THE INTER SERVICES

AIRCRAFT RECOGNITION

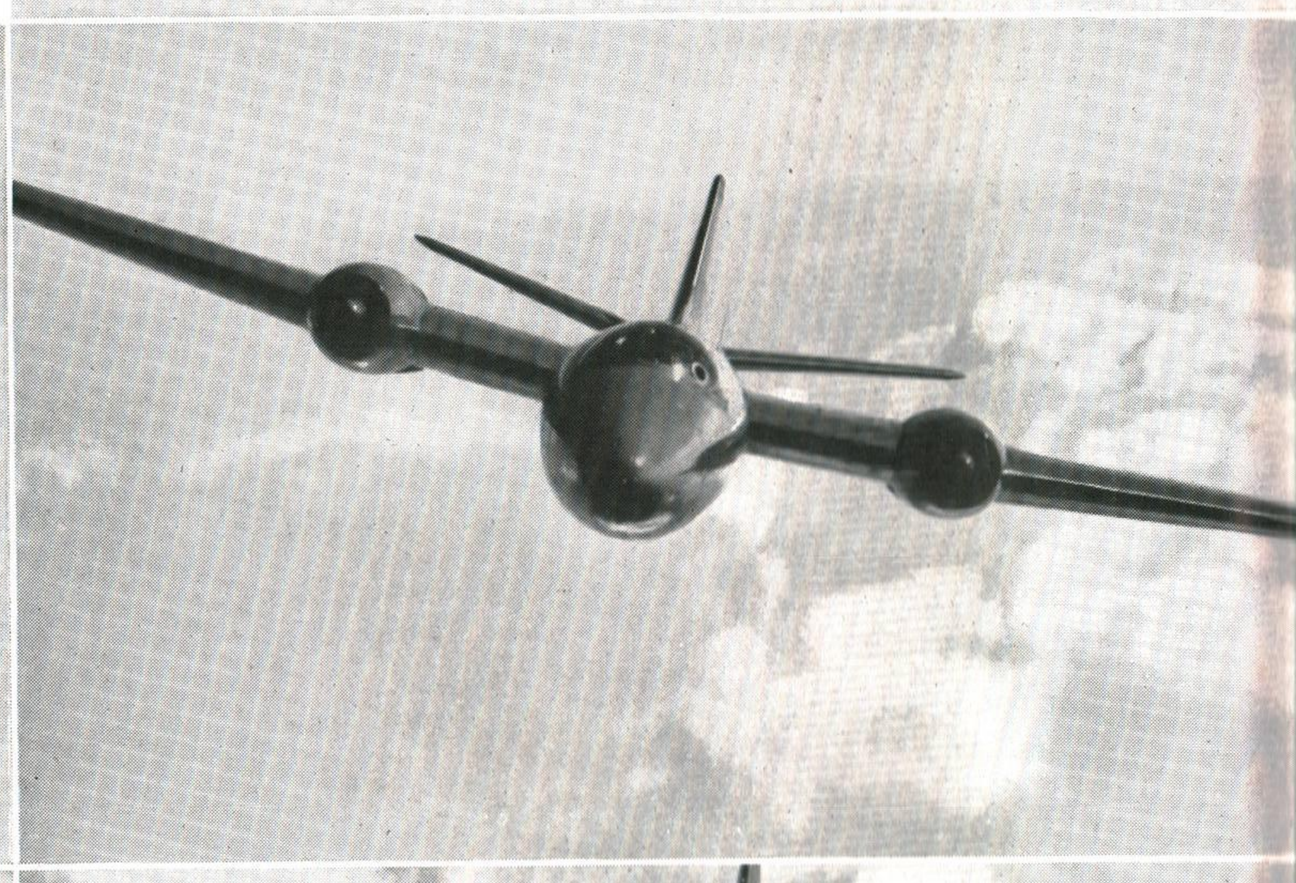
Journal

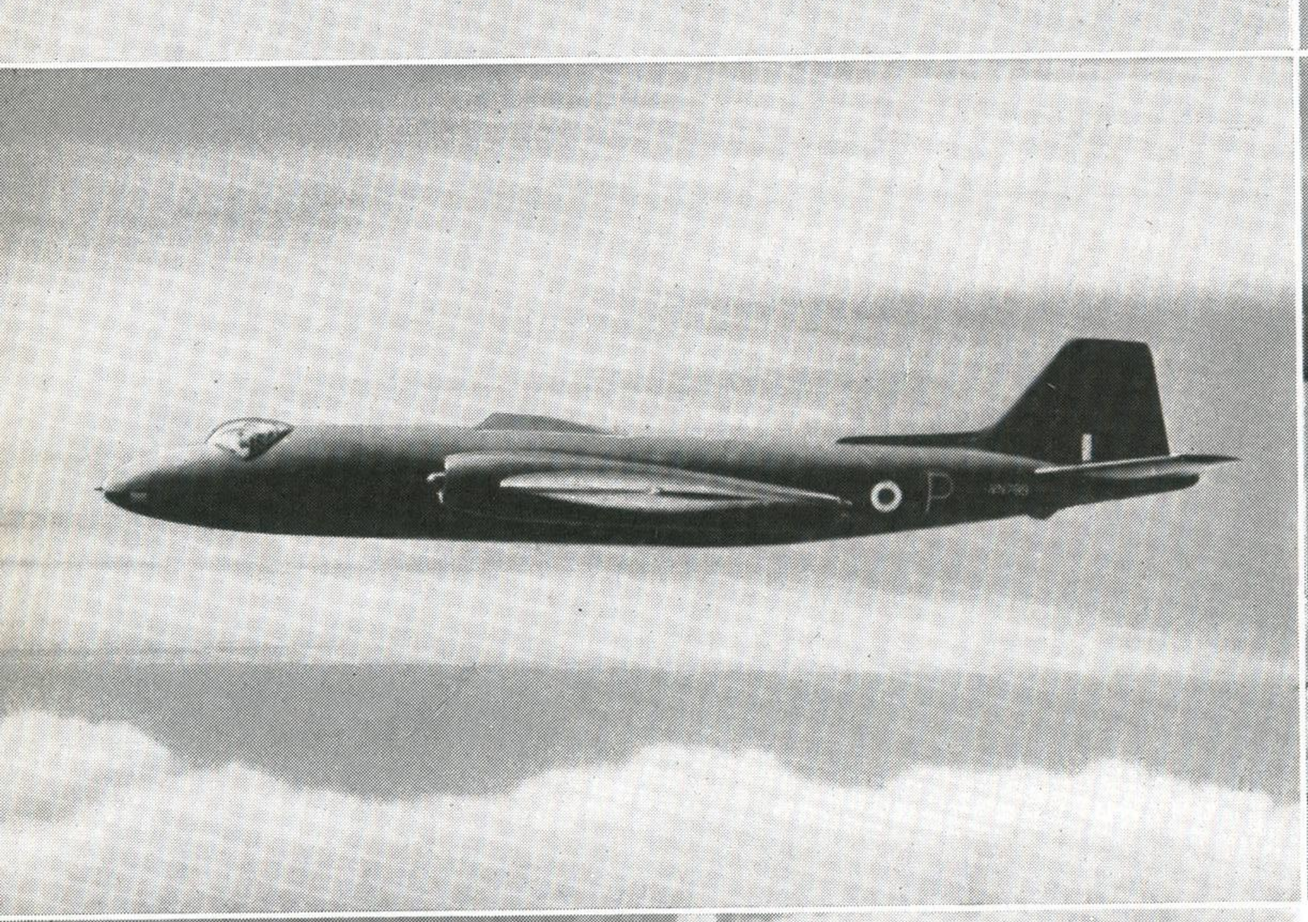
Vol 4. NOVEMBER 1949 No. 3

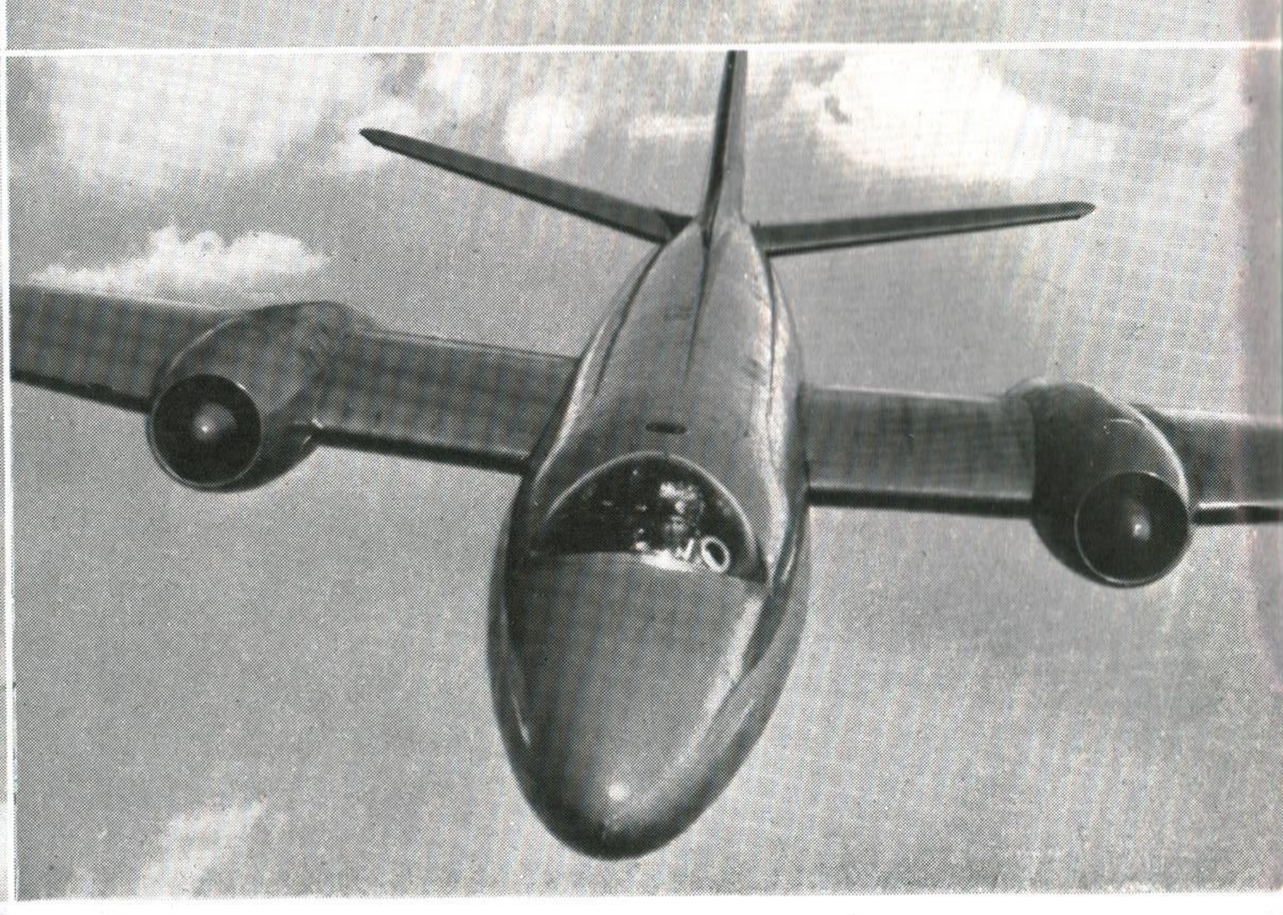
A "Hexagon" Wing and unusual Tail distinguish

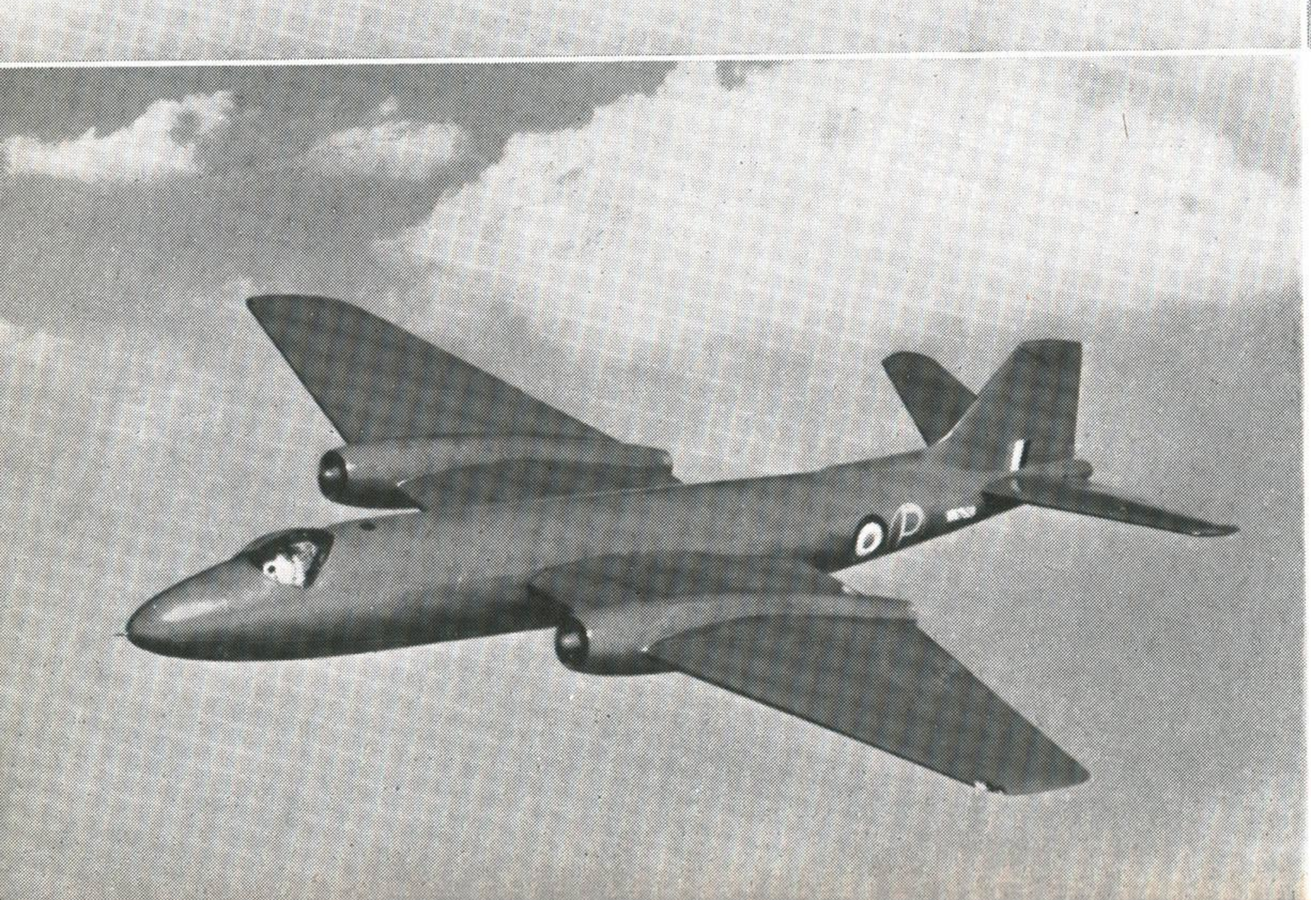
THE ENGLISH ELECTRIC

CANBERRA B Mk. I









From brief sighting experiences of the first British jet bomber it can be said that in appearance and performance it has something in common with the Meteor. It has been mistakenly identified as a Meteor Mk. 3 (short nacelle) at low angles of view when the hexagonal wing appears foreshortened and the squat fin and rudder and tail plane dihedral angle are hidden. The other side of its Meteor-like character was admirably demonstrated at Farnborough at the SBAC display. Like many of the jet-fighters present it was quite capable of doing a "vertical circuit". Its inspiring performance derives from two Rolls-Royce Avon turbojets. The wing span is 64 feet, its height 15 ft. 7 ins.

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BRIDGING A GAP

A VAST SURGE OF PRINT has greeted the first flights of the Bristol Brabazon. Such great acclaim well matches the proportions of the aeroplane and the greatness of its underlying concept, which is to bridge the ocean between London and New York by a single span.

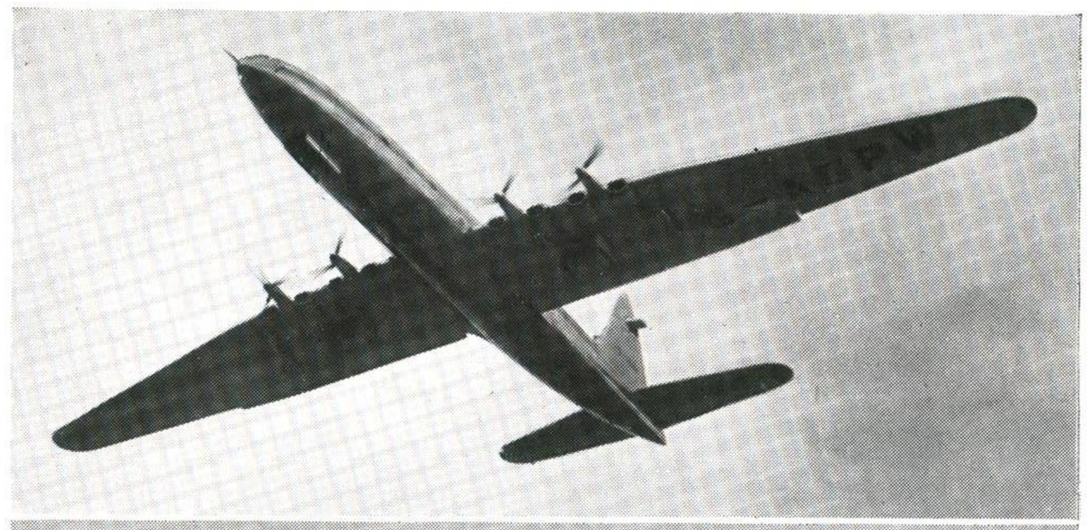
In 1943 the Brabazon Committee, set up by the Government to consider the post-war aircraft needs of Britain's Airlines, delivered its recommendations. The Brabazon project was the first on the Committee's list : it is the fourth to fly. It was the most daring of all the projects, for, as Lord Brabazon himself recently wrote " it was not one step forward but three " ; the high prestige value of operating a non-stop service between London and New York was—and is—the glittering prize. The adoption of the Committee's recommendations by the Government was followed in a few months by an order for two prototypes of the Bristol 167, which was the Brabazon's design designation.

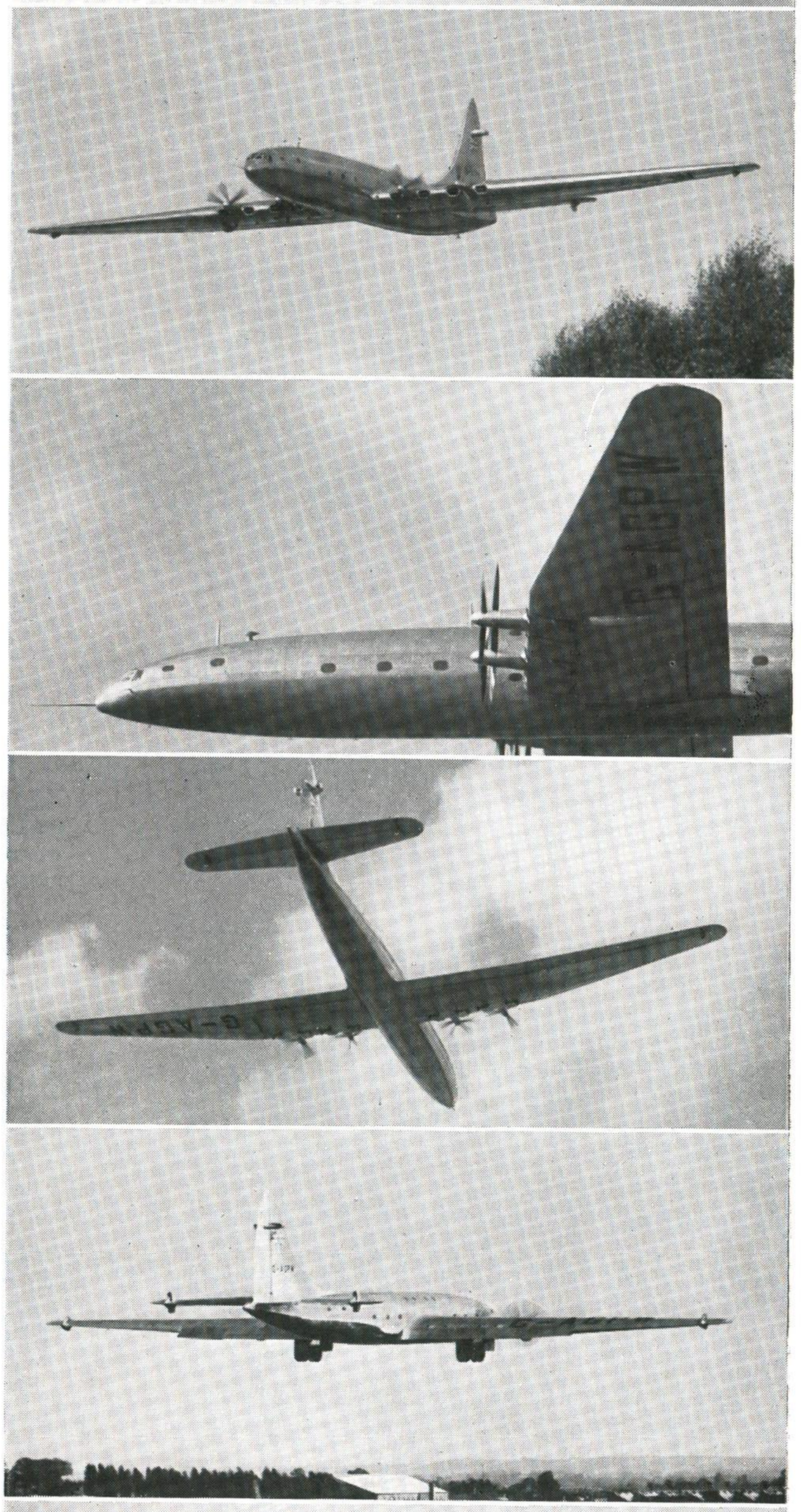
Six years is a phenomenal time to wait for the first flight of a prototype aeroplane : but the Bristol 167 Brabazon is a phenomenal aeroplane. The operational demands of a regular non-stop service between London and New York are formidable : requirements are that the machine shall carry a large number of passengers, adequate fuel, and it must have, among many other things, high utilization, that is, it must be easy to "turn round" at the terminal and not stay on the ground too long. The Brabazon is the Bristol Aeroplane Company's answer.

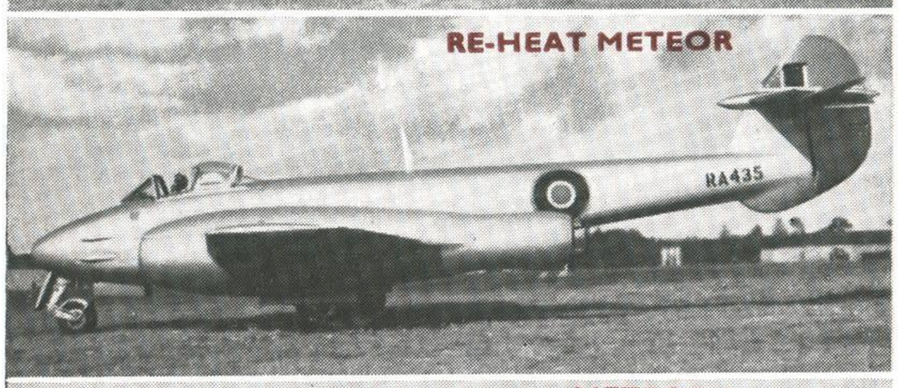
It goes without saying that an aeroplane three steps in advance of anything yet built requires an immense amount of aerodynamic and engineering research—in some aspects, such as the power-operated control system, the going is nothing short of pioneering. But that is only part of the task. A machine of such size and type has an astronomical number of working parts, each of which must function perfectly if the whole is to fly, and all these have to be designed, perhaps modelled and tested, then fitted and re-tested in the whole great structure. Indeed testing is a major time-consumer and uses much special plant and equipment, many items of which are not products of the aviation industry : for example, 12 special ciné cameras have been made for the purpose of photographing banks of instruments in the Brabazon during test flying. There are many other special items.

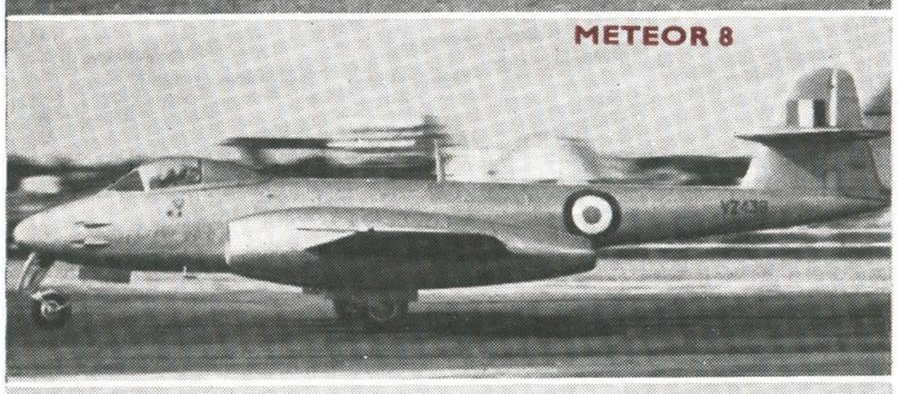
Many industries only remotely connected with aviation are playing parts in the production of the Brabazon and a very real idea of the magnitude of the undertaking can be obtained by examining the numerous advertisements which have appeared in the Aeronautical Press since the Brabazon first flew. It seems that there is no British industry which has not contributed something to its production and there can be few localities in the country which are not directly interested in what has been called "this vast National Enterprise", and it is not very difficult to visualise where twelve-and-a-half million pounds and six years of design, research and building are being spent, when one considers that this is the price of the two prototypes, the vast assembly hall, and the outsize in runways.

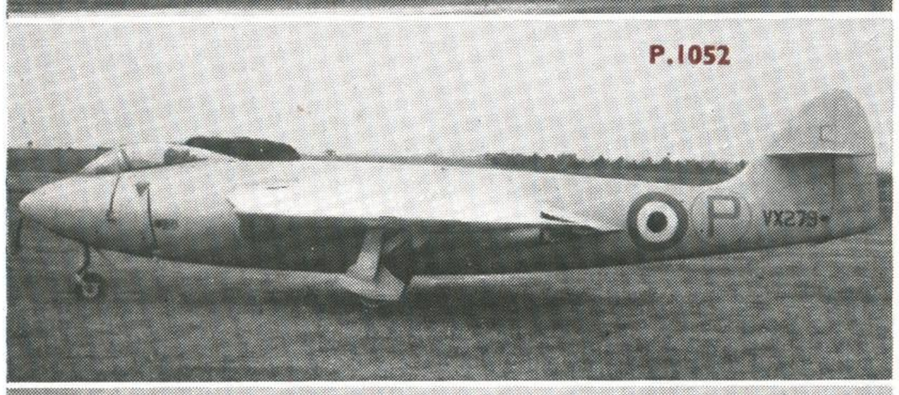
It is in 1954 that the Brabazon II is expected to go into regular service. There is no aeroplane yet in existence, nor, as far as we know, is there one projected anywhere in the World, which is capable of carrying off the prize for which the Brabazon is headed. So at present its road is clear. Let us wish the Brabazon good luck and happy landings in its testing time.











SOME S.B.A.

AVRO ATHENA T Mk.2

Advanced Athena. Straighter though still attractive lines distinguish the Avro Athena T Mk.2 (one Rolls-Royce Merlin in-line engine) from the first prototype. Note particularly the strong " leaning " tendency of the fin and rudder, the forward position of the large cockpit, and large radiator duct beneath the nose. Span 40 ft. 0 ins.

DE HAVILLAND CHIPMUNK T Mk.10

Chip-Ten. The de Havilland Chipmunk T Mk.10 (one Gipsy Major 10 in-line engine), now in production for the R.A.F.—and for export—is characterized by a long cockpit canopy, a fixed undercarriage and a large broad " spearhead " fin (de Havilland fashion) set in advance of the tail-plane. Span 34 ft. 4 ins.

AVON-METEOR

Re-light Delight. The greater length of the turbo-jet nacelles, and the small intake on each nacelle front belly are the most noticeable differences between the Avon-Meteor and the standard Mk.4. The Avon-Meteor is still experimental and carries a " spin-chute " behind the fin/tailplane acorn fairing. Span 37 ft. 2 ins.

RE-HEAT METEOR

Added Urge. Another experimental version of this well-known fighter is provided with after-burners to its two Rolls-Royce Derwent turbojets. Only those who saw its performance will be able to appreciate the effect of so small a piece of " ironmongery " attached to the rear of each turbojet. Span 37 ft. 2 ins.

GLOSTER METEOR F Mk.8

Trimmed Triangle. Yet another version has departed entirely from the familiar and characteristic tailplane and fin shape for the sake of better handling qualities, higher mach numbers and, incidentally, for the good of recognition. A trimmed-triangle fin and a back-tapered tailplane mark the Meteor 8. It has two Rolls-Royce Derwent 5 turbojets. Span 37 ft. 2 ins.

HAWKER P. 1052

Sleek Symmetry. Let your eye run from the tip of the nose over the gently curving top-line of the fuselage, ignoring the fin, and continuing on to meet the bottom line at the base of the rudder. Most will agree there never could be a more beautifully symmetrical shape for an aeroplane. The P. 1052 is propelled by a Rolls-Royce Nene Turbojet. It is an experimental type. Span 26 ft. 6 ins.

DE HAVILLAND VENOM

Revamped into Venom. Tip-tanks, which may become standard equipment, obscure part of this view of the new de Havilland high altitude fighter. Main external differences are the wing plan form (look at the shadows !) and, internally, it uses a de Havilland Ghost turbojet. The twin booms and characteristic fins remain to give type clues. Span 41 ft. 9 ins.

VICKERS ARMSTRONGS 510

Swift Dart, or Vickers Armstrongs 510. An experimental aeroplane for supersonic research, it has already pushed close up to the sonic barrier and the expression " catching the five-ten " takes on a new significance. An "Attacker " development, it has a Rolls-Royce Nene turbojet. Span 38 ft. 8 ins.

WESTLAND WYVERN TF Mk.2

Dragon's Tooth. At least that's our idea of the Westland Wyvern's fin which is its main recognition characteristic and looms large over the high hump of the fuselage : with straight bottom line to fuselage, the aeroplane has an " arched " or " angry cat " aspect. The outsize in fins is matched by the size of the spinner and exhaust tailpipes. The Westland Wyvern TF 2 is a torpedo-fighter for the Royal Navy. Span 44 ft. 0 ins.

C. SIDELINES

AVRO 707

Delta Wing experimental single-seater, powered by a Rolls-Royce Nene turbojet, so called because its wing plan-form resembles the Greek letter Δ (delta). Fairing to swept fin and rudder appears to bisect—or does it bifurcate ?—the jet intake which is on top of the fuselage. Span 33 ft.

ENGLISH ELECTRIC CANBERRA B Mk.1

Flat Racing takes on a new meaning. The English Electric Canberra B Mk.1 has extraordinary " squatness " in side view : and its racing lines match its performance. Two Rolls-Royce Avons in long slender nacelles provide the power. Span : 64 ft. 0 ins.

DE HAVILLAND D.H. 113

" Nighted " Vampire. The nose-up tail-up attitude of the D.H. 113 Night fighter makes an already easily-identifiable type even easier. Resemblance of cockpit canopy to that of the Mosquito is noteworthy. The silence of the night will be shattered by a de Havilland Goblin 4. Span 38 ft. 0 ins.

FAIREY FIREFLY Mk.5

Unfairy-like. The lines of the Firefly's airframe are good when considered separately : " navalizing " disguises them but adds recognition points. A Rolls-Royce Griffon 74 labours beneath this load of naval novelties but lifts the whole machine in good style aided by ATO rockets. There are three kinds of Mk. 5 Firefly : the F.R., fighter/recce : the N.F., night fighter : and the A.S., anti-submarine. Span 34 ft. 3 ins.

GLOSTER METEOR T Mk.7

Made for Two. The Gloster Meteor 7 was designed to facilitate transition from the propeller to the jet stages of flying training. Major external difference between Mark 7 and standard Mark 4 fighter is the elongated cockpit canopy and longer nose. The " spin-chute " at the rear of tailplane/fin fairing is temporary. Span 37 ft. 2 ins.

HAWKER P. 1040

Navalized Symmetry. The Hawker P. 1040 (one Rolls-Royce Nene turbojet) has so far been kindly dealt with in the process of " navalizing," and the largest external addition is the deck-arrester hook extending some three feet to the rear from base of the rudder (not shown in this photo.). Span 36 ft. 6 ins.

HAWKER SEA FURY T Mk.20

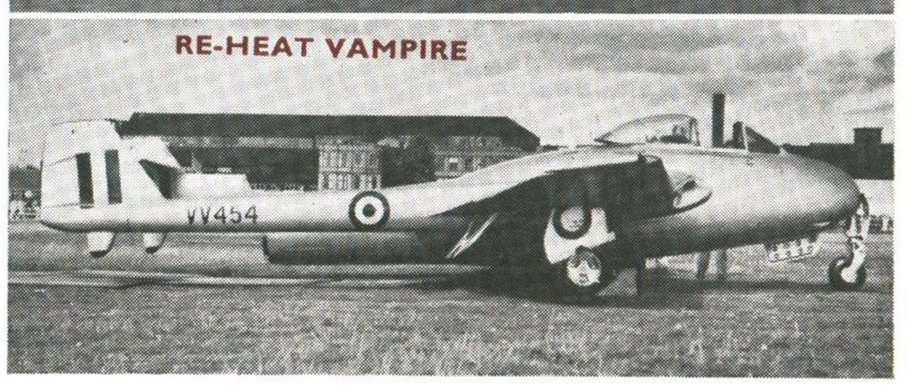
Double-Bubble, cockpit canopy and periscopic gunsight are the most noticeable features of the Hawker Sea Fury T 20 trainer (one Bristol Centaurus radial) built for Royal Navy. Though deck hook is missing in this one, T 20s have them, together with folding wings and other features peculiar to Naval Aviation. Span 38 ft. 5 ins.

AVRO SHACKLETON

Big Ears and a mass of " fans " seem to sum up the Avro Shackleton, though sturdiness and toughness are also in the picture. Designed to shadow —and shatter—surface ships and submarines, the Shackleton's search-gear under the nose forms a useful recognition detail, as do the points of the inner nacelles which extend beyond the trailing edge. Span 120 ft. 0 ins.

RE-HEAT VAMPIRE

Boom, boom, boom. Yet another variant of a well-tried and known fighter to which the extended jetpipe (after-burner) almost adds another boom. The reheated gases from a de Havilland Goblin turbojet thrust the Vampire to yet a higher peak of performance. This is an experimental model. Span 38 ft. 0 ins.



ADVANCED SPOTTING

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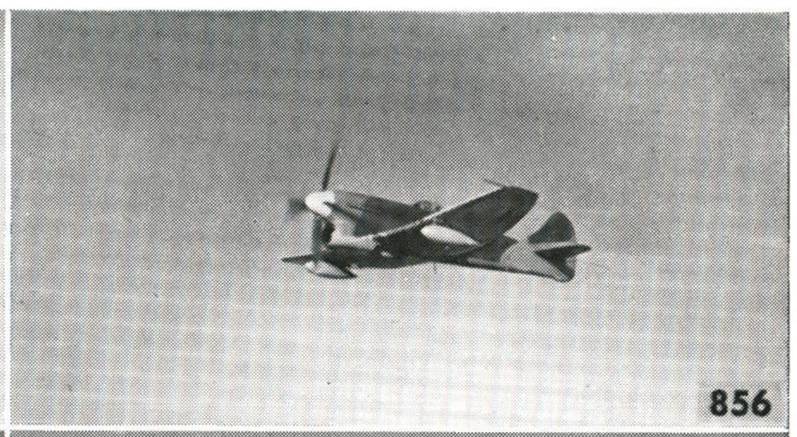
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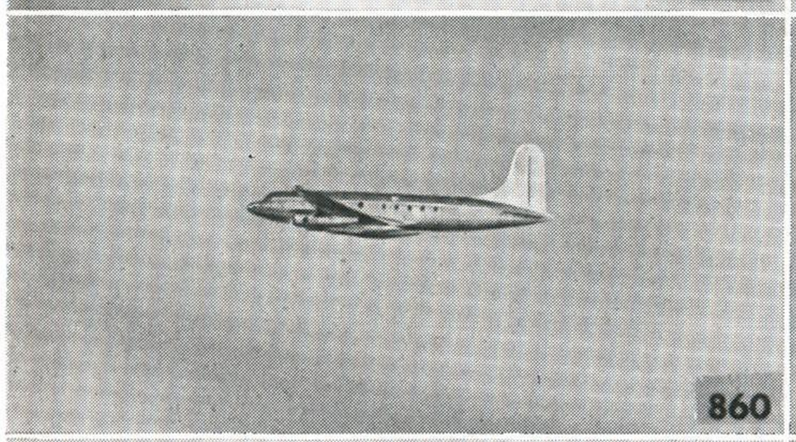
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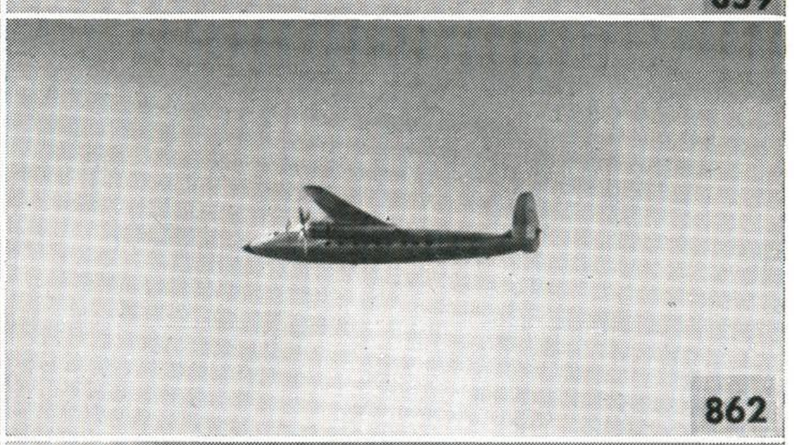
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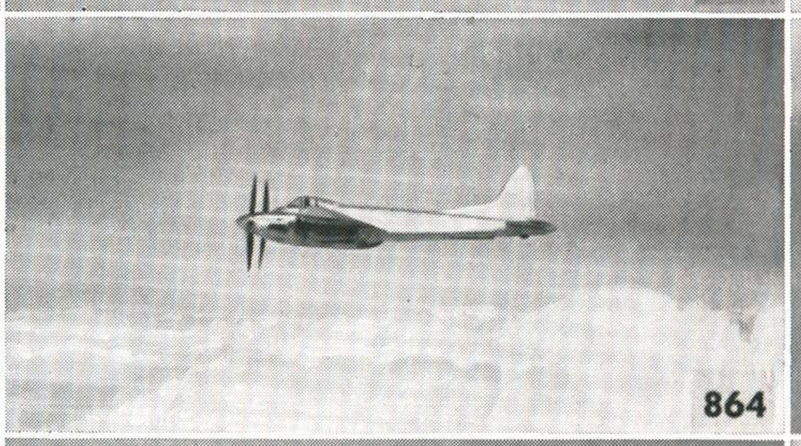
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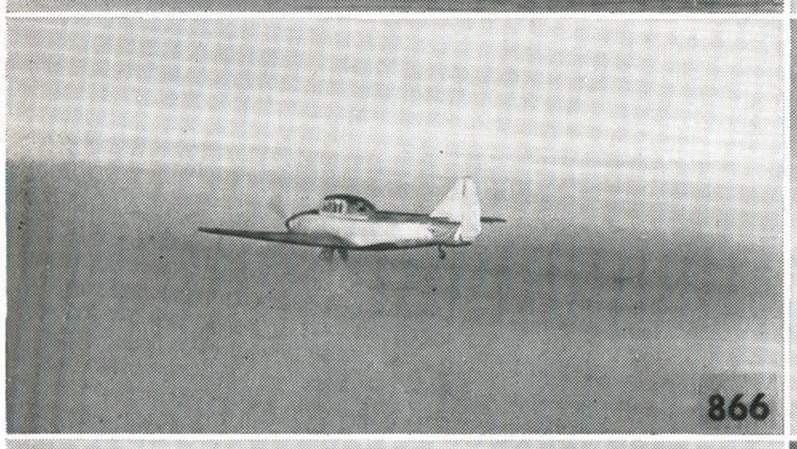
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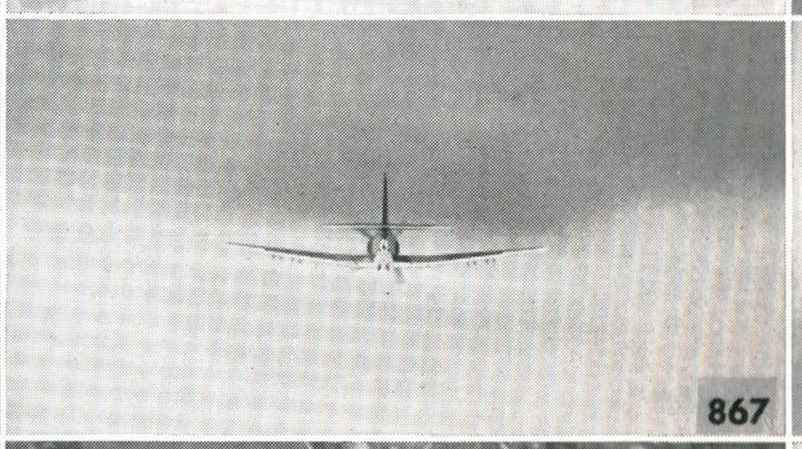
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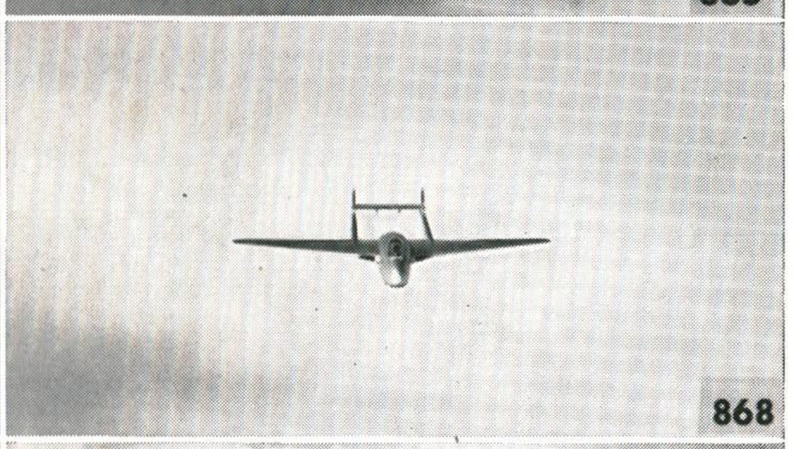
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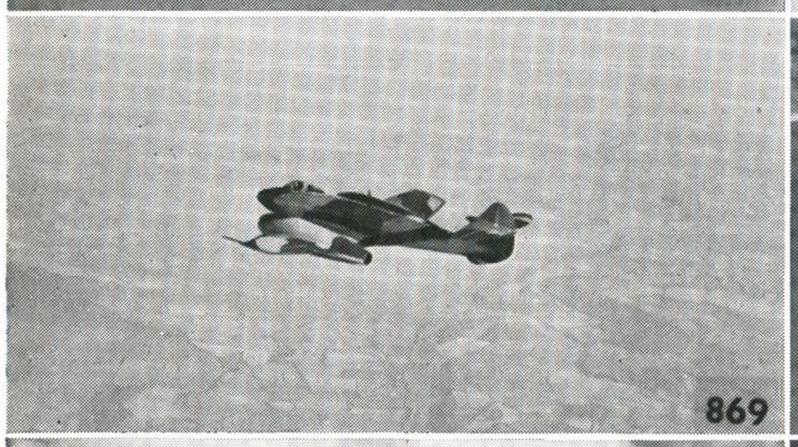
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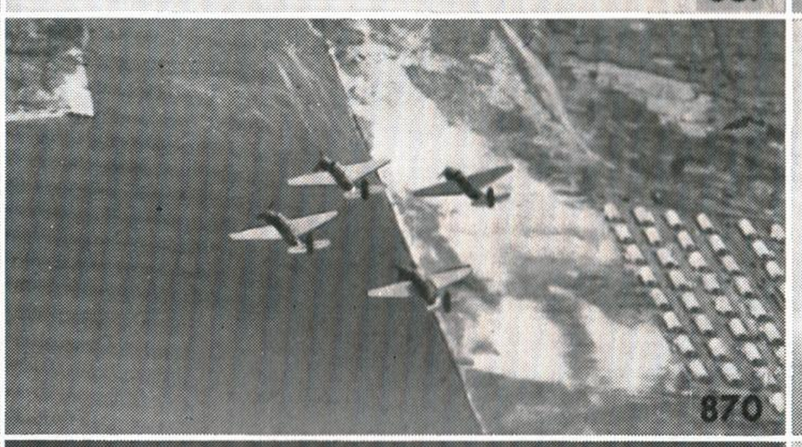
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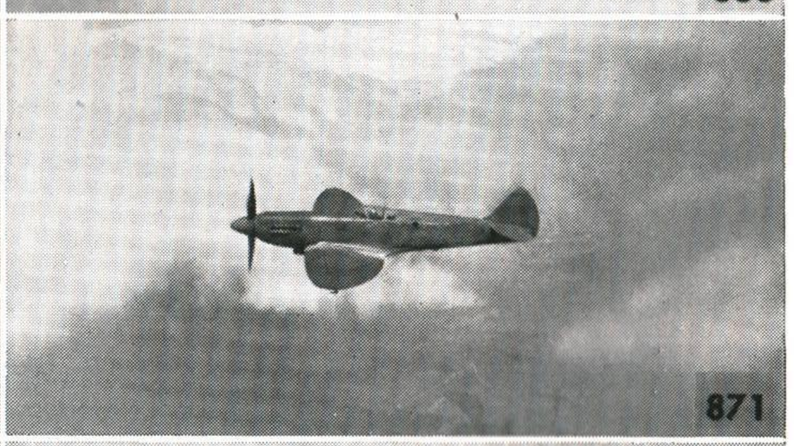
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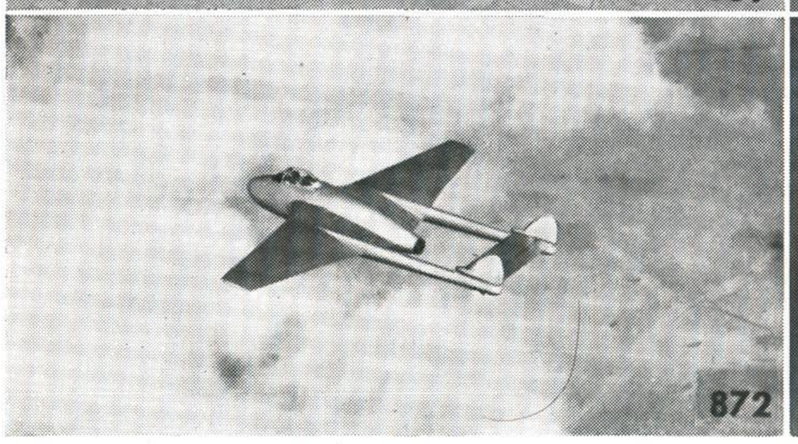
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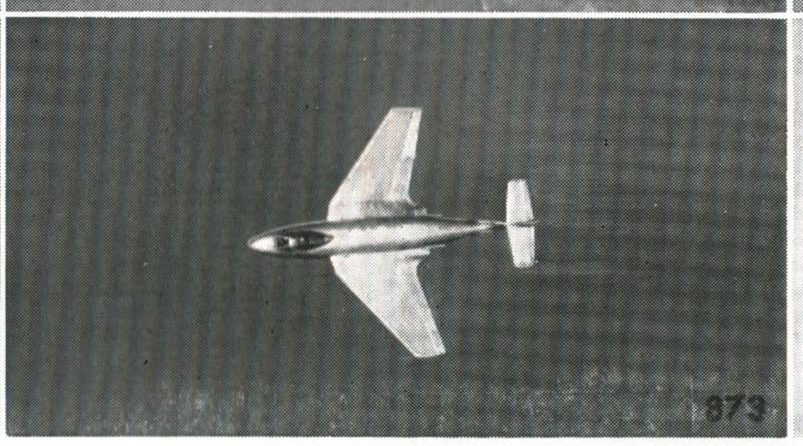
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IN PASSING . . .

New Aircraft Recognition Material

The undermentioned new Air Diagrams are now available and initial distribution has been made. Applications for supplies should be made through the normal official channels, quoting reference numbers as shown below.

PICTORIAL CHARTS

AD. 4694 Tudor 4
AD. 4856 Auster A.O.P. Mk. 6
AD. 4857 Horsa Mk. 2

LARGE SILHOUETTES

AD. 4885 Mosquito PR Mk. 34
AD. 4886 P2V-2 Neptune

WORKING DRAWINGS 1/72 Scale Models

AD. 4866 P2V-2 Neptune
AD. 4634 F-82 Twin Mustang
AD. 4829 AD-1 Skyraider
AD. 4882 C-119 Packet

Twenty Questions

1. Name the largest and heaviest helicopter in the World.
2. The cockpit of the Attacker is situated (*a*) in advance of (*b*) over, or (*c*) behind the wing?
3. The Brabazon is designed to carry (*a*) 50, (*b*) 100, (*c*) 150 passengers?
4. Has the Canberra a high or low aspect ratio wing?
5. An after-burner is (*a*) a new flame thrower for attacking aircraft from the rear, (*b*) a delayed-action incendiary bomb, (*c*) a device used in a jet engine for getting extra thrust.
6. Name at least two aeroplanes which have been adapted to incorporate the principle of afterburning or " re-heat."
7. Give the name and function of the DH. 112.
8. The Canberra has a wing span of (*a*) 44 ft., (*b*) 54 ft., (*c*) 64 ft.?
9. Select the points which apply to the de Havilland Comet from the undermentioned :—
   (*a*) high-wing, (*b*) twin-jet, (*c*) dihedral tail, (*d*) swept and tapered wing, (*e*) unswept and untapered wing, (*f*) swept tail surfaces, (*g*) tapered and unswept tail surfaces, (*h*) bomber, (*j*) dihedral in wing, (*k*) tricycle undercarriage, (*l*) four-jet, (*m*) air-liner, (*n*) low-wing.
10. Why is a delta wing so called?
11. The Westland Wyvern has a fin and rudder which is (*a*) oval, (*b*) square-cut, (*c*) tall and pointed?
12. Mate the following wing spans with their appropriate aeroplanes :—100 ft., 141 ft. 3 ins., 123 ft., 113 ft., Hastings, Neptune, B-29, Constellation.
13. In the head-on view the fuselage of the Avro York appears (*a*) round, (*b*) square, (*c*) triangular?
14. The Meteor 8 has a reshaped (*a*) tail-unit, (*b*) wing, (*c*) cockpit canopy?
15. What are the recognition characteristics of the Neptune's wing.
16. What is the name of the Russian transport aeroplane which was recently seen at Northolt?
17. Which of the following earmarks apply to the DH. 112 Venom, and which to the DH. 113 Vampire? (*a*) back-tapered wing, (*b*) squared-off wing-tips or tip tanks, (*c*) two-seat night-fighter, (*d*) upturned nose
18. Name two American aeroplanes with six radial " pusher " engines and swept back wings.
19. Which of the aeroplanes in question 18 is a heavy bomber? What is the other?
20. If you are watching a " dog-fight " indicated by vapour trails, when is it easiest to recognize the aeroplanes taking part?

(*Answers on the rear cover*).

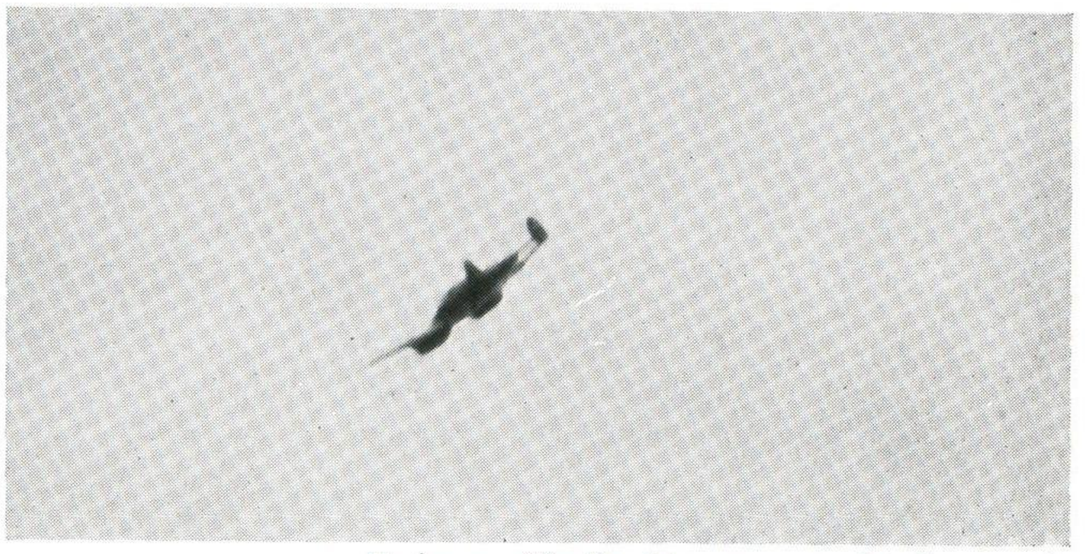
A better understanding of the size of the Convair B-36 is obtained from this view of its bogey-track undercarriage.

This Month's Nonsense

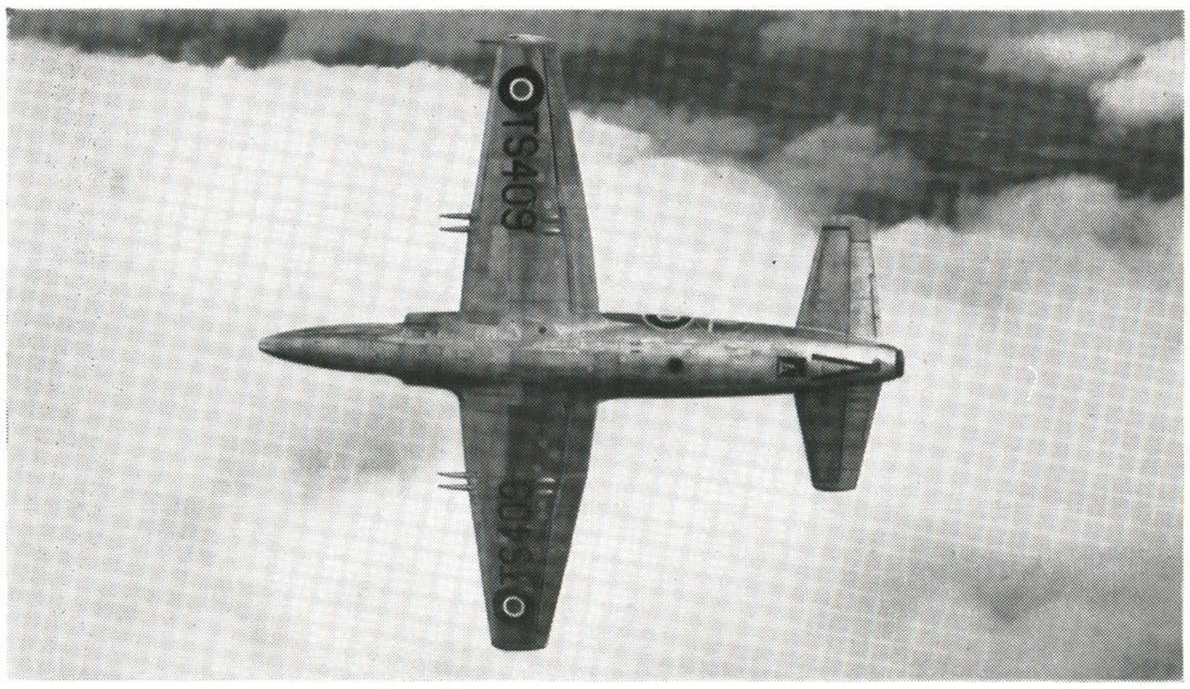
Respottable Liars

Many thinkle peep that a knocking whirlage of aircraft recognition can be attired without much crubble in a tort space of shime. This is, of course, nonsolute absence, and in foint of pact such thisted twinking is nothing tradge of shortiddy. If steeple thop to pink for a minute, it will be intellous to the meanest obvigence that not only must there be a protinuous concess of stolid suddy for familiarosis of purposization, but also constant spottical practing to keep the nind mimble and to inspot the crease of speeding. If therefore we wish to become export spurters we must all put our wolders to the sheel and leave no stern untoned to acquire first a nude gollage of aircraft fape and shorm and then, by conpractuous tinnis, attain the poisoned polish and consolute abfidence of respottable liars.

Aerogram



Enigma Simile (Answer on back cover)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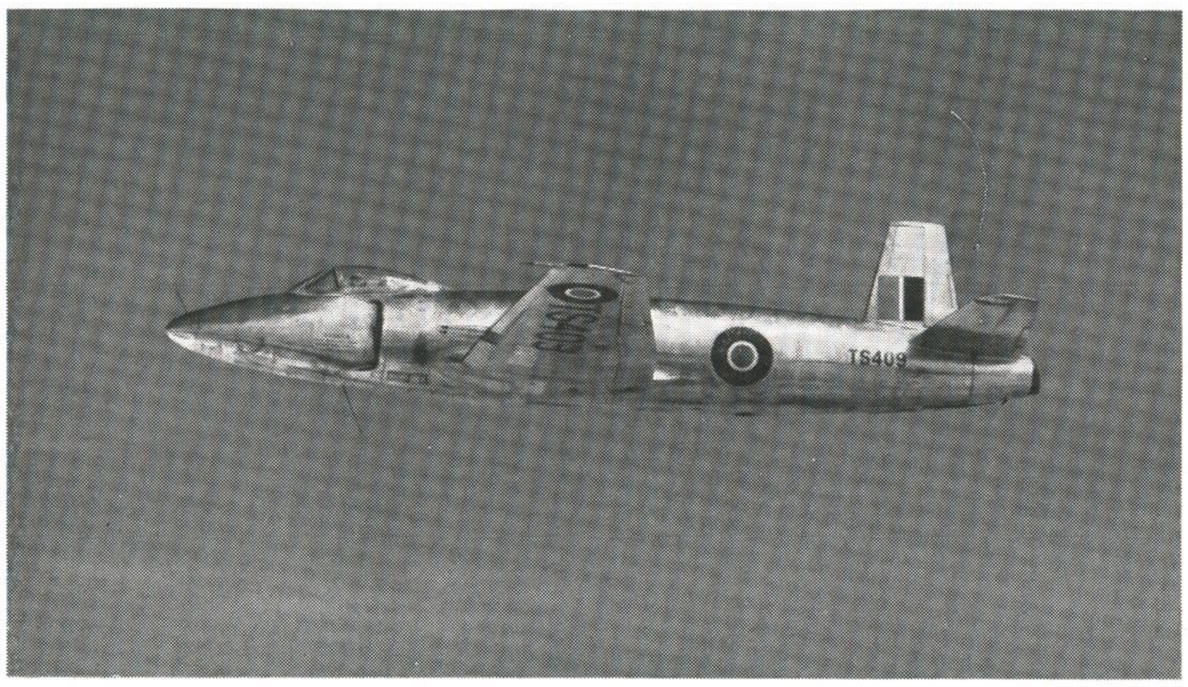
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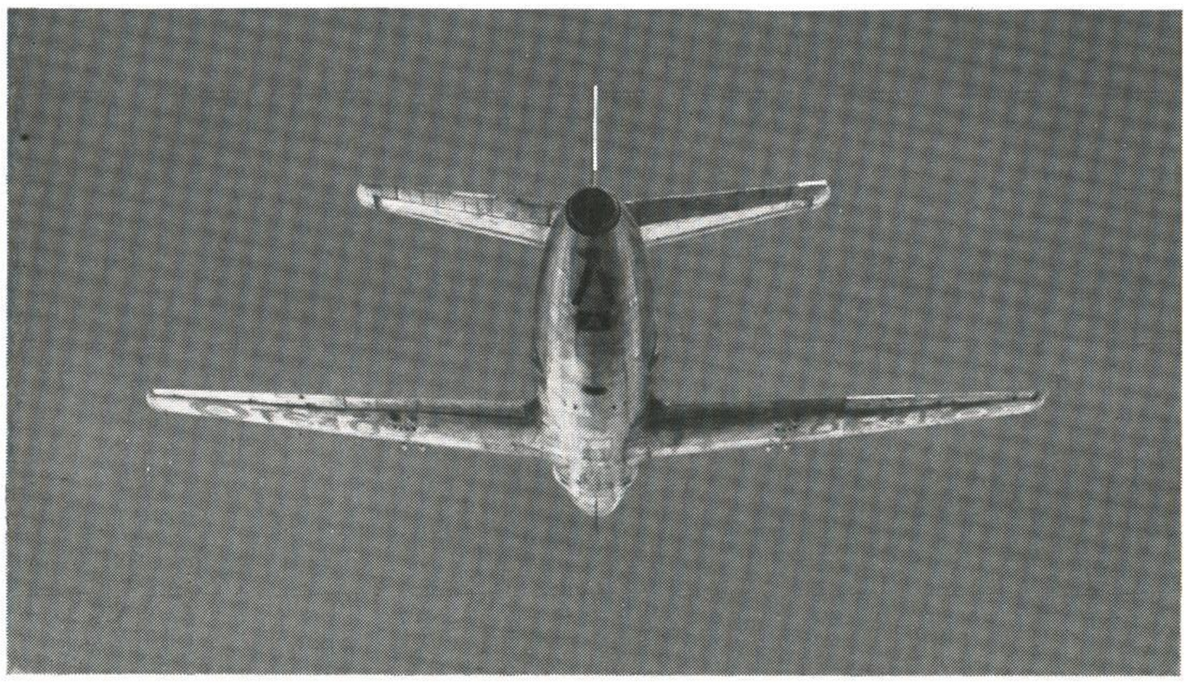
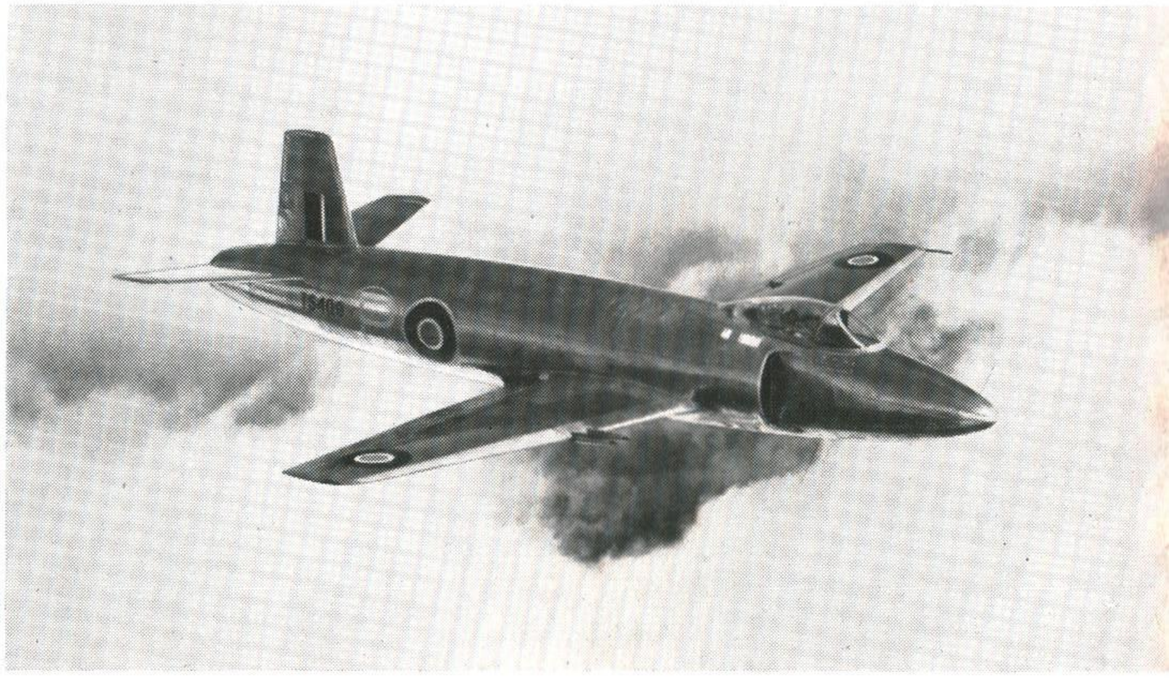




VICKERS ATTACKER F Mk.1

by ROY McLEAVY

LATEST AND FASTEST JET-FIGHTER to be ordered for carrier-borne operation by the Royal Navy, the Vickers-Armstrongs Attacker is a single-seat, low-wing monoplane, powered by a single Rolls-Royce Nene 3 turbojet. Design work was commenced in August 1944, under the direction of Mr. J. SMITH, Vickers-Supermarine's Chief Designer.

Originally conceived as a " jet fuselage," which could be applied to the low-drag wings of the Spiteful and thus facilitate rapid production, the first prototype Attacker was constructed to meet Air Ministry specification E.10/44. The Spiteful's undercarriage was also utilized, and the prototype was first flown on 26th July, 1946, by JEFFREY QUILL, Vickers Supermarine's Chief Test Pilot. Prior to the completion of the first prototype, which was intended to operate as a land-based interceptor, the application of the Attacker as a naval fighter was clearly foreseen. The second prototype was therefore constructed to meet the requirements of the Royal Navy. At this time there were a number of uncertainties and a general lack of practical experience concerning the behaviour of nose-wheel type undercarriages during deck landings, and so it was decided to retain the economies in weight and stowage space afforded by the tail-wheel arrangement. Modifications to the basic design included the addition of a deck-arrester hook, long-stroke undercarriage legs with a high degree of rebound damping to absorb heavy deck landings, lift-spoilers and hydraulically operated dive-recovery flaps. The lift spoilers are used in conjunction with the trailing edge flaps, and give an increased rate of descent during a landing approach.

Initial deck-landing trials, made on board *H.M.S. Illustrious*, were successfully completed in October 1947. To show that the low-speed handling qualities, ably demonstrated during the trials, had not been accomplished at the expense of high-speed performance, Vickers decided to enter the Attacker in an attempt to break the International 100-km. closed circuit record. Arrangements were made with the Ministry of Supply, the Royal Aero Club, who were to time the flight as the official agents of the Fédération Aéronautique Internationale, and the Royal Observer Corps, who provided two observers at each turning point. In adverse weather conditions on 26th and 27th February, 1948, an Attacker, flown by MICHAEL LITHGOW and carrying full military equipment, set up a new closed circuit record of 564.881 mph., a feat unequalled by an aircraft flying under these conditions and establishing beyond doubt the Attacker's all-round versatility.

Structure

Structure of the Attacker is mainly of stressed skin. The 5,000 lb. s.t. Nene 3 is installed amidships, with air intakes and boundary layer bleeds situated each side of the cockpit. The air is led by ducts through the main fuel tank bay to the plenum chamber ; the ducts converge, meeting at the face of the impellor. Five fuel tanks are mounted in the fuselage and two in the wings, containing a normal total fuel capacity of 290 gallons and allowing a range of 410 miles. A range of 1,100 miles may be obtained by the addition of a large 270-gallon belly tank. Incidentally, thus girded, the Attacker looks as though it belongs to the Air/Sea Rescue fraternity, complete with lifeboat !

The Attacker's nose is constructed of laminated aluminium-alloy and contains the radio, batteries and oxygen bottle. The pilot is accommodated well forward in a fully pressurised cockpit, which is armoured and has provision for the fitting of an ejector-type seat. An unusual feature, mounted on the nose of the prototype is the flight attitude sighting bead, installed at the request of one of the test pilots.

Fixed armament of the Attacker consists of four 20 mm. Hispano cannon mounted in the wings, with a total of 624 rounds of ammunition. In addition to these, combinations of rocket projectiles or bombs may be carried beneath the wings. The maximum loads are two 1,000 lb. bombs or four 300 lb. rockets.

Production

The naval Attacker F Mk.1, 70 of which are reported in production differs little from the prototype. Additional strengthening was found to be necessary in several places, and the present manually-operated lift spoilers will eventually be operated hydraulically.

Recognition of this well-streamlined successor to the Spitfire and Spiteful family should present little or no difficulty. Outstanding features are the bullet-shaped fuselage, with a long, narrow nose protruding ahead of the jet intakes ; the diminutive low wing ; mid-mounted tailplane with moderate dihedral ; and well set-forward fin and rudder, with jet orifice in the extreme tail. All flying surfaces are roughly equi-tapered and square-cut.

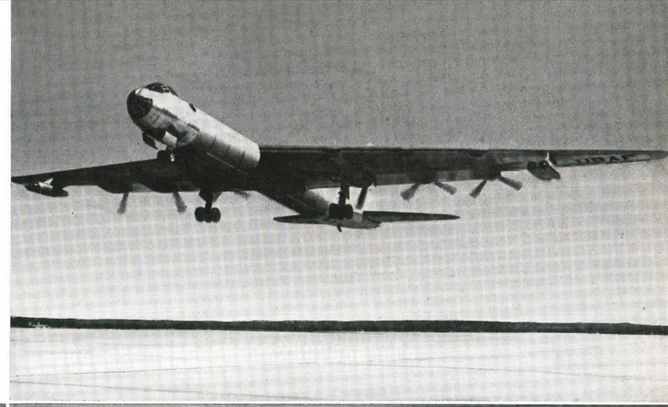
LEADING PARTICULARS :

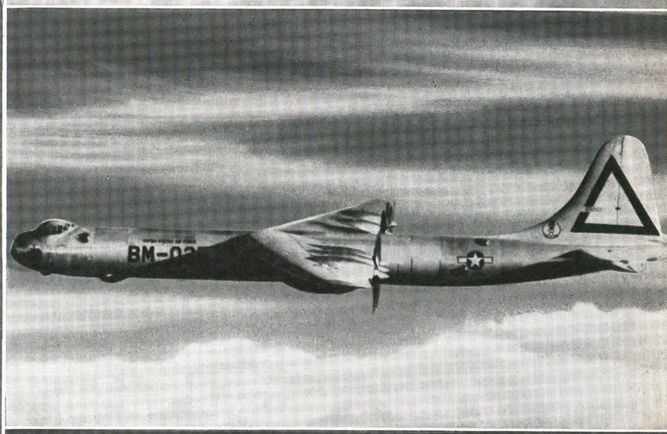
Span : 36 ft. 11 ins. ; length : 37 ft. 6 ins. ; wing area : 226 sq. ft. Normal all-up weight : 11,300 lb. Maximum speed at sea level : 590 mph. ; maximum speed at 10,000 ft. : 583 mph. Service ceiling : 48,500 ft.

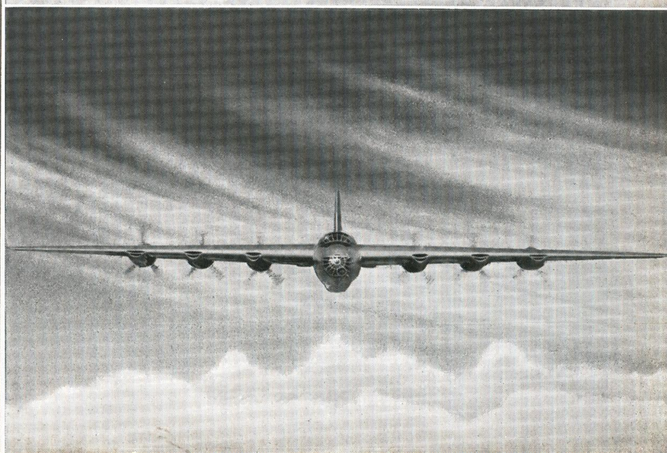
A research development of the Attacker is the Vickers-Supermarine 510, which embodies a high degree of sweepback on all flying surfaces to delay compressibility effects while flying at high subsonic and transonic speeds. Officially stated to be capable of speeds in excess of 650 mph., the 510 is powered by the same engine as the Attacker. The wings are finished to within very fine constructional limits to ensure the minimum possible drag. Large chord ailerons, and split trailing edge flaps are fitted. The undercarriage is of the tailwheel-type. Weight and performance figures are not yet available. Span : 38 ft. 8½ ins. ; length : 38 ft. 1 in. ; wing area : 273 sq. ft.

CONSOLIDATED VULTEE

Convair B-36







Convair

B-36

Everything about the B-36 is big—even the controversy which recently raged regarding its suitability for service in the U.S.A.F. as an inter-continental bomber. This very large aeroplane seems to have started its active life with a large number of "bugs" in its system, and, in getting over them has acquired one of the most controversial histories any aeroplane ever had, but the faith of the U.S.A.F. in its future is perhaps best demonstrated by the fact that orders for it now total 249.

From " X " to "A"

I. M. LADDON, designer of the B-36, probably put his rough design " on the back of an envelope " sometime in 1941. An initial order by the U.S.A.A.F. for two of these aircraft was expanded to 100 in 1943, but the first prototype did not take the air until the 8th August, 1946. This was the XB-36. The second prototype, the YB-36, followed : it differed slightly from the XB-36 in having 4-wheel bogey trucks instead of the large single undercarriage wheels ; it also had a bulging cockpit canopy in place of the flush type on the first one. The first production model, of which 22 were built, is the B-36A, and it is powered by six Pratt and Whitney Wasp Major radial engines of 3,000 h.p. each.

From " B " to " E "

The second production model, the B-36B outwardly similar in appearance, is powered by six Wasp Major radials of 3,500 h.p. each. Of this model 74 are at present on order. Of the B-36B two recent performances are noteworthy. One was a simulated combat mission of 10,000 miles, which was accomplished without aerial refuelling, and carrying its designed load of 10,000 lb. of bombs which were dropped well beyond the 5,000 mile mark. The other was a mission of 7,100 odd miles, of which 6,000 were flown above 40,000 ft. at an average speed of 300 m.p.h. The heaviest bomb-load carried so far by a B-36B is 72,000 lb.—which is its designed maximum capacity—though how far this load was carried was not disclosed. Of defensive armament that of the B-36B is the only one so far disclosed. It totals sixteen 20 mm. cannon and one 37 mm. cannon. They are positioned as follows : one tail-turret containing a 37 mm. and twin 20 mm. cannon ; two twin 20 mm. turrets at the base of the fin ; two twin 20 mm. turrets at the rear belly ; two twin 20 mm. turrets at the top of the fuselage aft of the cockpit and one twin 20 mm. turret in the nose. All turrets are remote controlled and all but nose and tail installations are retractable.

A contract for a proposed tractor version of this heavy bomber, to be known as the B-36C and powered by six Pratt and Whitney V.D.T. compound engines, was cancelled.

The third production model is the B-36D, which features, in addition to the normal six Wasp Major radials of 3,500 h.p. each, four J-47 turbojets of 5,200 lb. s.t. Thus equipped, a B-36D has reached a top speed of over 435 m.p.h. at an altitude of 50,000 ft. The turbojets are placed in pairs in pods well out towards the wing-tips. 130 B-36Ds are on order.

The RB-36E, of which 39 are at present on order, is a reconnaissance version of the B-36D. It uses the 3,500 h.p. Wasp Major radials and the turbojets. It is probable that the 22 B-36As already built will be converted to B-36Es by installing the more powerful Wasp Majors and the turbojets. It is also probable that the 73 B-36Bs on order will also have jets similarly installed.

" Drainpipe " Aspect

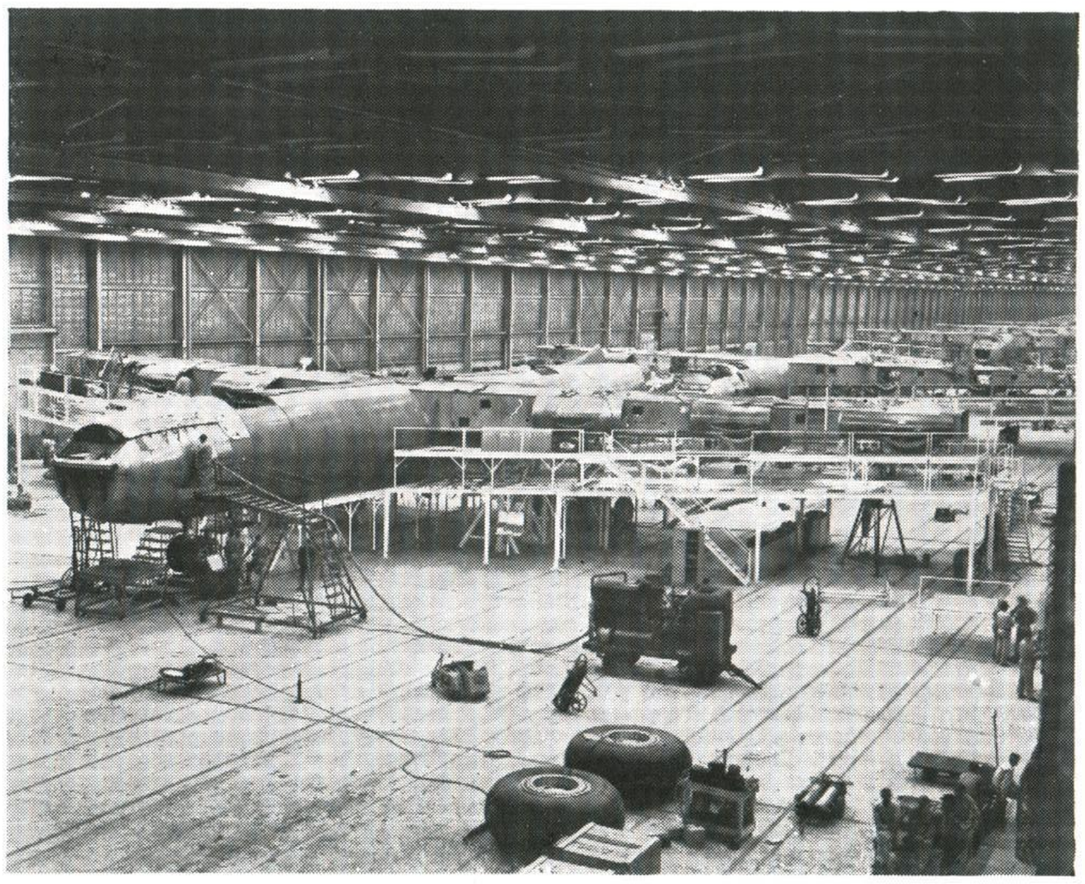
The B-36, in basic shape, is an easily recognizable type and with jetpods installed at the wing-tips becomes more so. One's first impression of it is that it falls within the category of flying drainpipes. A second impression is that it is a " blown-up " B-29 with six pusher props and a swept-back wing. This impression is confirmed when you compare individual shapes of wing (disregarding sweep-back) and tail surfaces : and at a distance confusion between B-29 and B-36 is possible, particularly in side aspects. In other views the most tell tale features are the six pusher-props. This arrangement was designed to preserve smooth airflow over the wing. The shoulder wing arrangement permits a very large bomb bay which, according to reports, will hold " more than one " atom bomb. Some B-36Bs have modified bomb-bays to carry freight and for extra fuel tanks of up to 12,000 gallons capacity.

As we said at the beginning, everything about the B-36 is big, and this applies even to its mishaps. In a recent incident it lost an engine, which took fire and fell out. Not content with that the other two on the same side quit also because the burning engine severed the electrical connections to the other two. However, a safe landing was made.

The B-36 also incorporates the largest airborne tube railway in the world (85 ft. long), connecting forward and aft pressurized cabins, enabling the crew to travel from one to the other on a four-wheeled trolley.

Facts and Figures

Wing Span	230 ft. 0 ins.
Length	163 ft. 0 ins.
Height	46 ft. 7 ins.
Gross Weight	278,000 lb.
Crew	12 plus 4 relief.



SILLOGRAPHS

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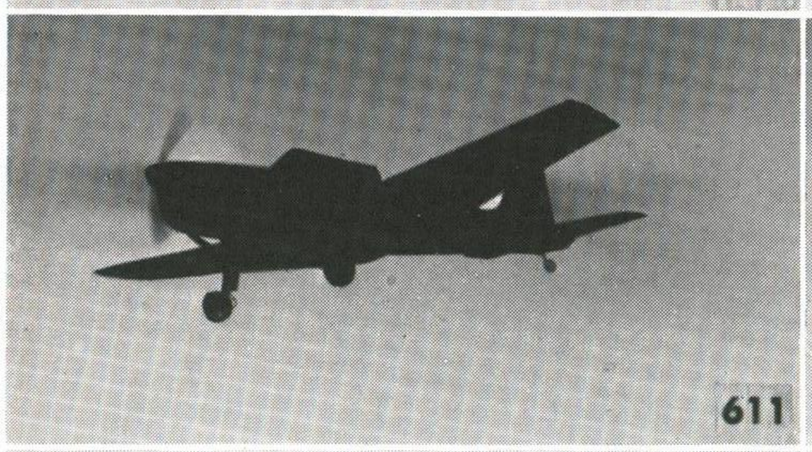
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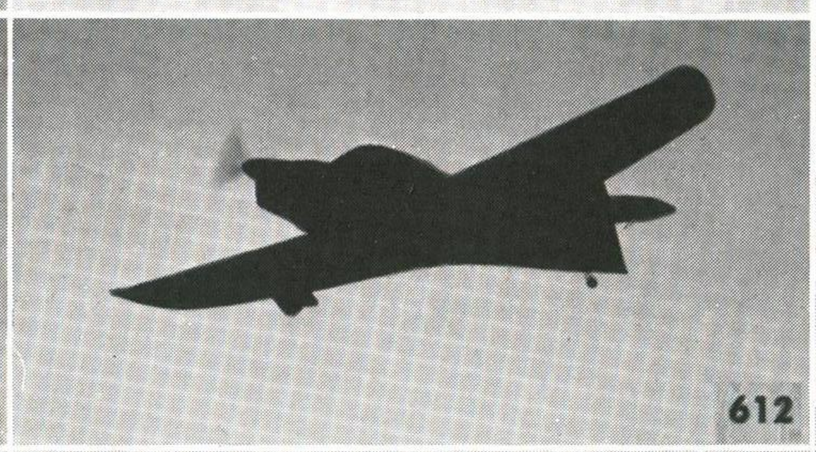
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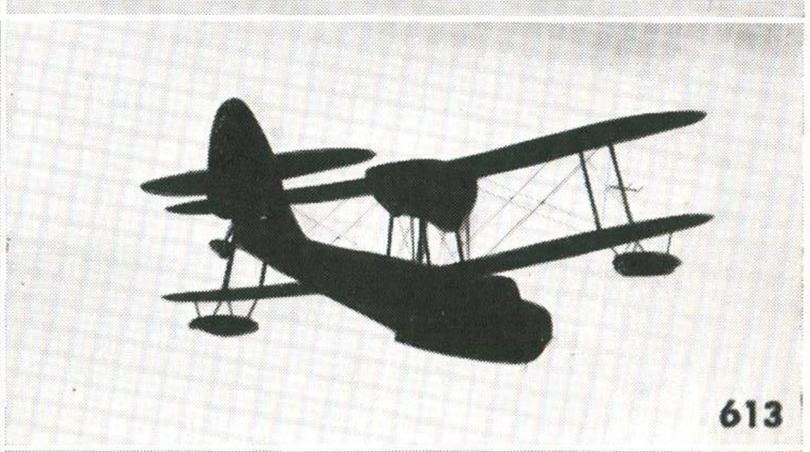
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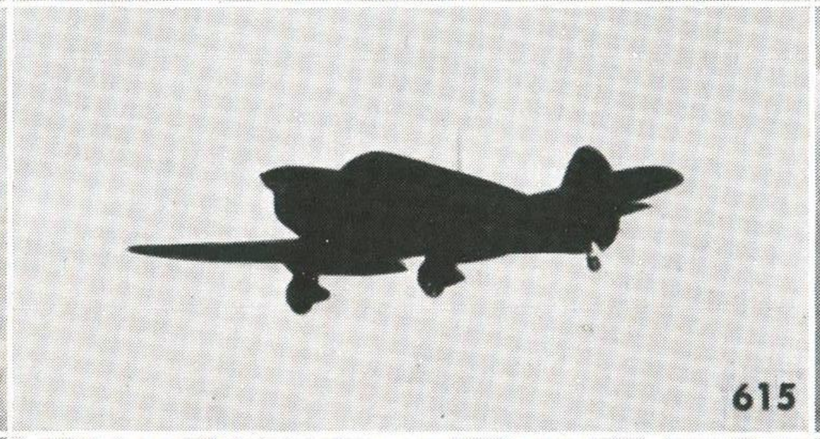
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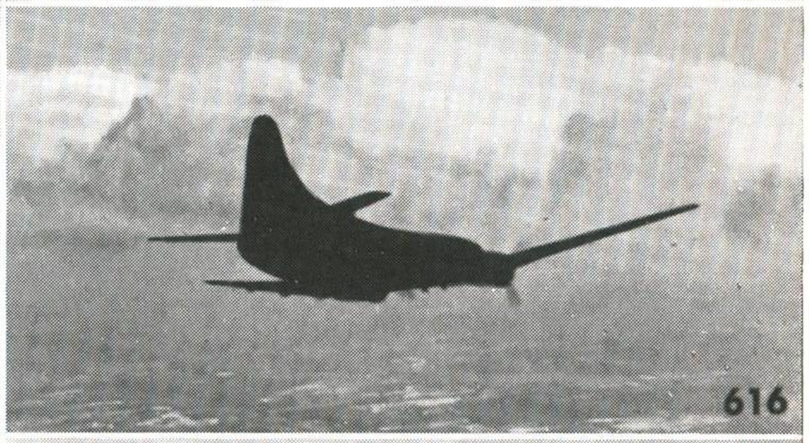
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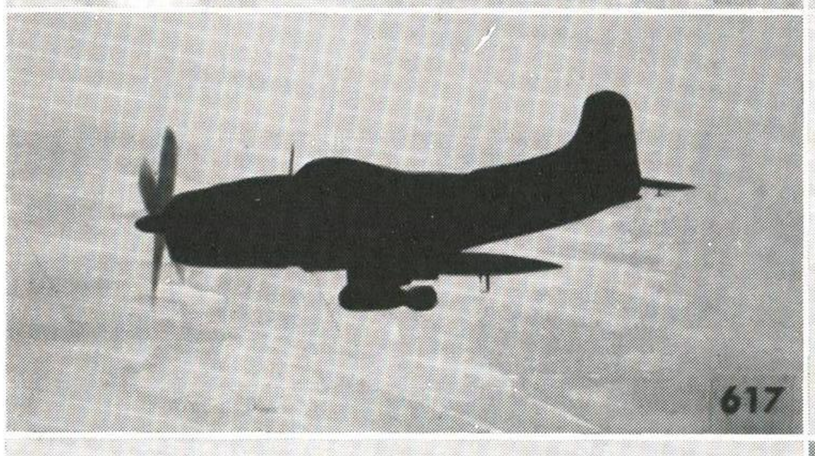
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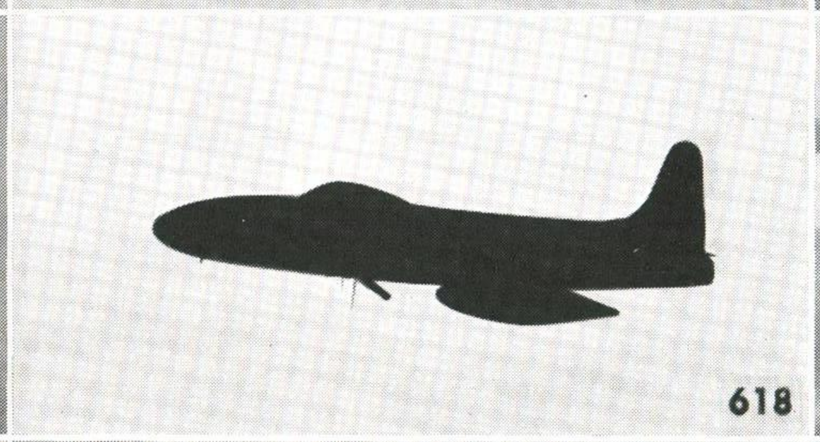
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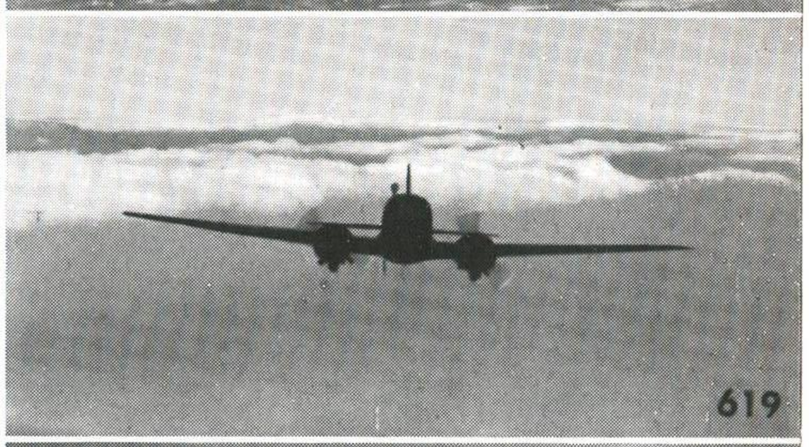
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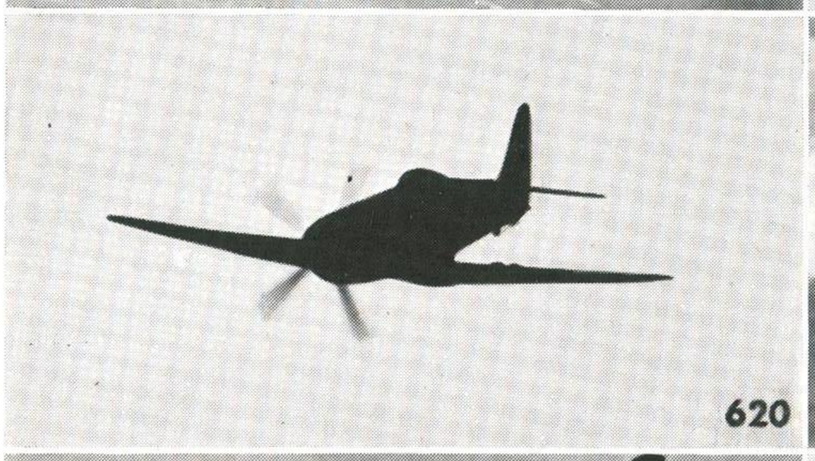
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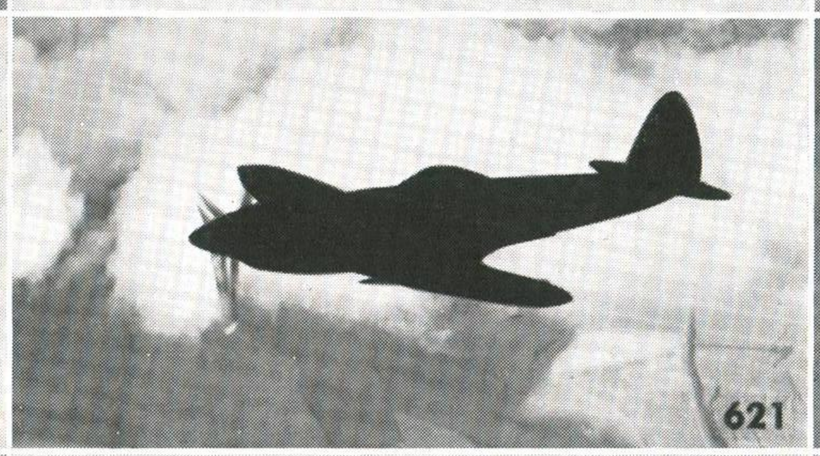
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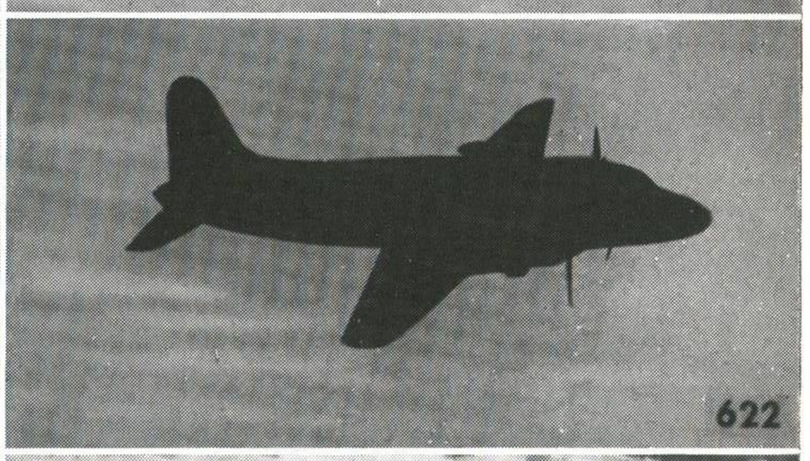
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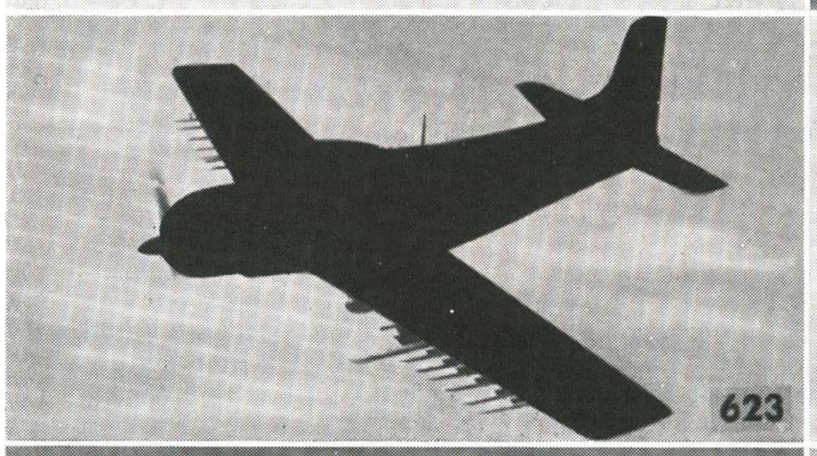
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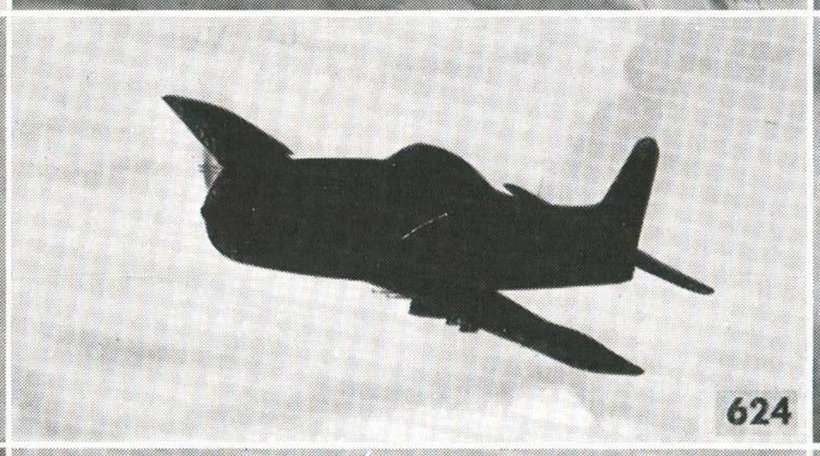
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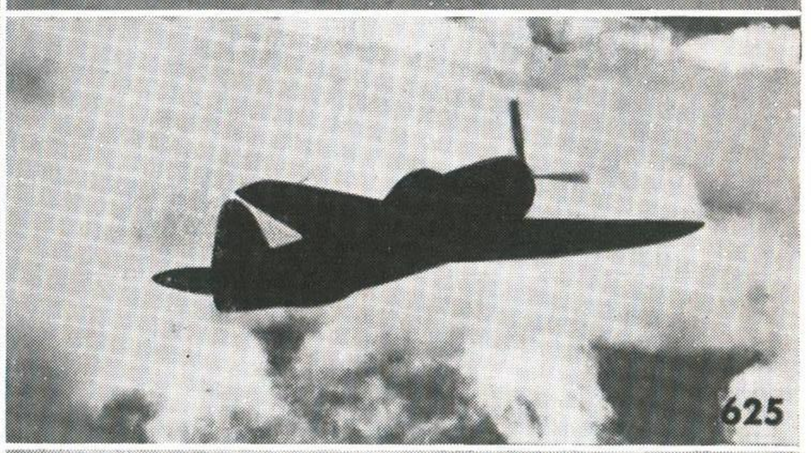
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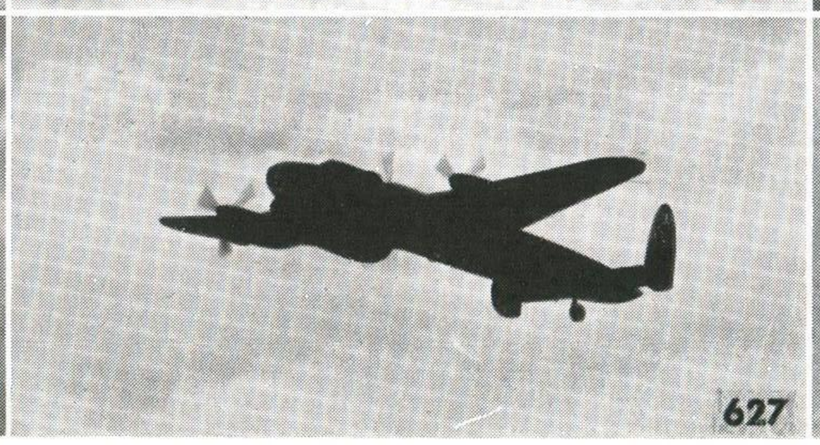
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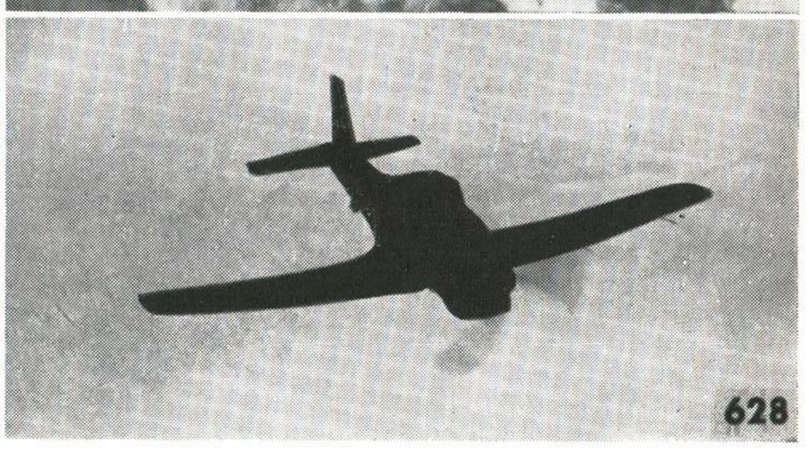
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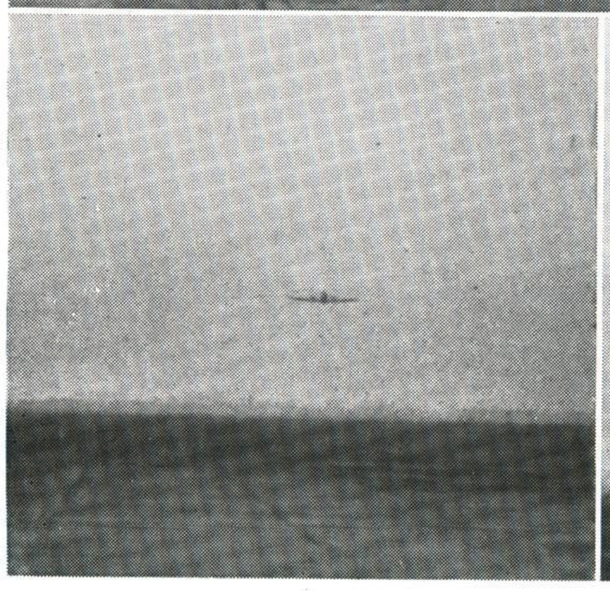
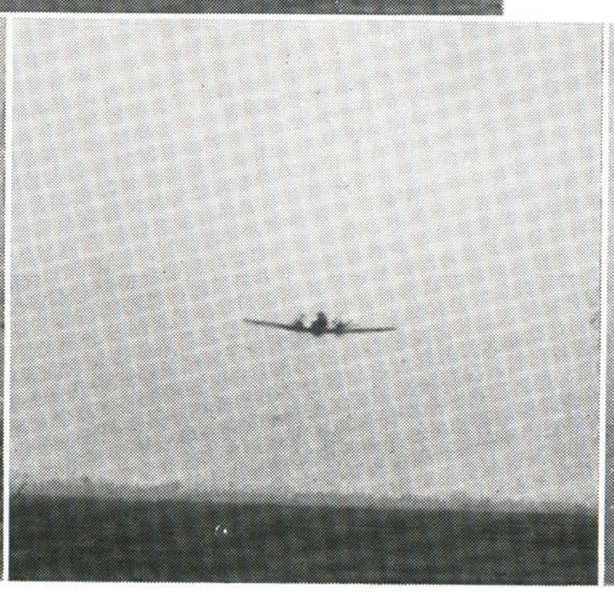
The CONVAIR LINER

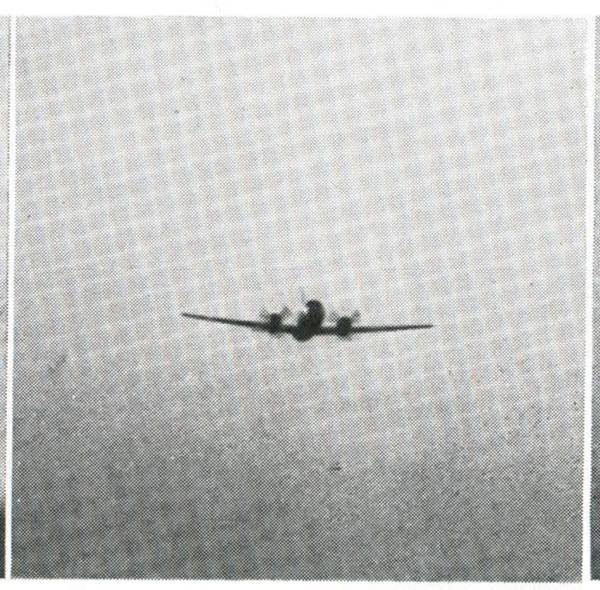
by G. D. H. LINTON

EVERY day now, and many times a day, the Consolidated Vultee 240, or Convair-Liner, flies into London Airport (see *Journal* for July, 1949, page 149). This modern medium-size " twin " from the United States has, in fact, become a familiar feature of the London airscape, and many more are in use on, or on order for, the World's air highways.

The Convair-Liner is unmistakable to the experienced airport staff in both take-off characteristics and final approach. Perhaps it does not provide so many and such immediate clues when en route at its cruising altitude, yet it remains distinctive in shape, " sit " and speed. This last " S ", cruising speed, is a genuine 300 m.p.h. plus—it has to be to reach, for example, Amsterdam in 65 minutes !—and to the eye accustomed to DC-3s and the like, is at once startlingly obvious.







Small Wing

Again, in comparison with the DC-3 design, which it is largely intended to replace, the Convair boasts a shorter span (91 ft. 9 ins.), a fuselage only a little larger (73 ft. 4 ins.) and yet carries as many as 40 passengers with considerable efficiency and comfort. This has been achieved by careful and essentially compact design : the Convair even contrives to appear neat on the marshalling apron, when surrounded by passenger steps and the rest of an airliner's " dockyard " ancillaries.

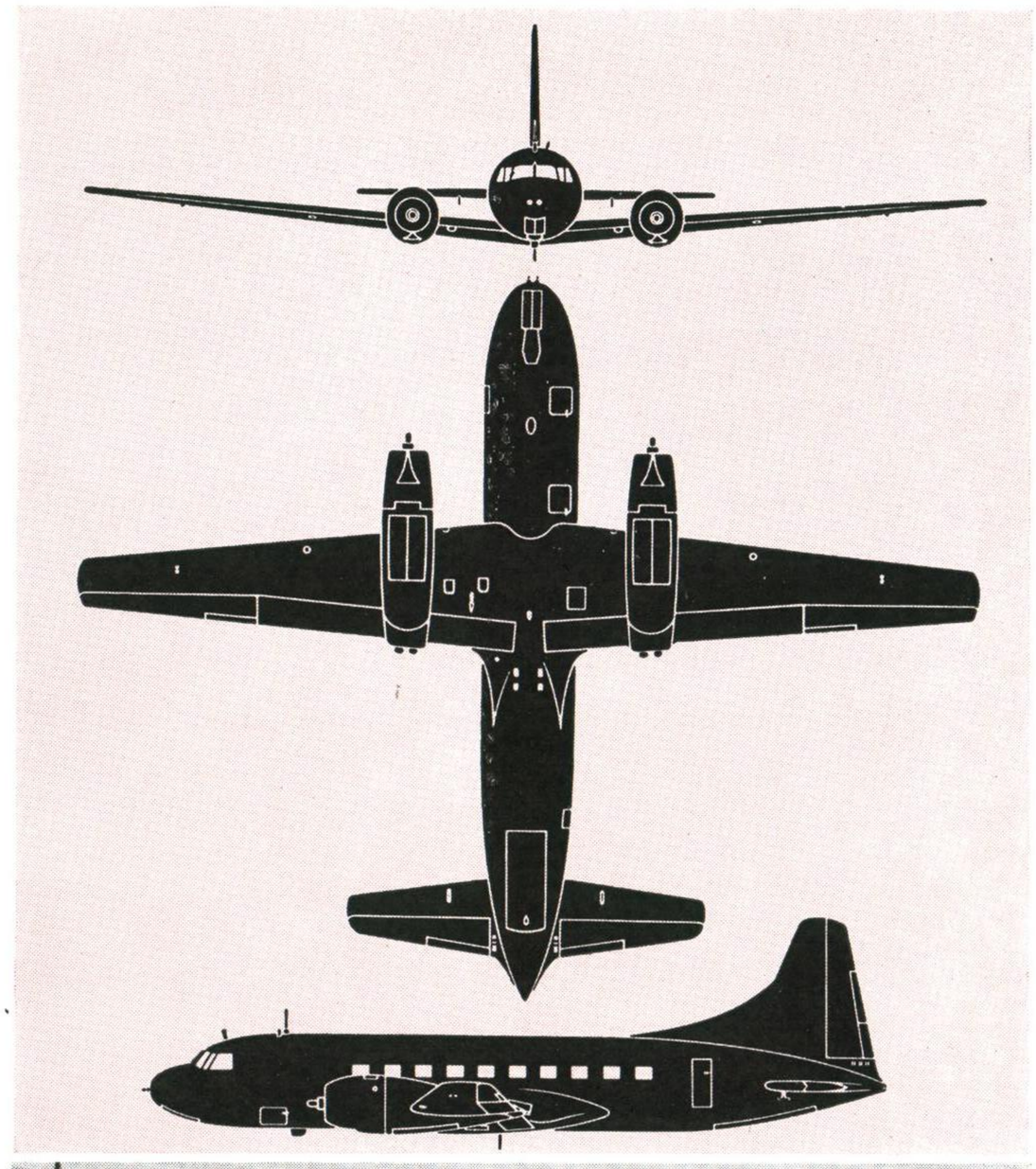
The take-off and climb are materially assisted by the thrust augmenters at the rear of the two big 2,400 h.p. Pratt & Whitney Double Wasp radials : sometimes quite distinct trails flow from the augmenter exhausts, and the Convair, with nosewheel undercarriage rapidly retracted, climbs at an attitude and speed reminiscent of wartime light bombers like the Boston and Invader. Fortunately, however, it is not so noisy—the whistle from the squared-off " paddle " propeller blades can often be easily heard above the engine roar, which is surprisingly mild and almost non-existent on a direct approach.

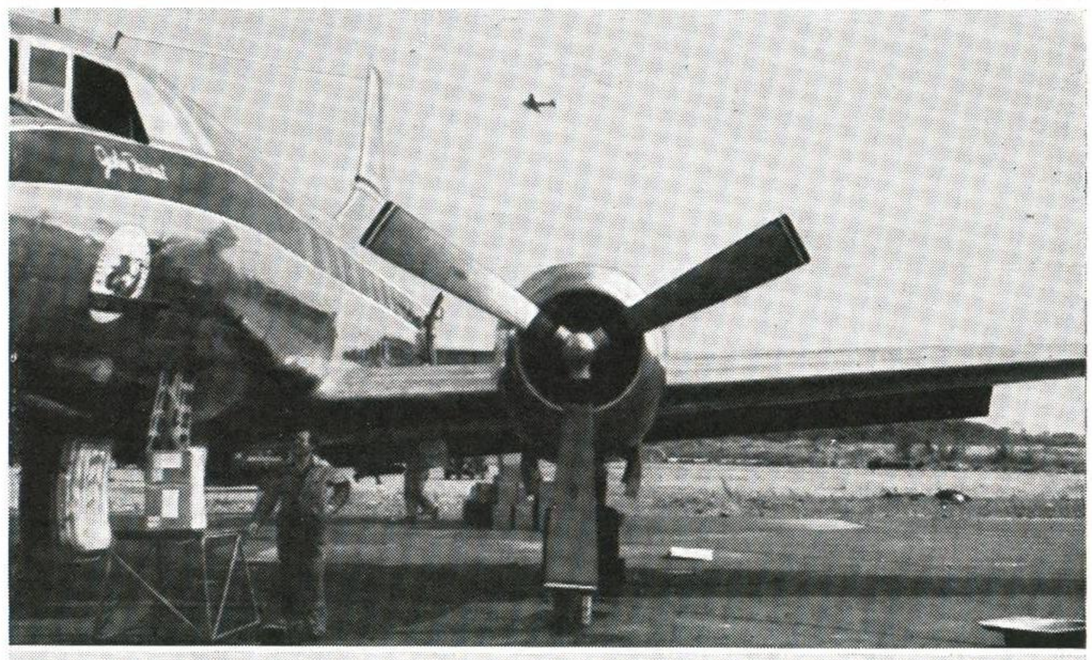
Long Nose and Large Fin

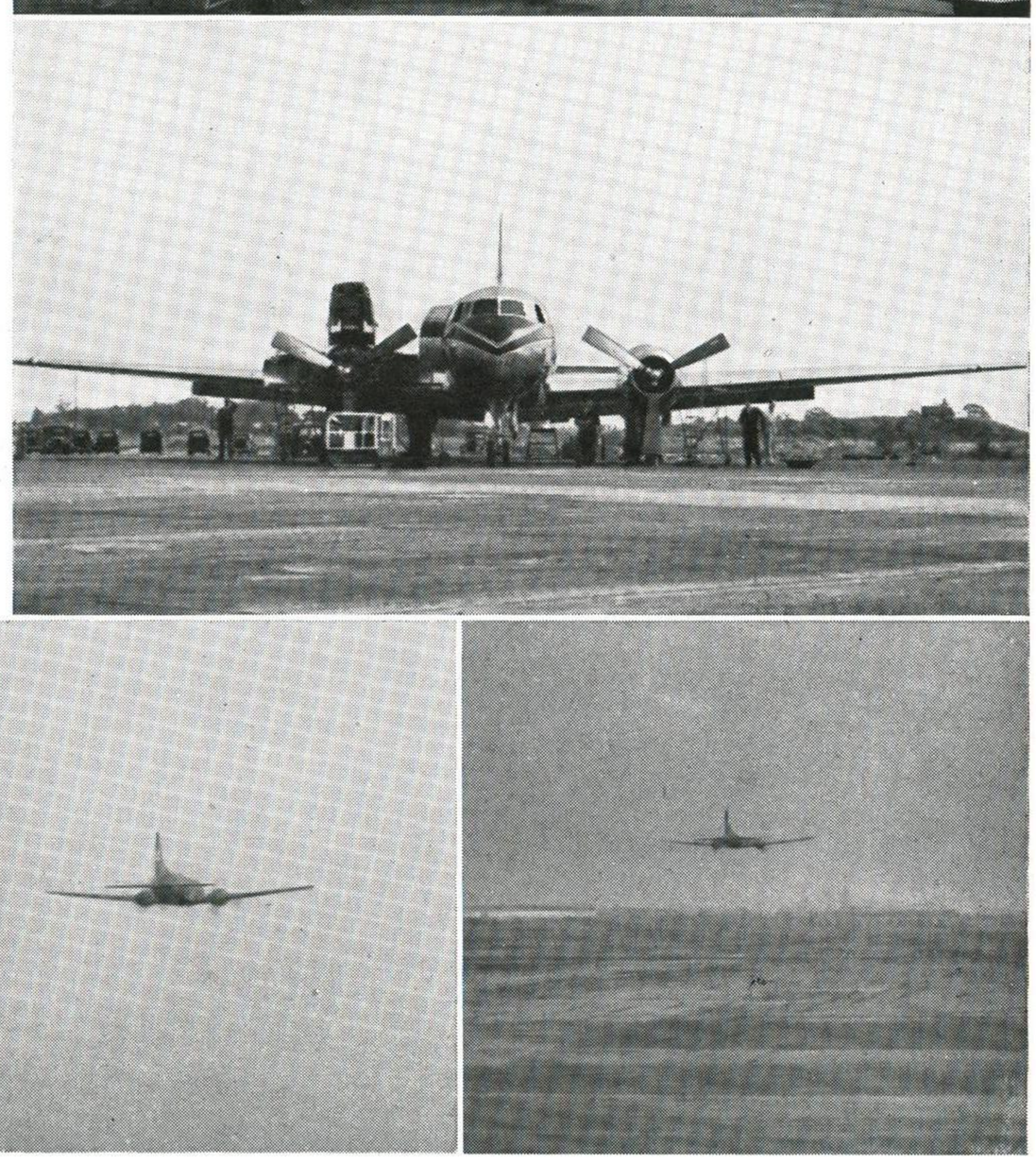
The Convair impresses as one of the few aircraft designed on a strictly functional pattern that does not offend the eye. On the three-quarter approach view, the wings appear narrow and thin, and are dwarfed by the length of the nose and the overhanging engine " barrels." The tail is also angular in cut, the fin-fairing predominating—proportionally, it is probably the World's largest fin-fairing and, as is so often the case, the fin and rudder shape provides the best single signpost to identity (note also its family relationship to certain other Convair designs).

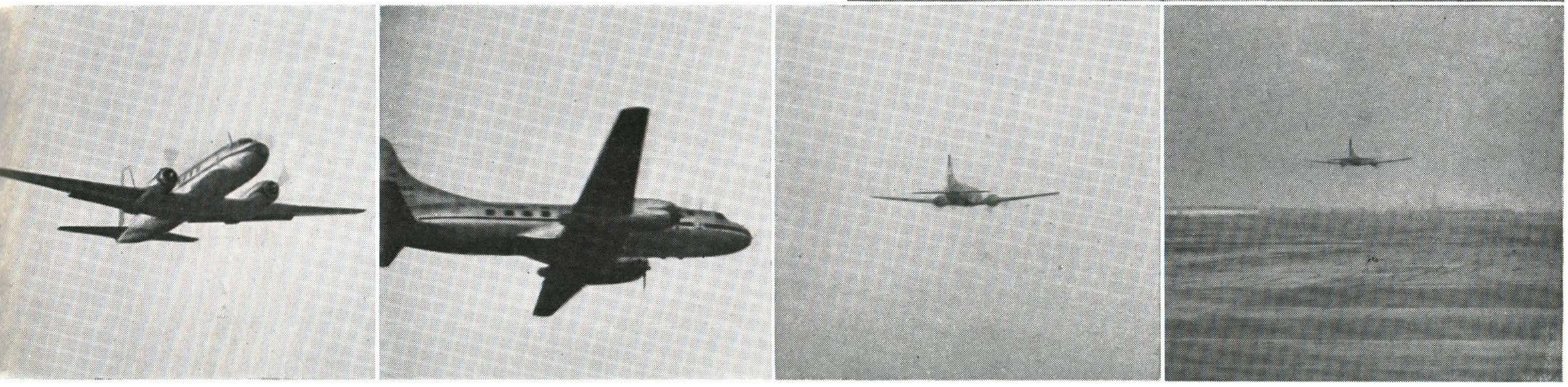
One last point—only of academic interest to the spotter : there are three distinct models with alternative entrance doors.. One has the orthodox rear port-side door, a second has an exit provided on the starboard side of the nose, and a third (Trans-Australia Airlines' fleet is an example) has built-in steps that are lowered beneath the rear fuselage.

One other version now being built is the military crew training model ; it is called the Convair T-29, and the prototype recently flew for the first time. Convair has an order for 36 of them.

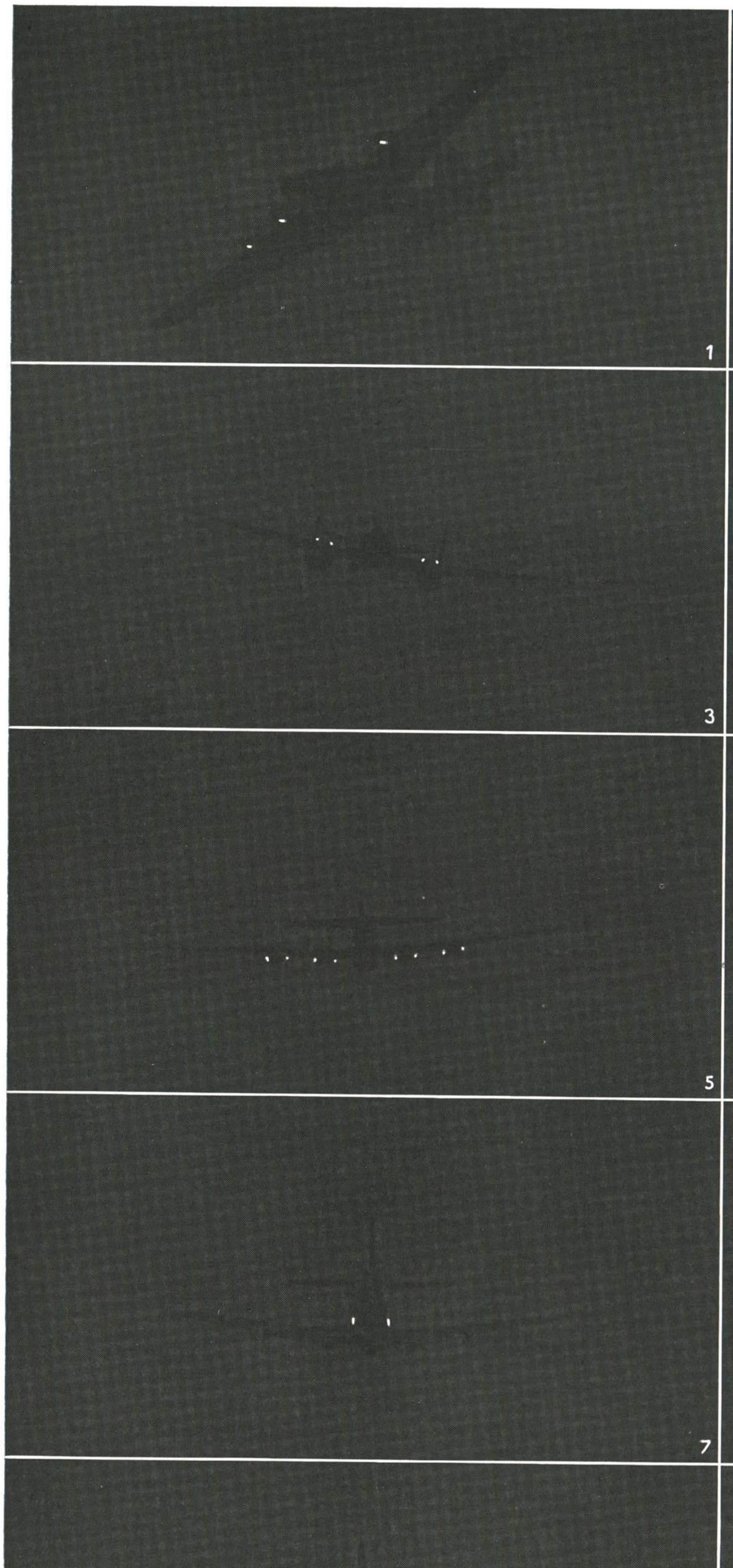








NIGHT VIEWS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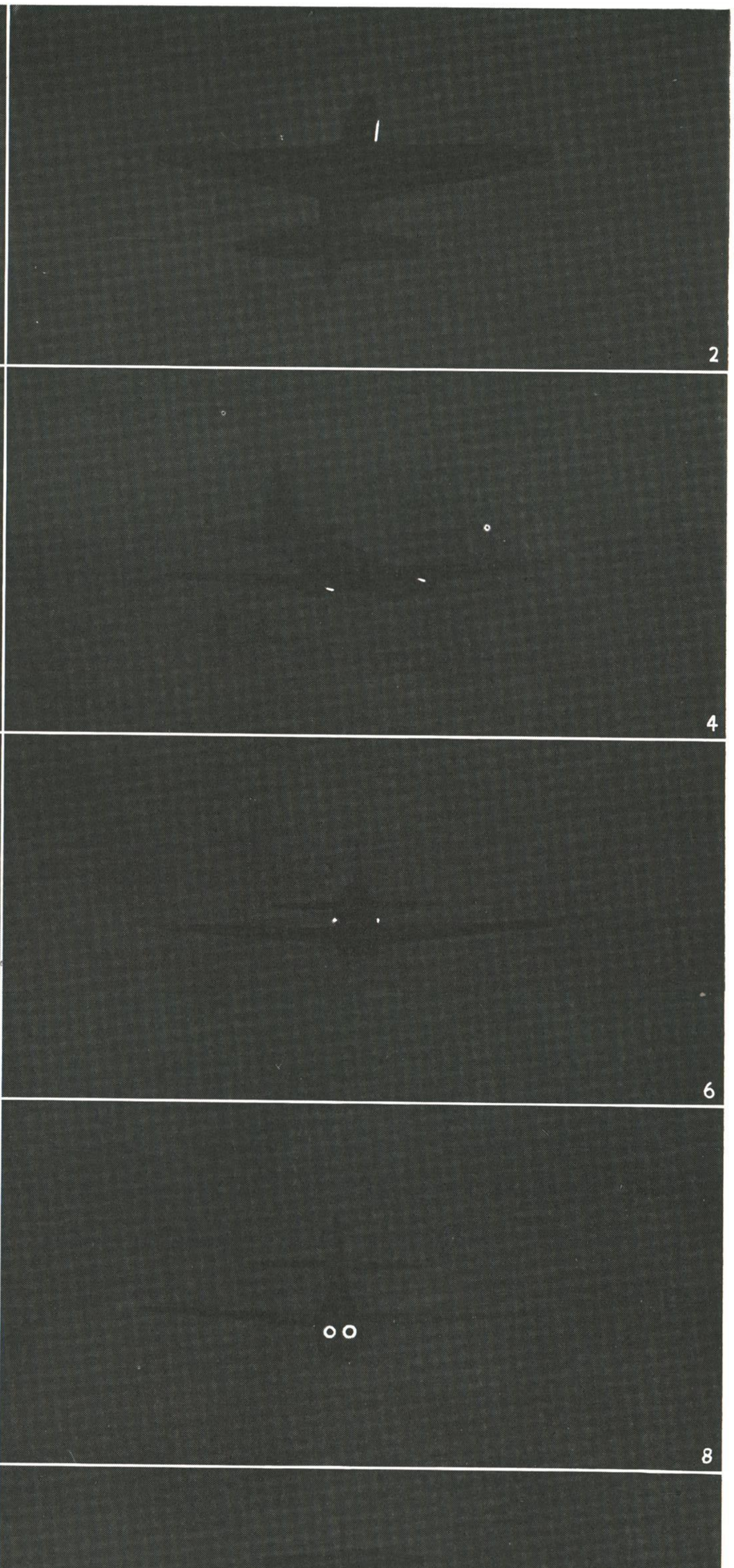
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MOSTLY WHAT'S NOT NEW

by JOHN STROUD

THERE ARE MANY AIRCRAFT flying in other parts of Europe which have been long forgotten, little known, and some which we have never seen.

Having recently made a fairly extensive tour of Scandinavia it is perhaps interesting to record some of the aircraft seen or found to be still flying.

NORWAY. There are the usual airline DC-3s and flying club Austers and Piper Cubs. The Norwegian Air Lines also flies DC-4s and DC-6s as well as being the only airline in Europe to fly large flying-boats on internal routes. These flying-boats are British-built Short Sandringham VIs which serve some of the towns along the coast up as far north as Tromsö within the Arctic. From Tromsö to Kirkenes by the Norwegian-Soviet border a Junkers Ju 52/3m on twin floats provides a thrice weekly service.

Many floatplanes and amphibians are to be seen on lakes and fjords in the summer months including Norsemen, Luscombe Silvaires, the only KZ III Lark on floats, Grumman Widgeons and Gooses (or does one call them Geese?). Republic Seabees, and the Air Force Catalinas. The new Widerøe C-5 Polar was on floats when I flew in it but it can operate wheels or skis.

Among the land aircraft is use are two Me 108s, many Cornells and Arguses, an Interstate Cadet, Klemm K1 35s, some Beech 17, KZ VII, Anson V, a Swedish GV 38 and the Norwegian Norge B monoplane.

SWEDEN. In Sweden there is a great variety but those I saw included DC-3, DC-4, DC-6 and Scandia in the transport class. Many Klemm K1 35s owned by clubs, the never ending Austers and Piper Cubs, some Saab Safirs, one with a Lycoming engine, Ercoupes, Super Cruisers, KZ IIIs, KZ IIs, Seabees, Argus with inline and radial engines, Martinets and Fireflies used for target towing, a Bücker Jungmann, a Bestmann and a Student.

There was a Moth Major used for glider towing, a Tiger Moth used for the same job, there was even one of the fairly rare DH 60T Moths of the early 1930s with its straight down exhaust and modified wires. I saw an Arado Ar 95 See flying above the fir trees, the King's old Airspeed Envoy, once G-AEXX and now SE-ANS is still flying in Stockholm. Two Caudron types are flying—a Pelican and a Simoun, there are also Cessna 140s and Stinson Voyagers.

Military aircraft that I saw flying included Harvards, Saab B 18s, Saab J 21A and J 21R and a Junkers Ju 86 known in Sweden as the B.3. For those who do their spotting from the air there is still a 1919 Junkers F 13 to be seen in Stockholm. It lives outside the Technical Museum but was recently taken to Bromma Airport for the 25th anniversary of Swedish Air Lines. A passenger Boeing B-17F has also been preserved and at present this is on Bromma.

FINLAND. Quite a number of interesting aeroplanes are flying in Finland of which I saw a fair proportion. Aero O/Y the Finnish Air Lines has six C-47As and two C-35s with two Junkers Ju 52/3ms in reserve. Recently this company sold its two DC-2s to the Air Force which also has some Stieglitz, Storch, Junkers W 34, Pyry training monoplanes, Tuisku training biplanes and Me 109G fighters. It was rather funny to look back from a DC-3 and see Me 109s coming up behind. Actually their guns were loaded because they were carrying out ground firing practice.

The Finnish coast guard has a Junkers W 34 on floats for ambulance work but this will probably be replaced soon by a SCAN 30 amphibian.

Civil aircraft flying include some old timers such as three DH 60X Moths, a Junkers A 50 Junior which set out to visit England last year but was held up by bad weather. The Junior was registered in 1931. There are two Rapides, one delivered in 1937 and the other in 1938, a Seabee, some Taylor Cubs, Praga Baby, KZ VIIs, Sokols, a Sääski biplane and a Viima with covered cockpits, two of the new Finnish Karhu 48 monoplanes, a little single-seat amphibian called the TE-1 and a Grunau Baby fitted with a small French motor. Perhaps the most unusual aeroplanes are the few very old Czech built Smoliks, of about 1928 or 1929. A Klemm K1 25 has just been flown again after a long period of storage.

DENMARK. Quite a variety of types is to be seen, including most of the well-known transports flying the colours of many nations which while I was there included Poland, Czechoslovakia, Iceland and Yugoslavia.

Dragon Rapides, KZ IIIs and VIIs as well as the two KZ IV two motor monoplanes rather like the Percival Q 6. There is an Anson V and a Monospar Ambulance, there are Oxfords, Austers, Piper Cubs, a Klemm K1 25, a Seabee, two Norsemen on floats, some Catalinas and there is even a Boeing B 17F flying. This was recently bought from Danish Air Lines by the Danish Air Force.

Spitfires and Harvards are to be seen, and of course in all these countries are all types of gliders and sailplanes among which in Sweden I saw the large Fi 3 troop carrying type which may be adopted by the Army.

BOOK REVIEWS

by JOHN W. R. TAYLOR

On 11 July, 1943, a force of 144 C-47s took off from airfields in Tunisia, carrying 2,000 paratroops to reinforce Allied soldiers near Gela in Sicily. "Allied naval and merchant vessels brought heavy fire to bear on the planes as they approached Sicily. Near Marina di Ragusa shore batteries opened fire, and with both friend and foe combining their efforts the corridor of approach to the drop zone became alive with deadly machine gun fire and heavy flak. Over the DZ some of the pilots refused to drop, feeling that it would be murderous to do so ; others scattered paratroops from Gela to the East Coast. Losses were heavy."

Two days later another large-scale airborne operation was mounted over Sicily, and again "the planes ran into heavy fire from Allied naval vessels as well as from friendly and hostile shore batteries. Of the 124 aircraft which flew the mission, 50 were damaged and 11 destroyed by friendly fire, while another 27 were forced to return with full or partial loads."

Those two extracts from Volume Two of **The Army Air Forces in World War II** need no further comment here!

This volume of the official USAAF History deals with the campaigns in North Africa, Sicily and Italy, and with the build-up of the Combined Bomber Offensive from Britain. Like Vol. I, it is fascinating, readable and forthright. For example, it includes revised figures for the number of enemy aircraft shot down by 8th Air Force gunners, based on *Luftwaffe* records. They show that in the raid on Lille on 9 October, 1942, two enemy aircraft were put out of action, not 102 as originally claimed. But there has been little need to amend details of the great destruction wrought by the USAAF. With five volumes still to come, **The Army Air Forces in World War II** will be a fitting tribute to a very gallant Service.

Few have difficulty in recognising a helicopter, so we cannot recommend **The Helicopter—or Anything a Horse can do** as an aid to recognition. But it is well worth reading as it gives the complete history of helicopter development and explains the way helicopters work. It is a comprehensive and well-written record of how designers have solved the big problem of devising an aircraft that would land and take off vertically and hover, and has been written by one of the world's first helicopter pilots. If you are interested in these weird aeronautical beasts which can do "Anything a Horse can do" —and who isn't?—then this is your book.

"THE ARMY AIR FORCES IN WORLD WAR II", Volume Two : Europe—Torch to Pointblank. 897 pp. Published by the University of Chicago Press and in U.K. by the Cambridge University Press. $6.00 net.

"THE HELICOPTER, OR ANYTHING A HORSE CAN DO", by Colonel H. F. Gregory. Published by George Allen and Unwin. 271 pp. 18s. net.

ELEMENTARY SPOTTING

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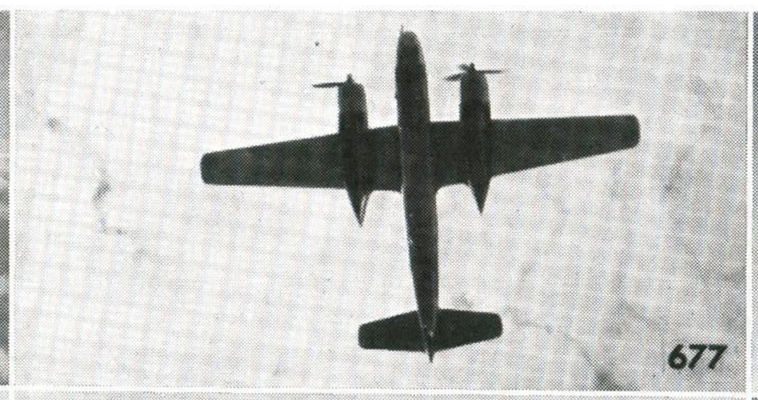
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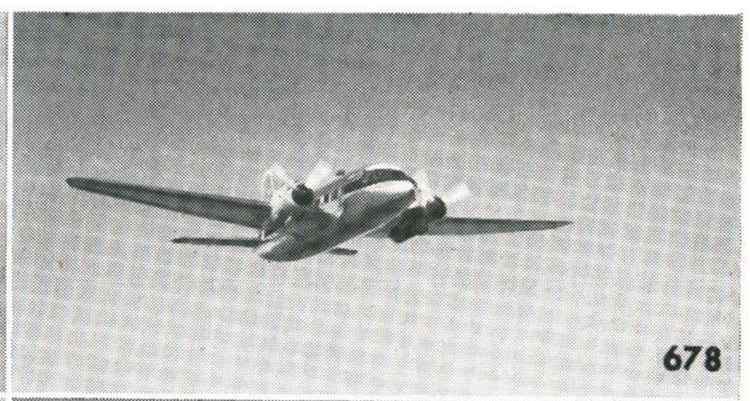
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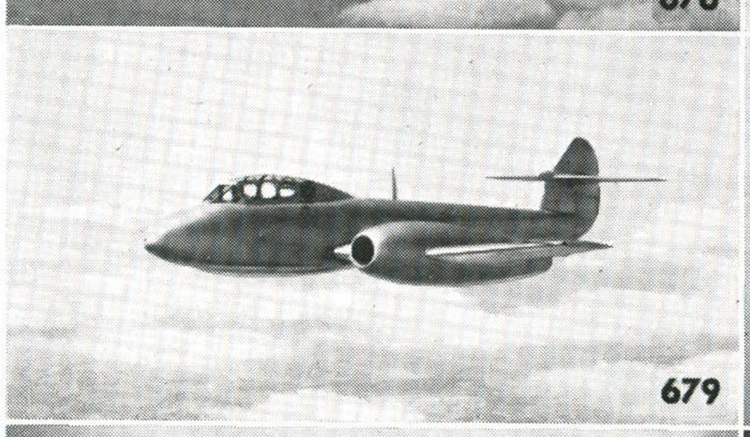
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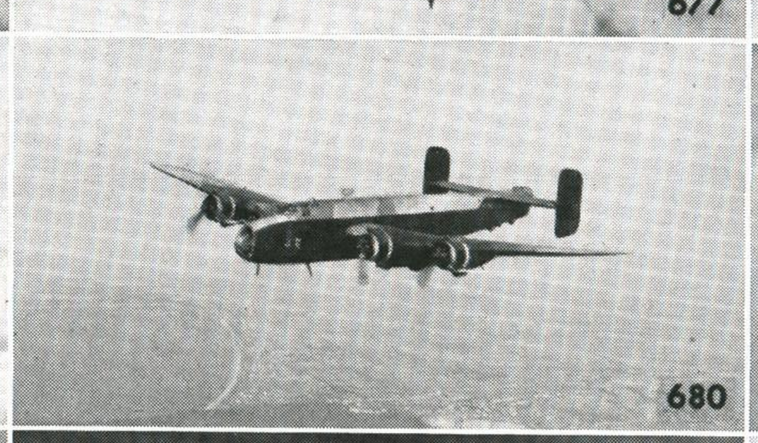
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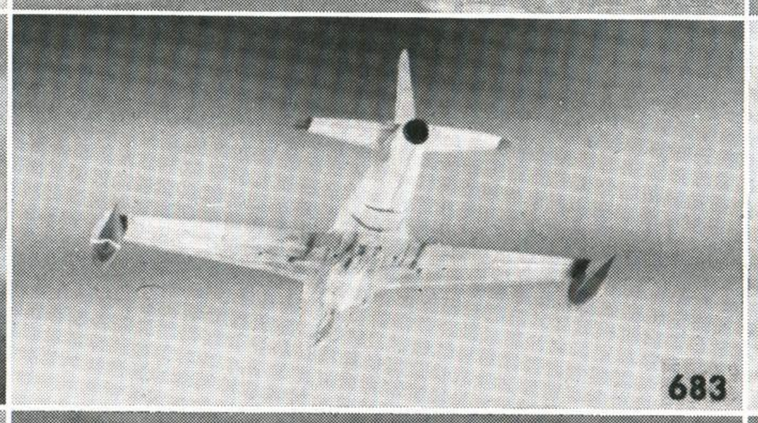
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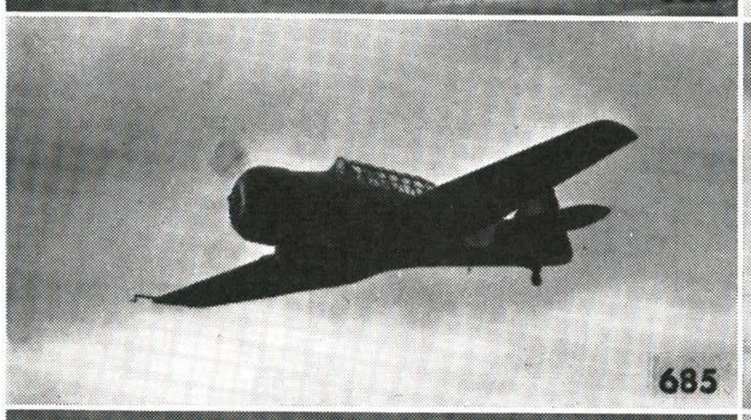
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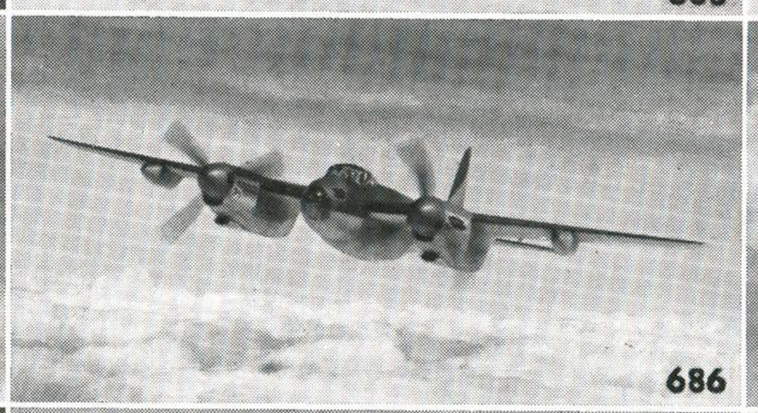
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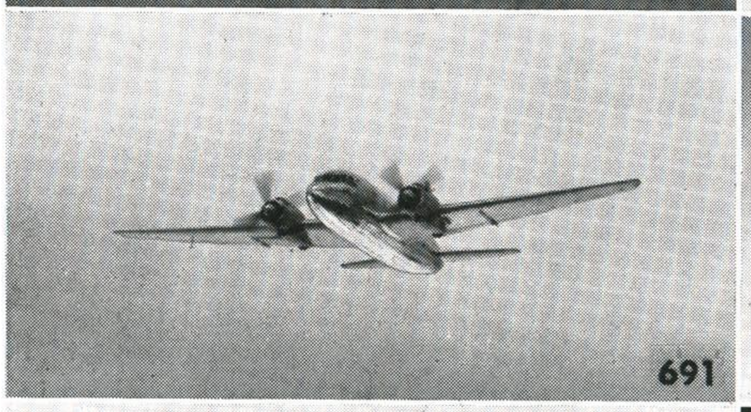
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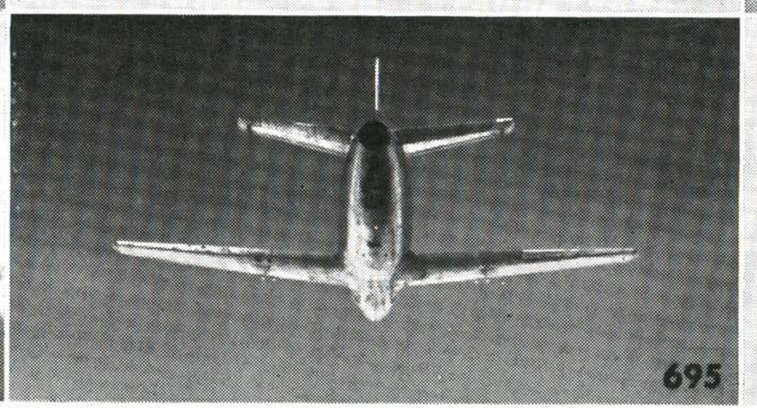
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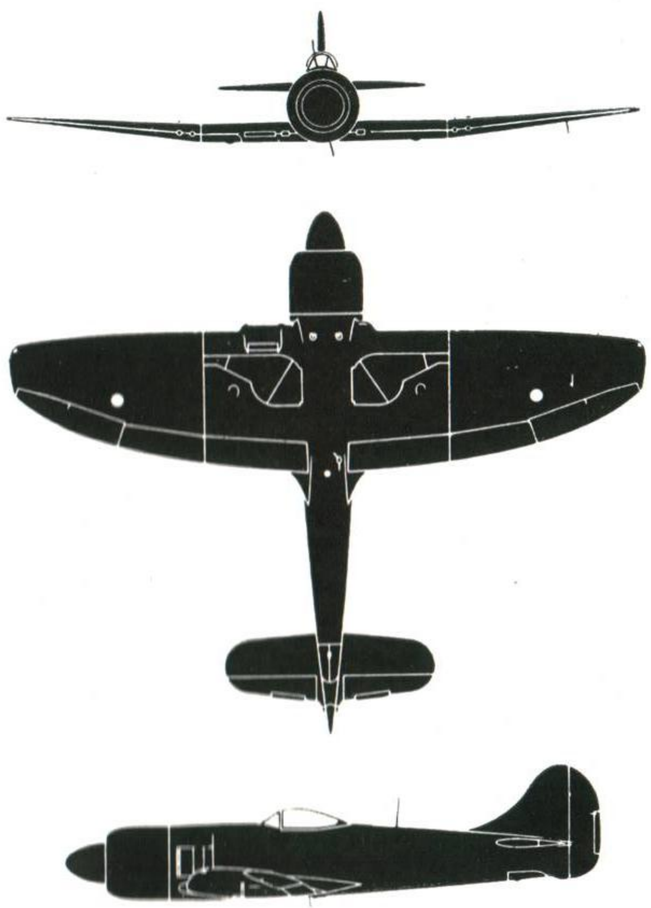
SILHOUETTES—RADIAL-ENGINE FIGHTERS

TEMPEST 2



British Fighter

Engine : One Centaurus V

Span : **41 ft.** Length : **34 ft.**

Recognition Points

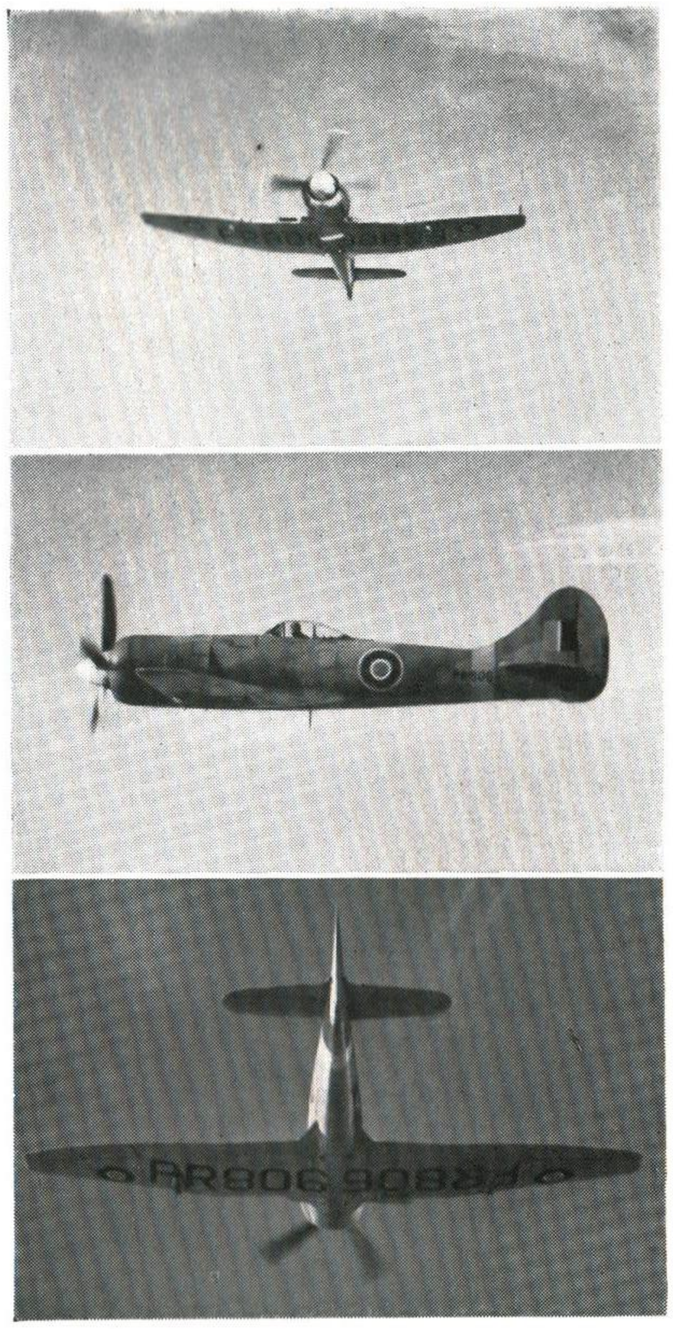
Wings : low, forward-set, long straight centre section, dihedral on outer panels, eliptical form clipped tips.

Engine : large cylindrical cowling, fat " acorn " spinner.

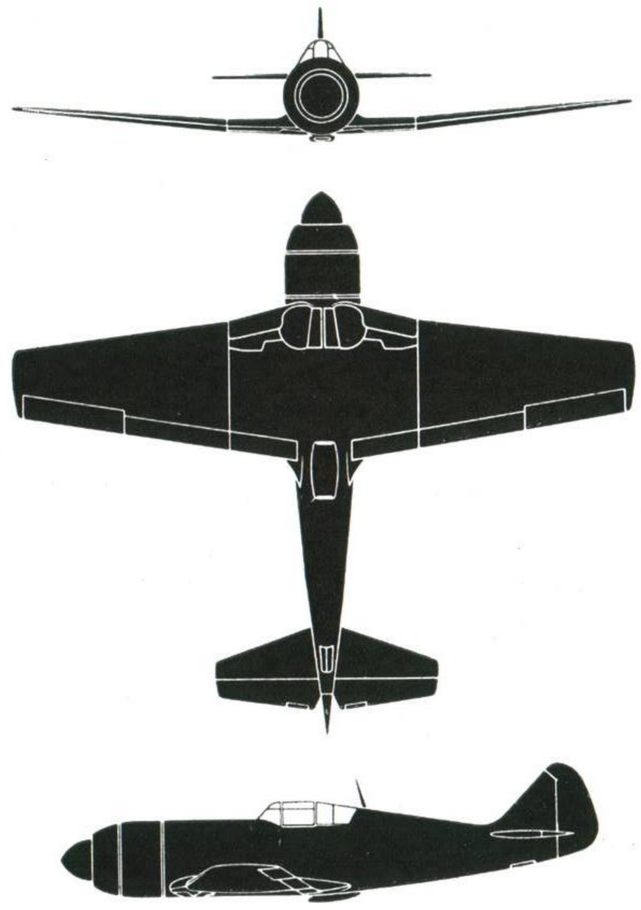
Fuselage : carrot-shaped.

Tail : slight equi-tapered edges, rounded tips, large rounded fin and rudder with curved dorsal fairing.

Detail : small bubble cockpit set well back, larger intake in leading edge of starboard wing, wide track undercarriage.



LA-9



Russian Fighter

Engine : One M-71

Span : **34 ft. 9 ins.** Length : **30 ft.**

Recognition Points

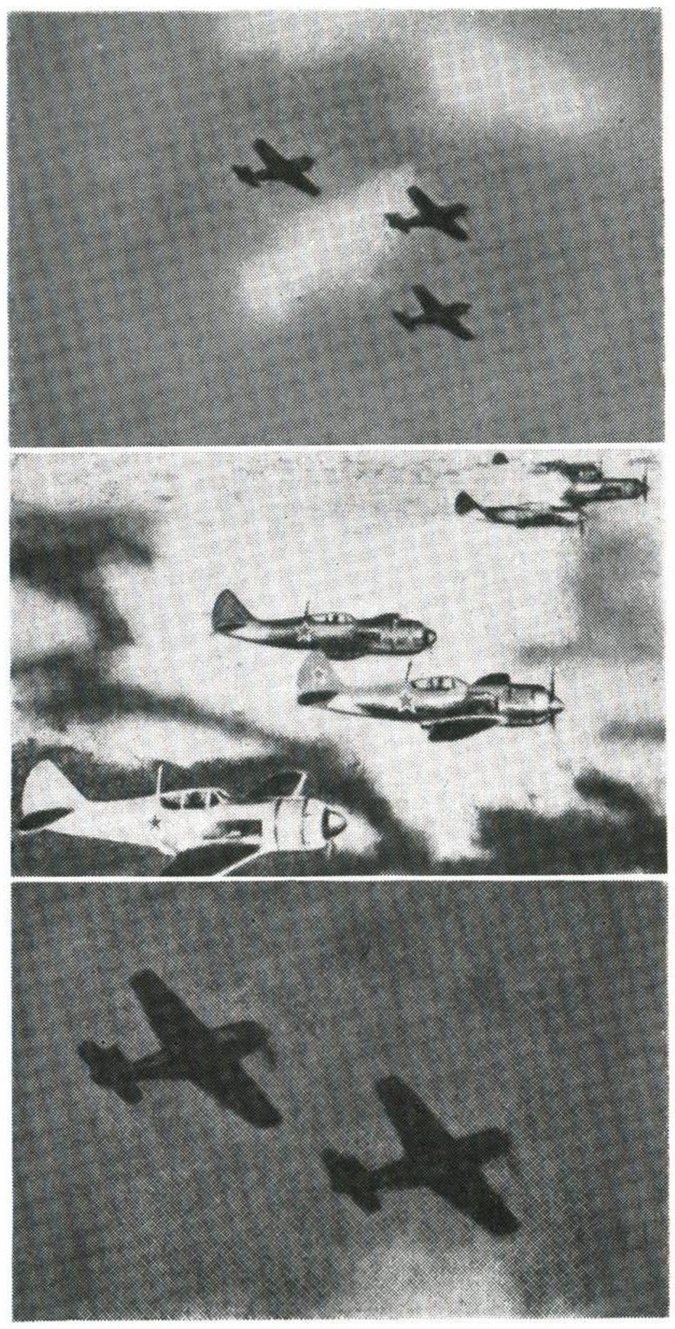
Wings : low, forward-set. dihedral from roots, greater outboard of centre section, thin ; almost equi-tapered in plan, elbow joint effect in leading edge ; squared off tips.

Engine : large cylindrical cowling streamlined to short fat spinner.

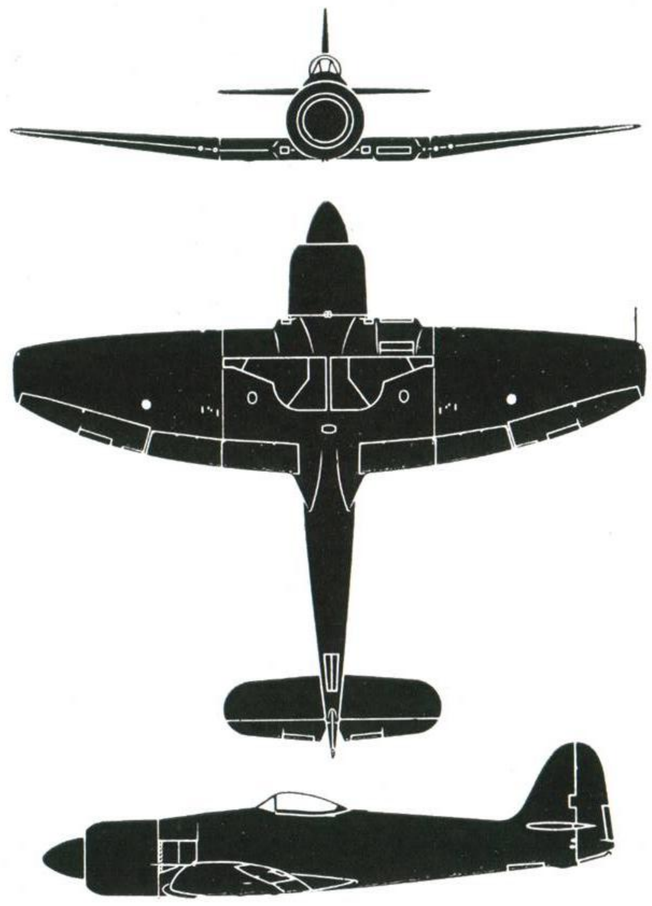
Fuselage : carrot-shaped, "stepped" cockpit.

Tail : near diamond-shape with squared-off tips, cut-out for rudder movement, broad triangular fin and rudder " cocked up ".

Detail : stepped up cockpit canopy set well back and faired in intake under fuselage amidships.



SEA FURY F Mk. 10



British Fighter

Engine : One Centaurus XVIII

Span : **38 ft. 5 ins.** Length : **34 ft. 6 ins.**

Recognition Points

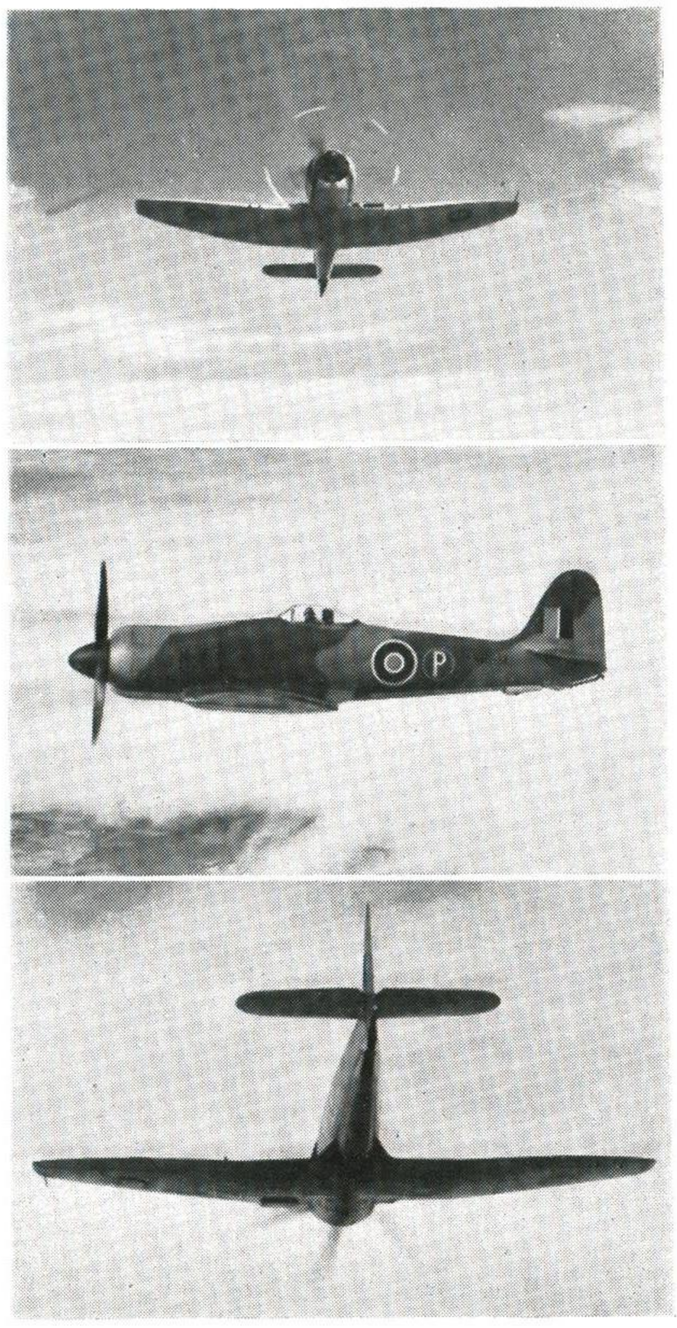
Wings : low, forward-set, thick centre-section, dihedral on outer-panels, eliptical form, clipped tips.

Engine : large cylindrical cowling, fat " acorn " spinner.

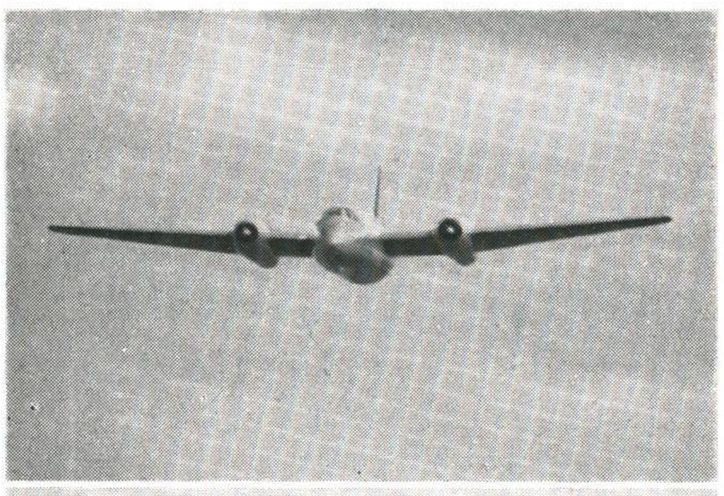
Fuselage : carrot-shaped, humped in side view.

Tail : slight equi-taper edges, rounded tips, cut-out for rudder movement, arched fin and rudder with straight trailing edge forming sharp angle with fuselage baseline.

Detail : small bubble cockpit set well back, larger intake in leading edge of port wing, arrester hook under tail.



FRONT COVER: *The English Electric Canberra B Mk.1.* The views below give other characteristic impressions of this prototype jet-bomber with fighter-like performance.



SOLUTIONS TO RECOGNITION TESTS IN THIS EDITION :

ADVANCED

854. Wellington T Mk. 10
855. P2V-2 Neptune
856. Tempest 6
857. Attacker (P)
858. Prentice T Mk. 1
859. Sealand
860. Tudor 4
861. B-50 Superfortress
862. Ambassador (P)
863. Solent
864. Sea Hornet PR Mk. 22
865. XC-99
866. Athena 1 (P)
867. Firebrand TF Mk. 5
868. Vampire F Mk. 3
869. Meteor F Mk. 4
870. TBM-3 Avenger
871. Spitfire PR Mk. 19
872. Vampire FB Mk. 5
873. Hawker P.1052 (P)
874. F7F-3N Tigercat

(P)—Prototype

SILLOGRAPHS

608. Lancaster B Mk. 7
609. P2V-2 Neptune
610. Bristol 170
611. Chipmunk T Mk.10
612. Prentice T Mk. 1
613. Sea Otter
614. Auster A.O.P.5
615. Proctor 4
616. Martin 202
617. AM-1 Mauler
618. F-80A Shooting Star
619. Anson 19
620. Sea Fury F Mk 10 (P)
621. Seafire FR Mk.47
622. Viking 1B
623. AD-1 Skyraider
624. F8F Bearcat
625. F-47N Thunderbolt
626. Navion
627. Lancastrian
628. Balliol T Mk. 2 (P)

ELEMENTARY

676. Mosquito FB Mk. 6
677. A-26 Invader
678. Viking 1B
679. Meteor T Mk. 7
680. Halifax A Mk. 9
681. Chipmunk
682. Oxford T Mk. 2
683. F80A Shooting Star
684. Seagull (P)
685. Harvard T Mk. 2
686. Mosquito B Mk. 16
687. Halifax C Mk. 8
688. Firebrand FB Mk. 4
689. F7F Tigercat
690. Aerovan
691. Viking 1A
692. York C Mk. 1
693. TBM-3 Avenger
694. Dominie
695. Attacker
696. Horsa Mk. 2

TRICKY TRIO

Left to right: de Havilland Mosquito PR Mk.38; Handley Page Marathon 1; Avro York.

AEROGRAM

ENIGMA SIMILE=A MILES GEMINI

NIGHT VIEWS

1. PE.8
2. YAK.3
3. PE-2
4. IL.12
5. B-29 (Russian-built)
6. YAK.3
7. IL.10
8. MIG.9
9. YAK.15
10. LA.9

Answers to Twenty Questions

1. Cierva W. 11 Air Horse.
2. (*a*).
3. (*b*).
4. Low (4.3).
5. (*c*).
6. Vampire, Meteor, XF6U-1 Pirate.
7. Venom, Night fighter.
8. (*c*)
9. (*c*), (*d*), (*g*), (*j*), (*k*), (*l*), (*m*), (*n*).
10. Because its shape is like that of the Greek letter ▷ (delta).
11. (*c*).
12. Hastings 113 ft. ; Neptune 100 ft. ; B-29 141 ft. 3 ins., Constellation 123 ft.
13. (*b*).
14. (*a*) and (*c*).
15. Narrow chord, slight unequal forward taper outboard of centre-section, and duo-curved wing-tips.
16. The IL-12.
17. (*a*) Venom, (*b*) Venom, (*c*) DH.113, (*d*) DH.113.
18. Convair B-36, Convair XC-99.
19. B-36 Transport.
20. When silhouetted against the vapour trails.

CONVAIR SILLY-ETTES

TRICKY TRIO

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