARTMENT FM 30-30
NAVY DEPARTMENT BUAER 3

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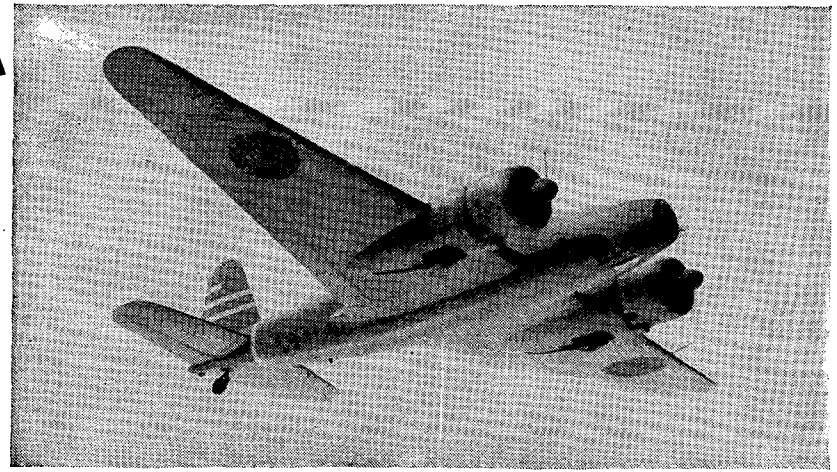

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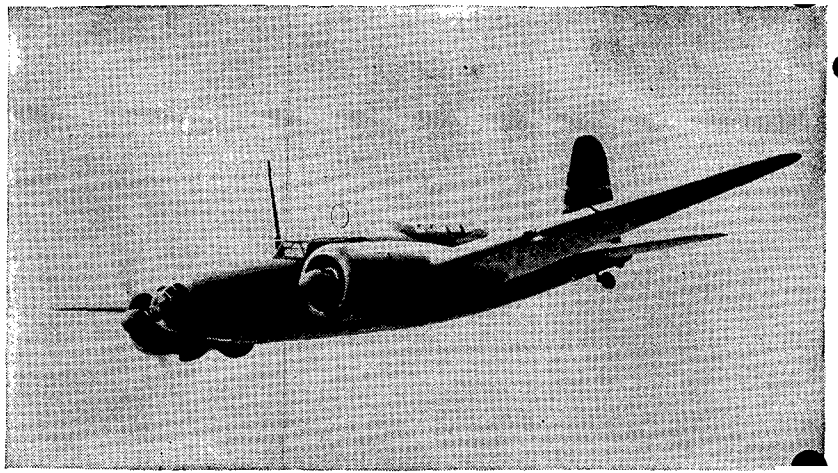
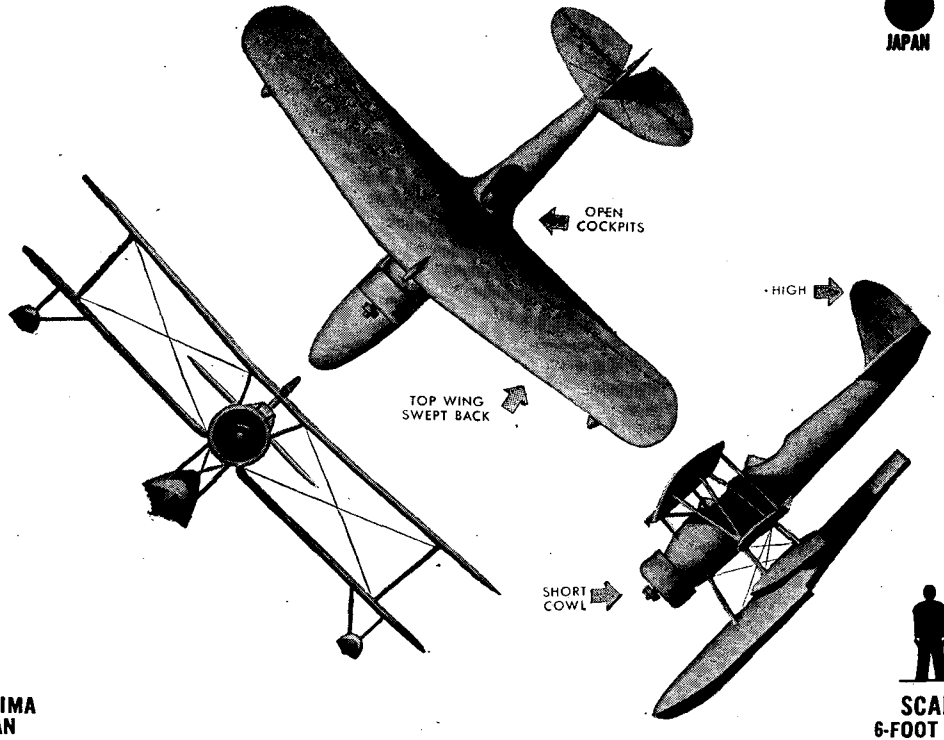


RECONNAISSANCE

JAPAN



NAKAJIMA
JAPAN

SCALE
6-FOOT MAN

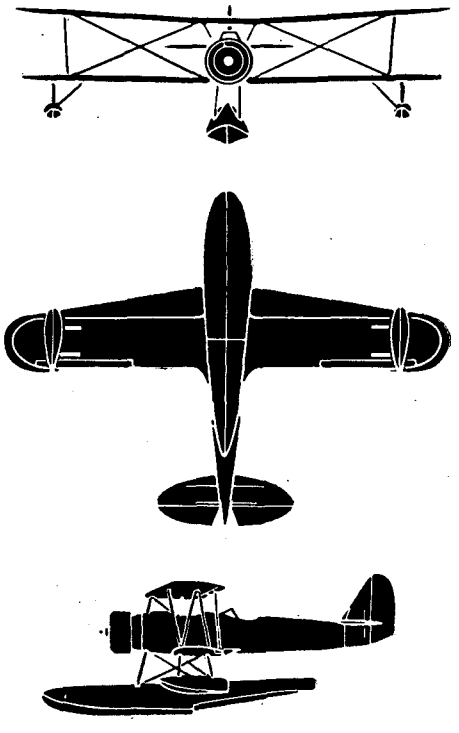
DISTINGUISHING FEATURES: Single radial engine biplane equipped with single pontoon and fixed wing tip floats. Upper wing swept back, lower wing square to fuselage. Rounded tips. Wings have N-shaped struts. Engine has prominent ring cowling. Fuselage tapers smoothly with two open cockpits. Oval fin and rudder. Elliptical stabilizer and elevator with V cut-out on trailing edge.

INTEREST: Australian reports have indicated that steep dive bombing has been done by this Nakajima product, now manufactured by both Nakajima and Mitsubishi. It carries a crew of two, a bomb load up to 500 lbs., and has two 7.7 mm. machine guns. The forward gun is fixed and the rear gun, firing from the rear cockpit, is flexible. It carries no armor and the fuel tanks lack the self-sealing feature.

APRIL 1943
FROM DATA CURRENTLY AVAILABLE

WAR DEPARTMENT FM 30–30
NAVY DEPARTMENT BUAER 3

"DAVE" TYPE 95 O-F/P



SPAN: 36 ft.
LENGTH: 28 ft. 4 in.
APPROX. SPEED: 155 m. p. h. at 12,000 ft.
SERVICE CEILING. 23,000 ft.

RESTRICTED

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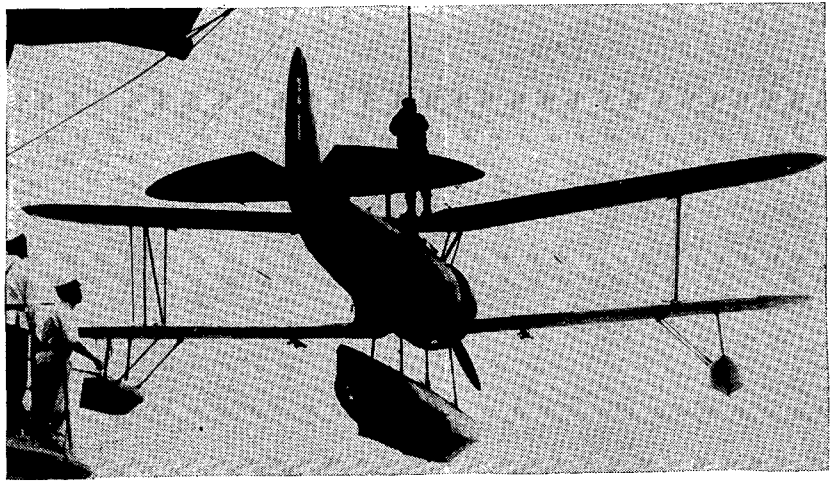

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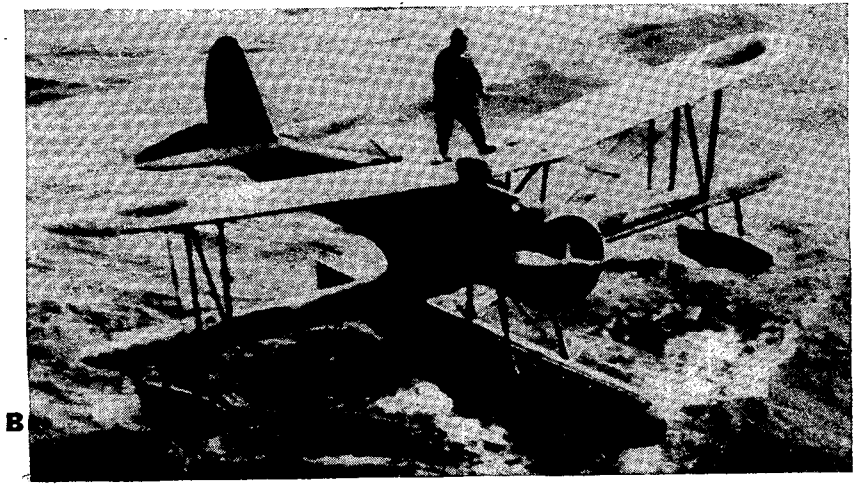

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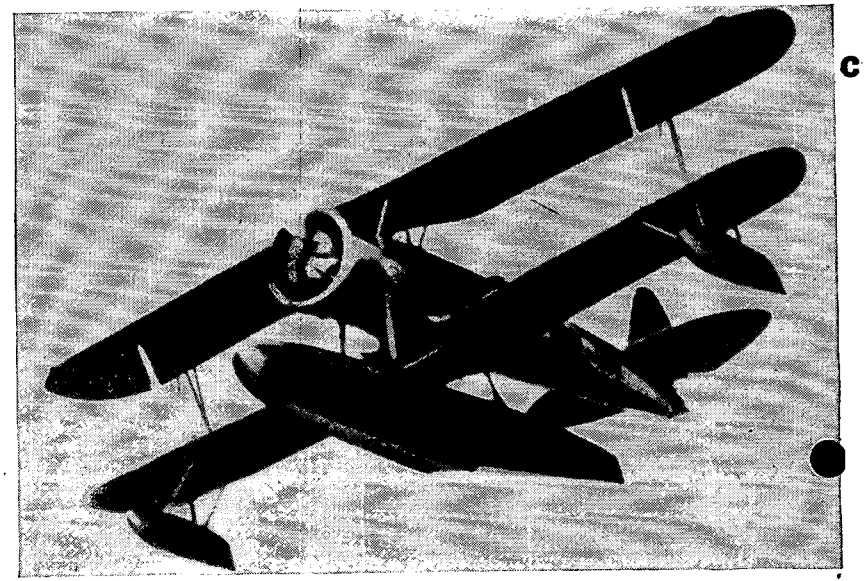

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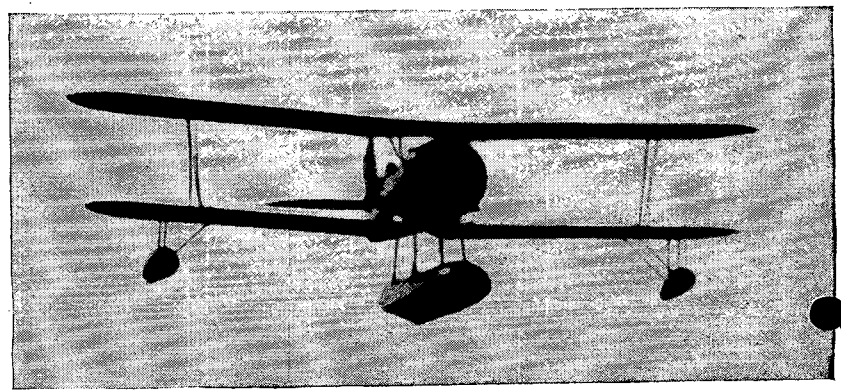
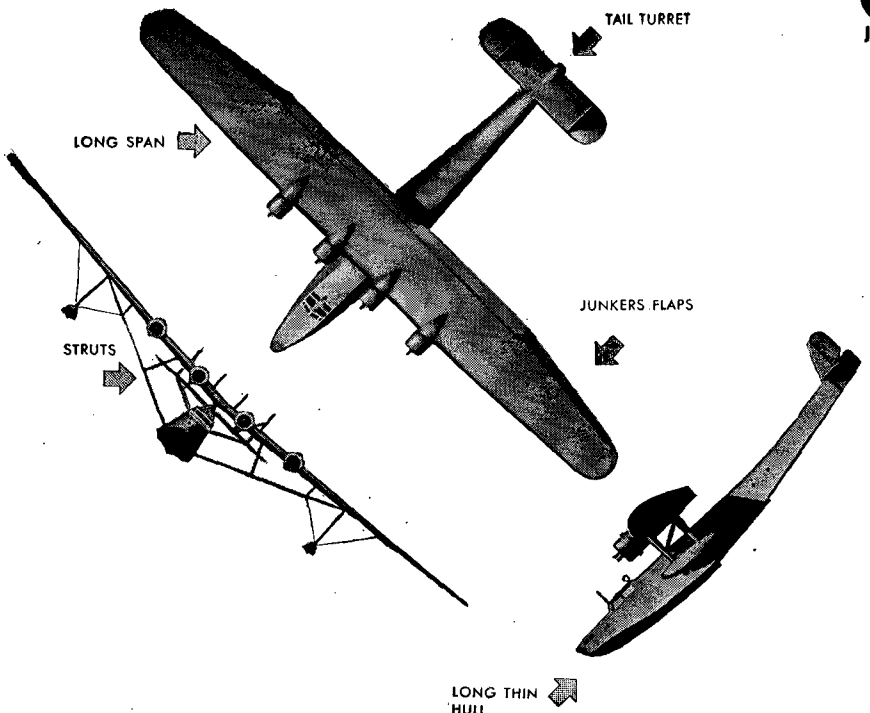


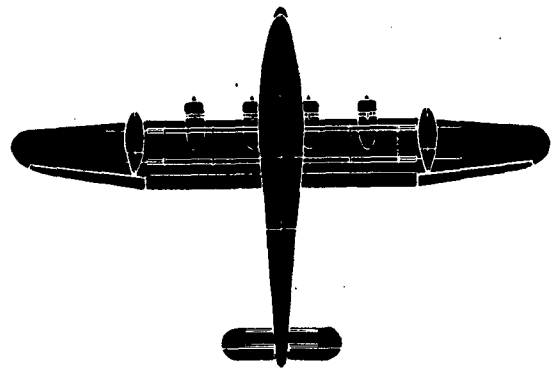
"MAVIS" TYPE 97 F/B

PATROL BOMBER

JAPAN



SCALE
6-FOOT MAN



KAWANISHI
JAPAN

DISTINGUISHING FEATURES: Four-engine parasol monoplane flying boat. Slight dihedral with outer sections tapered. Rounded tips. Engines centered on leading edge; small nacelles. Hull curves up to twin fins and rudders set inboard on stabilizer. Tail turret.

INTEREST: "Mavis" was among the first Japanese aircraft used in bombings over Australia and New Guinea. When carrying their maximum bomb load of 3,300 pounds, they have a range of 2,100 miles, and a crew complement of eight. Armament consists of four 7.7 mm. machine guns; one in the dorsal position, one in the nose, two on the sides, and one 20 mm. cannon in the tail turret.

SPAN: 131 ft.
LENGTH: 82 ft.
APPROX. SPEED: 205 m. p. h. at 8,000 ft.
SERVICE CEILING: 25,000 ft. (normal load)

APRIL 1943
FROM DATA CURRENTLY AVAILABLE

WAR DEPARTMENT FM 30-30
NAVY DEPARTMENT BUAER 3

RESTRICTED

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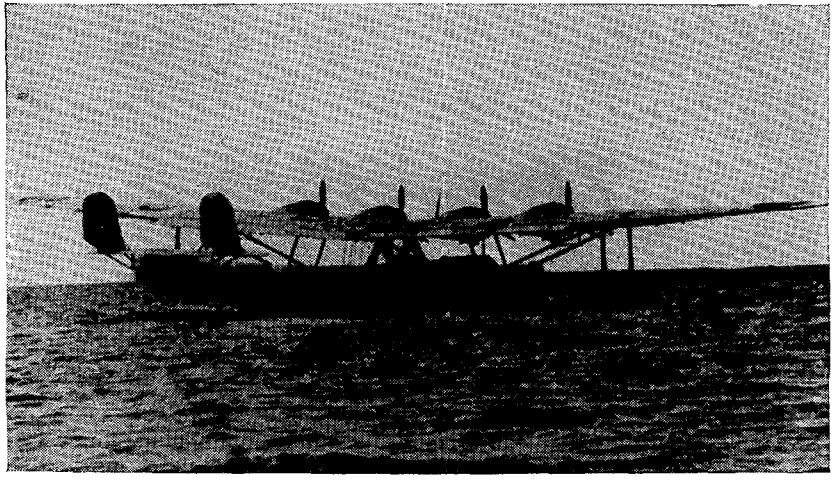

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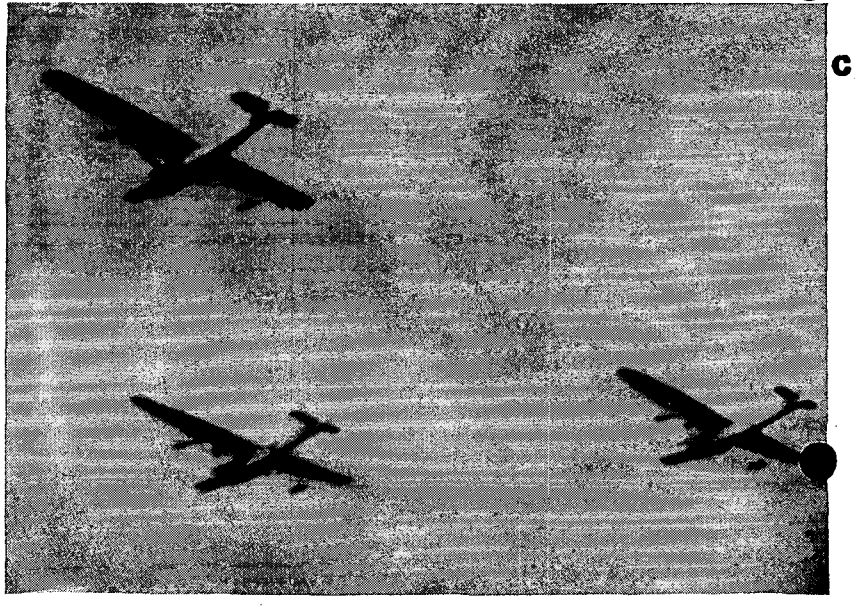

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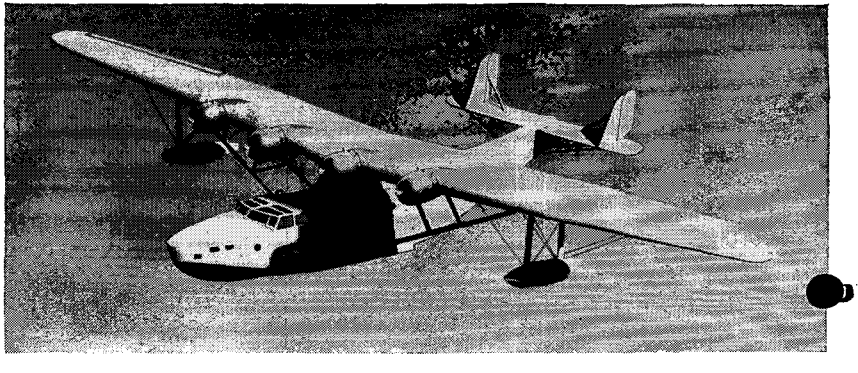
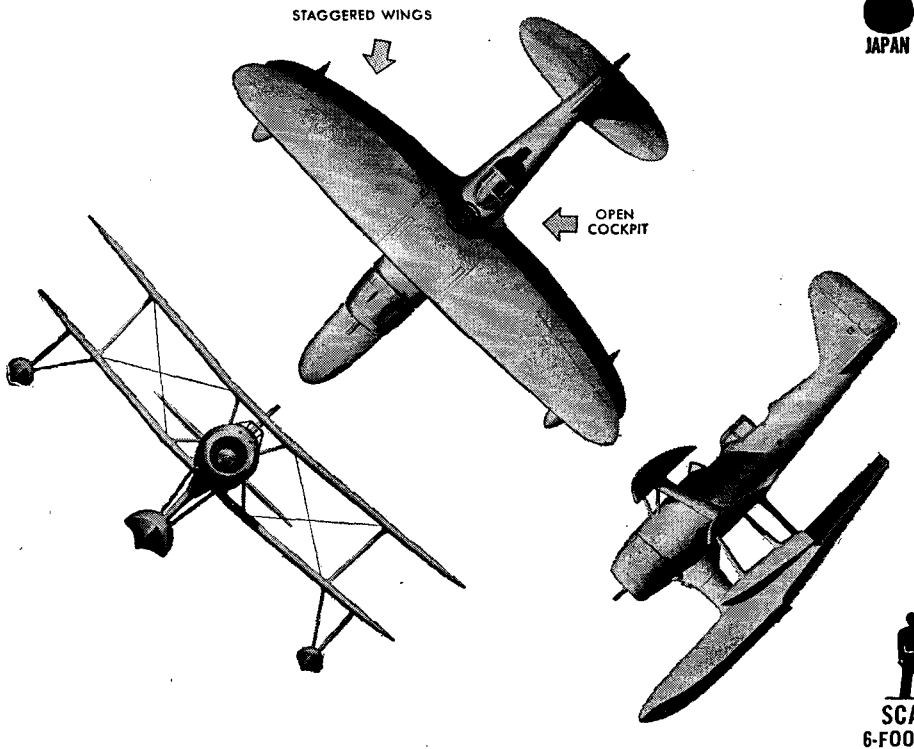


RECONNAISSANCE

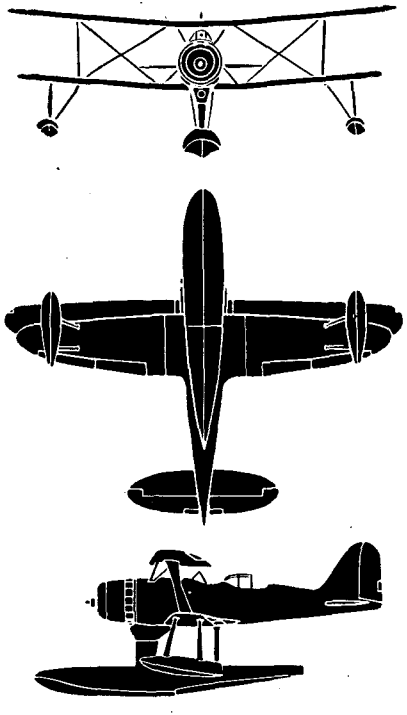
JAPAN

"PETE" TYPE 0 O-F/P



SASEBO
JAPAN

SCALE
6-FOOT MAN



DISTINGUISHING FEATURES: Radial engine biplane equipped with large central pontoon and fixed wing floats. Wings have tapered leading edges, giving a swept back appearance, and large round tips. Fuselage has normal cowling for a radial engine, well streamlined. Tapering fin. Trailing edge of rudder nearly vertical.

INTEREST: This two-place float plane of the Japanese Navy is a product of the Sasebo naval arsenal. It may carry a bomb load up to 500 lbs. in two small bomb racks located under the lower wings. For armament, it mounts two 7.7 mm. fixed machine guns, which fire through the propeller and one 7.7 mm. flexible machine gun, operating from the rear cockpit. Self-sealing gas tanks are not a part of "Pete's" equipment.

SPAN: 37 ft.
LENGTH: 34 ft. 6 in.
APPROX. SPEED: 198 m. p. h. at 5,000 ft.

SERVICE CEILING:
29,000 ft.

APRIL 1943
FROM DATA CURRENTLY AVAILABLE

WAR DEPARTMENT FM 30–30
NAVY DEPARTMENT BUAER 3

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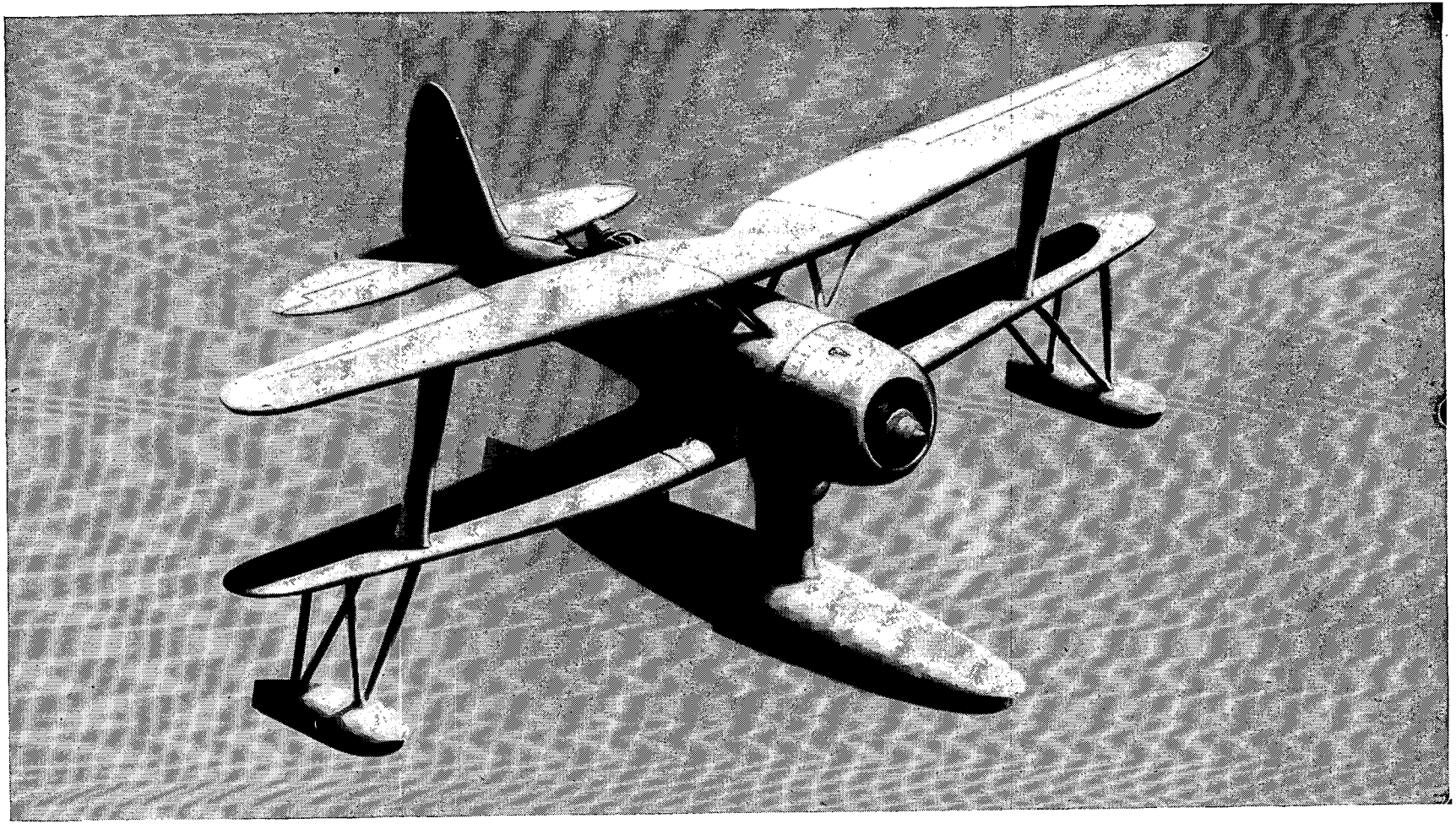
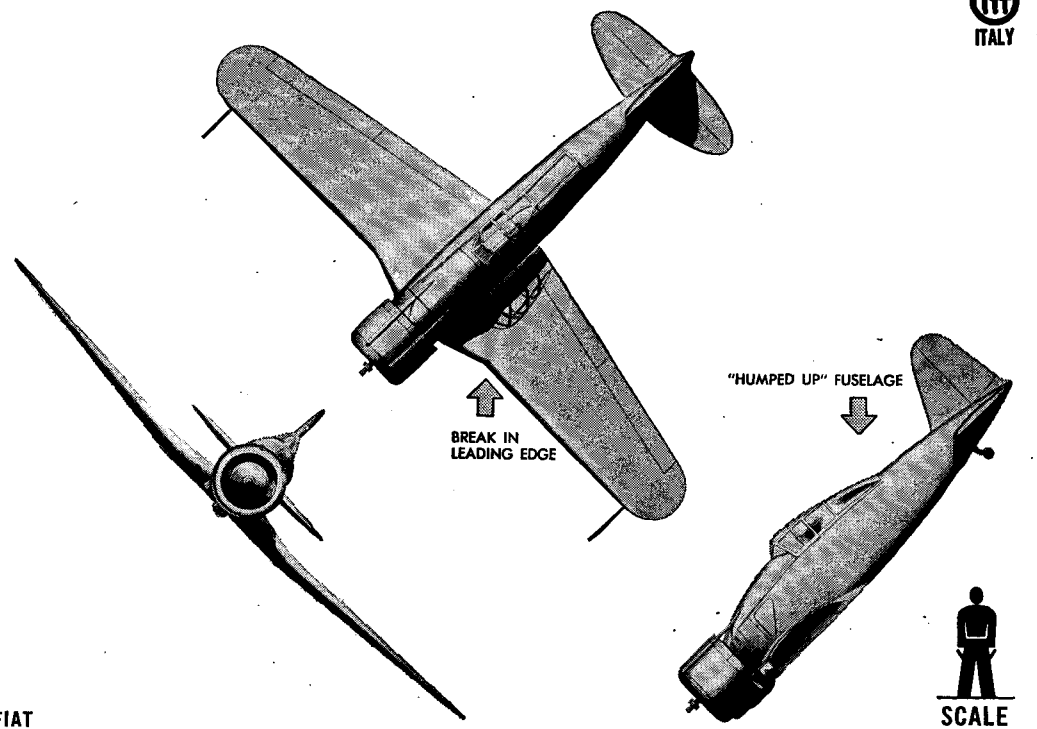


FIGHTER

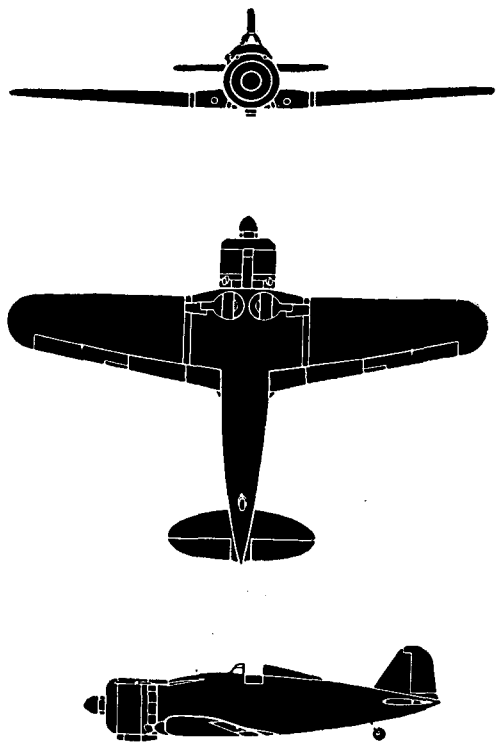
ITALY

"FIAT G-50"



FIAT
ITALY

SCALE
6-FOOT MAN



DISTINGUISHING FEATURES: Single radial engine low-wing monoplane. Center section of the wing tapers more sharply than outer sections. Outer sections have moderate taper to rounded tips. Scoop shows below cowling. Narrow fin and rudder with rounded top.

INTEREST: The G–50 has been known as the "Falcon." It was considered one of the best Italian fighters during the early months after the Battle of France. At the present time its use is much restricted. It has been reported to be difficult to maneuver and unstable. It is of all-metal construction, and the armament consists of two 12.7 mm. machine guns with provision for two 7.7 mm. fixed wing guns.

SPAN: 35 ft. 9 in.
LENGTH: 25 ft. 6 in.
MAX. SPEED: 300 m. p. h. at 14,500 ft.
SERVICE CEILING: 32,500 ft.

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APRIL 1943
FROM DATA CURRENTLY AVAILABLE

WAR DEPARTMENT FM 30–30
NAVY DEPARTMENT BUAER 3

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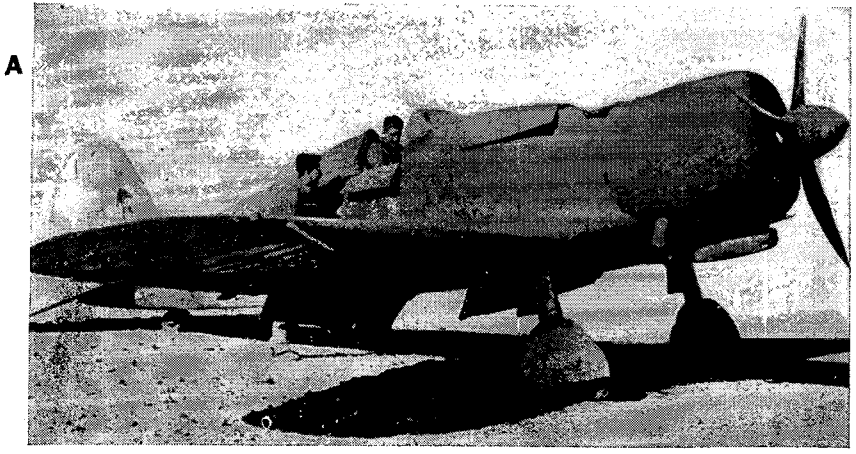

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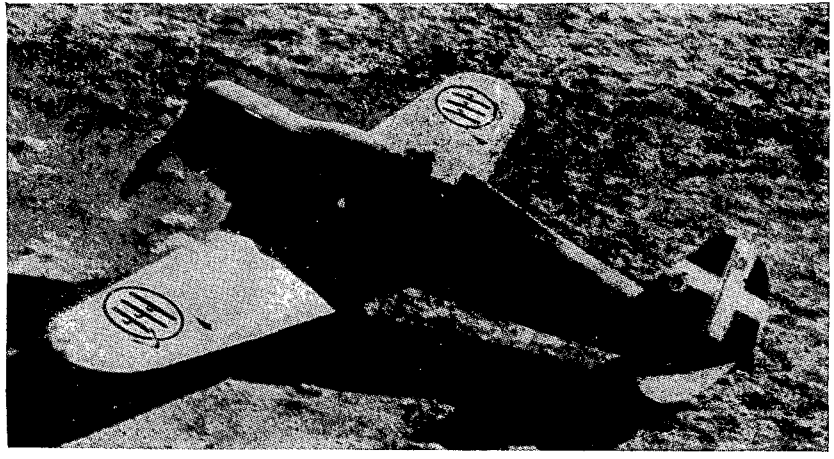

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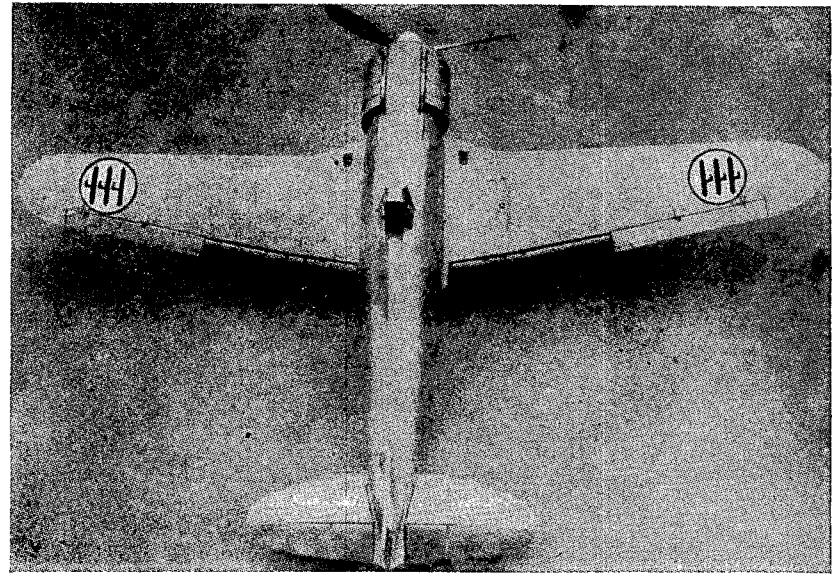

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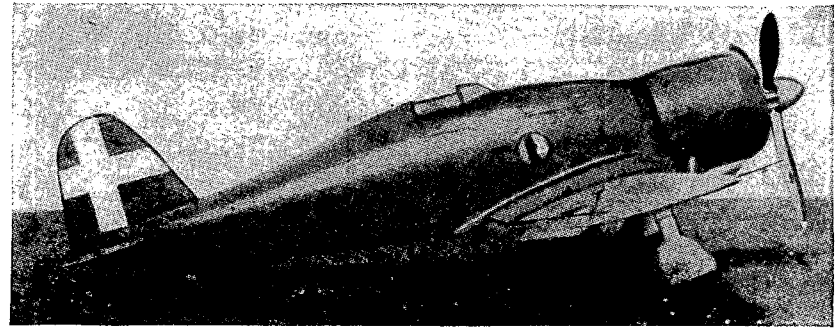
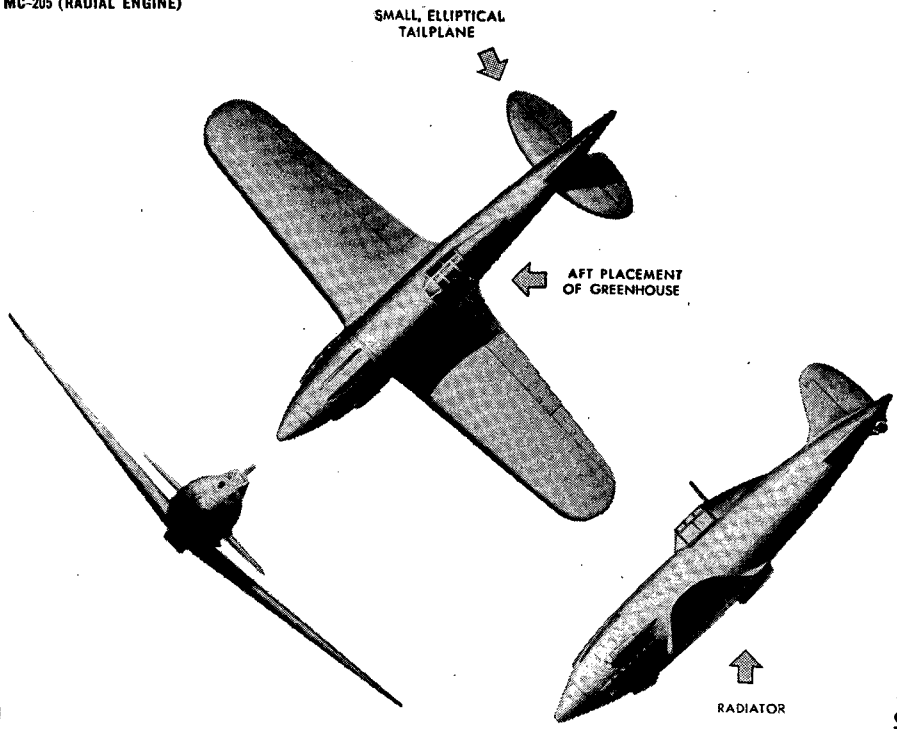


ITALY: MC-202
MC-200 (RADIAL ENGINE)
MC-205 (RADIAL ENGINE)

FIGHTER

ITALY



SCALE
6-FOOT MAN

MACCHI
ITALY

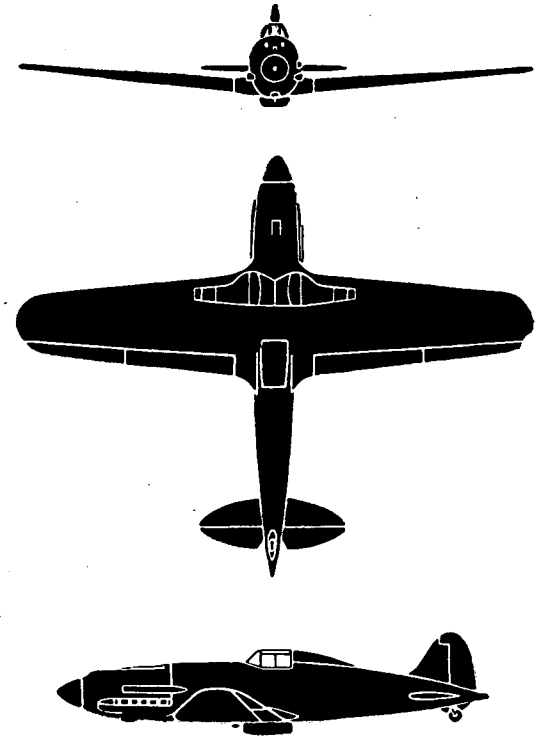
DISTINGUISHING FEATURES: Single in-line engine, low-wing monoplane. Wings have dihedral from roots with equal taper and rounded tips. Long nose and spinner. Small cockpit canopy. Torpedo-shaped fuselage. Tapered fin and rudder. Elliptical tail plane.

INTEREST: A number of these planes have been used in combat over Egypt, Libya, and Malta. To date, they have had only a little better success than the MC 200, an earlier version of this plane which has a radial engine. Apparently they are not as fast as they should be, nor are they adequately armed, although they are capable, in some instances, of keeping pace with Allied medium and light bombers. Unlike the MC-200, the cockpit cover of this plane is not transparent all around, and with its lengthened nose, it is questionable whether the pilots of the MC-202 have sufficient visibility.

APRIL 1943
FROM DATA CURRENTLY AVAILABLE

WAR DEPARTMENT FM 30-30
NAVY DEPARTMENT BUAER 3

MACCHI "MC-202"



SPAN: 34 ft. 8 in.
LENGTH: 29 ft. 1 in.
MAX. SPEED: 360 m. p. h. at 20,000 ft.

SERVICE CEILING:
36,000 ft. (max.)

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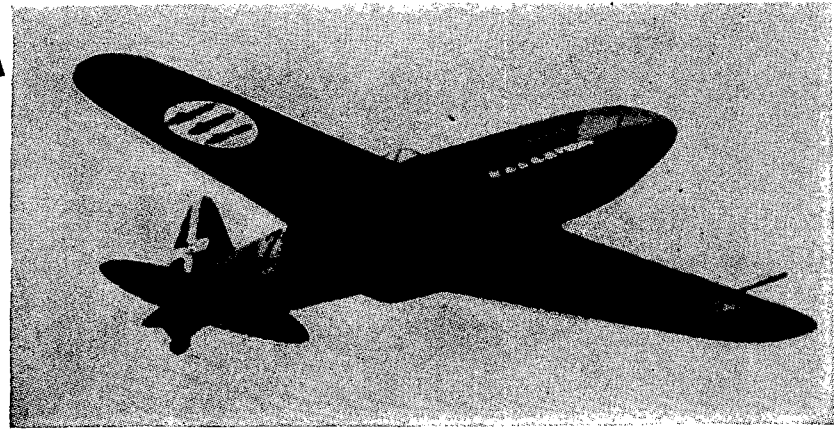

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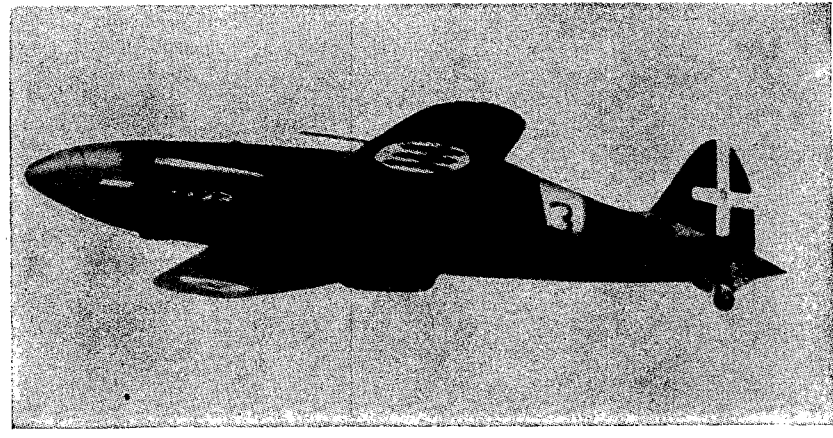

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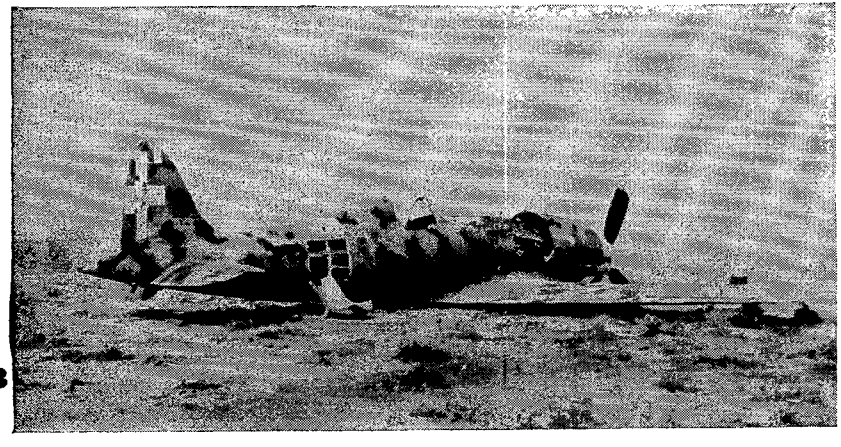

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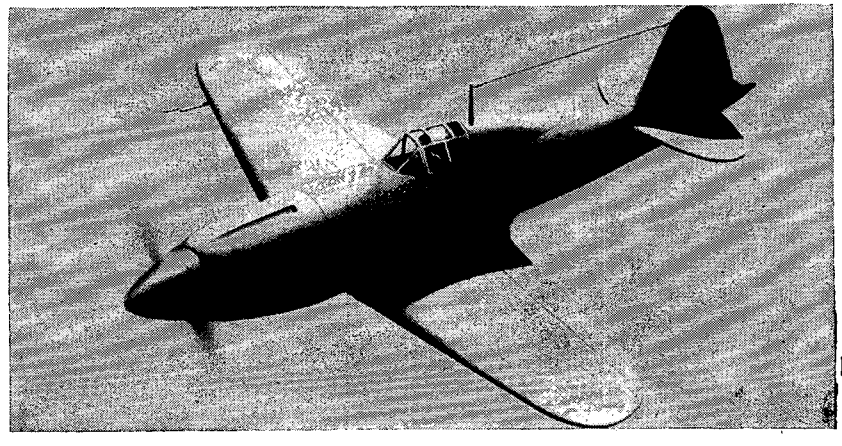
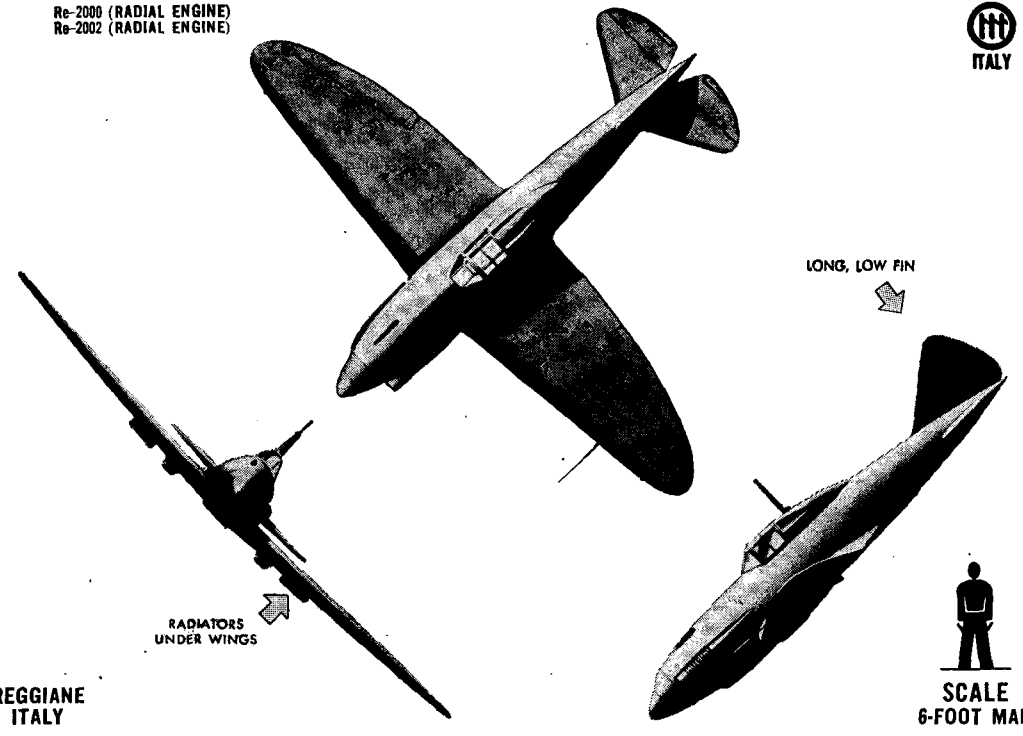


ITALY: Re-2001

Re-2000 (RADIAL ENGINE)
Re-2002 (RADIAL ENGINE)

FIGHTER

ITALY



REGGIANE
ITALY

SCALE
6-FOOT MAN

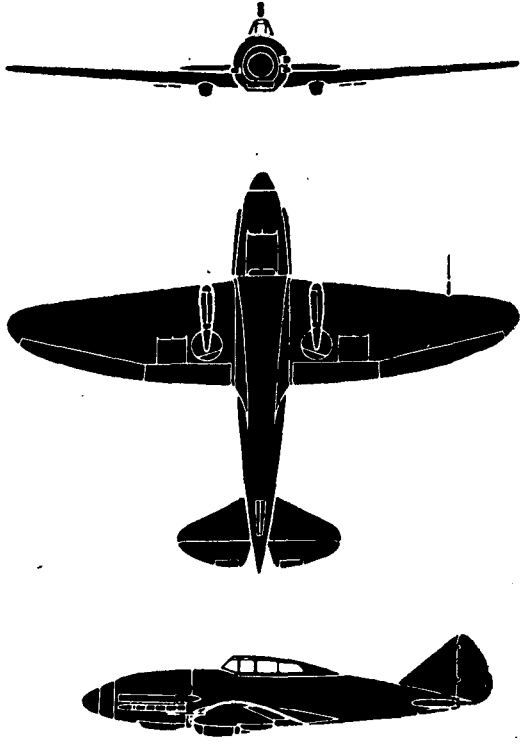
DISTINGUISHING FEATURES: Single in-line engine low-wing monoplane. Wing is elliptical with more curve on trailing edge. Long pointed nose and spinner. Torpedo-shaped fuselage. Prominent cockpit enclosure. Two radiators under wings. Prominent bulging fairings cover landing gear when retracted. Fin tapers backward. Rudder rounded.

INTEREST: Except for its in-line engine, this plane is similar to the Re. 2000 and Re. 2002, which have radial engines. It is one of Italy's best fighters and has frequently been active over Malta. Its armament consists of two synchronized 12.7 mm. guns over the engine and two 7.7 mm. guns in the wings. As with the Re. 2000, the air frame is thought to have been developed from the American Republic Lancer (P-43). Adapted as a fighter bomber, the Re. 2001 may carry an 1,100-lb. bomb under the fuselage. Bomb carriers suitable for dive release may be fitted under the wings. It is nicknamed "Falco II" (the "Falcon II").

APRIL 1943
FROM DATA CURRENTLY AVAILABLE

WAR DEPARTMENT FM 30-30
NAVY DEPARTMENT BUAER 3

REGGIANE "RE-2001"



SPAN: 36 ft.
LENGTH: 27 ft. 4 in.
MAX. EMERGENCY SPEED: 350 m. p. h. at 20,000 ft.
SERVICE CEILING: 34,000 ft. (normal load)

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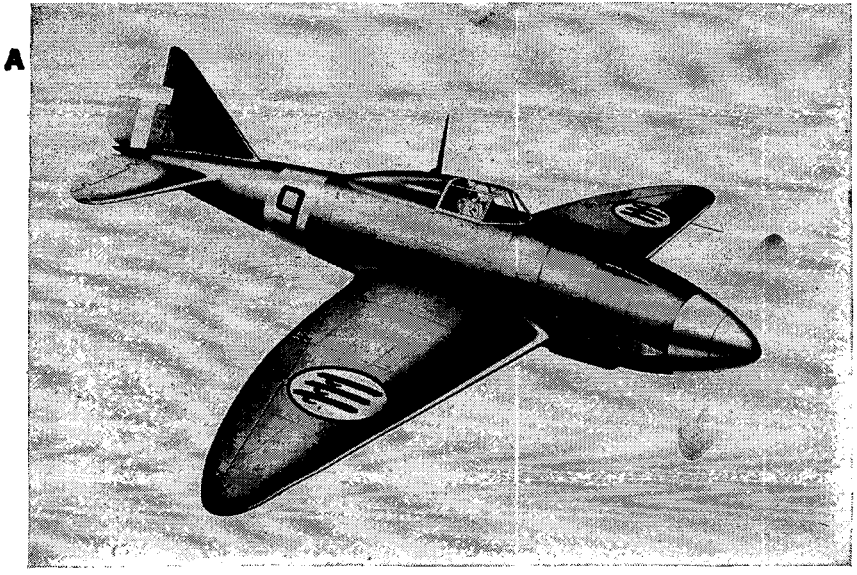

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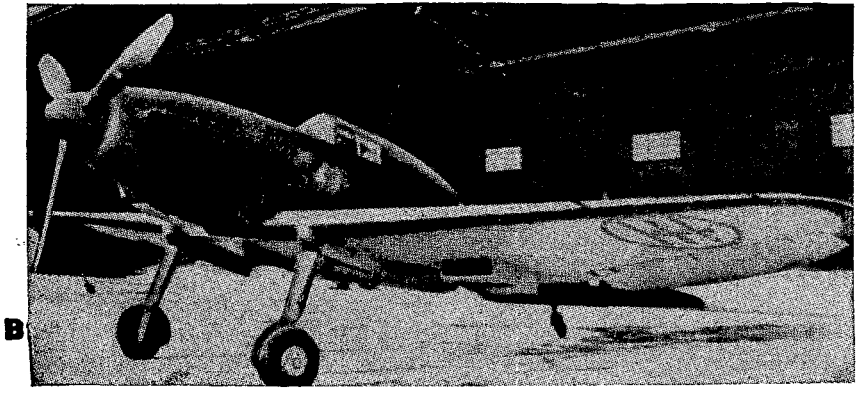

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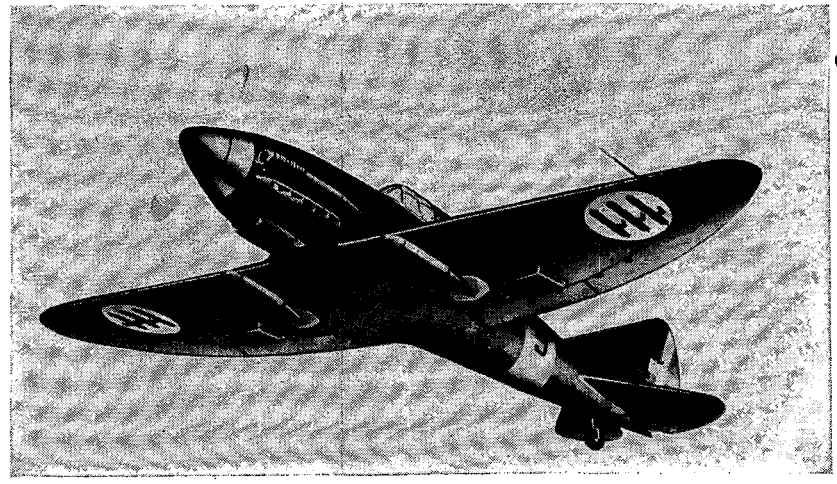

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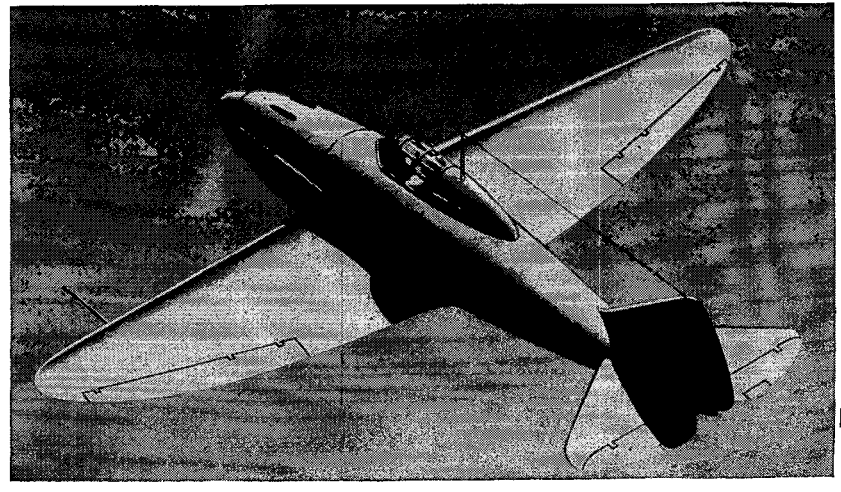
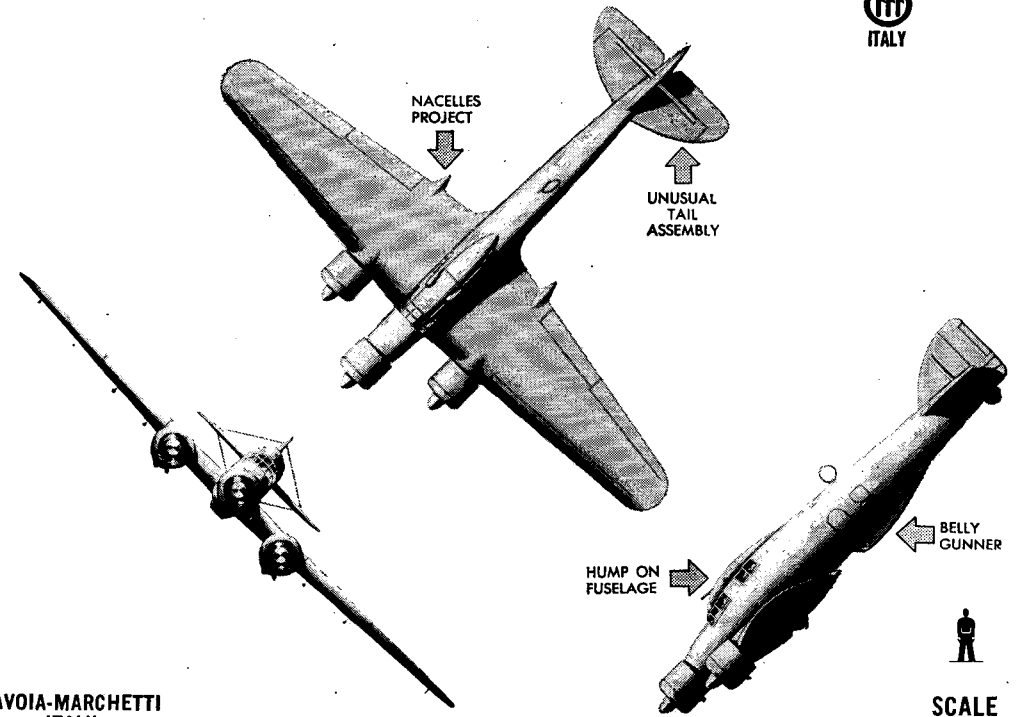


MEDIUM BOMBER—TRANSPORT

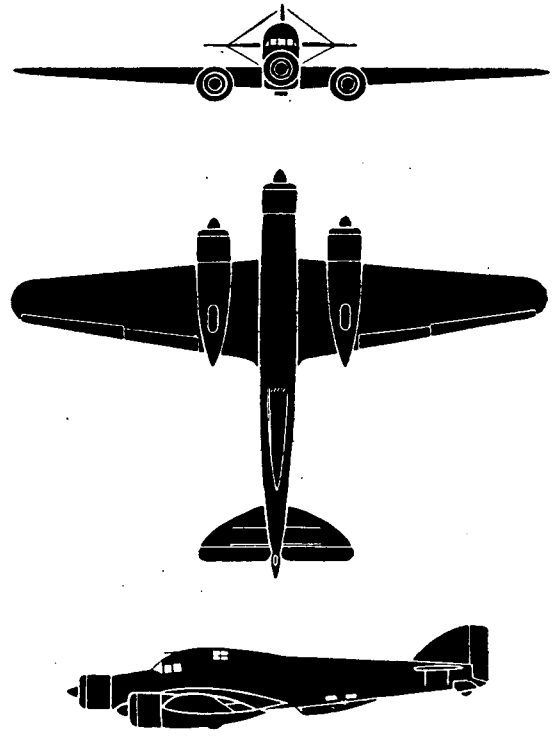
ITALY

SAVOIA-MARCHETTI "SM-79"



SAVOIA-MARCHETTI
ITALY

SCALE
6-FOOT MAN



DISTINGUISHING FEATURES: Three-engine, low-wing monoplane. Tapered wings with more pronounced taper on trailing edge. Fuselage is humped at cockpit and tapers backward toward a low fin. Large radial motors. Ventral gondola visible. Rudder has straight trailing edge.

INTEREST: This is Italy's standard long-range bomber and Mussolini has more squadrons of this type than of any other bomber. It has served in Spain, and has been very extensively used in Africa, Albania, and over the Mediterranean. It has been used for torpedo attacks and it is interesting to note that the Allies consider Italian Torpedo Squadrons to be the most efficient in the Italian Air Force. Their torpedoes are believed to be superior to those of the Germans.

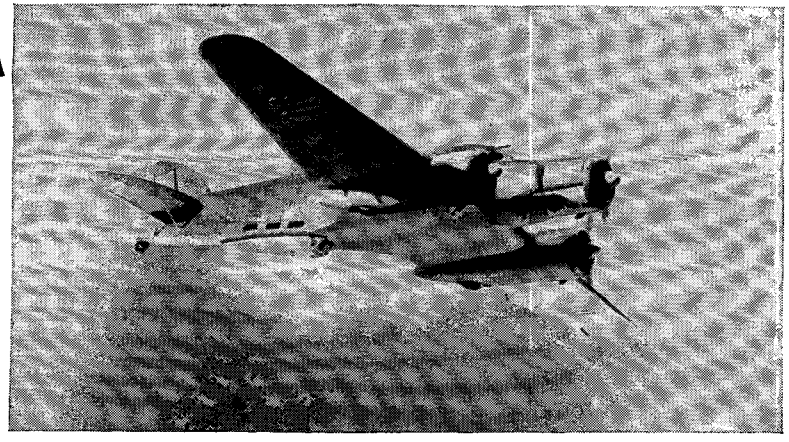
SPAN: 69 ft. 6 in.
LENGTH: 54 ft. 6 in.
MAX. EMERGENCY SPEED: 255 m. p. h. at 12,500 ft.
SERVICE CEILING: 23,000 ft. (normal load)

APRIL 1943
FROM DATA CURRENTLY AVAILABLE

WAR DEPARTMENT FM 30–30
NAVY DEPARTMENT BUAER 3

RESTRICTED

A



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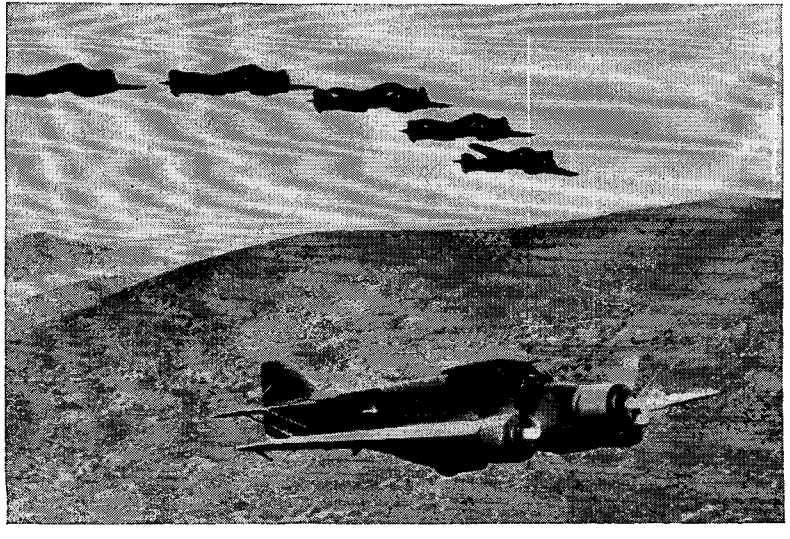

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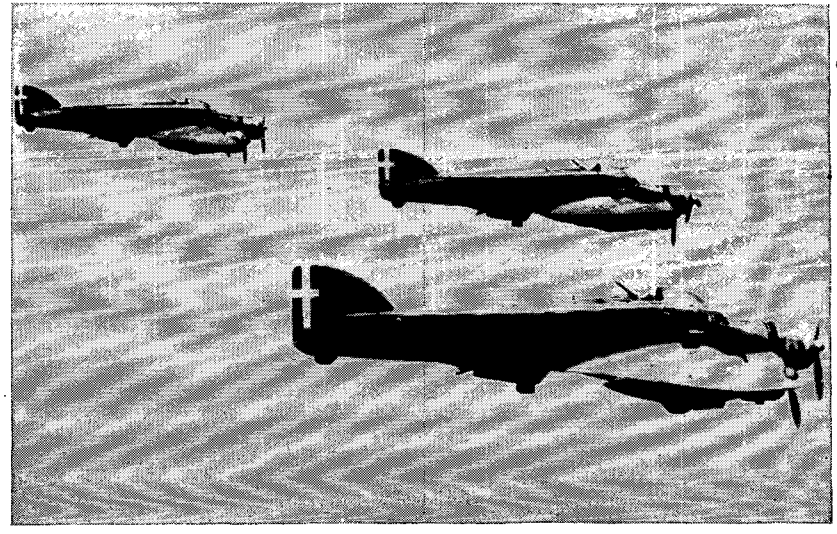

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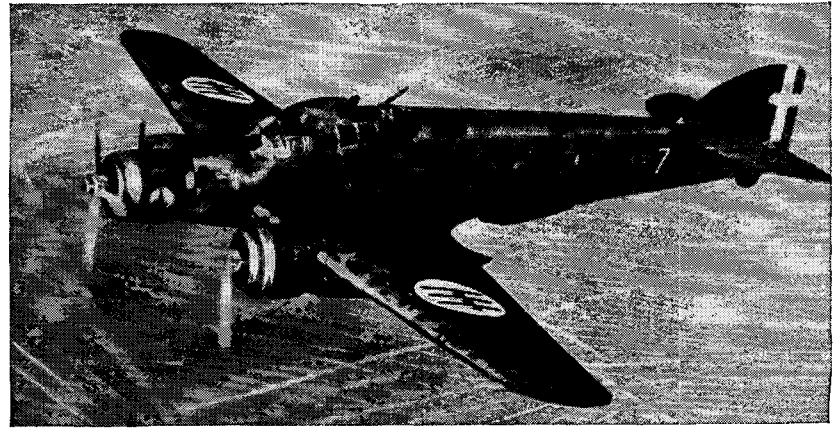
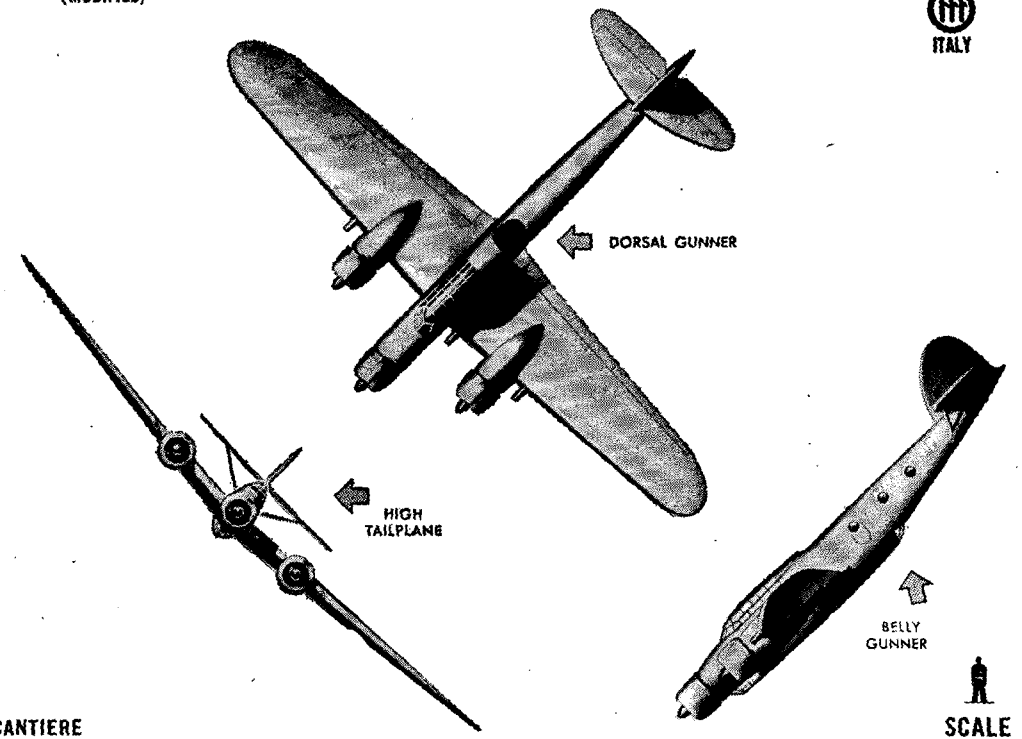


ITALY: CANT. Z-1007 bis
Cant. Z-1007 bis
(MODIFIED)

MEDIUM BOMBER

ITALY



CANTIERE
ITALY

SCALE
6-FOOT MAN

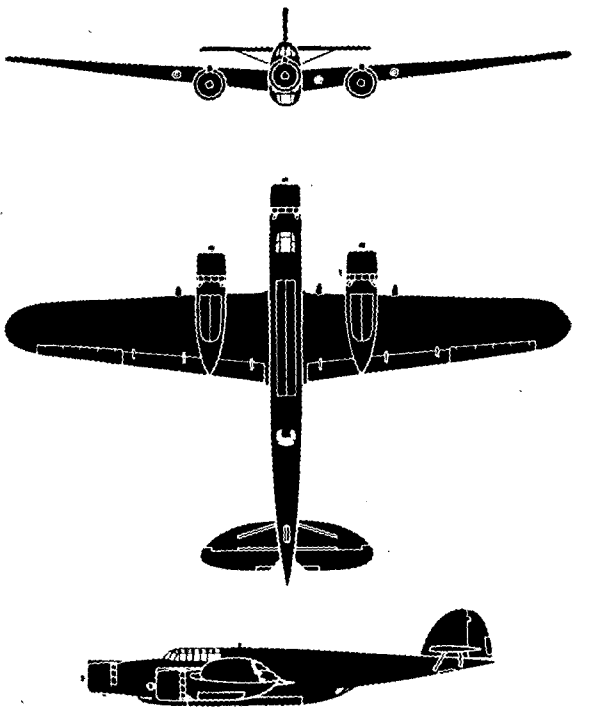
DISTINGUISHING FEATURES: Low-wing monoplane with three (3) radial engines. Wings have moderate taper and dihedral. Deep fuselage with raised cabin and bulging bomb aimer's position, bomb bay, and rear ventral gun position. Large curved fin and rudder. Strut braced, elliptical stabilizer and elevator. Later modified version has unbraced twin fins and rudders placed outboard (Photo C).

INTEREST: The "Alcione" ("Kingfisher"), as this airplane is called, is one of Italy's best bombers and has been used in every theater of operations in which Italian planes appear. It is constructed of nonstrategic materials such as wood and plywood skin. Its wings are made of plywood, covered with fabric. It will, in all probability, replace the older SM 79. It is believed that it may carry a torpedo stowed internally.

APRIL 1943
FROM DATA CURRENTLY AVAILABLE

WAR DEPARTMENT FM 30-30
NAVY DEPARTMENT BUAER 3

CANT. "Z-1007"

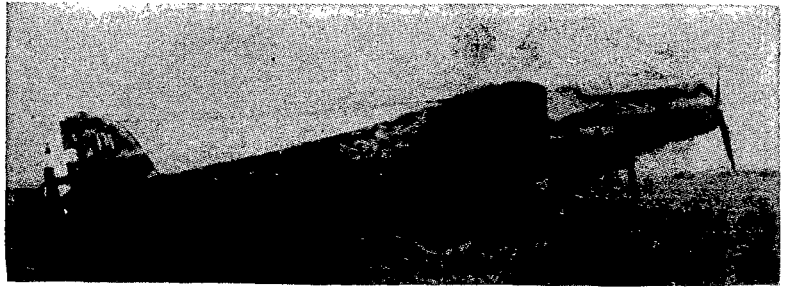


SPAN: 81 ft. 10 in.
LENGTH: 61 ft. 3 in.
MAX. EMERGENCY SPEED: 280 m. p. h. at 15,000 ft.
SERVICE CEILING: 26,500 ft. (normal load)

RESTRICTED

A

B



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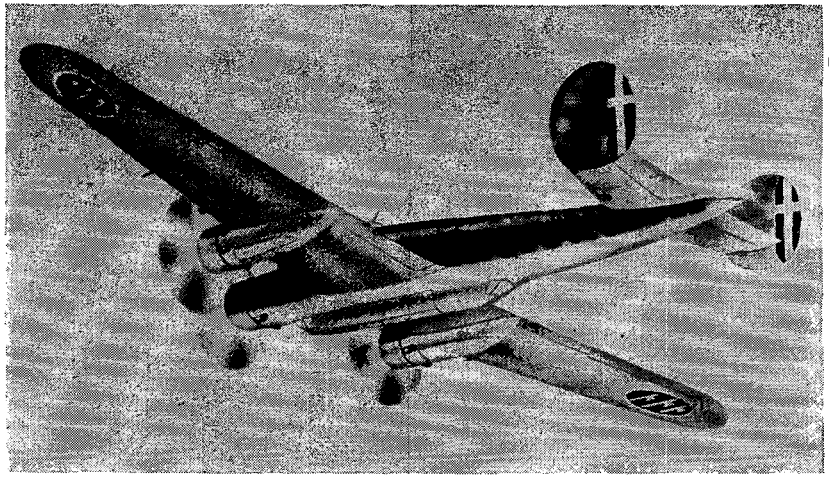

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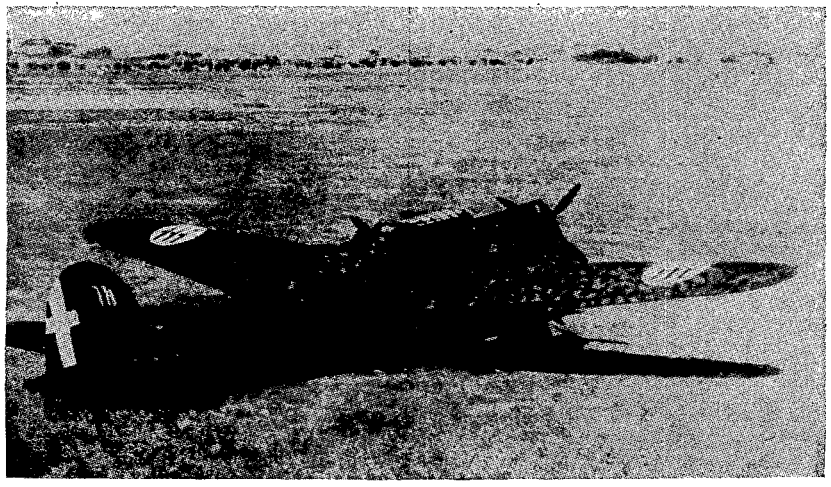
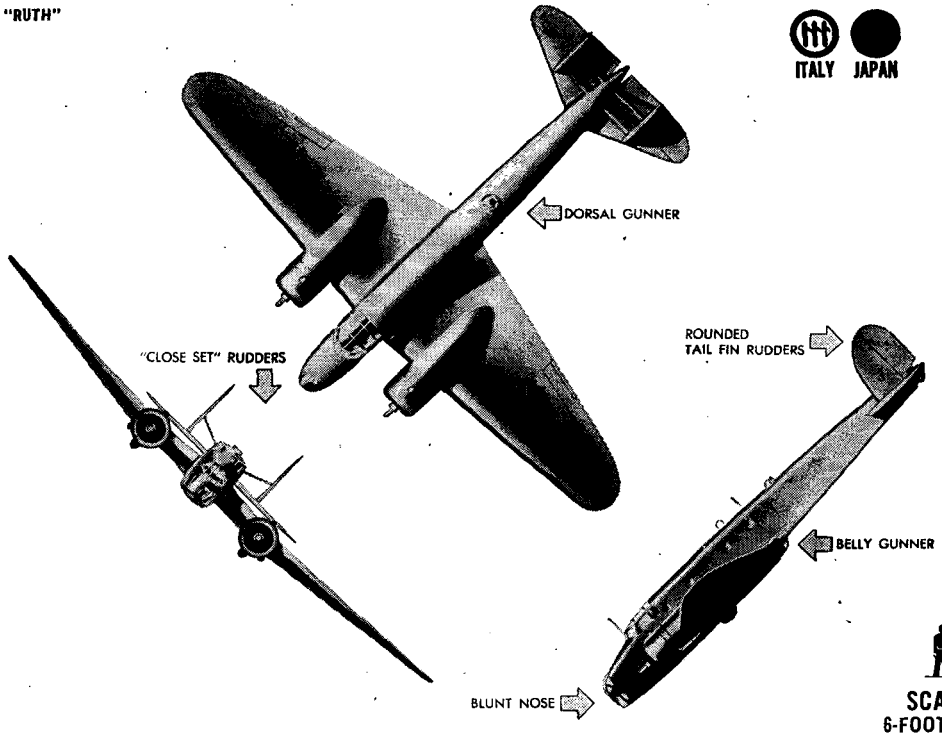


ITALY: FIAT BR-20
JAPAN: "RUTH"

MEDIUM BOMBER—TRANSPORT

ITALY JAPAN



FIAT
ITALY

SCALE
6-FOOT MAN

DISTINGUISHING FEATURES: Twin radial engine, mid-wing monoplane. Wings have moderate dihedral and extreme taper on trailing edge. Tapered fuselage houses dorsal turret and semiretractable ventral gun mounting. Elliptical strut-braced twin fins and rudders set inboard. Stabilizer and elevator have tapered leading edge and straight trailing edge.

INTEREST: The Br-20 is of all-metal construction. The fuselage aft of the wings is built of welded steel tubing with fabric covering. The forward part of the fuselage is of light metal construction. In November 1940, a flight of these bombers made one disastrous sortie against England from Belgian bases. It was never tried again. Its normal crew is five and it carries a maximum load of 3,500 lbs. of bombs for a range of 1,500 miles. In Italy it is known as the "Cicogna" which means "Stork." The Japanese bought a number of these bombers before the war, some of which have recently been reported in operational use.

APRIL 1943
FROM DATA CURRENTLY AVAILABLE

WAR DEPARTMENT FM 30-30
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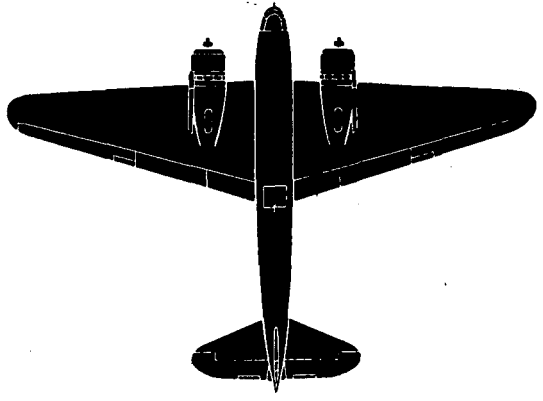
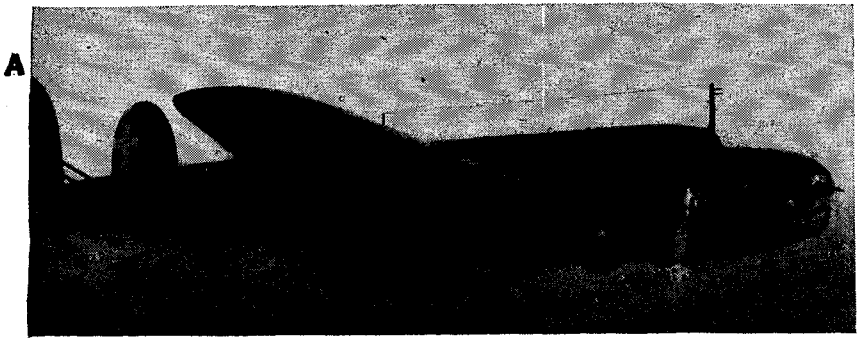
FIAT "BR-20"



SPAN: 70 ft. 6 in.
LENGTH: 52 ft. 10 in.
MAX. SPEED: 255 m. p. h. at 13,500 ft.
SERVICE CEILING: 25,000 ft. (normal load)

A



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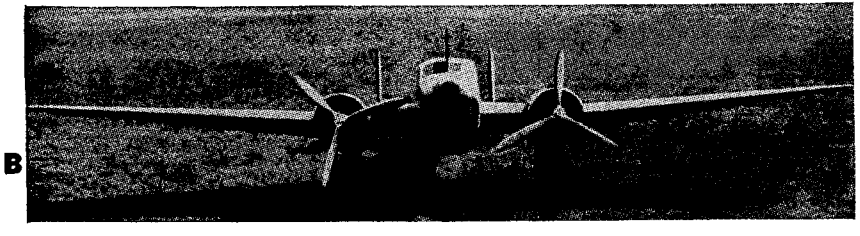

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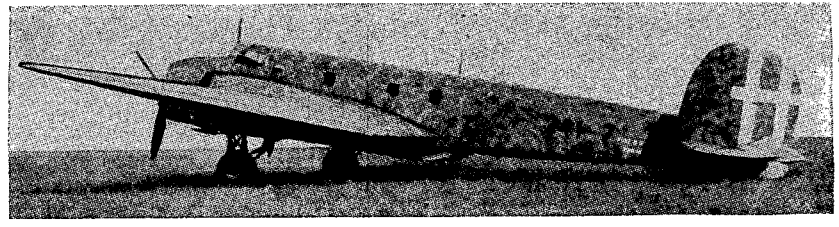

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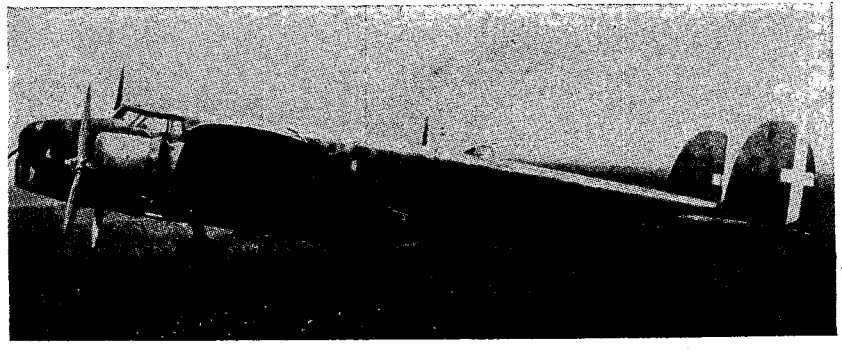

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