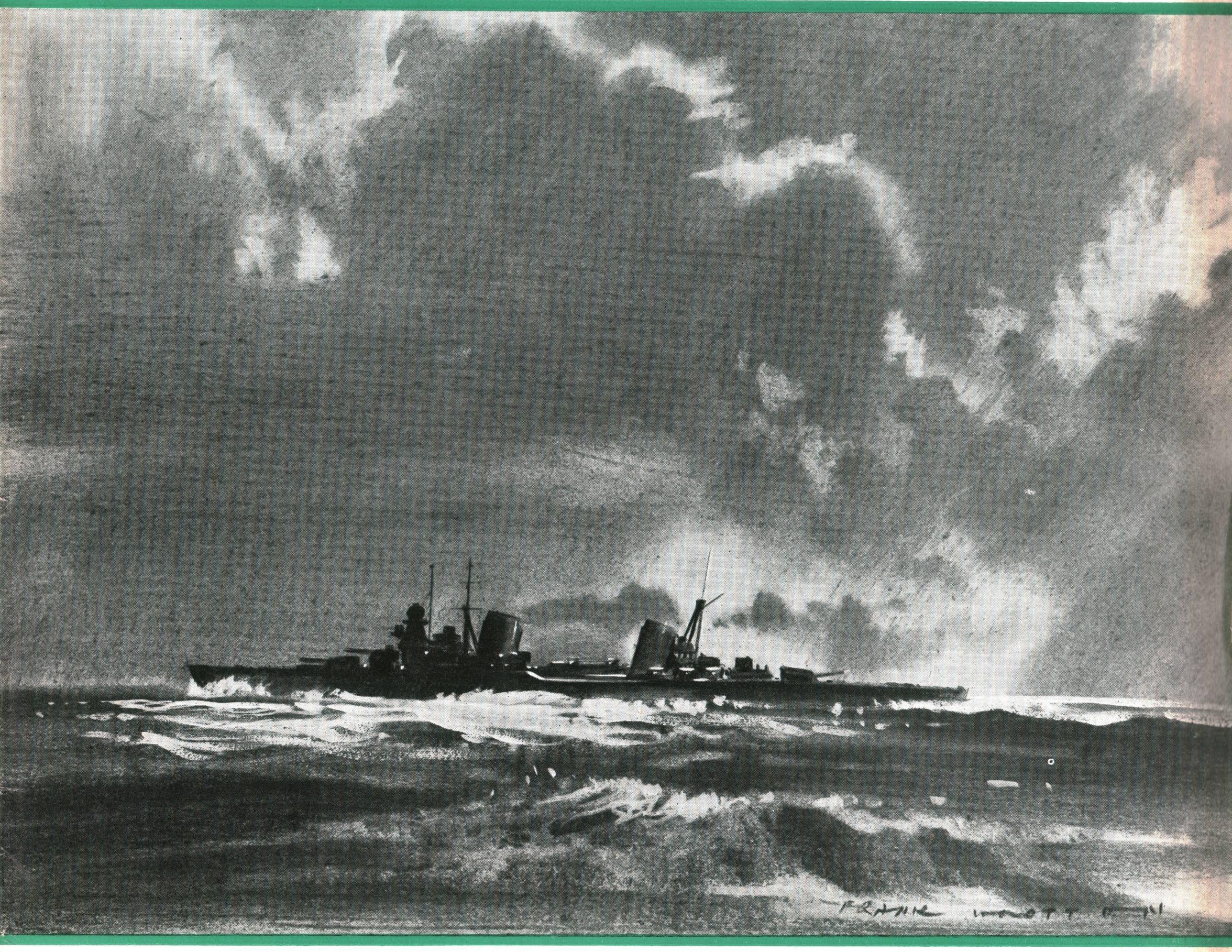
JOINT SERVICES

RECOGNITION *Journal*



Vol. 6 DECEMBER 1951 No. 12

SAVAGE AFLOAT

A view of the North American AJ-1 Savage on the ship's side lift of the U.S.S. MIDWAY, one of the largest aircraft carriers afloat today.

DECEMBER 1951 Vol. 6. No. 12

JOINT SERVICES

RECOGNITION JOURNAL

The *Joint Services Recognition Journal* is a monthly publication prepared and produced by the Assistant Chief of Air Staff (Training), Air Ministry, in collaboration with the Ministry of Supply—Controller of Supplies (Air)—Air Technical Publications. Contributions and correspondence should be addressed to the Editor, *Joint Services Recognition Journal*, Air Ministry, Room 213, Metropole Buildings, Northumberland Avenue, W.C.2.

GOOD LUCK!

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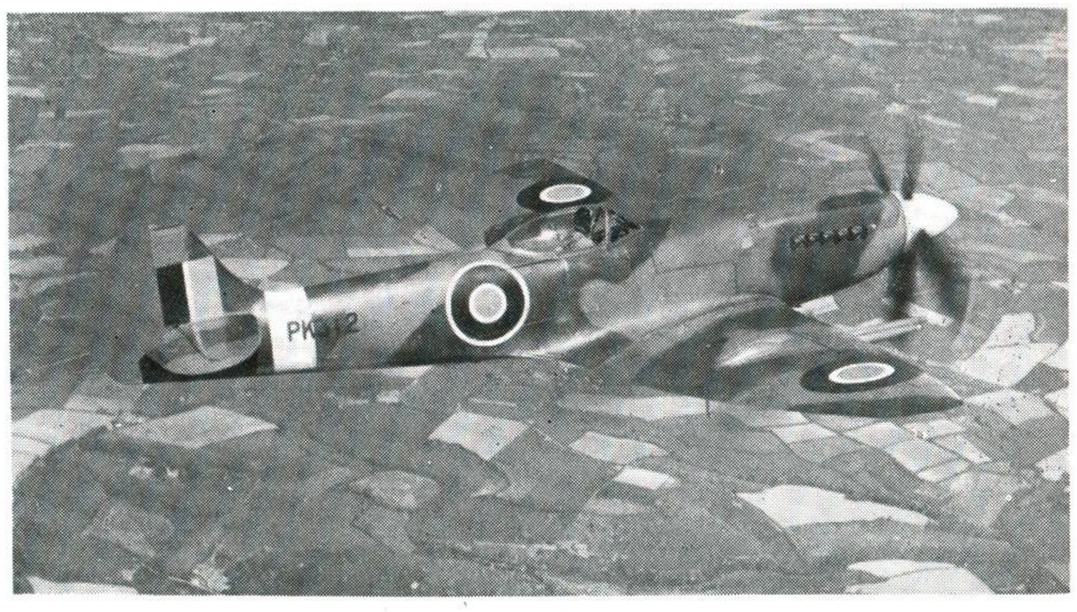
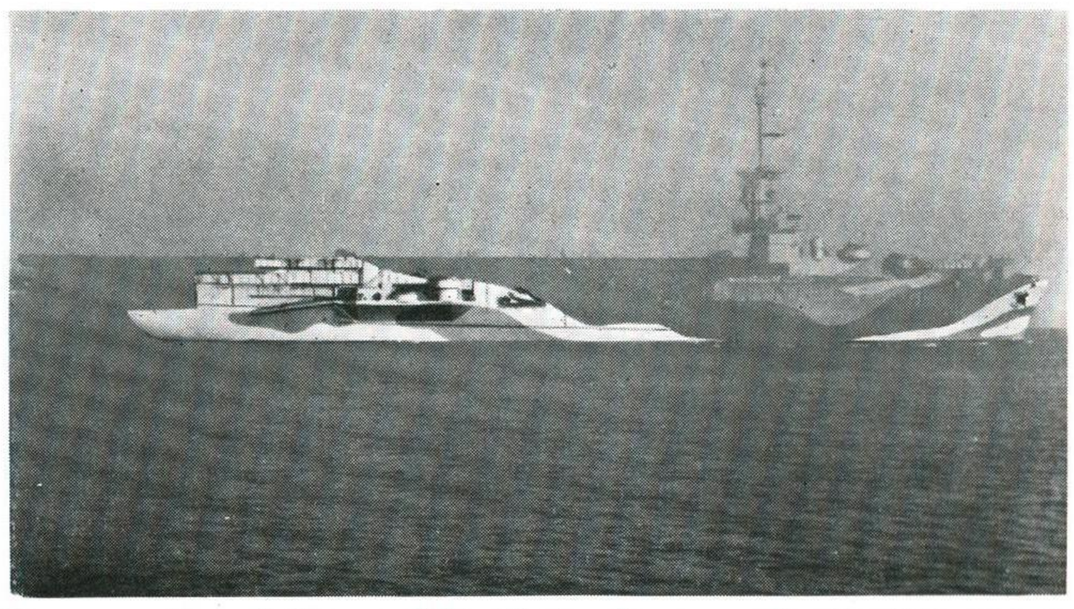
DISGUISES

TO DISGUISE, according to Webster, is " to hide or obscure the true nature or character of, by altering appearance or distinguishing quality ". The infinite variety of views, aspects and circumstances in which an object such as a ship, tank or aeroplane may present itself, can be conveniently and collectively considered as " disguises ". Such " disguises " are numerous—and compounds of them multitudinous—but they fall into two main categories. There is the man-made variety of disruptive colouring, covering and marking ; and there are those provided by nature which include the effects of lighting, distance, visibility, etc. The spotter, in order to recognize his target, has frequently to pierce complex combinations of them all, and a little thought on the subject, may pay dividends in recognition training.

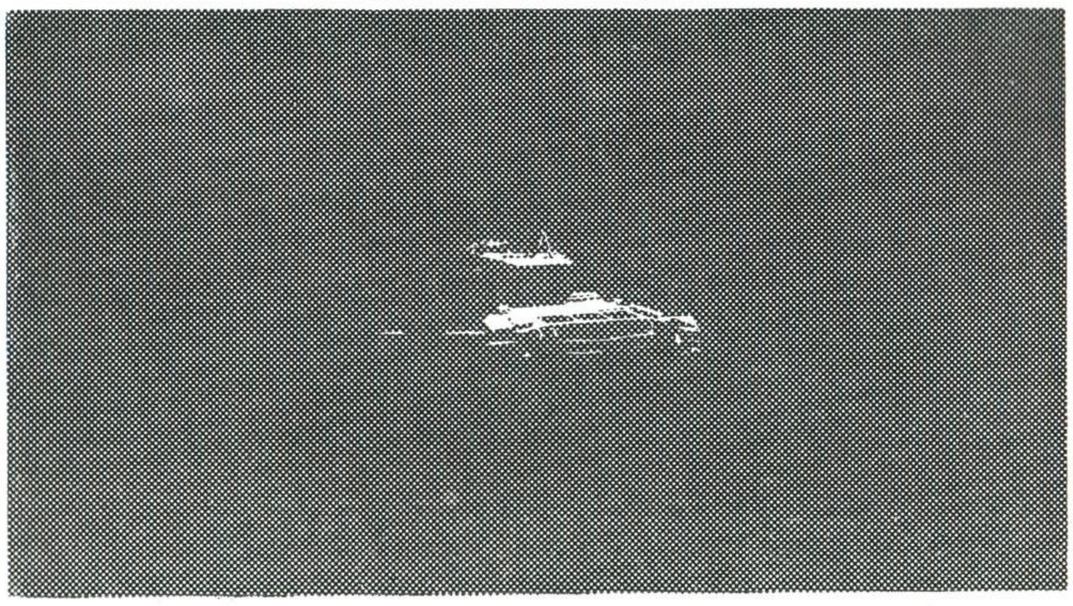
There is no need to become confused by contemplating the numbers of possible " disguises " which even a small range of objects can present. The aim in recognition training should be to know the object. If the object is known, then, in whatever circumstances it presents itself, provided it presents evidence of its shape, it will be recognized. Though recognition training provides practice in piercing " disguises ", the aim is always to *see through* the " disguise " and to identify the object, rather than to learn the disguises.

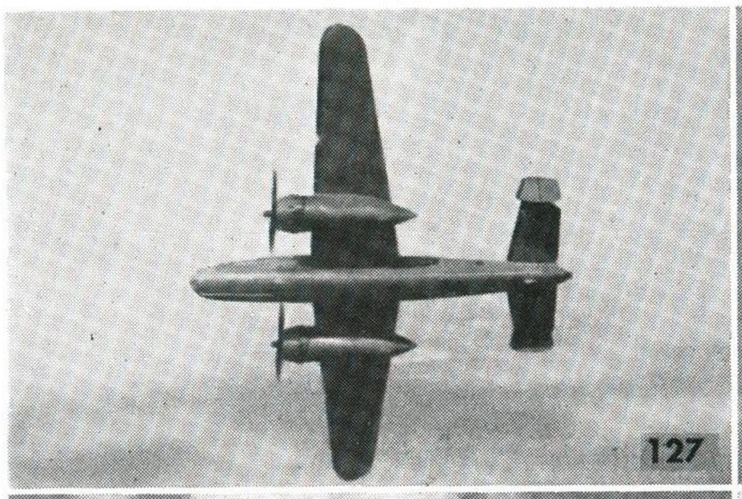
Many of the presentations appearing in the *Journal* are designed to provide exercises in piercing " disguises " and on page 280 we present a new feature in this line entitled : " Exercise Flashback ". We shall look forward to readers' reactions to it and welcome the views of instructors.





Two examples of the possible effects of man-made disguises on : a Casablanca Class escort Carrier and a Spitfire F. Mk. 22 ; also a simplified example of the possible effects of the natural disguise of haze and sunlight on a Chaffee tank.

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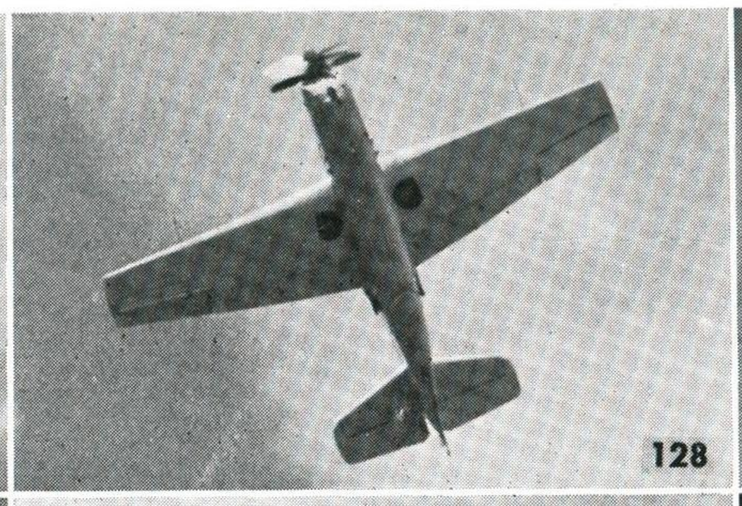
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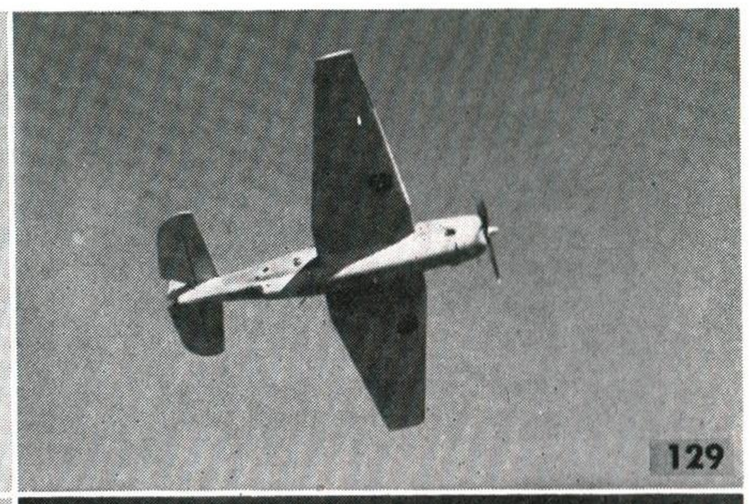
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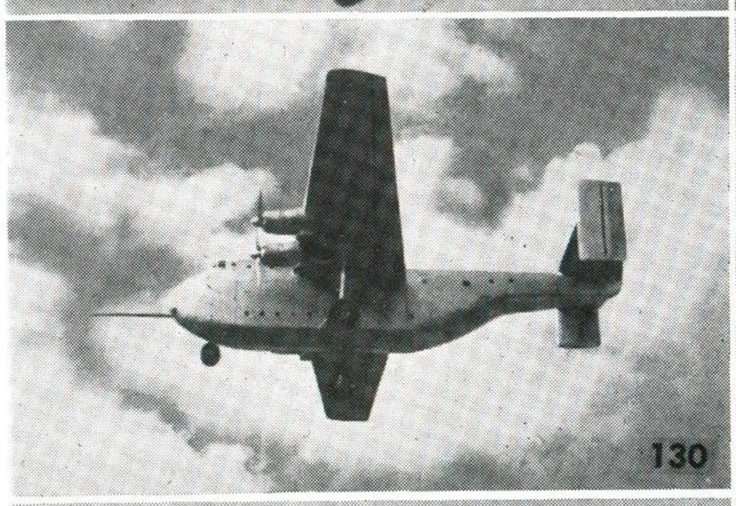
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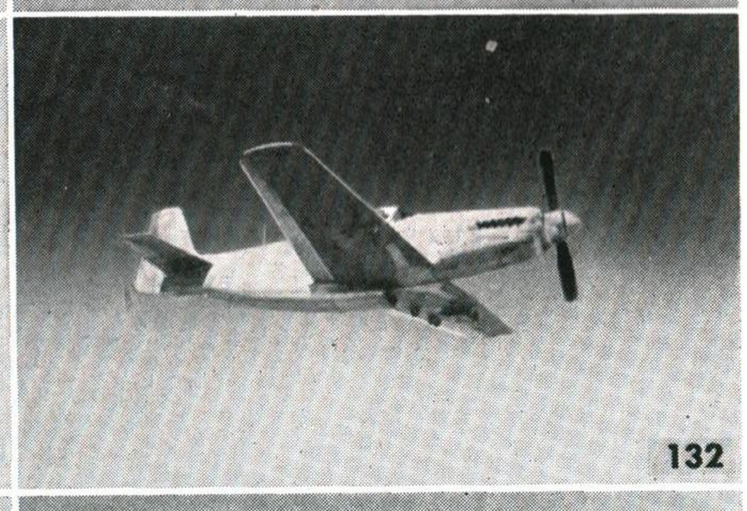
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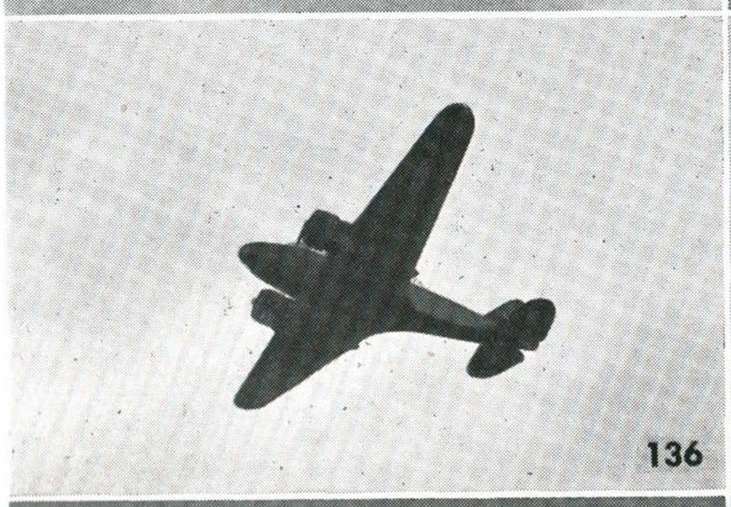
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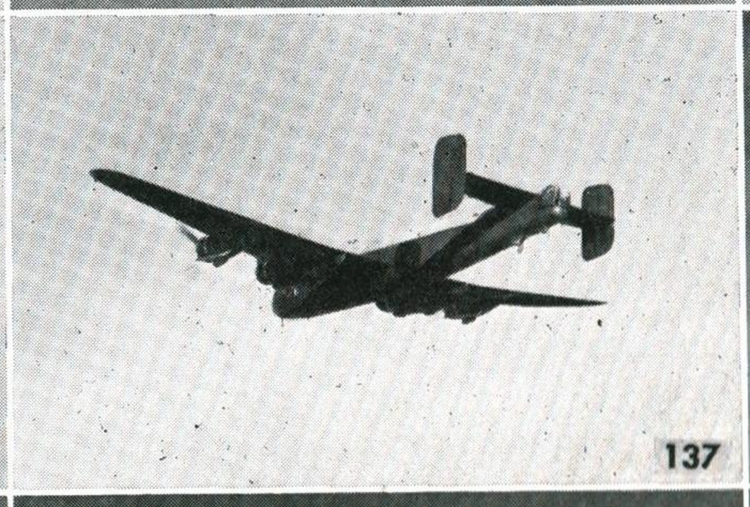
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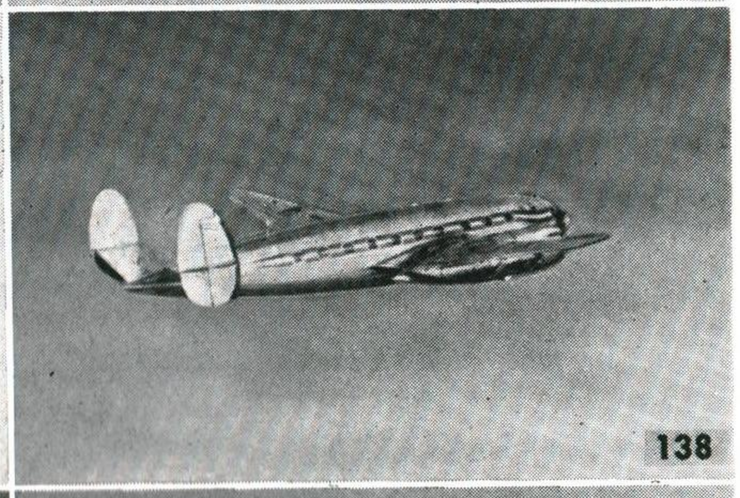
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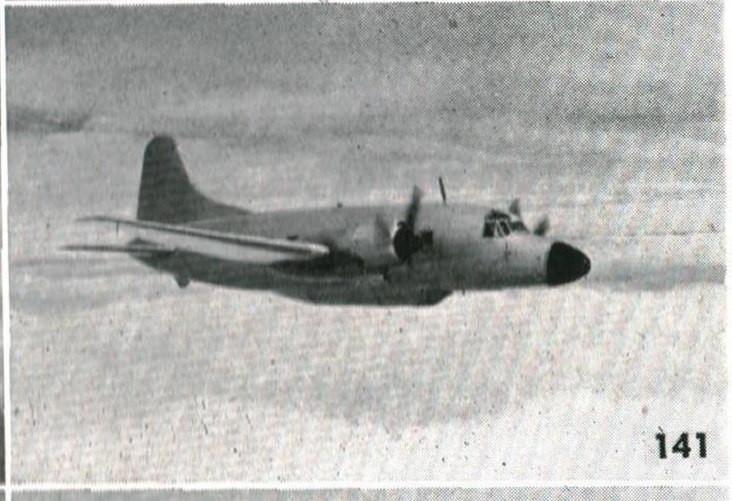
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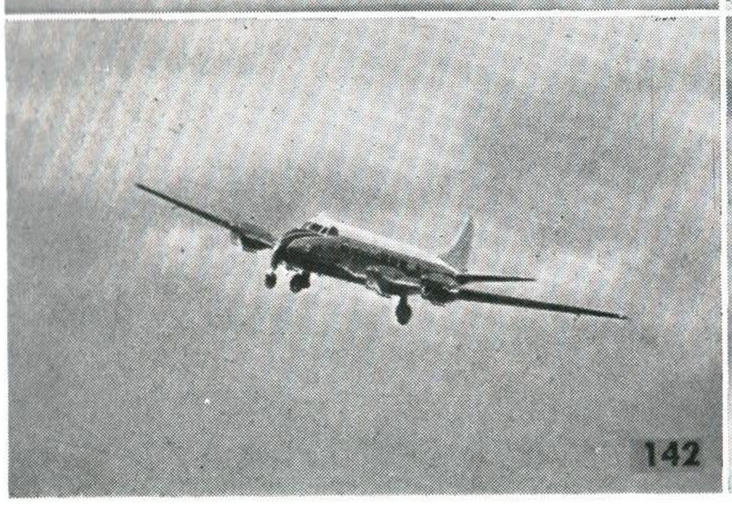
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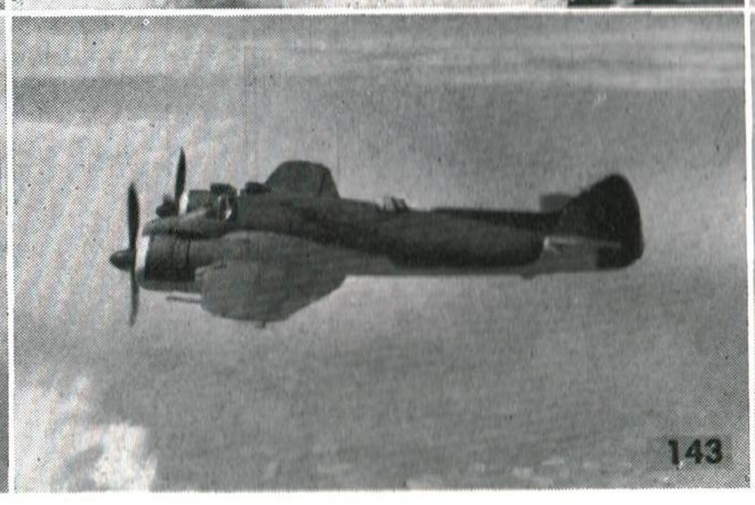
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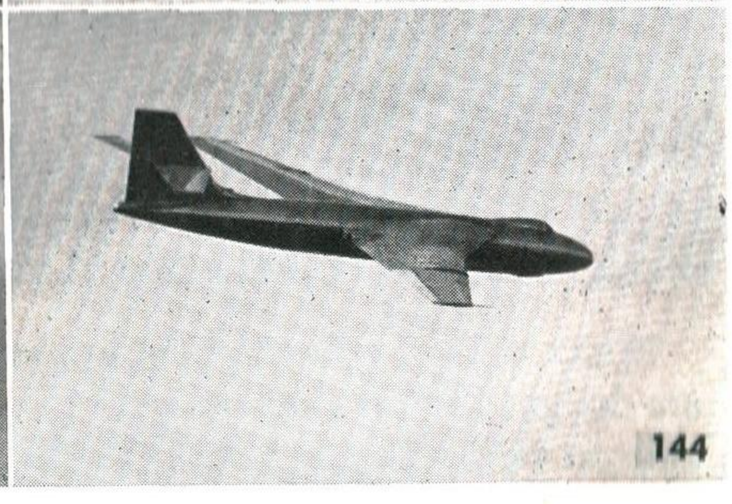
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Character Study

WESTLAND WYVERN

THE WESTLAND WYVERN is both nose and tail dominated, and has an optically balanced fuselage on which the cockpit canopy sits nicely over the centre section. Most of the character of the aircraft lies in the fuselage. It tapers fore-and-aft to about the same degree, has a central hillock crowned—as we have said—by the cockpit ; and, in plan, a gracefully tapered shape from nose to tail. The nose is especially full of character with its smooth barrel effect from which emerges the huge bullet shape of the contra-rotating propeller hubs. Smooth everywhere, with clean curved lines, it merges neatly with the great upstanding fin and rudder. The black jet exits, sprouting beneath the cockpit and almost on the wing roots form an interesting but generally invisible feature. The underline is a shallow curve from stem to stern.

The fin and rudder, optically oversized for so small an aircraft, is a very noteworthy combination. The line sweeps steeply up in a straight line to a sharp rounded peak and falls away in a steep bowing curve to the trim stern. These lines give an overall triangular feel to the fin and rudder combine. The large (dihedral) tail-plane echoes the fin and rudder, with its taper, straight on leading edge, curved on trailing edge. But the tips are more fulsome.

The wings are rather nondescript affairs, again echoing the straight leading edge and curved trailing edge " motif ". The horizontal centre section, with slight equi-taper and a thinning upper surface from thick roots, gives place to outer panels with considerable dihedral and bluntish tips. Seen from certain angles the Wyvern has an inverted gull-wing look.

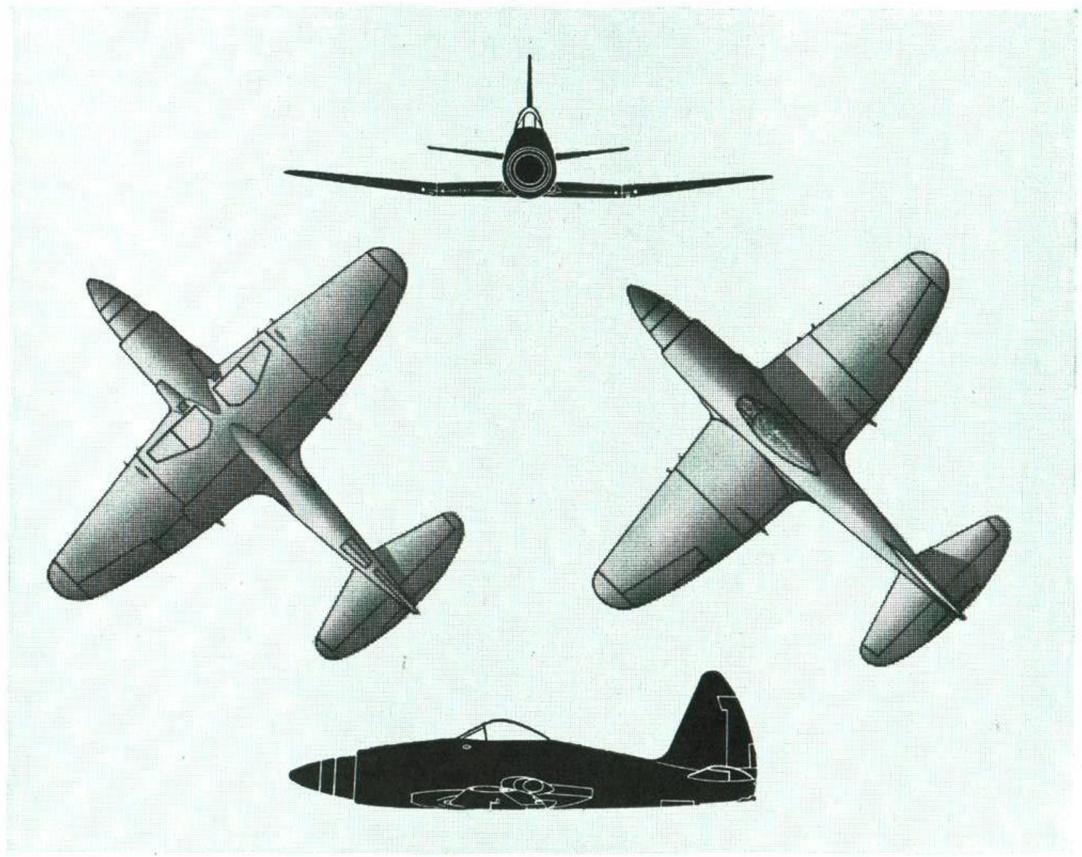
The Wyvern is a handsome machine with its typical swelled fuselage amidships, and its noteworthy proboscis: and it manages to assume a somewhat eager look. Its name, by the way, is a variant of the WIVERN, pronounced always with a long i or y. The Wivern, in Heraldry, is a " fabulous two-legged winged creature, like a cockatrice, but having a dragon's head ".

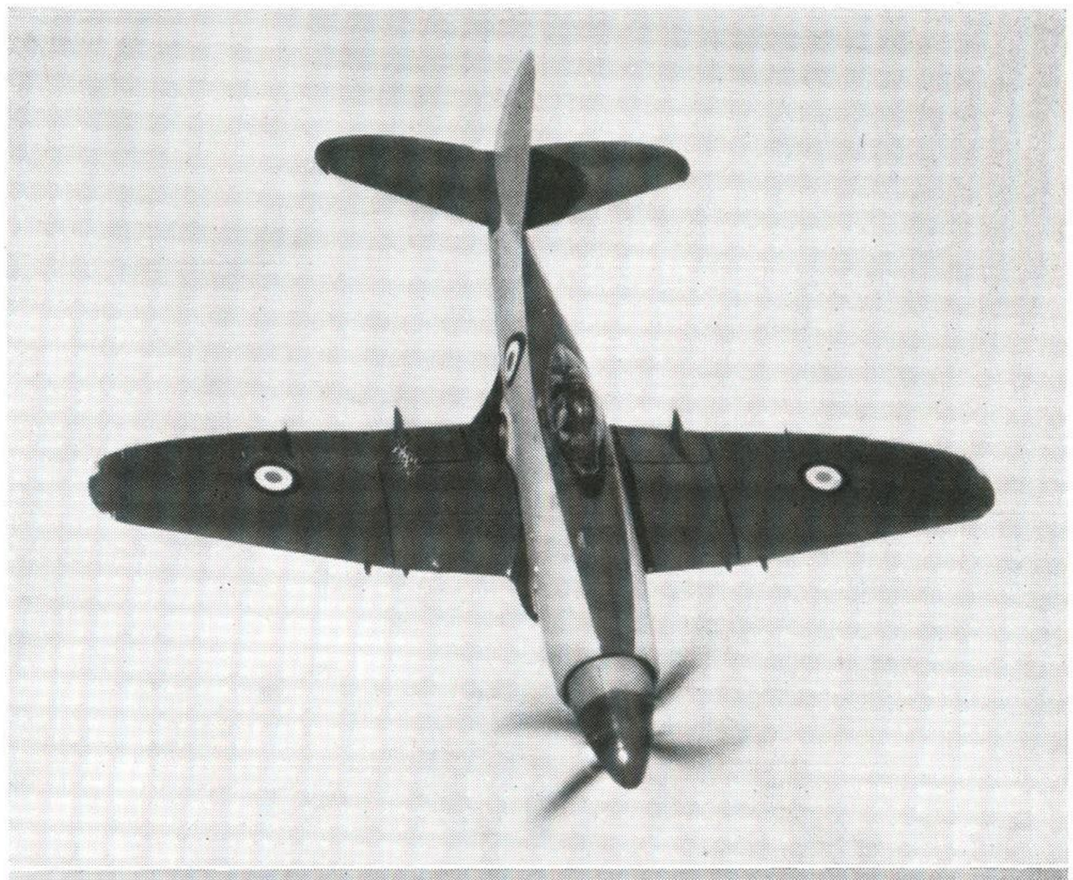
The Wyvern (Python) first flew in 1949 and is at present undergoing trials for the Royal Navy.

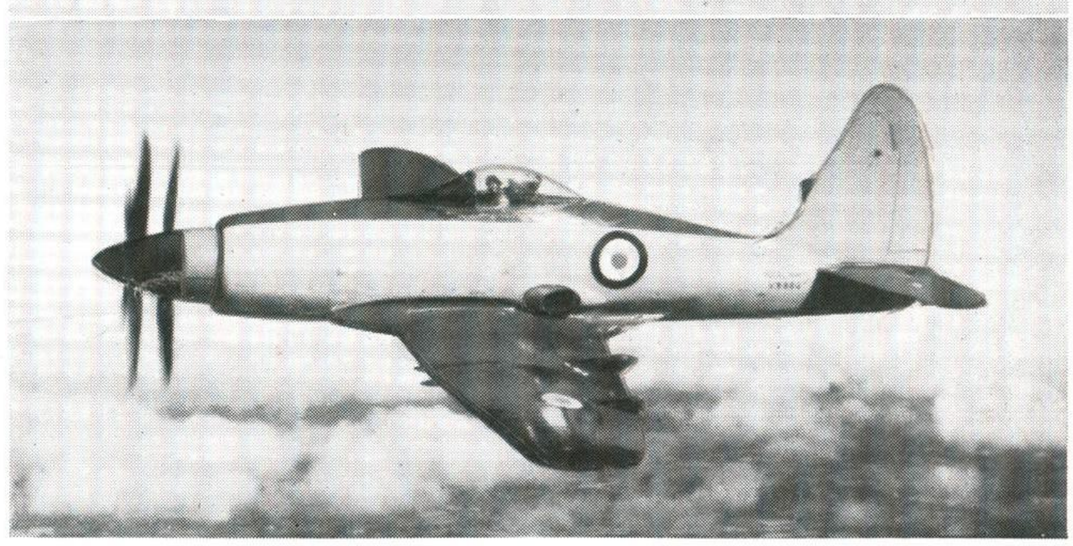
Principal data are :

Span : 44 ft.
Length : 42 ft.
Engine : Armstrong Siddeley Python.
Maker : Westland.
Function : Single-seat torpedo strike fighter.
Armament : Four 20 mm. in wings ; various combinations of rockets and tanks in addition to central torpedo.

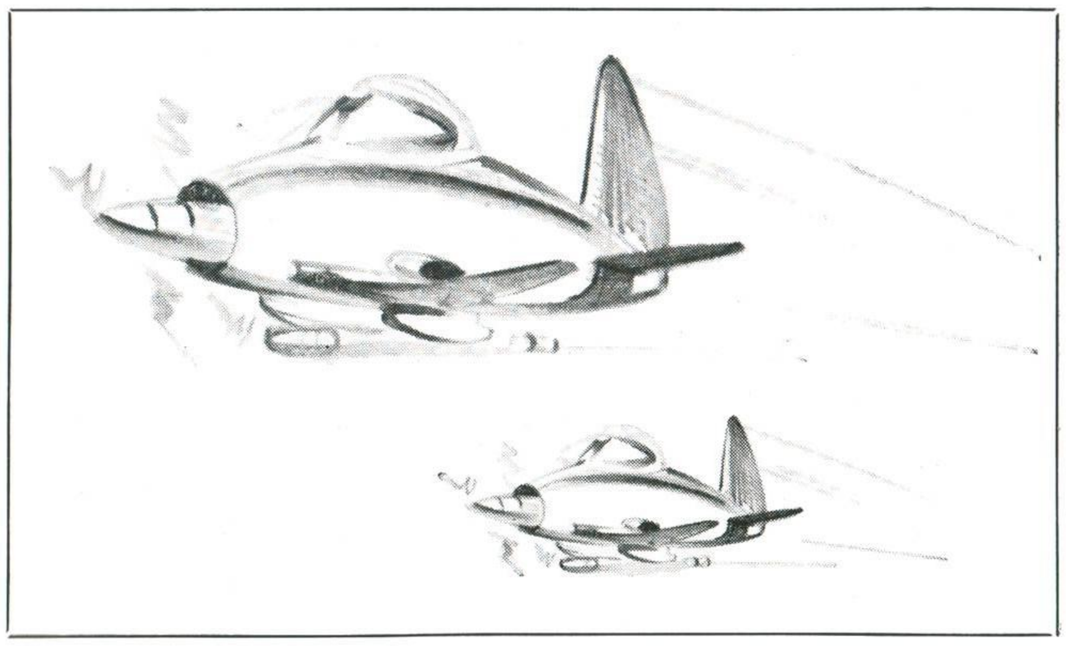
C. H. GIBBS-SMITH



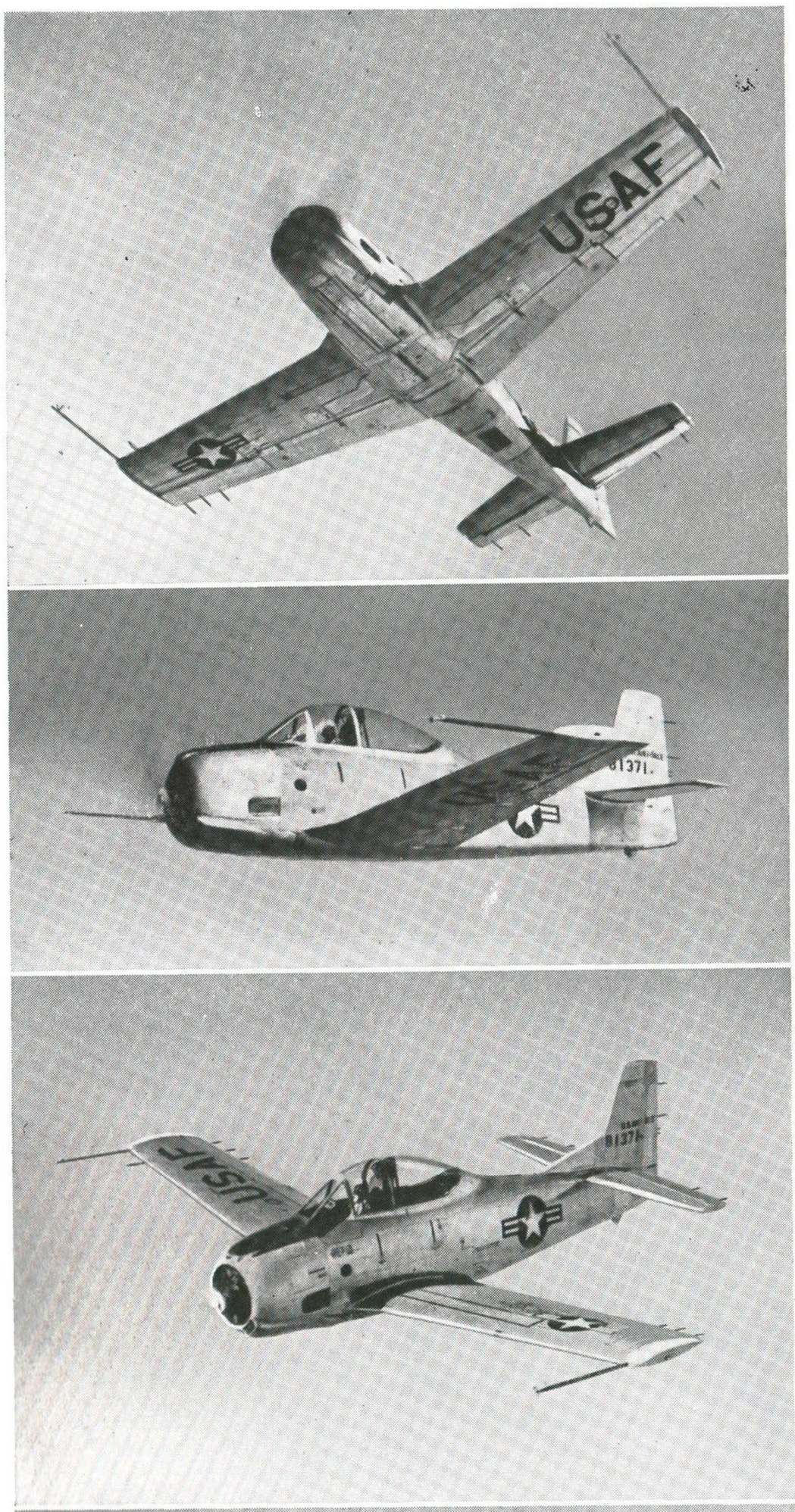




. . . central hillocks . .



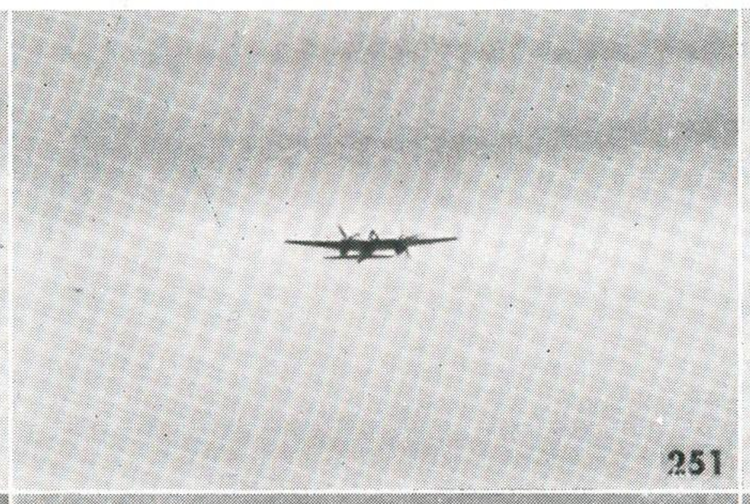
NORTH AMERICAN T-28 IN SERVICE



THE NORTH AMERICAN T-28 inherits many visual characteristics of other North American designs in its straight-tapered, blunt-tipped wing and the large span tail-plane set in advance of the angular fin and rudder and fin fairing. It has the air of a "baby" Harvard—which is not surprising considering its parentage. In general the T-28 is a chubby, thickset aeroplane with a snub-nose and a large "blown" cockpit canopy sitting far forward. The T-28 first flew in 1949 and is the first American trainer to have a tricycle undercarriage. It is designed to prepare pilots for jet aircraft and it has a top speed of 292 m.p.h. There are about 270 T-28As on order for the U.S.A.F., some of which are already in service.

Span : 40 feet **Length : 32 feet**

250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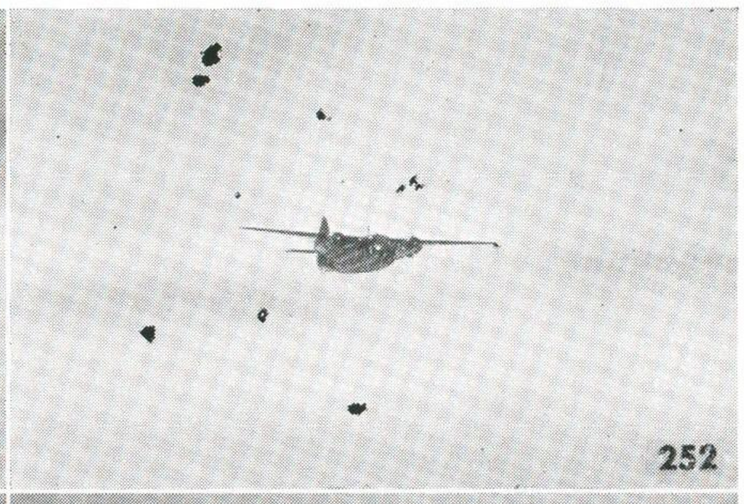
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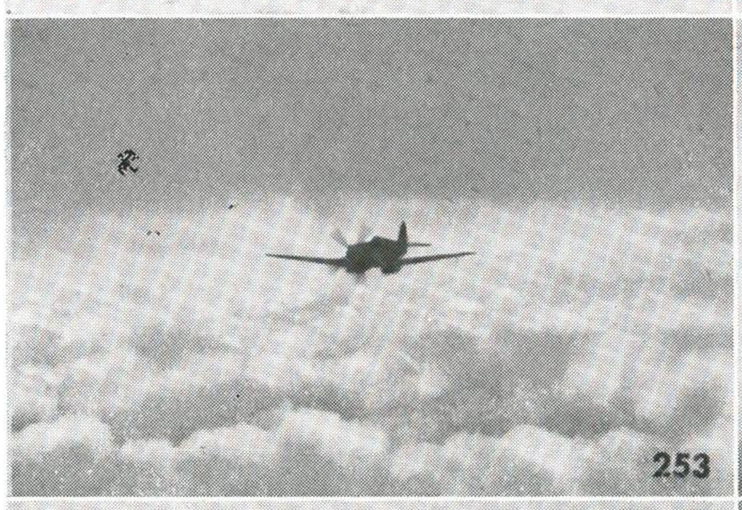
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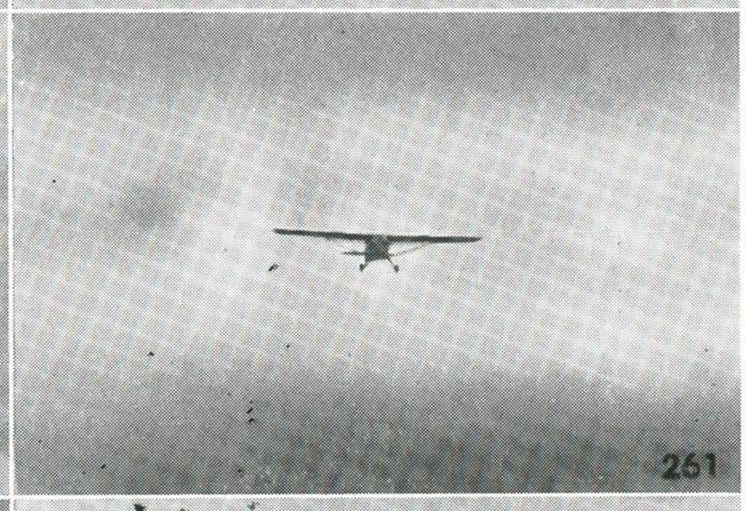
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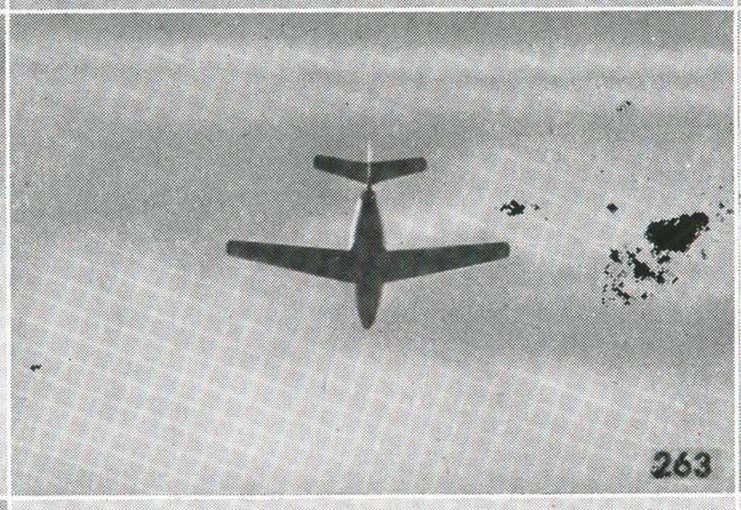
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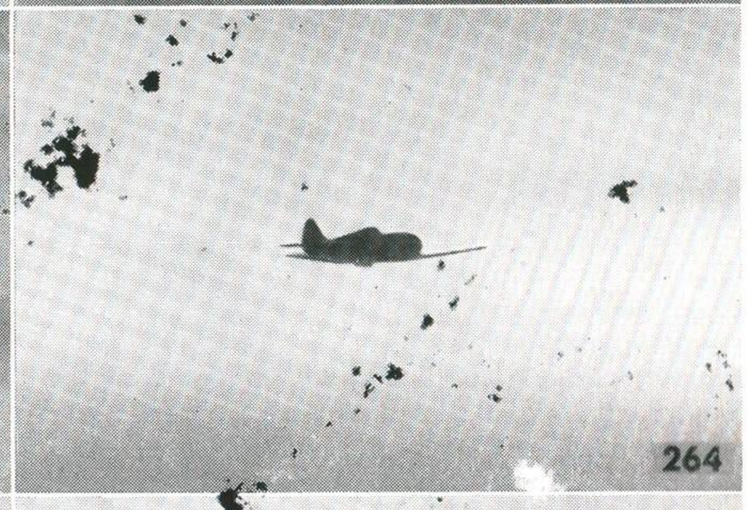
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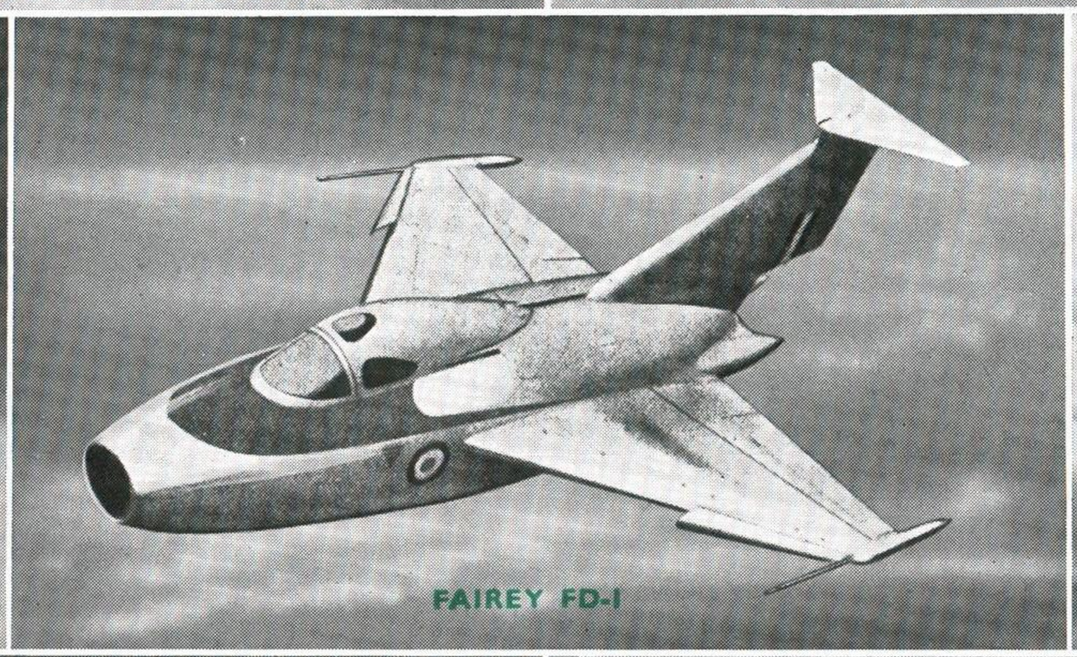
DELTA wings

BOULTON PAUL P. 111

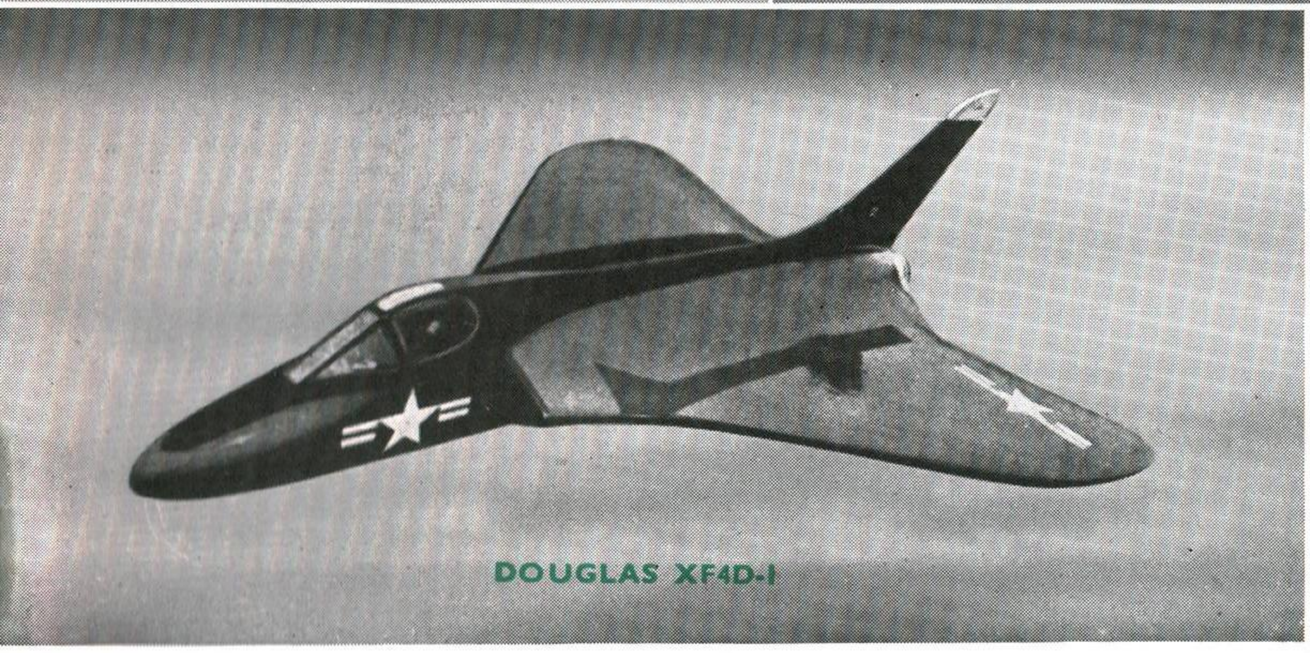
CONVAIR XF-92

AVRO 707A (3rd aircraft)



FAIREY FD-1

AVRO 707B (2nd aircraft)



DOUGLAS XF4D-1

AVRO 707B (2nd aircraft—latest intake)

It has been said that the aeroplane designers will find the solution to most of their aerodynamic problems in the triangular wing form and, on the assumption that one triangle is very much like another, aircraft recognition would become an impossible tangle of triangles—almost a new geometry. This, we think, goes too far. Nevertheless, the tally of triangles flying to date is mildly surprising. They are all experimental types however, and their comings and goings will not obscure the sun. But the pessimists are confounded : a glance at these views of the more well-known models shows clearly there is plenty of room for variation not only in the triangle but in the various additional structures necessary to make it fly.

AVRO 707 (1st aircraft)

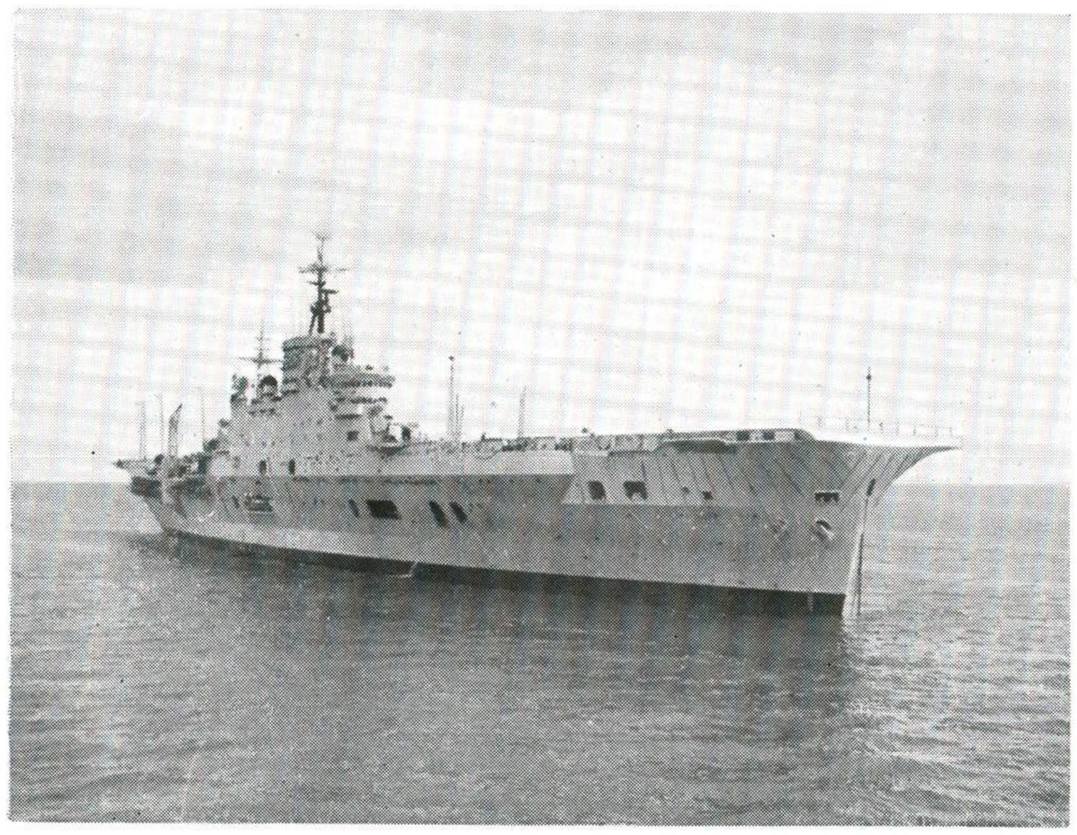
AVRO 707B (2nd aircraft—longer fuselage, metal hood, more fin sweep)

AVRO 707A (3rd aircraft—wing-root intakes)

BRIEFS

Largest Carrier

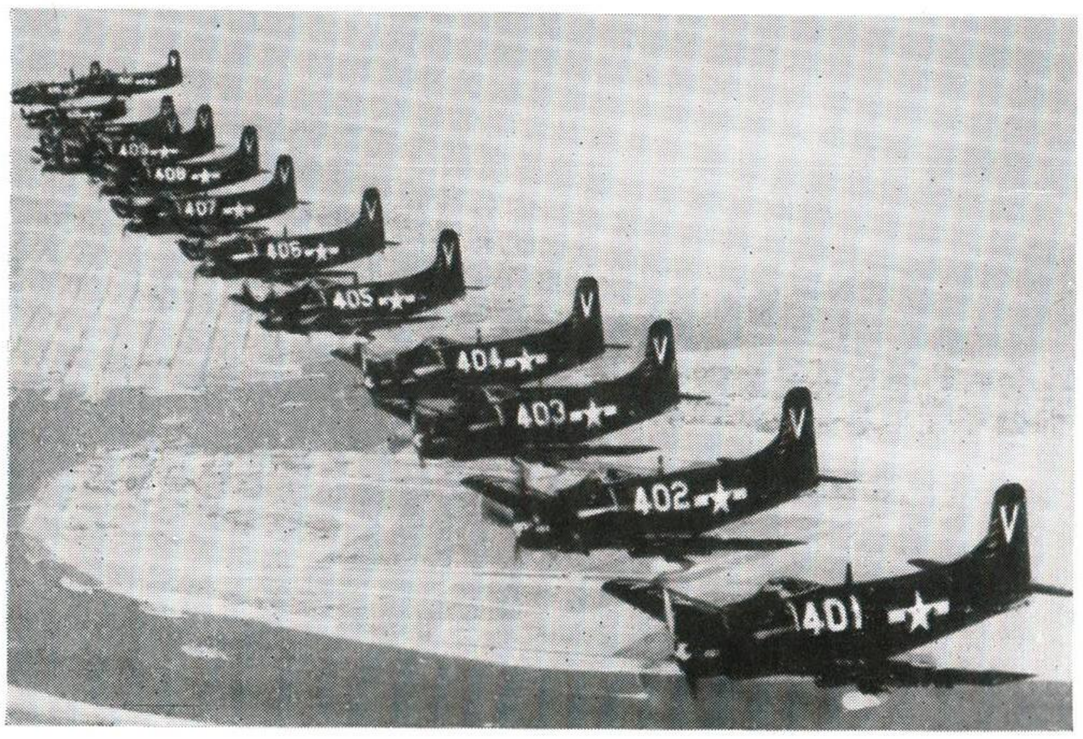
It is expected that the largest British aircraft carrier afloat, H.M.S. *Eagle*, will join the Home Fleet for operational service in June, 1952. It is likely that H.M.S. *Eagle* will embark her air squadrons (to include Attackers) between March and May, 1952, with flying training, gunnery and other practices to follow. About 100 aircraft can be carried. At the time of writing she is undergoing sea trials. H.M.S. *Eagle* has a longer rectangular bridge structure than earlier British fleet carriers, and a long clean cut-in to the ship's side below, keeping the island well to the side of the flight deck. She is the twenty-first ship of her name to serve in the Royal Navy, being launched by H.R.H. The Princess Elizabeth early in 1946. The last ship to bear the name Eagle saw service as a carrier (converted from a battleship) in the Mediterranean where she was sunk in 1942.



* * *

A Substantial number of Skyraiders

Four Skyraiders have arrived in this country, these being the advance guard of a " very substantial number " eventually to be made available to the Royal Navy under the United States military aid programme. The Skyraider is equipped with search radar and will be used for anti-submarine operations. The Skyraider is recognitionally noteworthy for its " straightness ". It has straight lines in the wings (equi-taper) and tailplane (tapered leading edge, straight trailing edge). The fuselage is also straight, top and bottom, the baseline forming a right angle with the upright rudder. All these straight lines tend to emphasize the one and only curve in the fairing from fuselage to fin. The Skyraider appeared in " Single (Radial) Type Tutor," September, 1951, *Journal.*



New Convair-Liner

Although the general proportions of the new Convair-Liner 340 are very little different from earlier models there are one or two alterations which observers will want to know. The fuselage is longer, and the span of the wings has been increased by nearly 14 feet, giving the effect of higher aspect ratio with almost the same plan form. There is slightly less taper on the trailing edge and a little more dihedral. We strongly discourage " window " recognition and the illustration above gives a good reason why. Window counters beware, that five of them have been omitted from this 340 prototype to facilitate installation of test equipment.

* * *

Princess

The first Saunders-Roe Princess 140-ton flying boat with ten Proteus turboprops has been towed out of its hangar so that construction can proceed. The outer wings are already complete and only have to be joined to the stub-sections on the hull, which is also nearly finished. Work through the winter on the power plant installations and other units is expected to enable the Princess to fly early in 1952. These boats are now intended for use as troop carriers. The hull which is more capacious than the fuselage of the Brabazon, will carry 200 fully equipped troops.

* * *

Subs on Loan

H.M.S. *Statesman*, the first of four British " S " Class submarines to be lent to the French Ministry of Marine for four years, has been handed over and renamed *Dolphin*. *Satyr*, *Spiteful* and *Sportsman* are to be made available at a later date, and these will be renamed *Saphir*, *Sireme* and *Sybille* respectively. The French Navy also includes on its strength an *ex* British light fleet carrier H.M.S. *Colossus*, which was loaned in 1946 and is now known as the *Arromanches*.

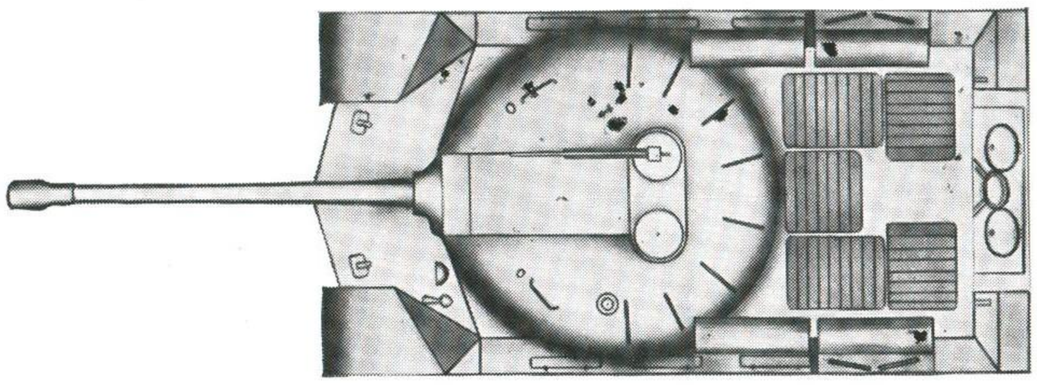
* * *

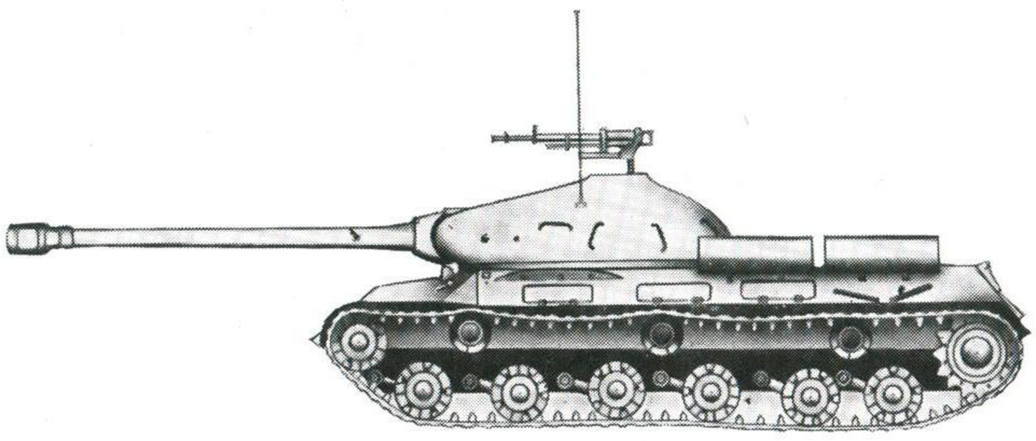
Things to Come

It is understood that successful sea trials have been carried out by the 12,000 ton tanker *Auris*. This is the first merchant ship to be powered by a gas turbine.

IDENTITY PARADE

JOSEPH STALIN 3





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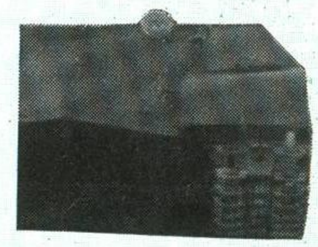
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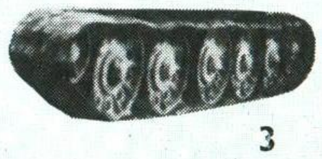
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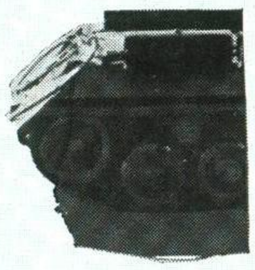
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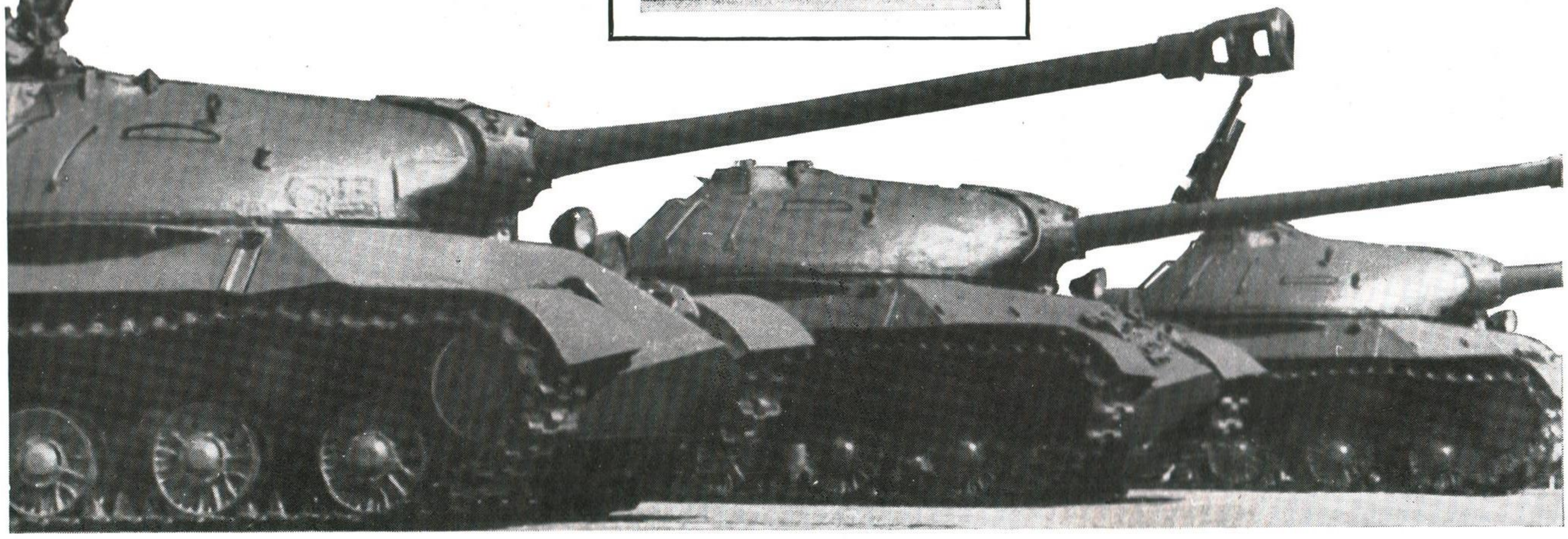
With the aid of the visual information given in the surrounding views, identify from the numbered illustrations those which show views or parts of views of the Joseph Stalin 3 heavy tank. The correct identities are given on page 286.



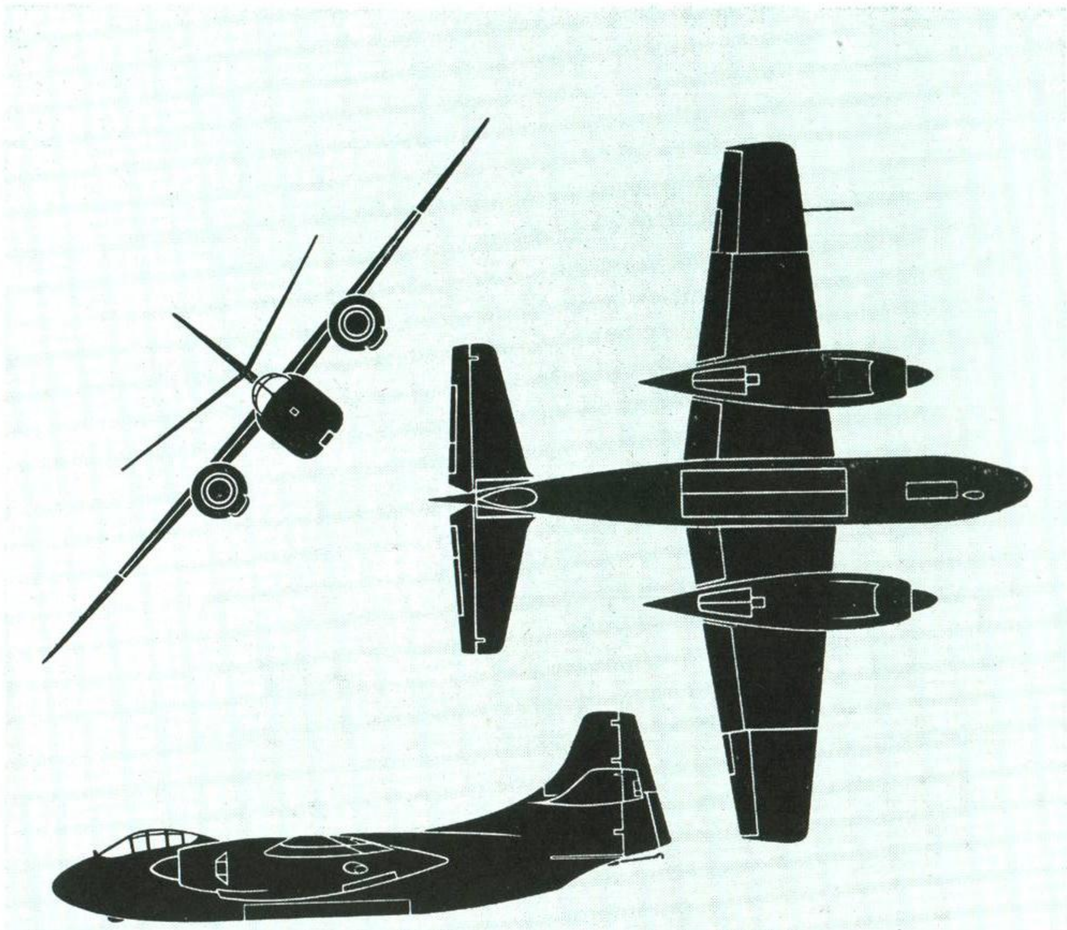
THE NORTH AMERICAN AJ-1 SAVAGE

THE NORTH AMERICAN AJ-1 SAVAGE is a carrier-borne Attack aircraft, built to carry an atom bomb. It is a high-wing, composite-powered monoplane with two close-cowled radial engines mounted beneath the wings and a turbojet in the rear fuselage exhausting ventrally beneath the tail.

At first glance the Savage is an ugly customer—as befits a savage. But a closer look reveals an unsuspected sleekness and beauty, particularly in fuselage and nacelle form. This fineness of shape is not, however, repeated in the flying surfaces. The wings are straight edged and blunt tipped ; the tail stands aloof, high, wide but quite unhandsome—it is large in area, squat and ugly in cut. The wing and tail are set close together ; the domed cockpit emerges from, rather than sits upon, the nose of the fuselage. In these days of exaggerated airframe shapes, the Savage is not an outstanding visual character, it is shortish and thickset and though the tail is rather large it is not conspicuous in all views. There are in fact no salient characteristics. Some Savages may carry finned wing-tip tanks.

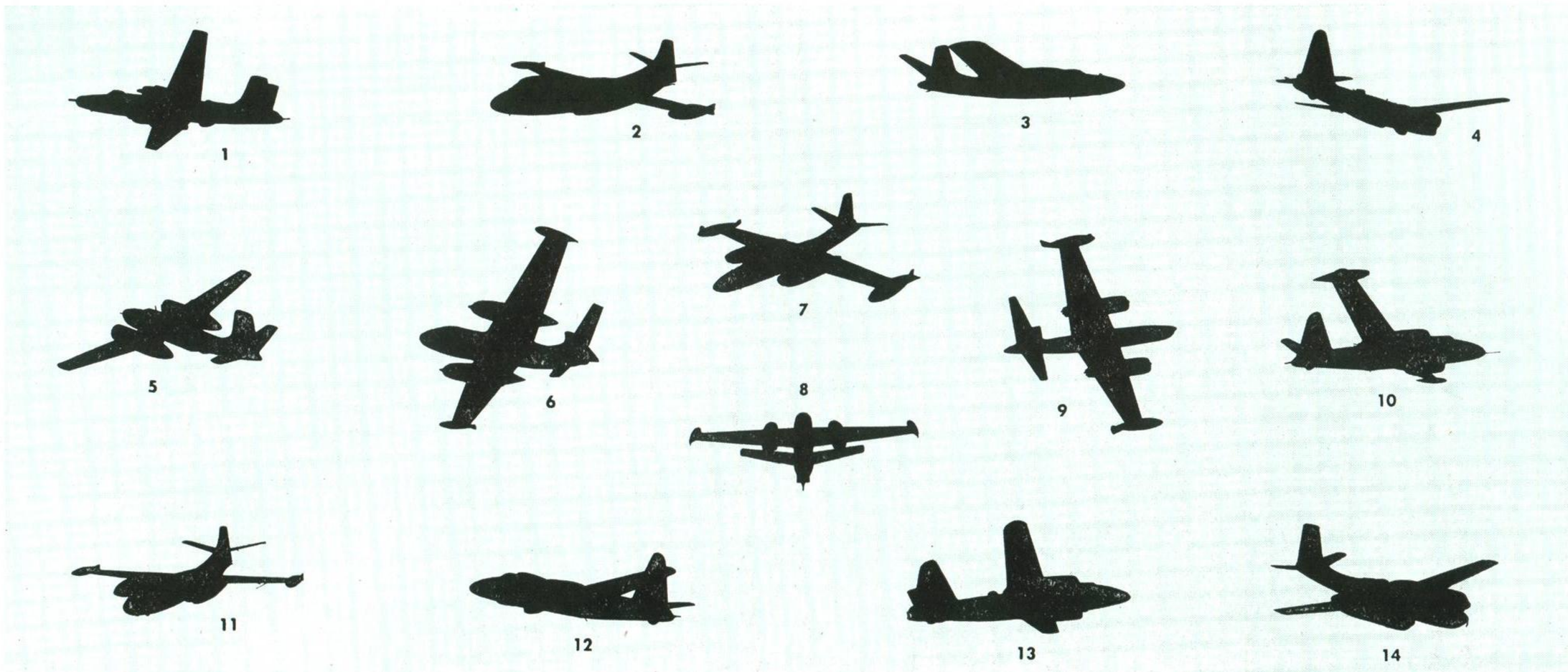
Savages have recently been to sea, as will be seen from the pictures on the following pages. They are amongst the largest aeroplanes yet to be carrier-borne and this point is illustrated perhaps by the wing and tail folding arrangements which have had to be made for stowage aboard a carrier. Incidentally the carrier shown in the pictures is the U.S.S. Midway.

From reports published of the trials, this 34,000 lb. aeroplane lands at 85 knots on the carrier's deck, and on the first deck landing took 88 feet of No. 2 arrester wire to stop it. No other details of performance are available at the present time except that the Savage's top speed has been reported as in excess of 350 m.p.h. Normally it uses its radial engines for going from A to B: the jet for emergency and battle bursts.

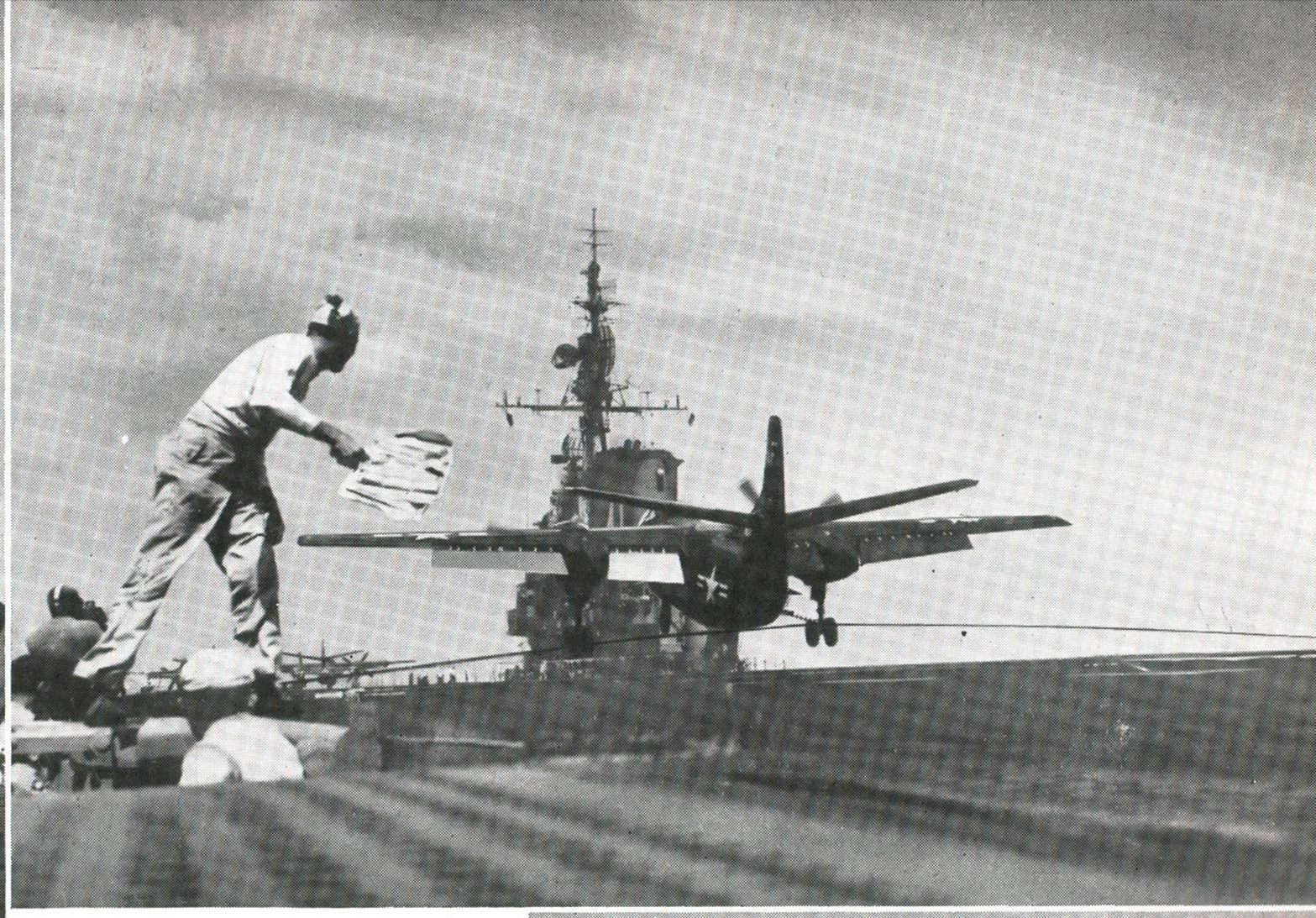


From the information given here, identify which aircraft are Savages in the group shown below.

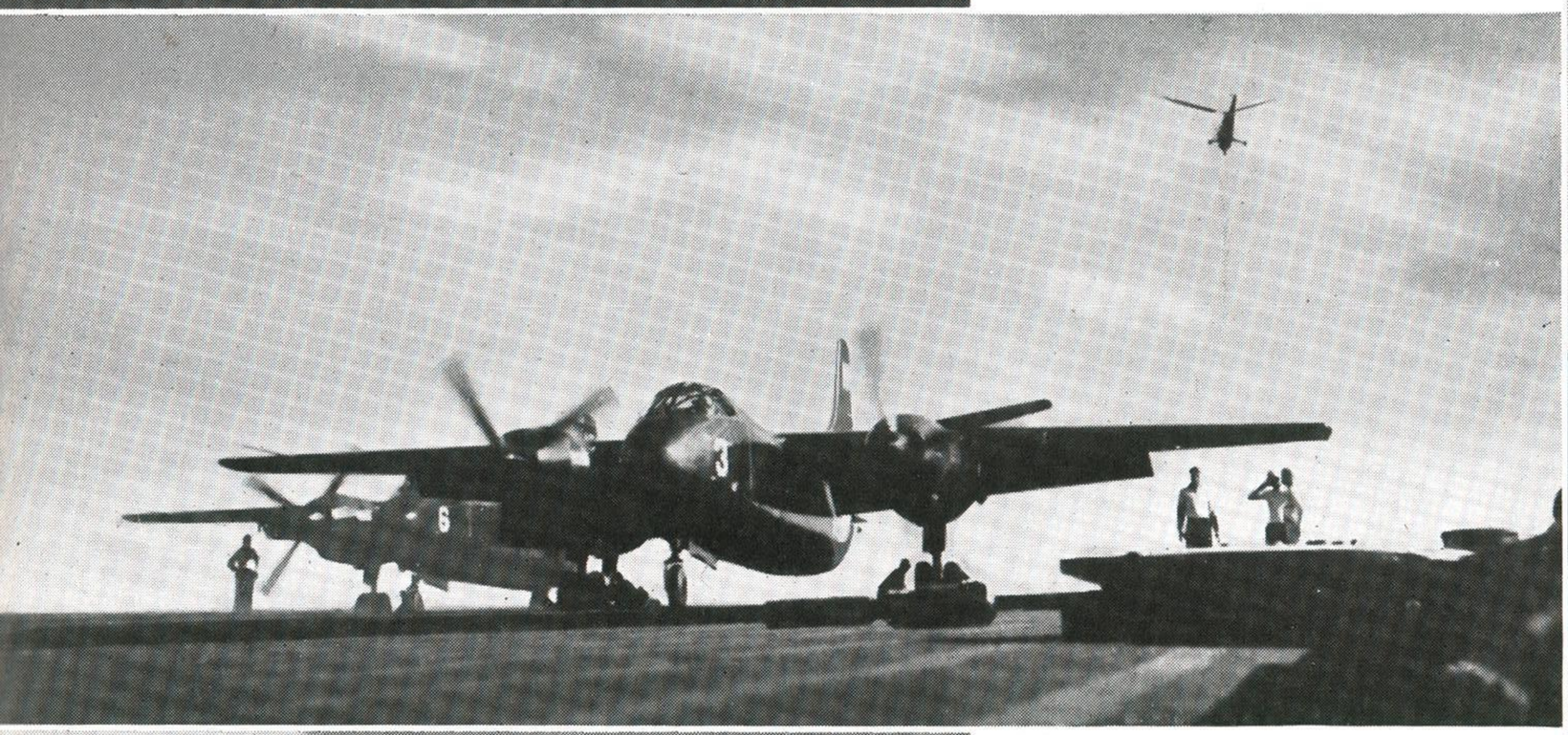
Solutions on page 286.



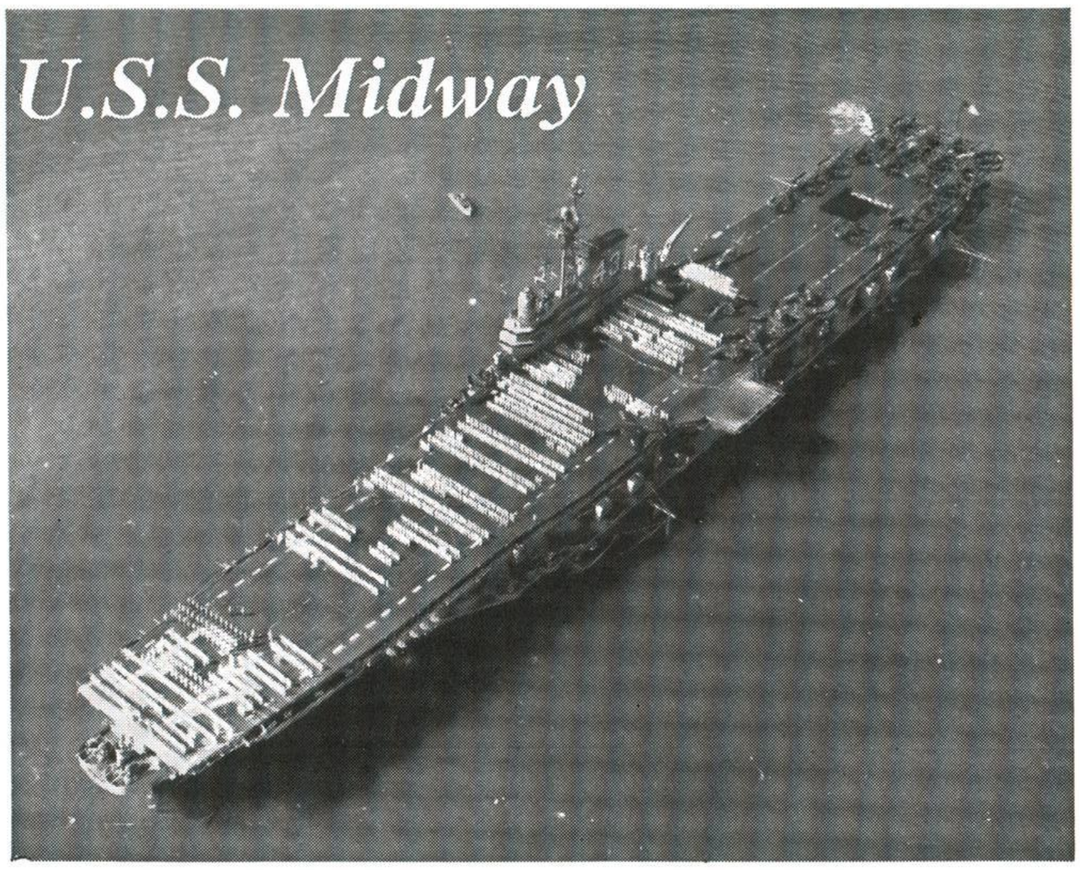
Savages aboard U.S.S. *Midway*

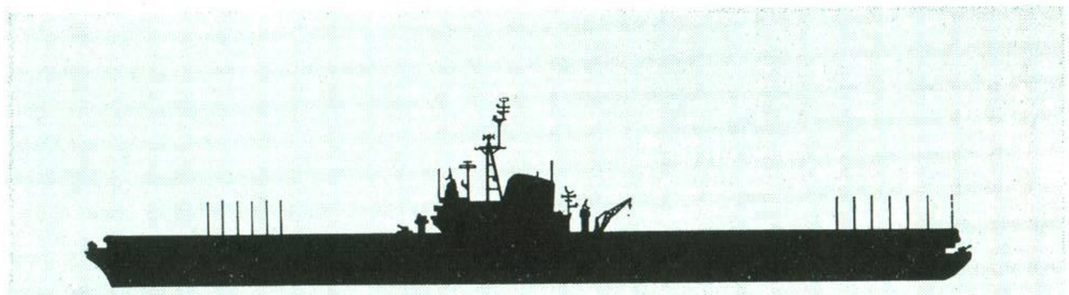


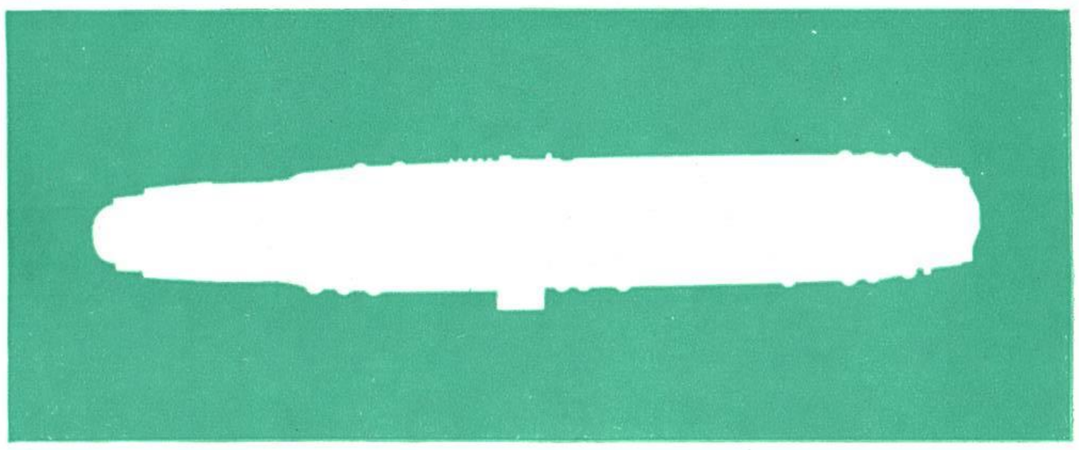
AJ-1

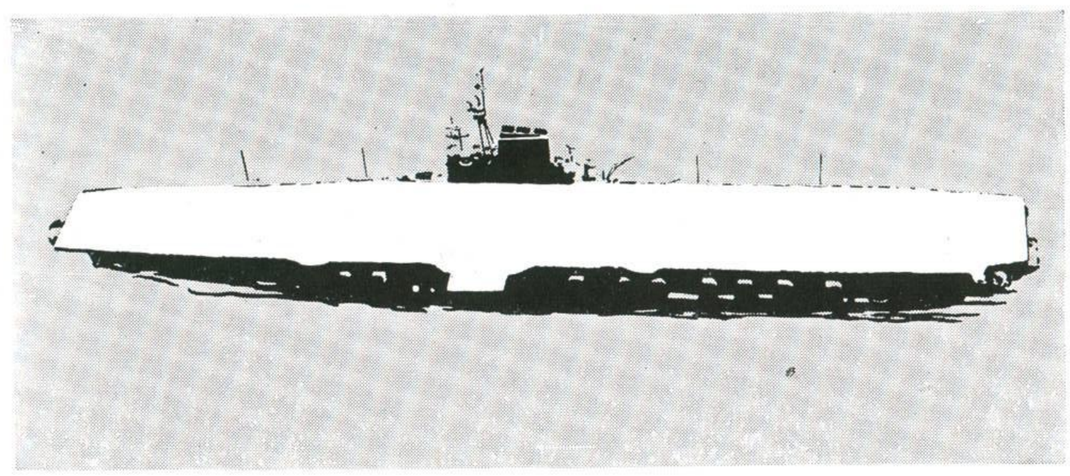


SAVAGE





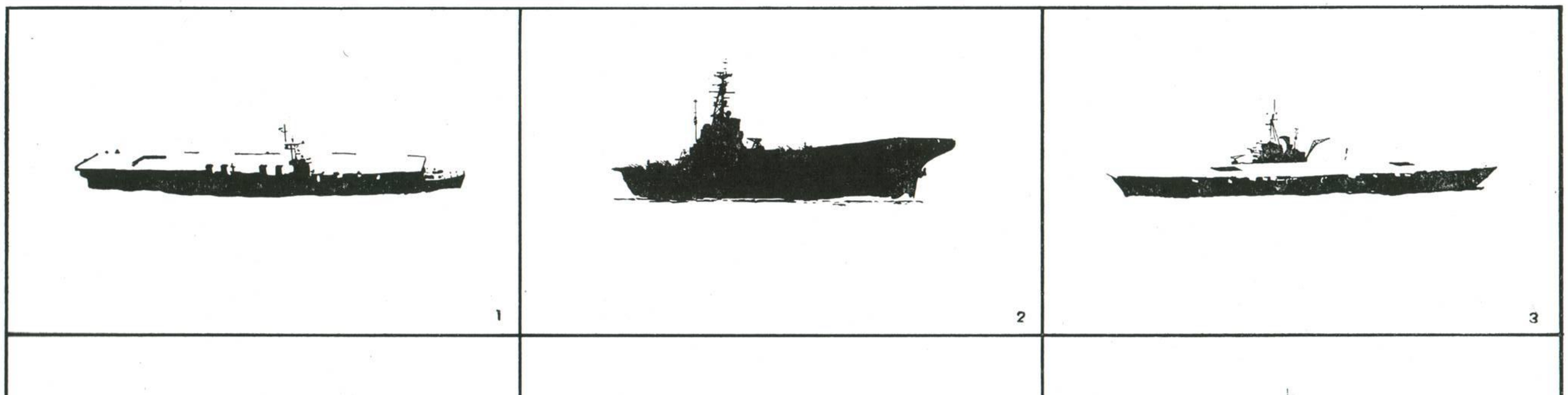




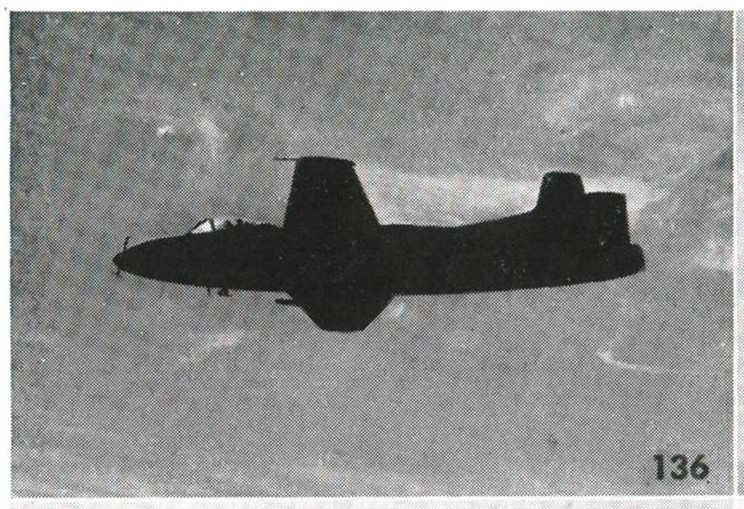
U.S.S. Midway

MIDWAY CLASS CARRIERS : *Midway* (CVB 41), *Franklin D. Roosevelt* (CVB 42) and *Coral Sea* (CVB 43) are the largest fleet carriers afloat.

Large, noteworthy visual recognition characteristics include an unobstructed flight deck which tapers more forward than aft and a very long narrow, box-like funnel, raked and situated at the rear of the narrow island. There are also one or two special *midway* features ; the prominent ship-side lift is about *midway* between bow and stern ; the box-like funnel is *midway* between flight deck extremities ; main armament is *midway* between " wind and water " and her deck lifts are centred *midway* across the width of the flight decks, though some of these points may not appear to be true at angular views.



SHIP SHAPES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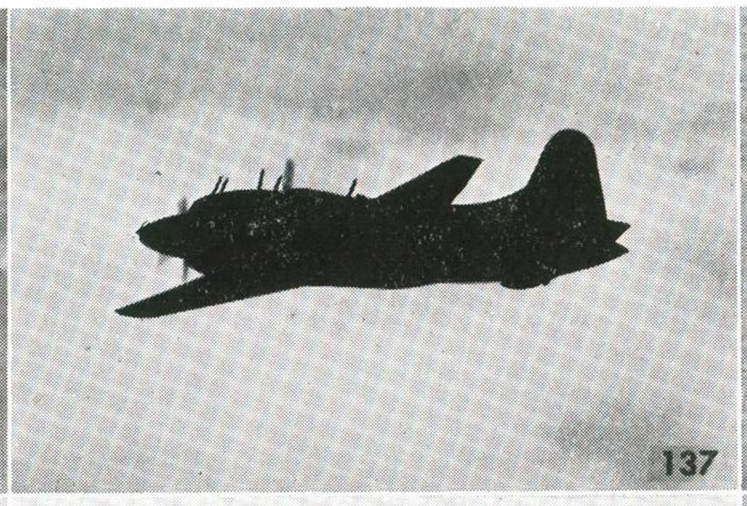
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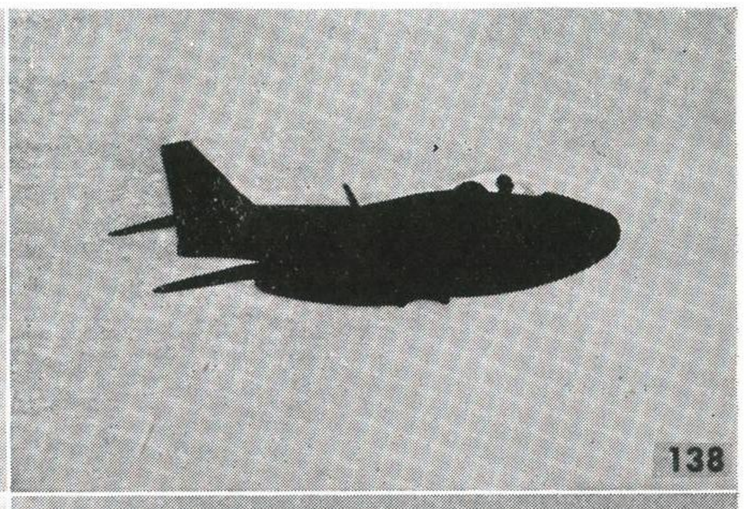
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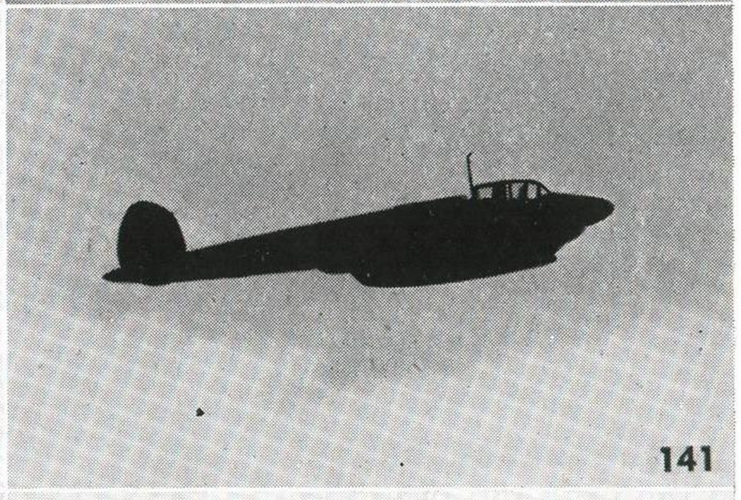
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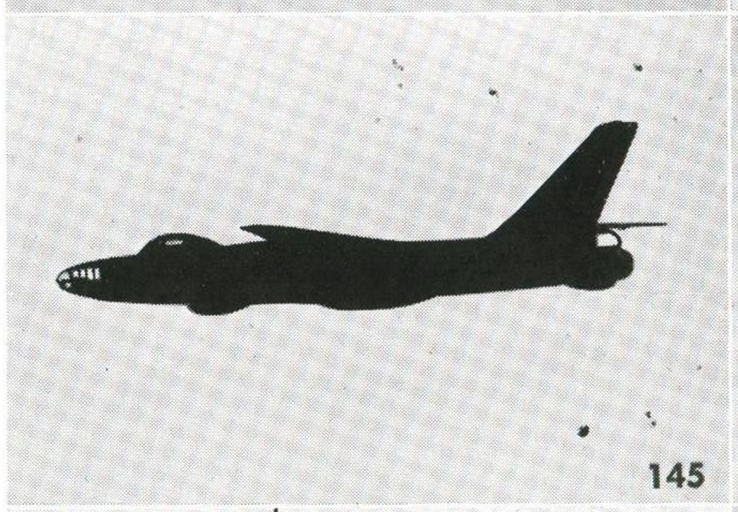
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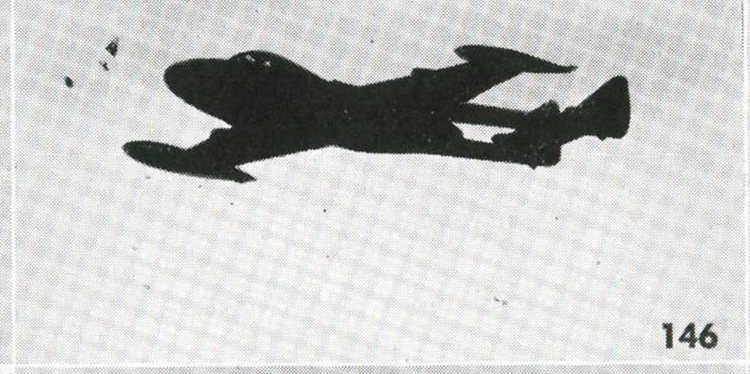
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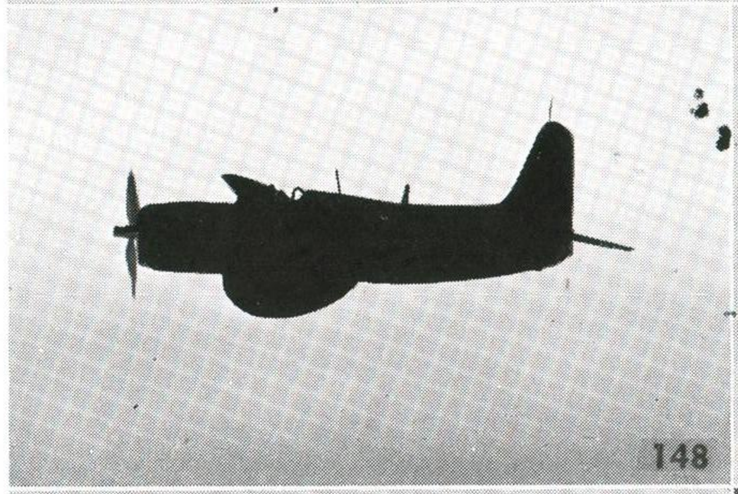
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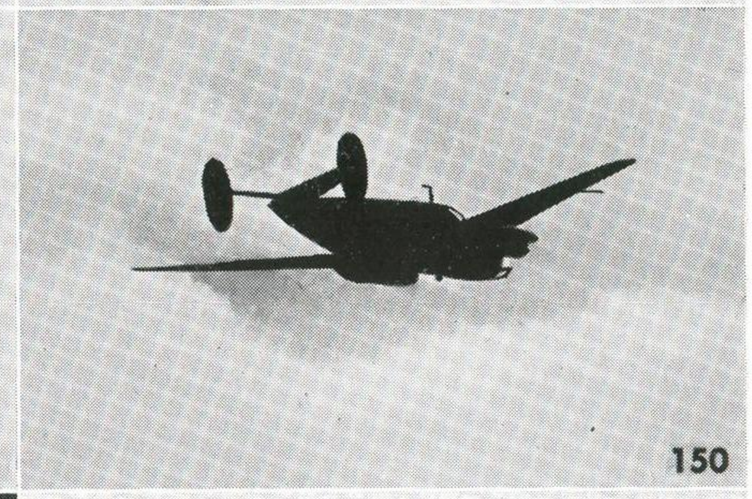
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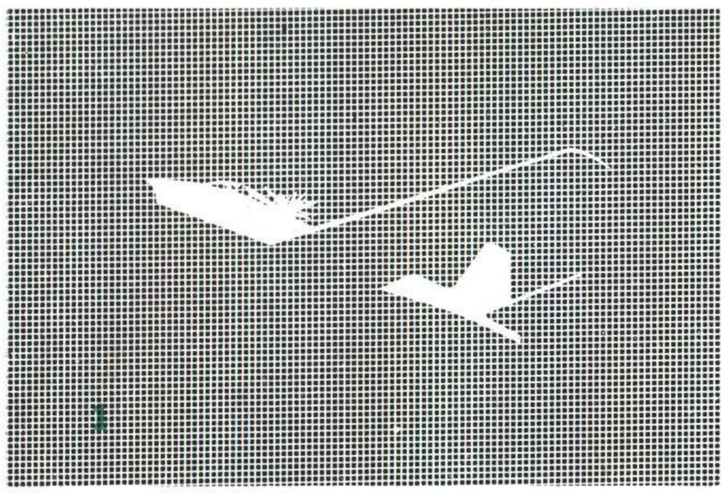
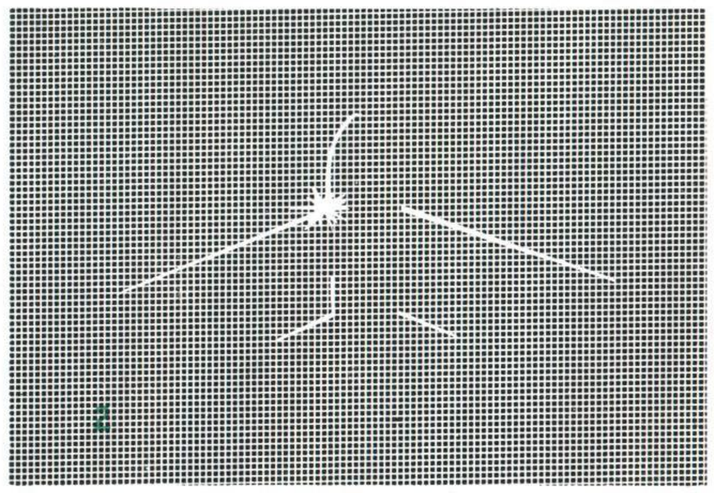
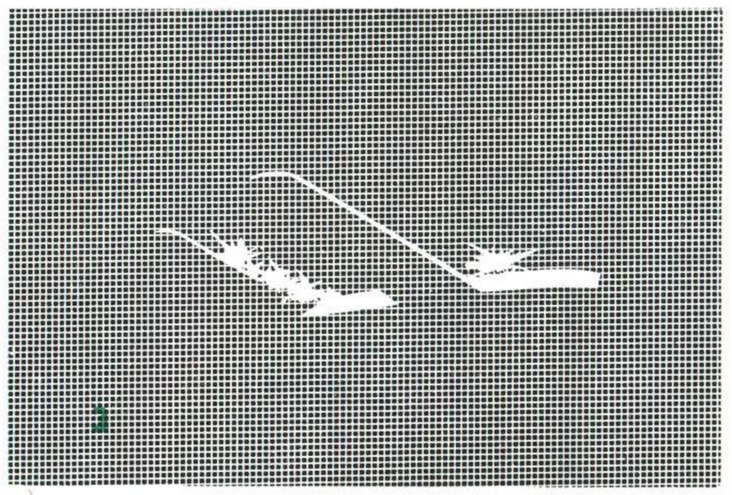
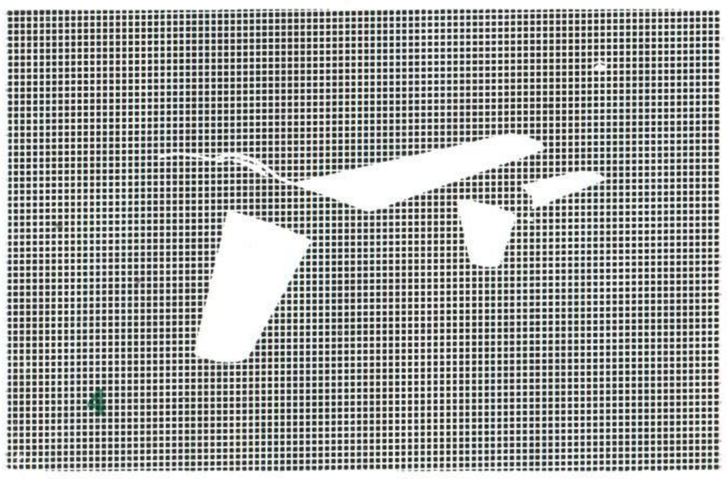
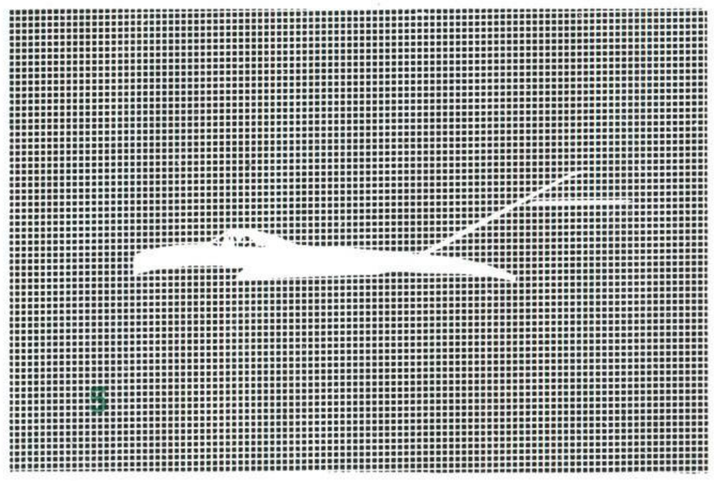
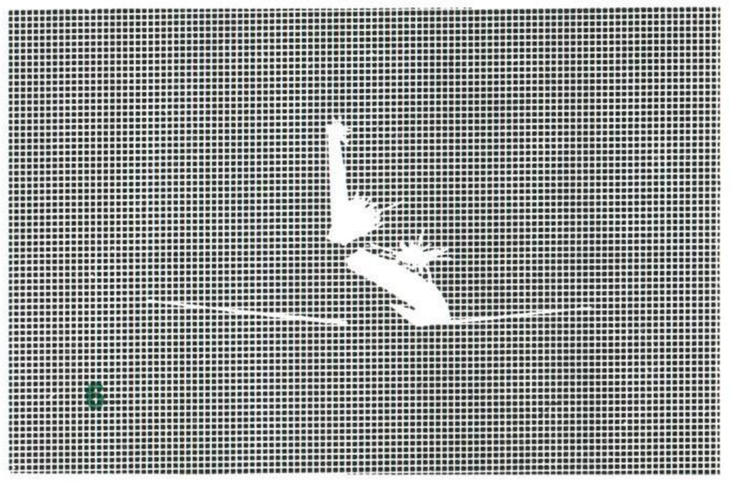


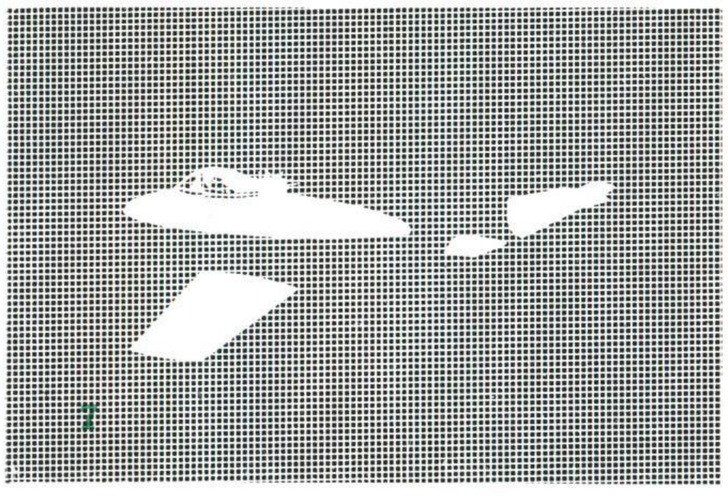


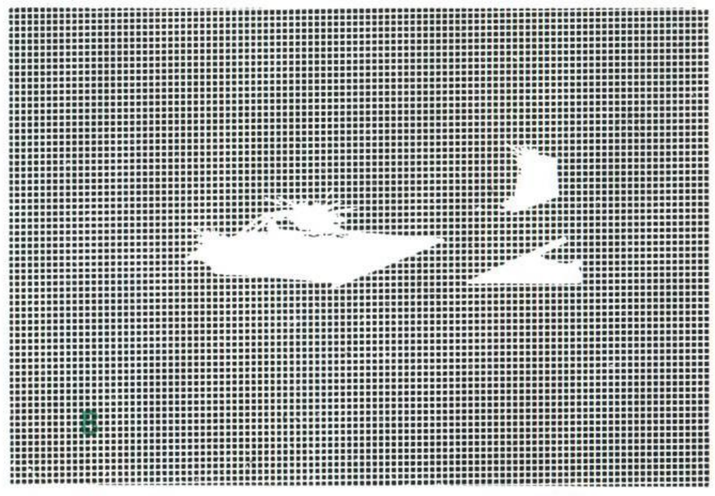


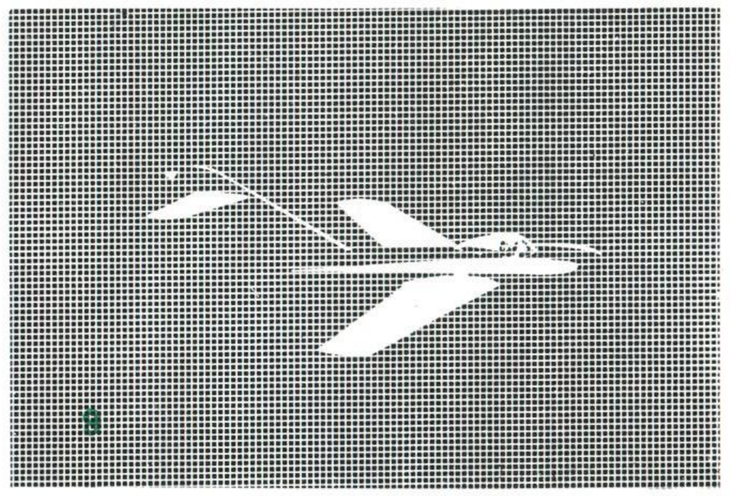


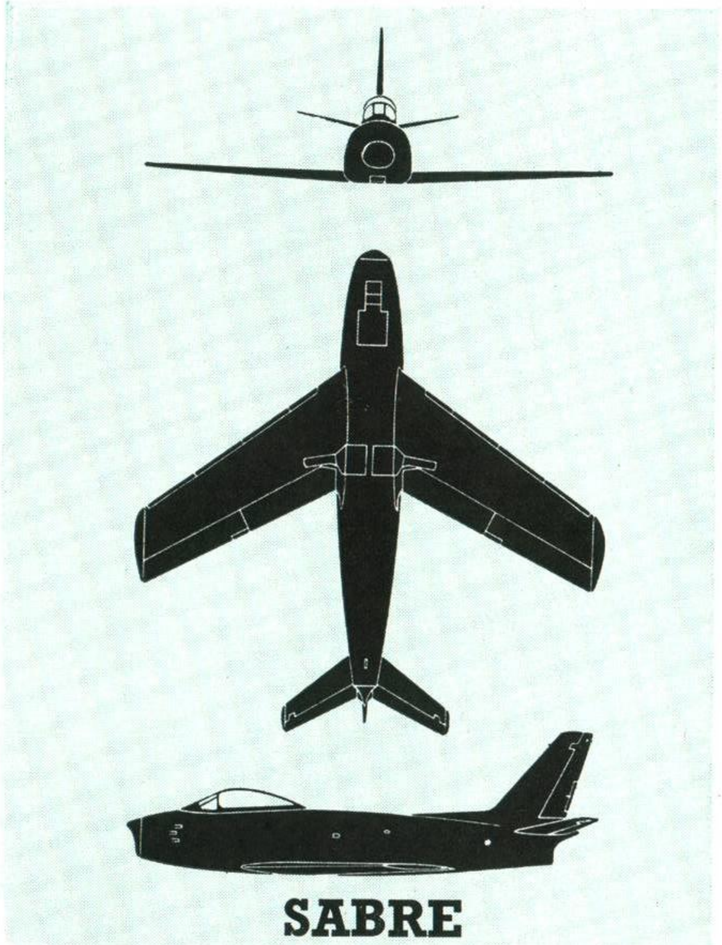


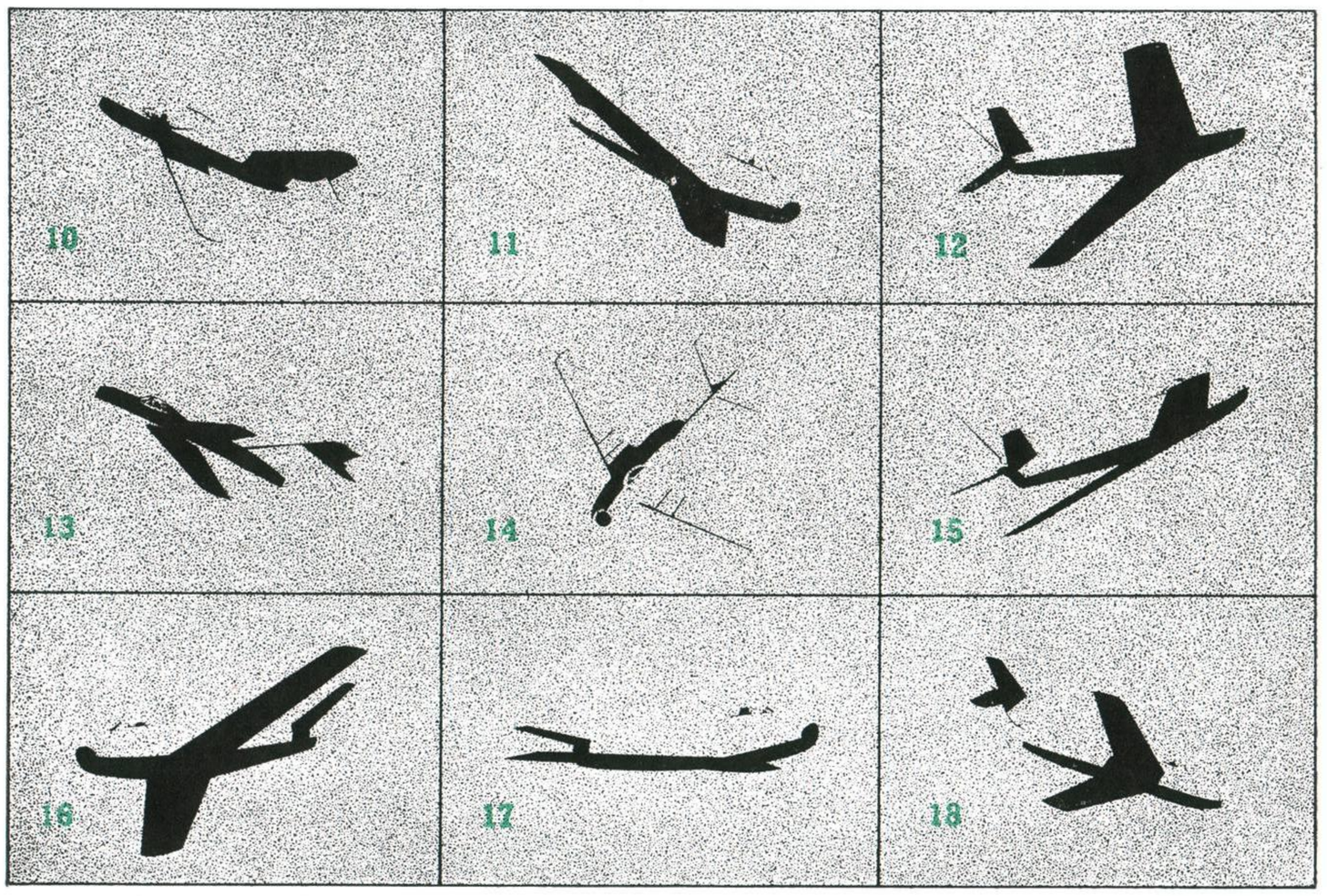


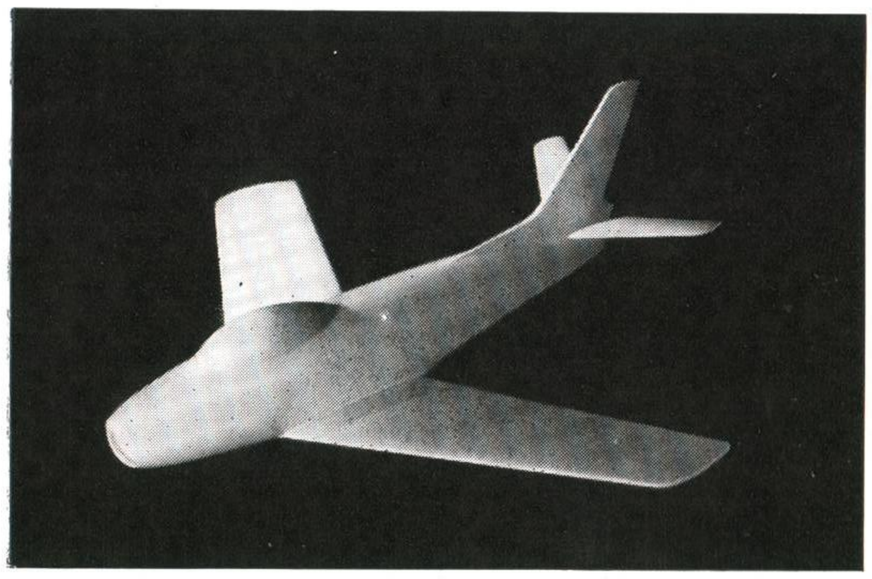






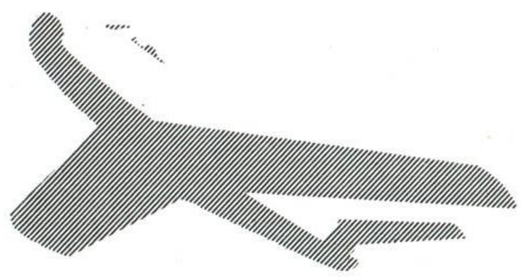


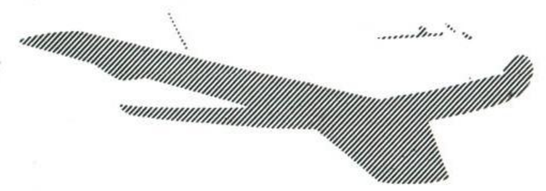


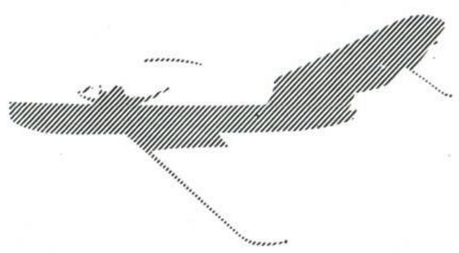


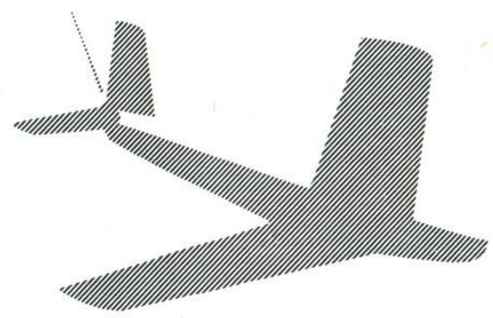
EXERCISE "FLASHBACK"

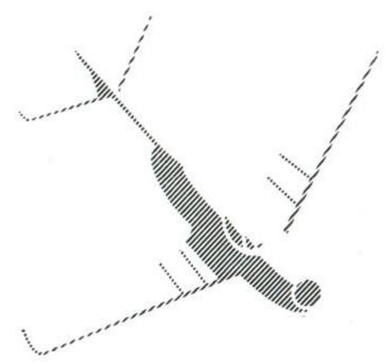
The shift and play of sunlight and shadow upon the surfaces of a swiftly moving aeroplane in varying conditions of light, visibility and distance, produce one of the most exasperating and shape-destroying disguises that an aeroplane can assume. This kind of disguise very often baulks visual recognition at a critical moment. These illustrations show some simplified examples of typical

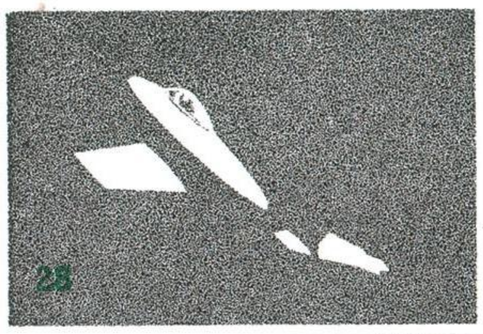


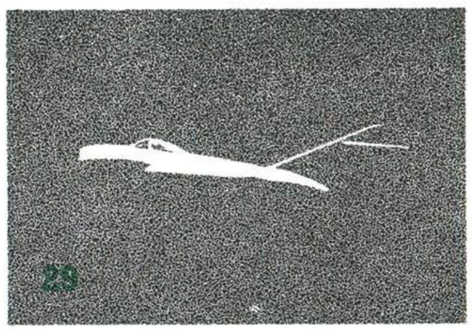


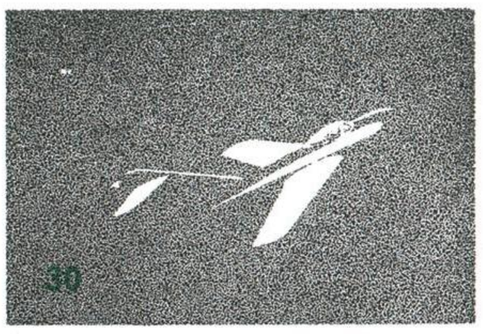


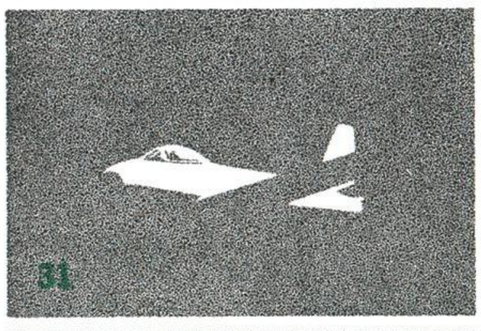


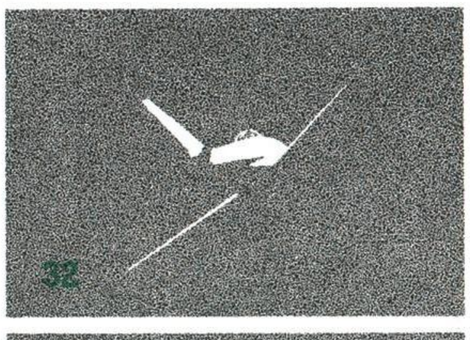


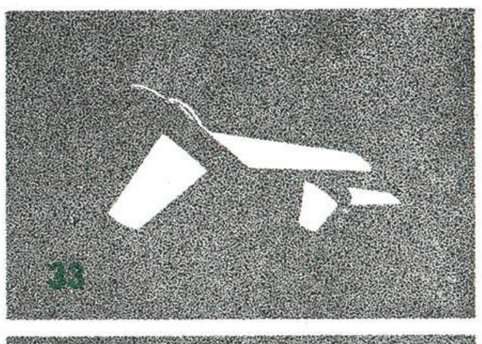


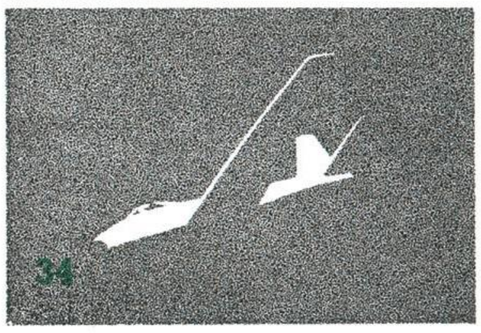


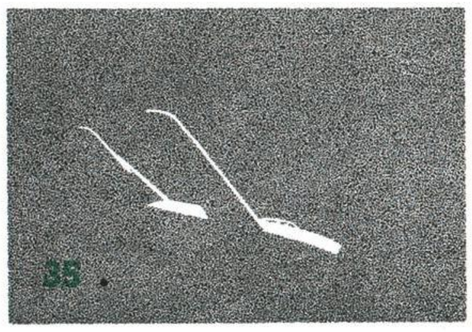


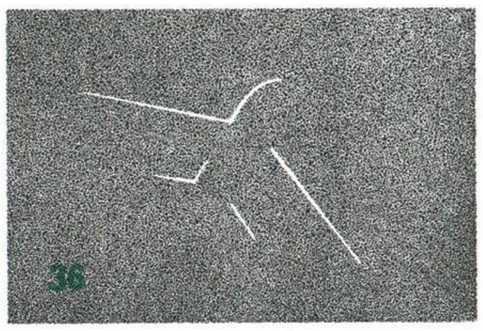


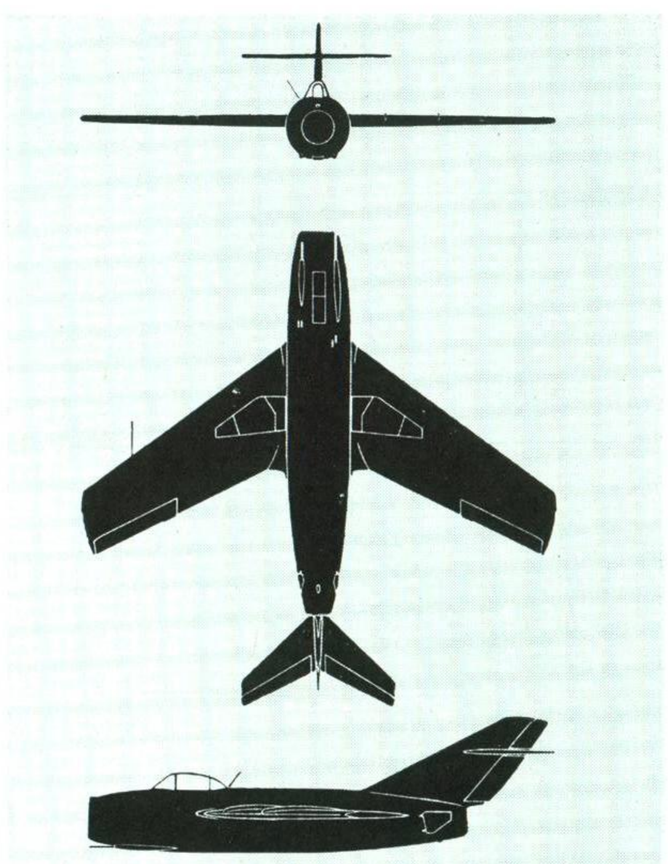






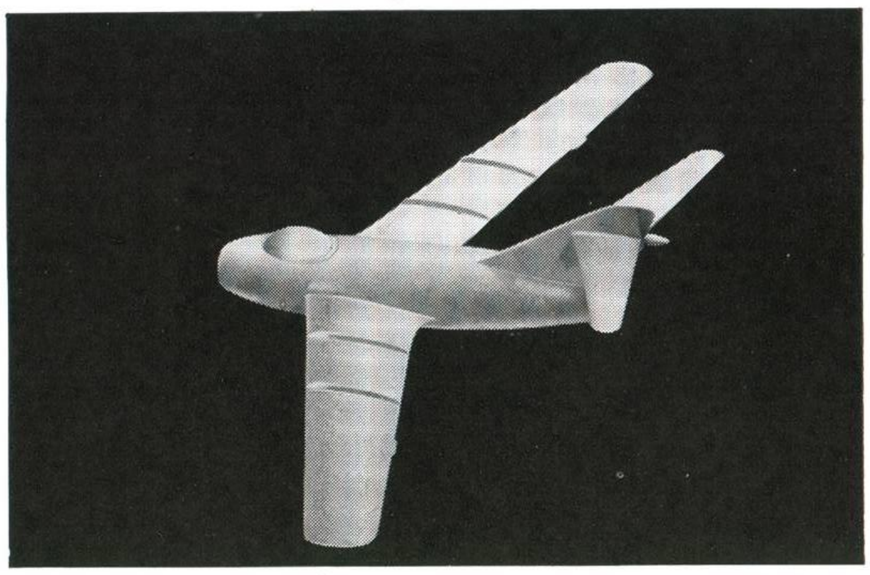






MIG-15

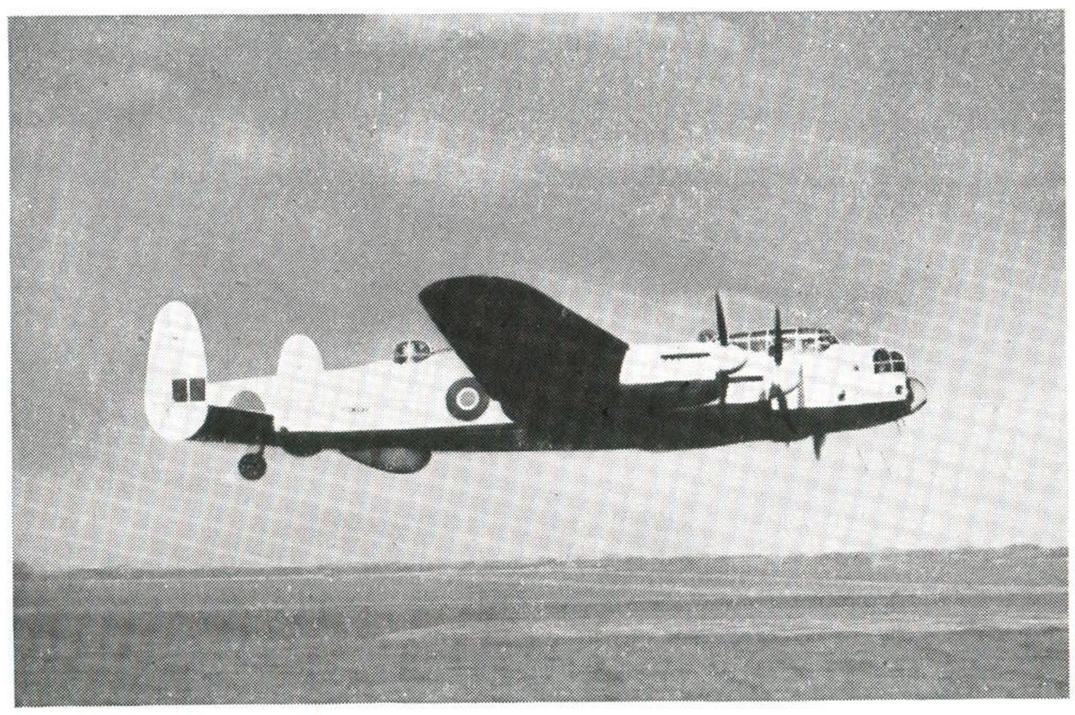
lighting effects including the form-destroying results of "glitter." The subjects chosen are two well-known fighter aircraft which have been frequently in combat against each other over North Korea. The presentation is arranged in the form of an exercise in piercing this kind of disguise. With the aid of the three-view silhouettes and "pure form" views of each of the aircraft, each image should be scanned methodically and carefully until identified. The solutions to this exercise are printed on page 286.



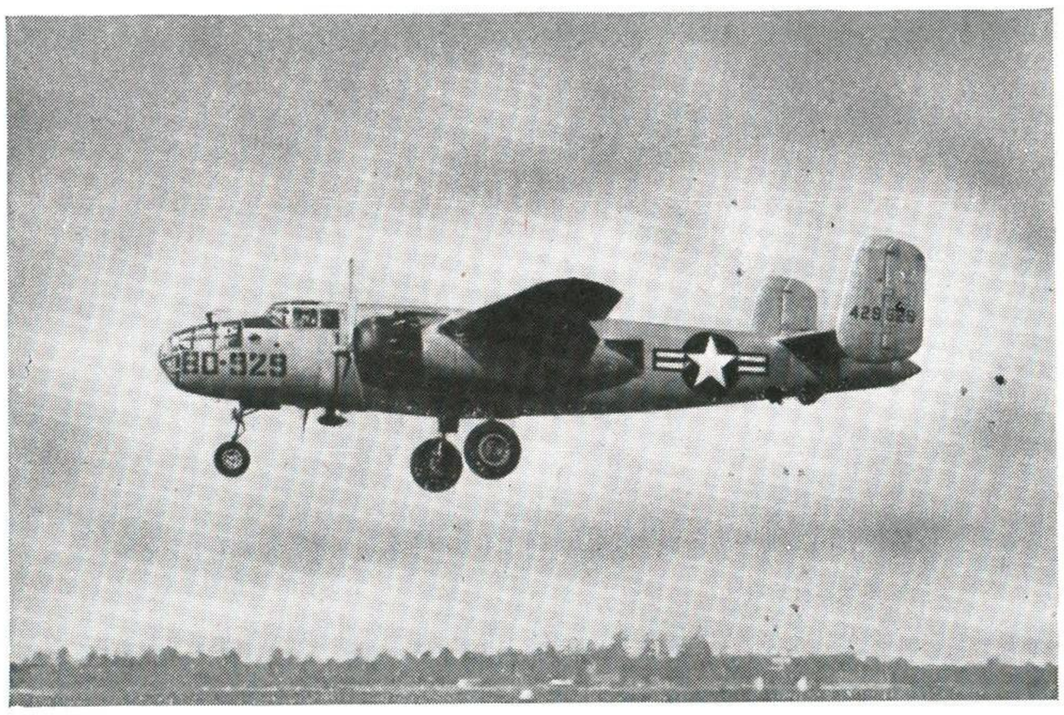
Old types of aeroplane can be as troublesome as new types to the unbriefed spotter. To keep everyone up-to-date we are going to publish an occasional page of the more numerous of the "out-of-date" types which are

"STILL GOING STRONG"

TIGERCAT (Grumman) is at present in service with the U.S. Navy and is being used in Korea as a night fighter. Shown here is the F7F-3N with an auxiliary fuel tank.
Span : 51 ft. 6 ins.

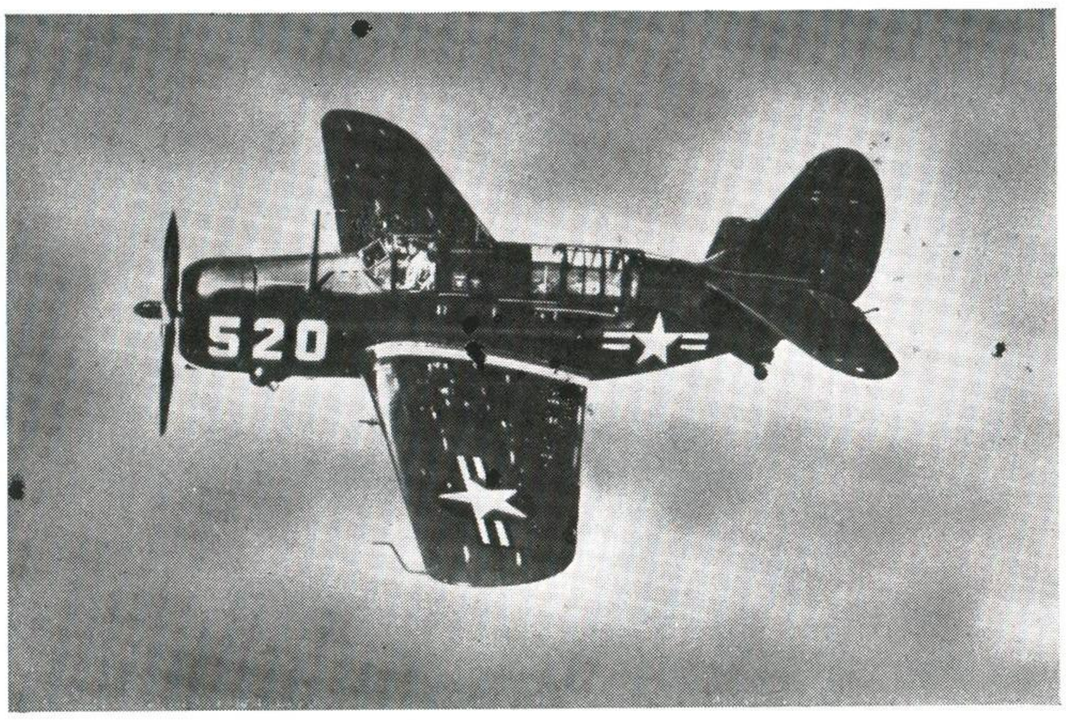


LANCASTER (Avro) is still in service with the R.A.F. and R.C.A.F. employed on photographic, air-sea-rescue and other allied duties. This illustration is of the B Mk.7.
Span : 102 ft.

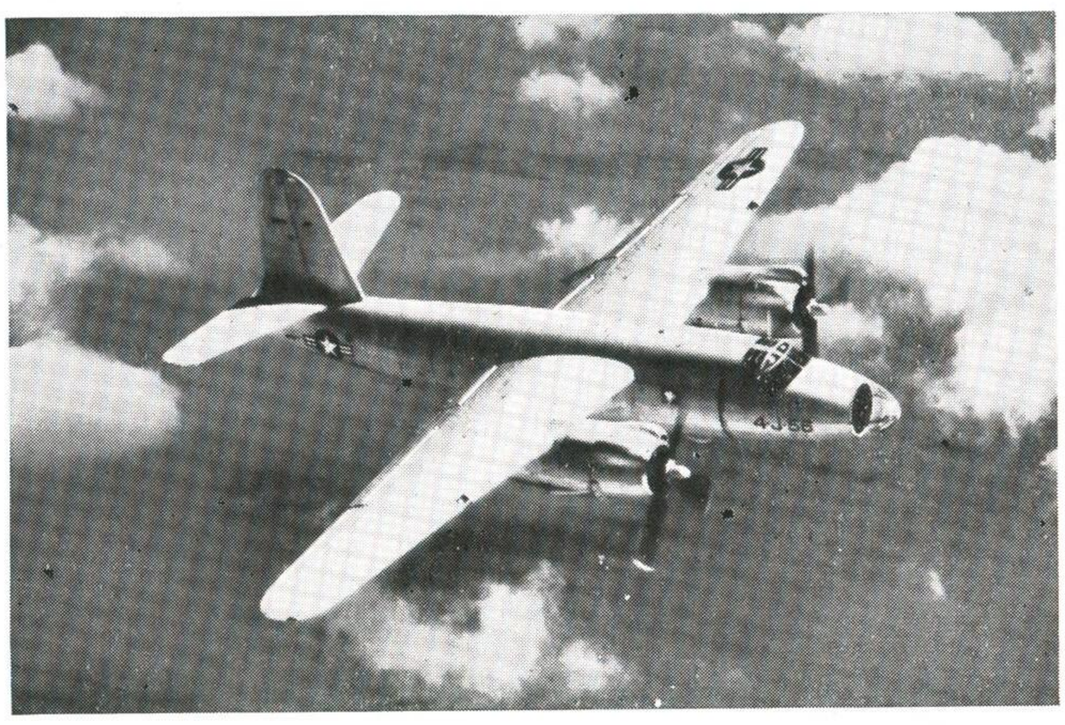


MITCHELL (North American) is flying today in Canada, China, France, Holland and several South and Central American countries. There is also a new trainer version for U.S.A.F.

HELLCAT (Grumman) is flying with the U.S. Navy Reserve, French Navy and Uruguayan Navy as a single-seat fighter. Depicted here is the F6F-5. **Span : 42 ft. 10 ins.**



HELLDIVER (Curtiss) is still being used by France (Navy), Italy, Thailand, Greece, Cuba and U.S. Navy Reserve. This picture is of the SB2C-4. **Span : 49 ft. 9 ins.**



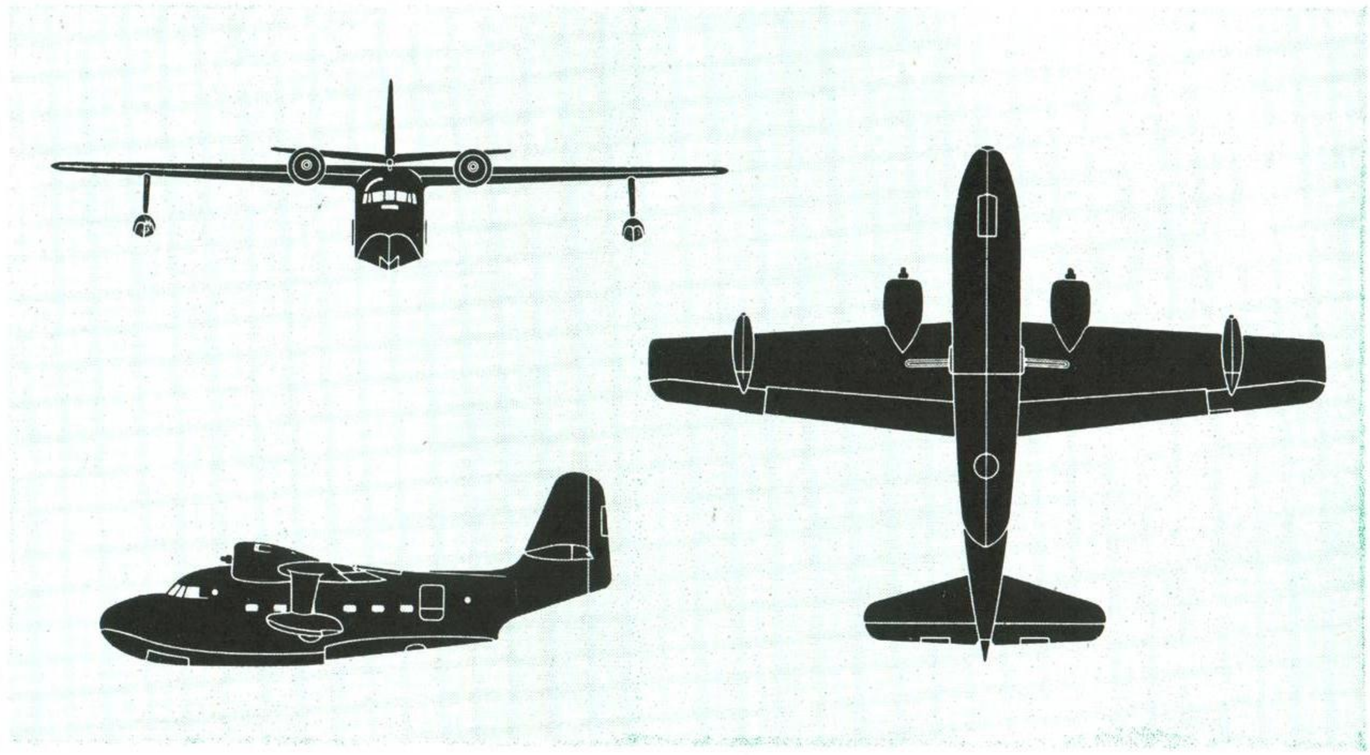
MARAUDER (Martin) is flying with the French Air Force, and a few are still in service with the U.S. Navy on utilitarian duties. Shown here is the JM-1. **Span : 71 ft. 3 ins.**

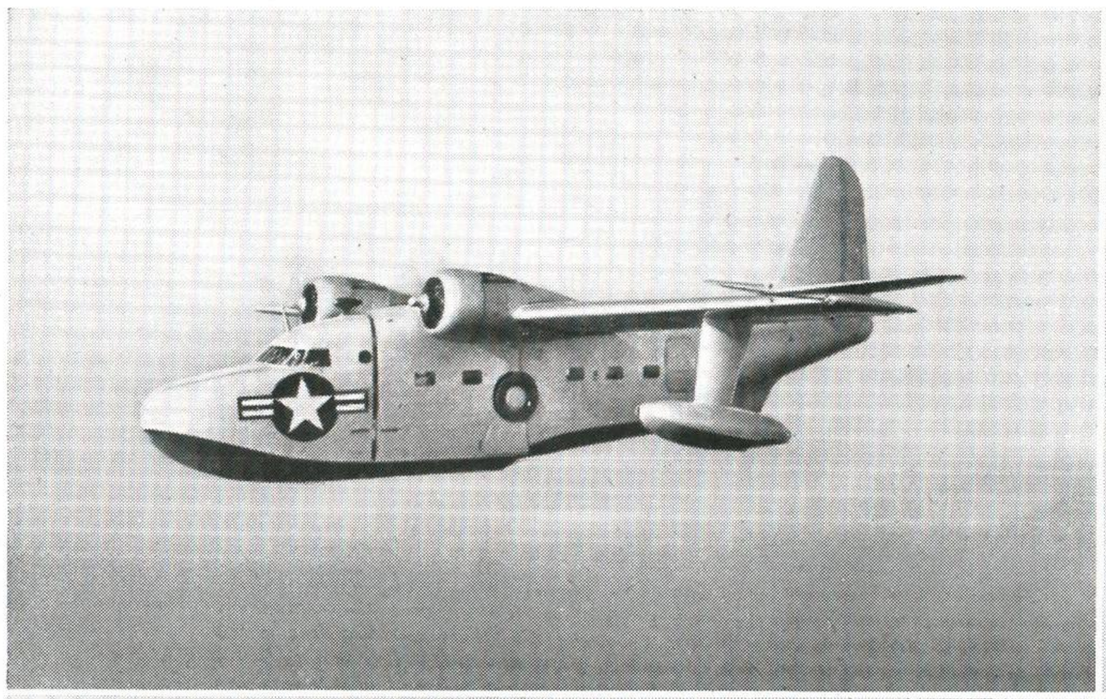
ALBATROSS IN SERVICE

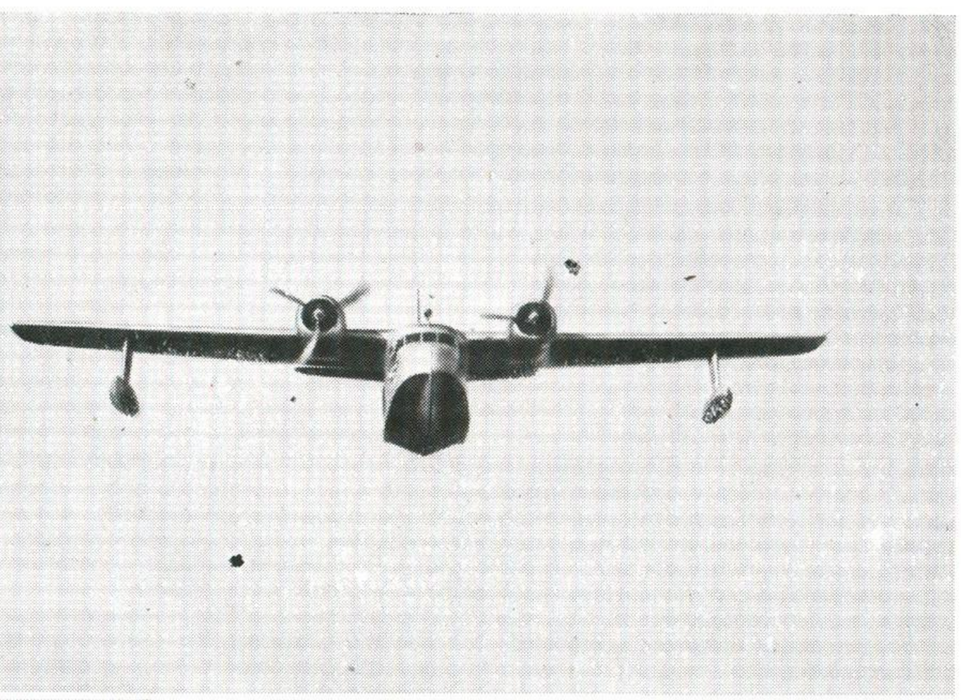
THE GRUMMAN ALBATROSS is a twin-engine utility amphibian in service in some numbers with the U.S. Navy and U.S.A.F. All the illustrations on this page show the UF-1 navy version except the two at bottom left which are of the SA-16A U.S.A.F. model. Duties include patrol, sea rescue and general purpose transport. The Albatross carries a crew of three, plus (in the personnel transport) ten passengers or twelve stretcher cases. Alternative is 4,100 lbs. of cargo. General outline conforms to the standard high wing, two-step hull, orthodox tailplane kept high by the rear step-up in the hull and fixed balance floats inboard of the wing tips.

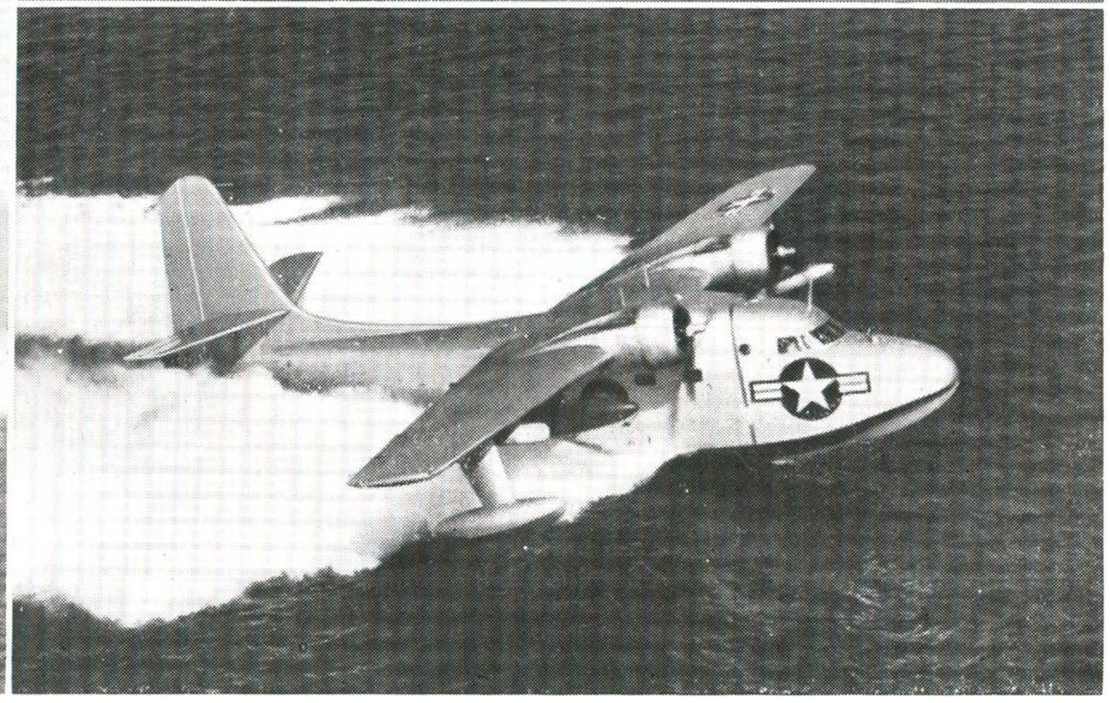
Engines : 2 Wright Cyclone R-1820 radials.

Span : 80 ft. **Length : 61 ft. 4 ins.**

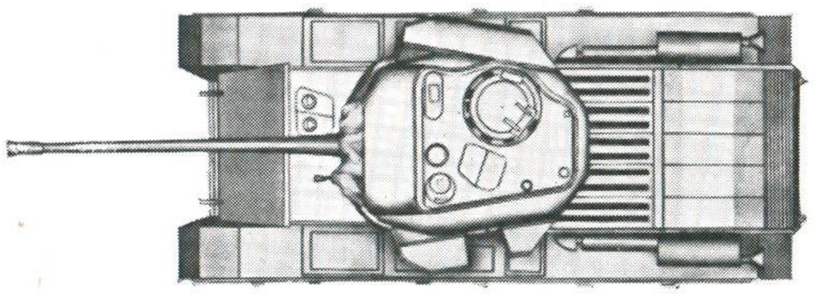






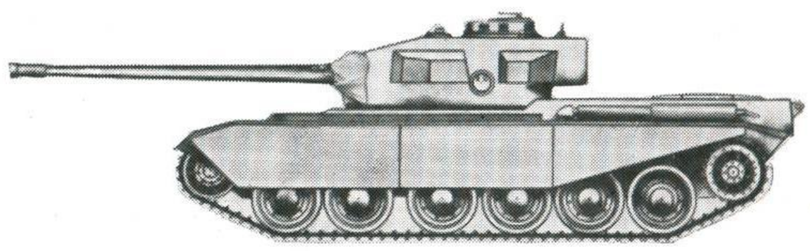


TANK DETECTOR

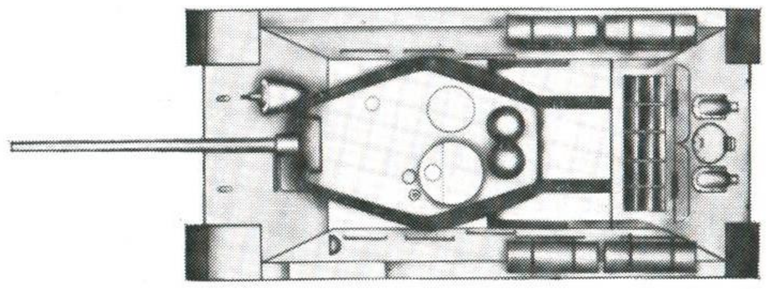


CENTURION III

Length: 32 ft. 3 ins.

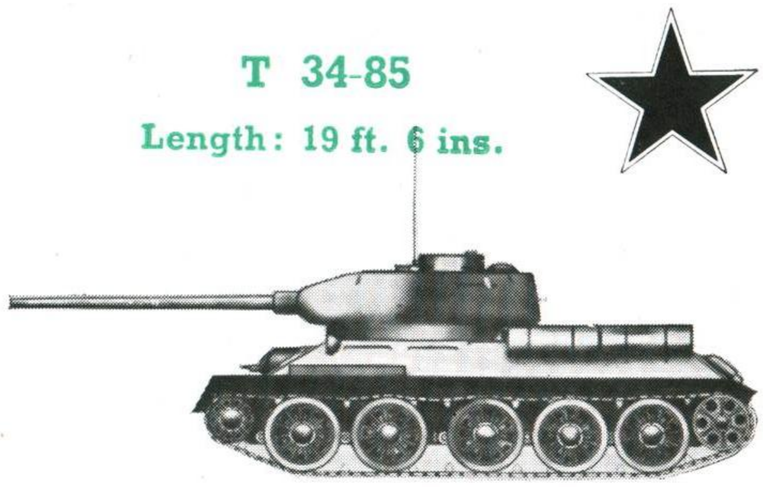


British Centurion and Russian T 34-85 medium tanks are in service on opposing sides in North Korea. Basically, they are quite dissimilar, but in the heat and confusion of action and under camouflage, mistakes in identity are only too easy. We illustrate a number of views of each of these medium tanks in disguises of one kind or another. The exercise is to pierce these disguises and identify each tank, if necessary with the aid of the named plan and side view drawings given. The correct identities are printed on page 286.



T 34-85

Length: 19 ft. 6 ins.



Base Bearings

When we read that pilots may now obtain instantaneous base bearings by means of a new high-frequency direction-finder developed by Marconi, we were moved to warn pilots that this does not mean that they may now indent for roller skates.

Misquote

The North American Salvage at sea suggests to us that someone has been taking Wreck-cognition too seriously.

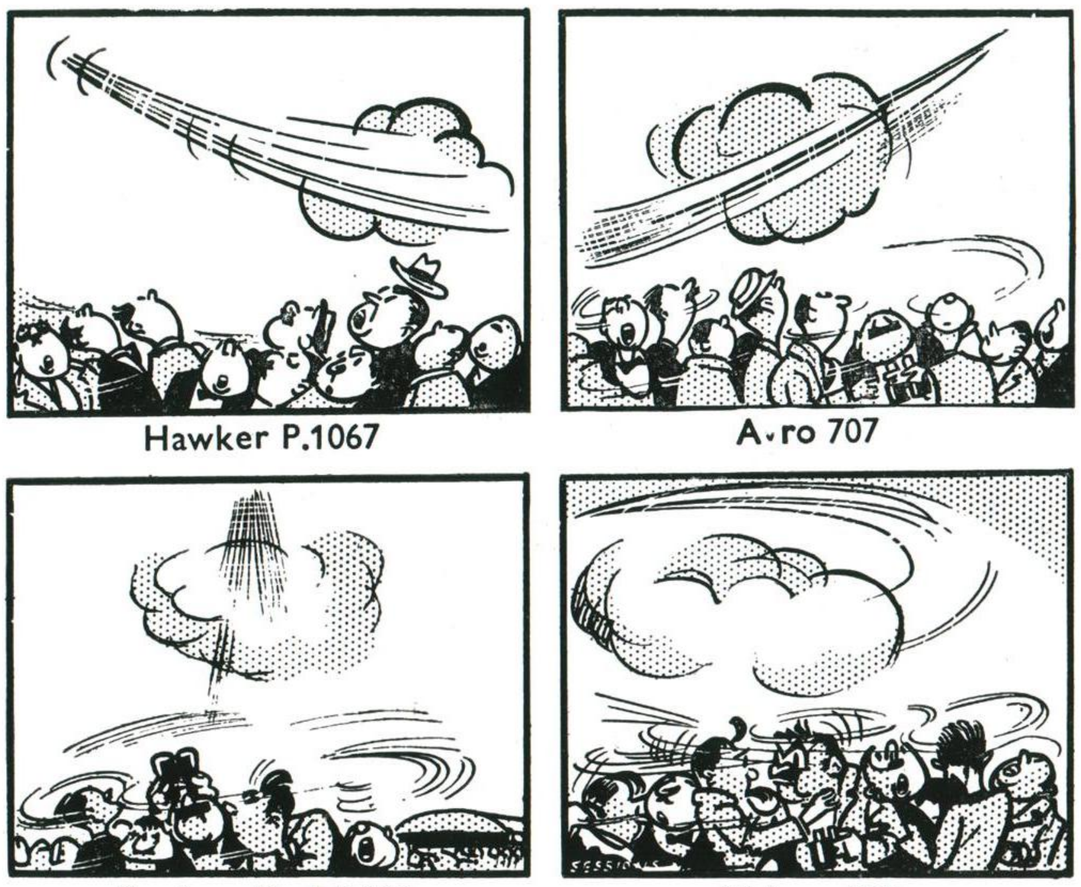
Fin Fairing

It has been brought to our notice that some readers may be slightly confused by the absence of fin fairing on the IL-12 Character Study silhouette in the October Journal. We would like to reassure readers that the IL-12 may be seen with or without this modification.

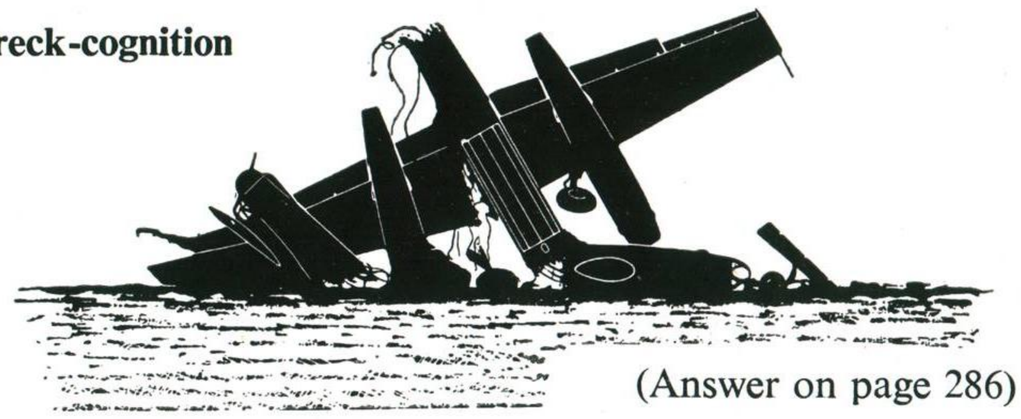
Errata

September Journal, page 216, Sillographs No. 84, read Firefly F Mk. 1; page 208, H.M.C.S. *Magnificent*, H.M.A.S. *Sydney* and H.M.S. *Majestic* are units of the Majestic Class, not Colossus as stated. The ships mentioned on page 208 are, however, often referred to as the Majestic-Colossus Class as they are all similar in appearance, or Modified Colossus Class in the cases of *Perseus* and *Pioneer*. *Unicorn* is also in the latter category.

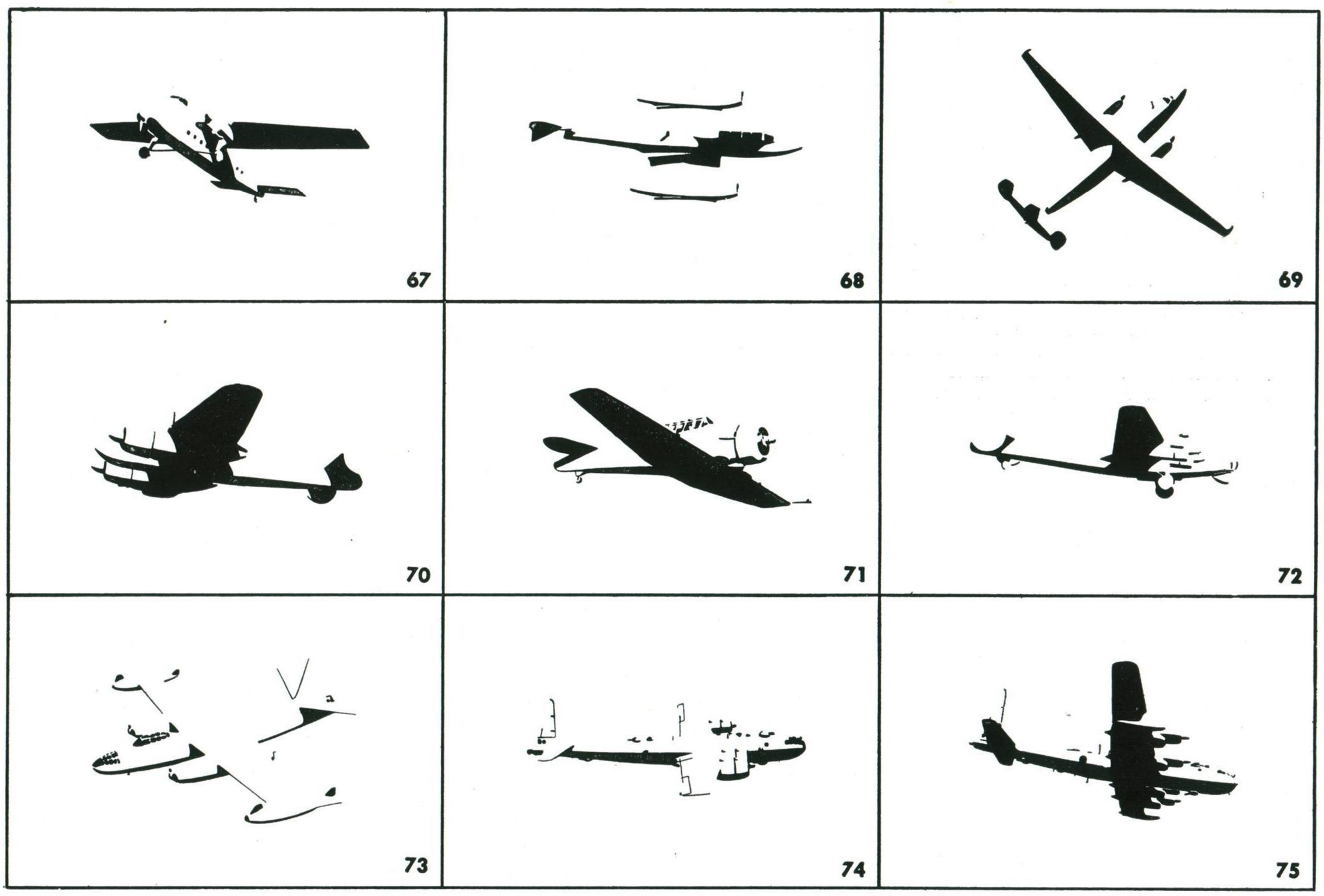
SESSIONS AT FARNBOROUGH



Wreck-cognition



(Answer on page 286)



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