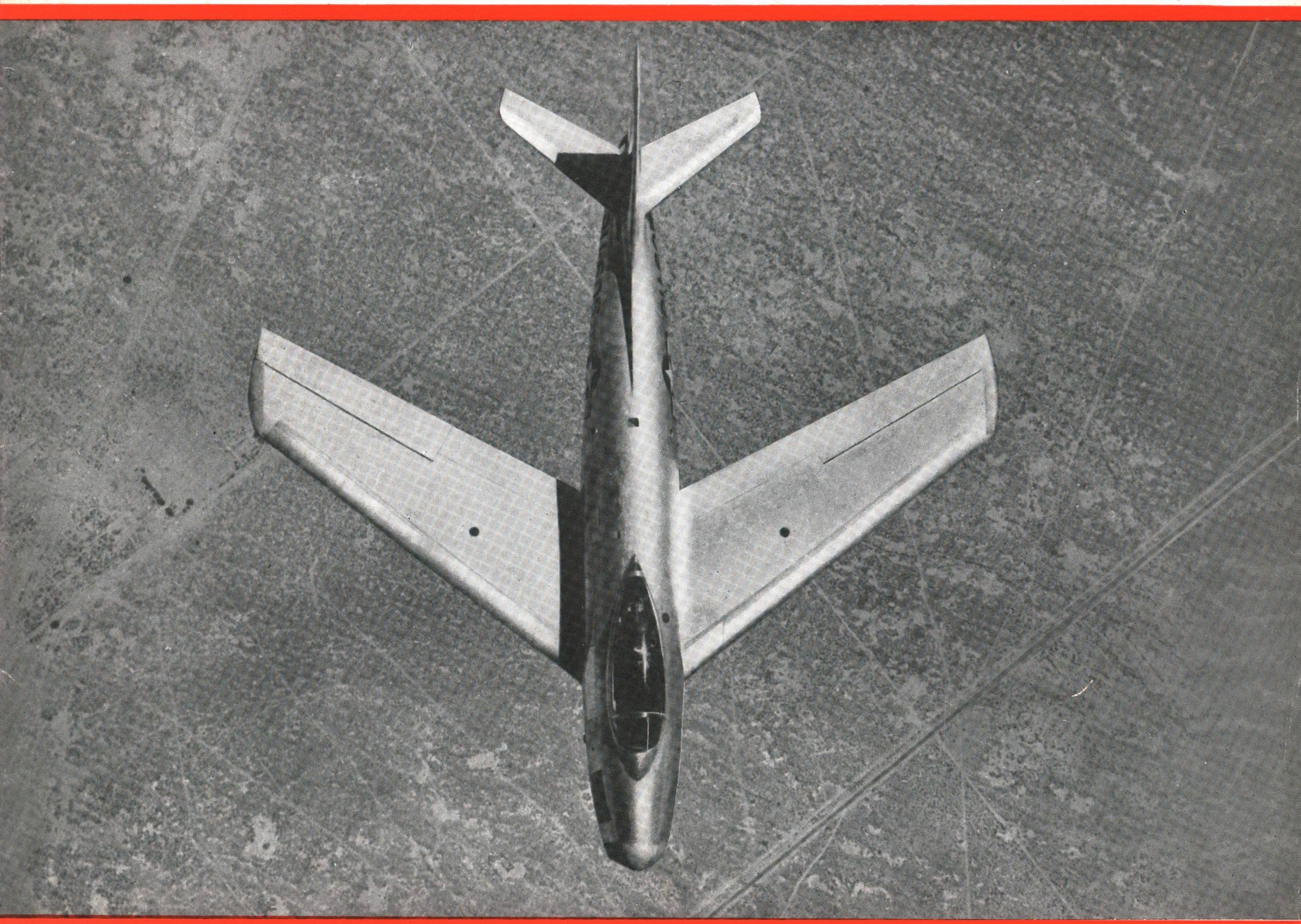
THE INTER SERVICES

AIRCRAFT RECOGNITION *Journal*



Vol. 4 APRIL 1950 No. 8



HASTINGS

Transport by Handley Page

APRIL 1950 Vol. 4 No. 8

THE INTER SERVICES

AIRCRAFT RECOGNITION JOURNAL

The Inter-Services Aircraft 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, Inter-Services Aircraft Recognition Journal, Air Ministry, Room 405, Richmond Terrace, Whitehall, London, S.W.1.

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SHOW BUSINESS

ELEVEN COUNTRIES now hold between them 26 licences to manufacture British airframes, engines and associated devices, and to use certain technical processes. That is not only a considerable credit to Our Country and a tribute to the skill, enterprise and ingenuity of our designers and constructors, but a powerful factor in our economy.

High quality and performance are themselves selling points, but it should not be forgotten that Britain's successful air-show business has played a very big part in selling aeroplanes to the rest of the world. In this air-show business we include all the displays, pageants, exhibitions and record-seeking flights, great and small, at home or overseas, in which the British Aviation Industry has taken part in one way or another. In particular we include the annual Display and Flying Exhibition presented by the Society of British Aircraft Constructors. Incidentally, and of particular interest to those concerned with recognition training, 1950 promises well for home-based air-show business if the number and character of events already planned and announced is any guide. We give details of them elsewhere in this edition.

Success in show business of any kind depends upon presentation—upon showmanship. A dictionary defines showmanship as : " the capacity for presenting one's wares to best advantage ". It means that no stone, however small, should be left unturned, either from the point of view of the buyer or the article, which is going to create an atmosphere in which the buyer not only buys but asks for more. Changing the scene and substituting " pupils " for " buyers ", we find that that is precisely the atmosphere which every aircraft recognition instructor must create amongst his pupils. As in show business, the key to success lies in the art of presentation.

Someone once said that a teacher never teaches anything ; he can only inspire pupils to learn for themselves. This applies with particular force to aircraft recognition training where the nature of the subject sometimes tends to reduce certain types of instruction to the mere passing of numbers of facts. That is not to say that some facts may not provide inspiration—indeed they may. But a properly balanced presentation of any subject will inspire pupils to seek relevant facts for themselves, which not only improves their chances of retaining them, but is altogether more efficient in instructional hours. It becomes a question not only of *what* is being said, or done, or shown, but of *how*. It is, in fact, more a matter of ' how ' than ' what '.

As long ago as April 1944, this passage appeared in the Inter-Services Aircraft Recognition Journal :

> "Aircraft Recognition as a subject can be as dull as ditch water or grippingly interesting—according to the style of presentation."

An aircraft recognition instructor ought always to consider himself in show business, and his pupils as audiences, and present his show so that it has the widest possible appeal—so that there is something in it for everyone. This ought not to be difficult with a subject like aircraft recognition, which has so many facets of interest, and when the instructor can call so many sources of interest and inspiration to his pupils' aid.

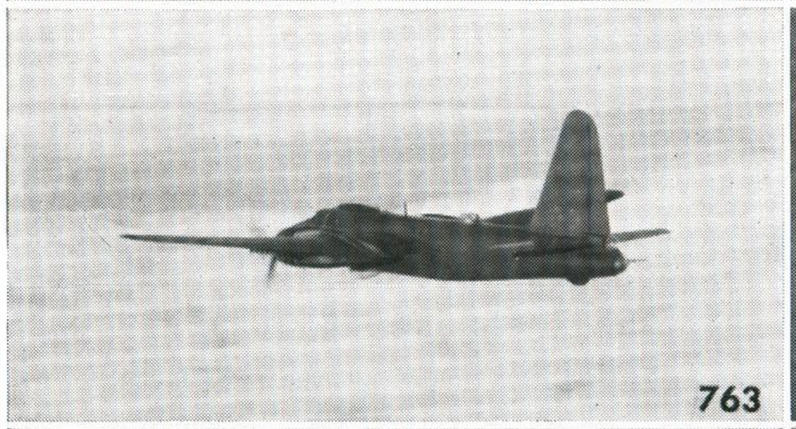
Success in show business is swiftly reflected in box office receipts of one kind or another. There is no such guide for the recognition instructor—there may be no immediate and apparent result. Nevertheless proper presentation will cause pupils to take an interest in the subject beyond the confines of a classroom. A presentation which can do that can truly be described as a Good Show.

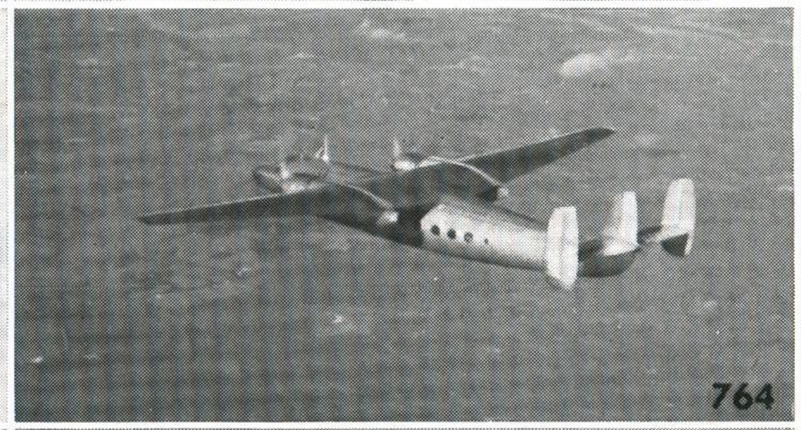
ELEMENTARY SPOTTING


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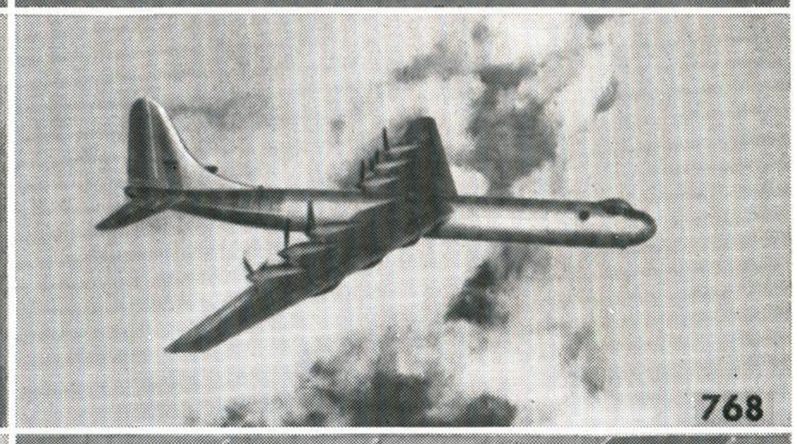

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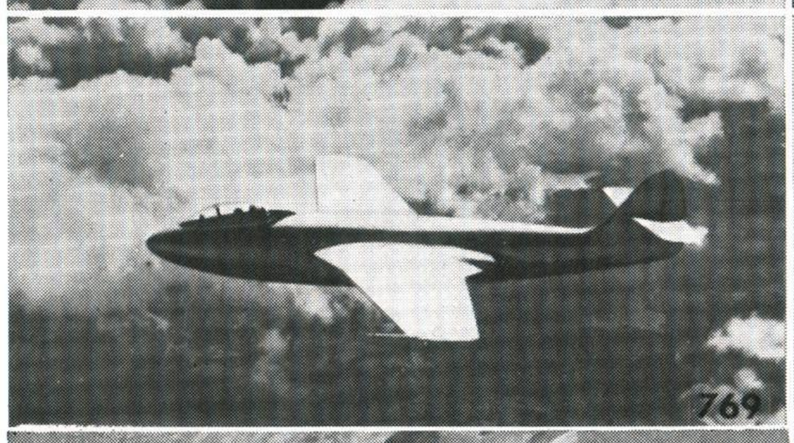

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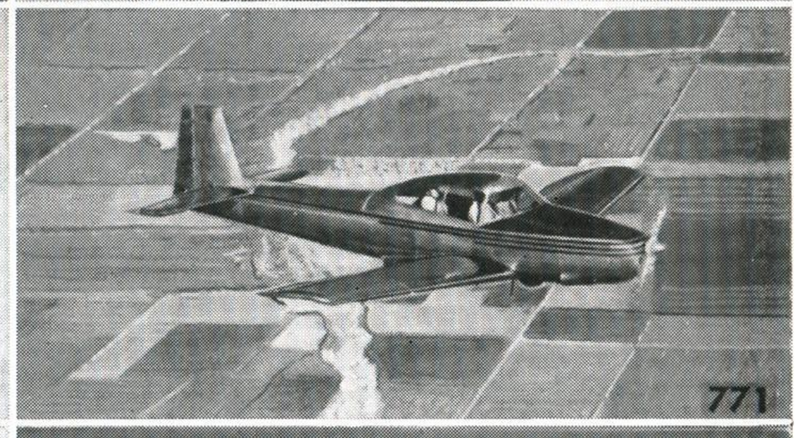

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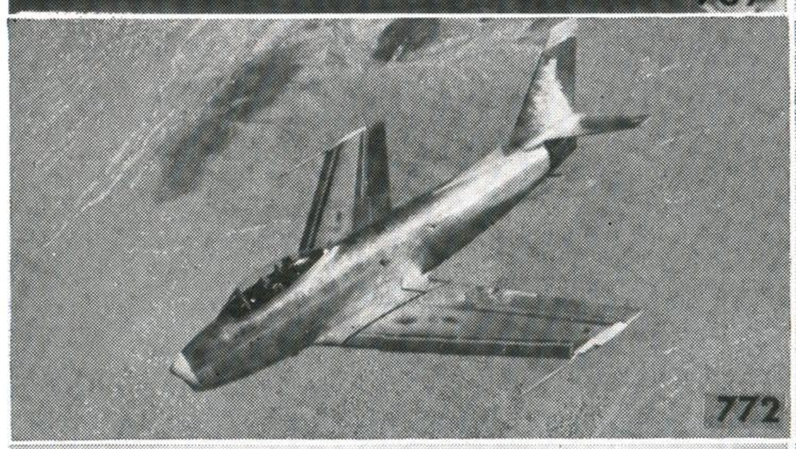

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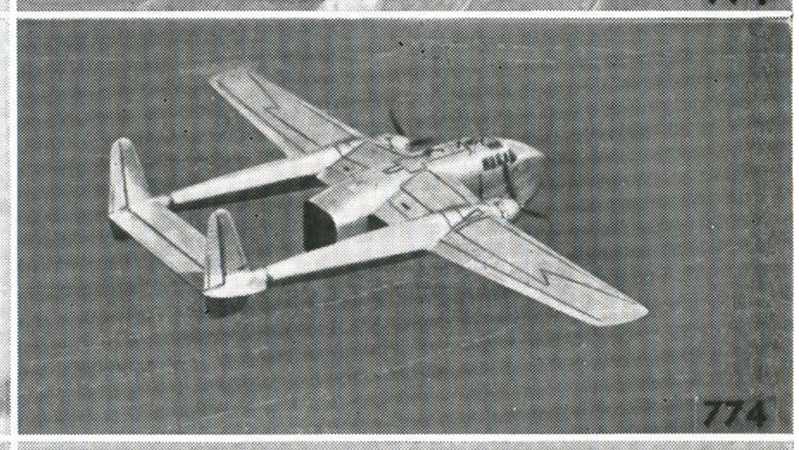

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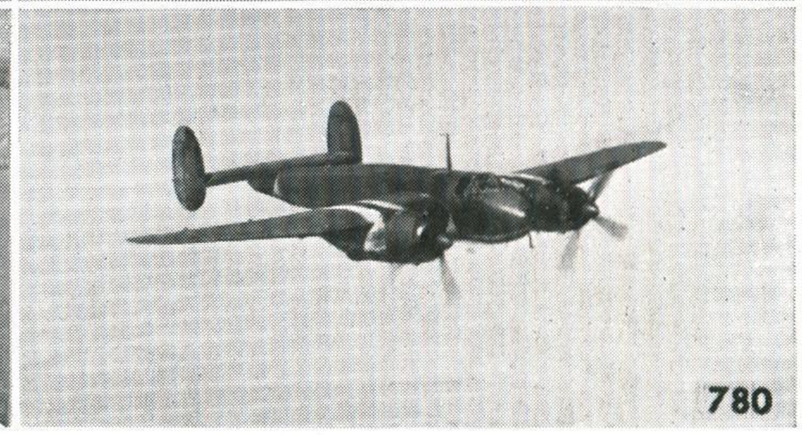

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FJ-1 Fury

JET FIGHTERS

FORERUNNERS of a steadily lengthening line of highly successful United States jet fighters, the FJ-1 Fury and F-86 Sabre prototypes were conceived during 1944. Their general similarity is the outcome of initial development along parallel lines.

First to be projected, the XFJ-1 Fury was designed specifically for the U.S. Navy in an attempt to provide carriers with a powerful single-seat fighter, capable of surpassing the performance of existing shore-based

by Obs. ROY McLEAVY
(ROYAL OBSERVER CORPS)

interceptors. While the XFJ-1 was still on the drawing board, the U.S.A.F. placed an order for two prototypes of a land version, designated the XP-86, and for several months, design of the two near-identical aircraft progressed concurrently.

Following the German collapse in May, 1945, promising reports on enemy swept-wing research became available to U.S. Air Material Command, prompting a decision to incorporate swept surfaces on the XP-86. Extensive re-design followed, and after concentrated wind tunnel tests, the revised XP-86 emerged with sweep-back on all flying surfaces, plus a lengthened fuselage.

Development of the Fury continued in the meantime, and the first prototype XFJ-1 made its initial flight during November, 1946, powered by a General Electric-Allison J-35-3 (TG-180) turbojet.

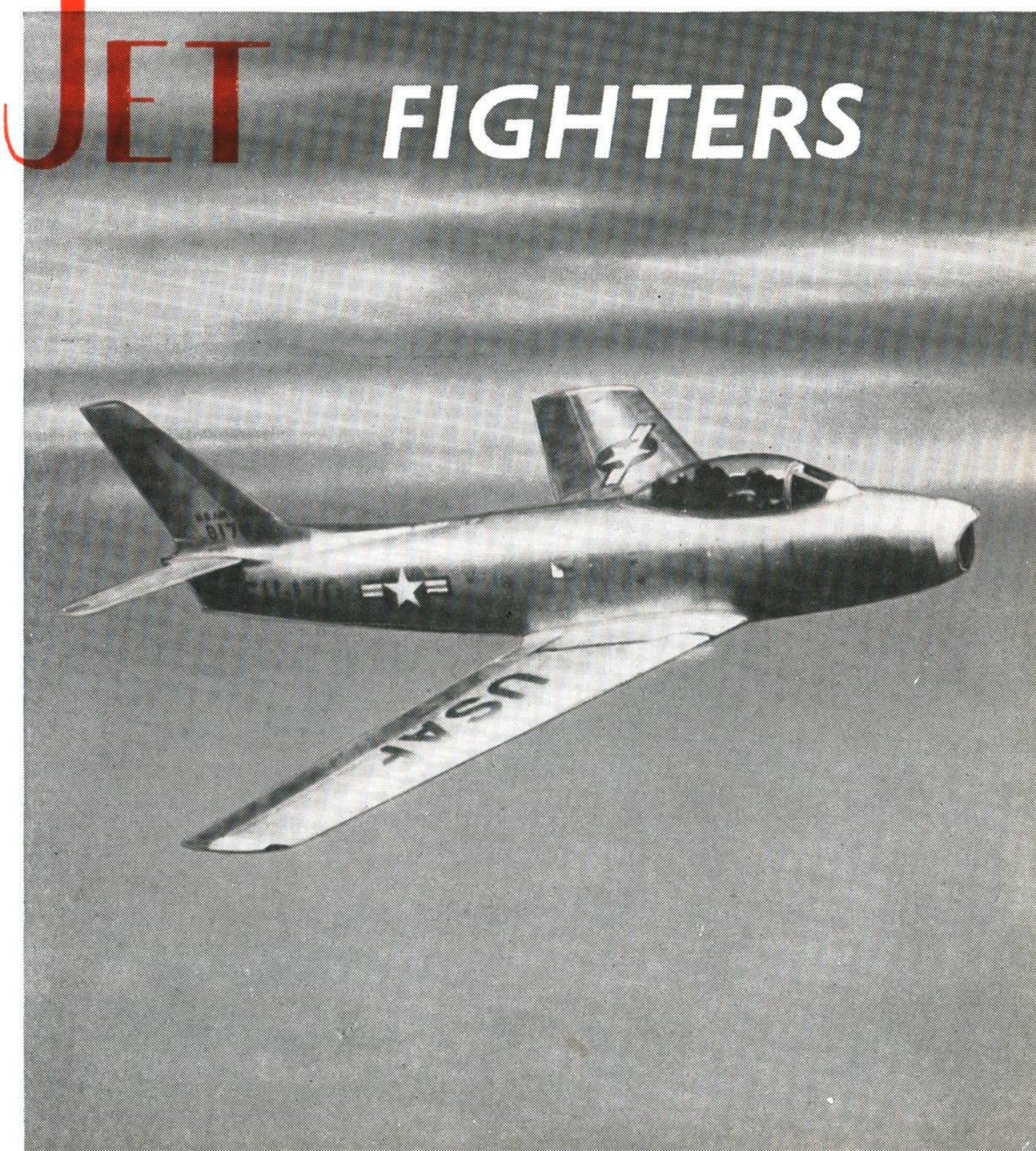
Furies entered squadron service in January, 1948, and one month later completed the U.S. Navy's first operational jet landings and take-offs at sea. They were made from the U.S.S. *Boxer*. A useful feature of the Fury's tricycle landing gear is the nose unit, designed to assist stowage on crowded carriers. Ground crews can retract the nose wheel by a hydraulic hand pump until the aircraft is kneeling on a detachable dolly ; in this attitude the aircraft can be taxied or pulled to any required position.

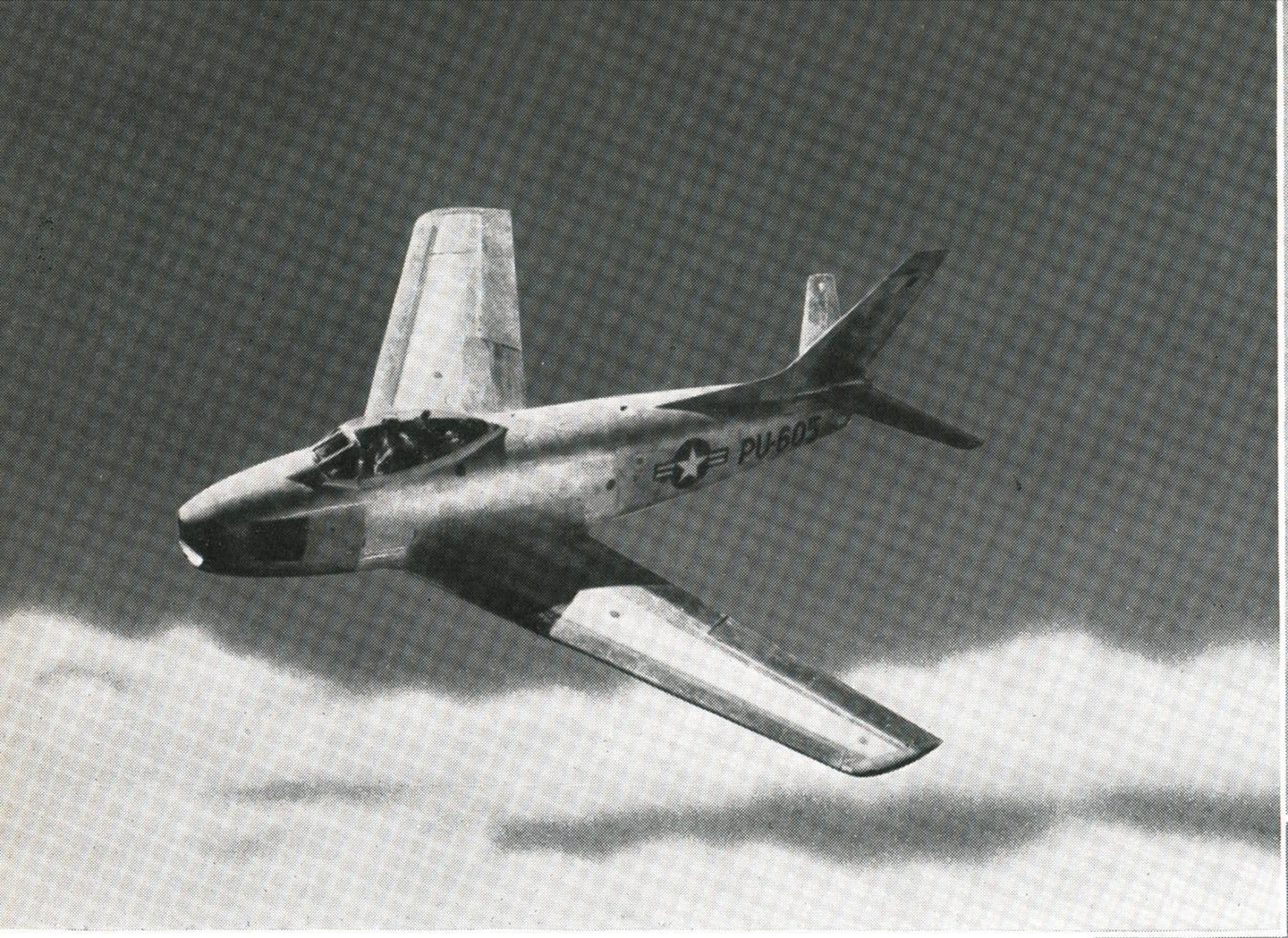
A low mid-wing monoplane with an unusually tubby fuselage, the Fury is aptly described by its maker as having the appearance of a " flying-bomb". The cockpit, enclosed by a bubble canopy, is placed ahead of the wing and has an ejector seat. Tailplane of the Fury has moderate dihedral to increase stability and assist control during carrier landings. The fin and rudder bears a characteristic " North American " appearance. Long-range drop-tanks with supplementary navigation lights may be fitted to the Fury's wing tips.

The thirty FJ-1s delivered to the U.S. Navy are now being used mainly for jet familiarisation. Armament consists of six .50 machine guns mounted in the nose.

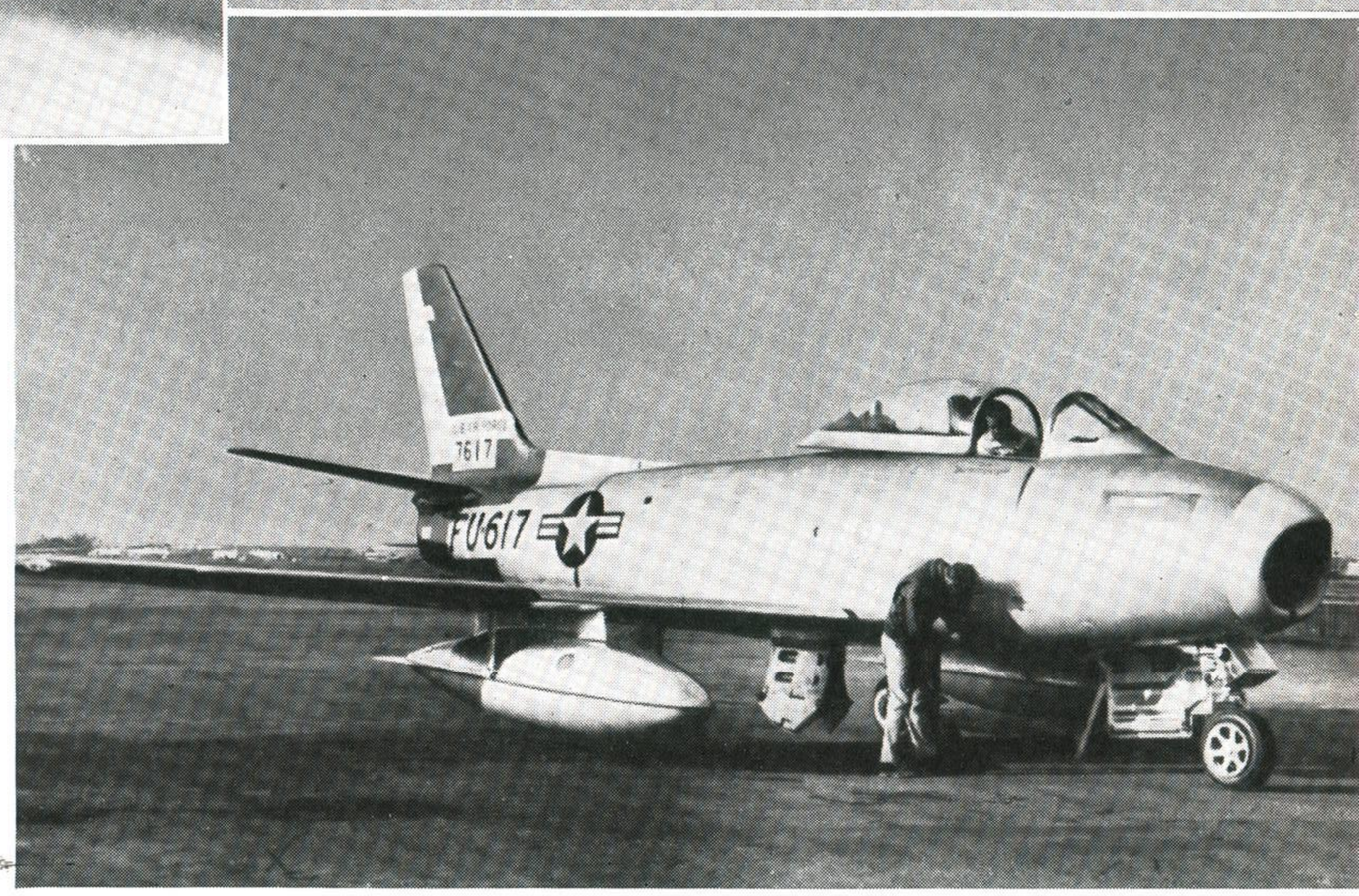
Production models differ from the prototype by having extended leading edge roots, imparting a wing-plan reminiscent of the once-familiar Mustang.

F-86A Sabre









North American F-86A Sabre

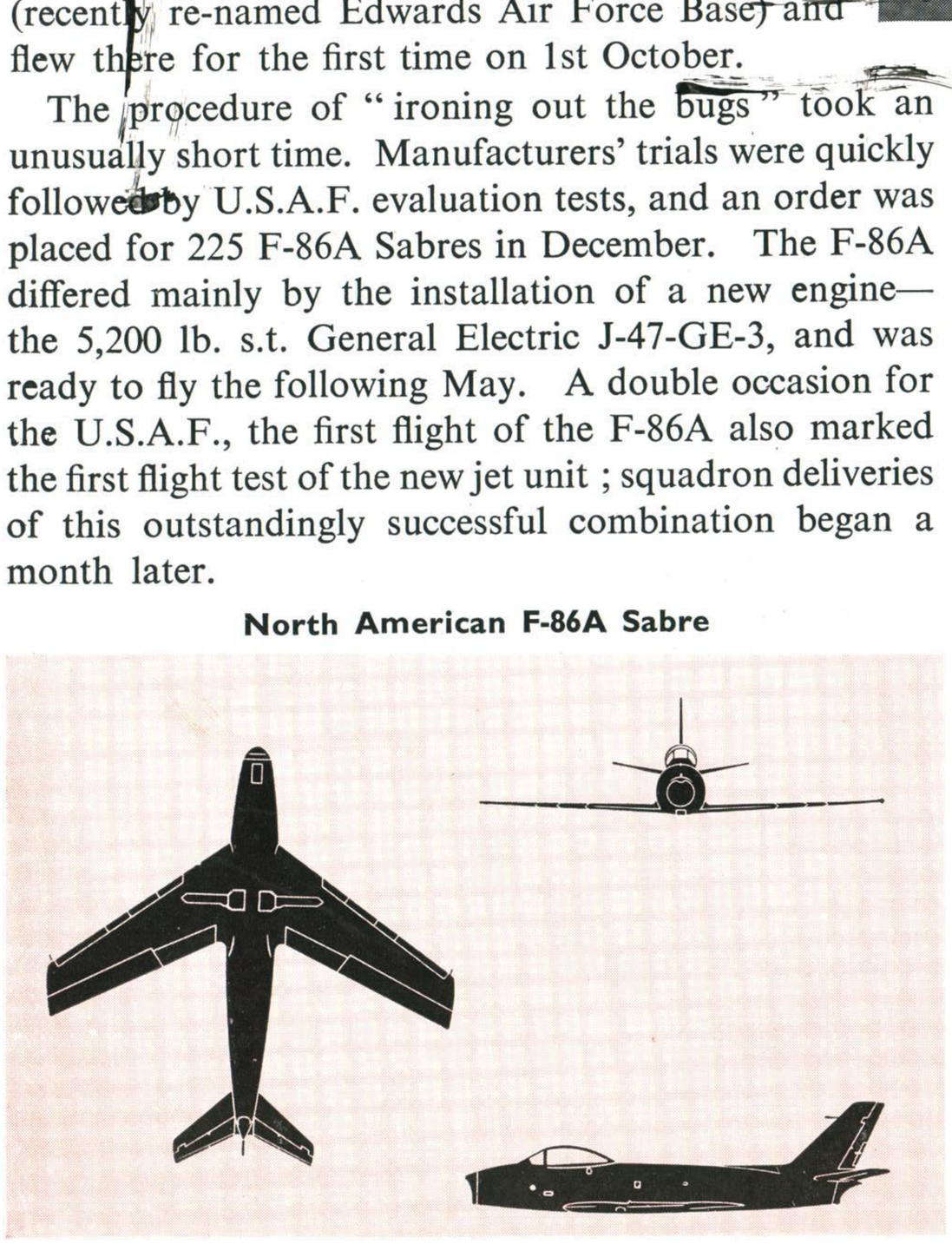
SABRE DATA

Span : 37 ft. 1 in.
Length : 37 ft. 6 in.
Normal Gross Weight : 13,715 lb.
Max. Speed at sea level : over 670 m.p.h.
Tactical Radius : 535 miles.
Service Ceiling : 53,000 ft.

During September 1947 the prototype, XF-86, was completed. It was taken to Muroc, California (recently re-named Edwards Air Force Base) and flew there for the first time on 1st October.

The procedure of " ironing out the bugs " took an unusually short time. Manufacturers' trials were quickly followed by U.S.A.F. evaluation tests, and an order was placed for 225 F-86A Sabres in December. The F-86A differed mainly by the installation of a new engine—the 5,200 lb. s.t. General Electric J-47-GE-3, and was ready to fly the following May. A double occasion for the U.S.A.F., the first flight of the F-86A also marked the first flight test of the new jet unit ; squadron deliveries of this outstandingly successful combination began a month later.

North American F-86A Sabre



On September 15th, 1948, an F-86A flown by Major Richard Johnson, an Air Material Command Test Pilot, broke the world's air speed record set previously by a Douglas Skystreak. Speeding over the three kilometre course at Muroc, the Sabre averaged 670.981 m.p.h., winning laurels as the world's fastest operational jet fighter. The Sabre has since attained speeds of more than 710 m.p.h. in level flight, and dives have been recorded at Mach 1.15, or approximately 800 m.p.h. between 20,000 and 30,000 ft.

More slenderly proportioned than its corpulent naval forebear, the Sabre employs a similar " straight-through" jet layout. The fuselage has a tubular appearance, broken by the bubble canopy placed over the leading edge of the mainplane.

Fully-pressurized and air-conditioned, the cabin is furnished with an ejector-type seat for an emergency escape. A distinctive feature of the Sabre's nose is the dorsal extension, fitted to ensure an adequate airflow when flying in a nose-up position.

Sweep-back on the mainplane is 35 degrees and that of the tail surfaces slightly less. Their construction presented a major design problem, solved by the use of a specially developed sandwich-type structure. Automatic slots with an over-ride are fitted to improve stall

and landing characteristics. Aileron effectiveness on swept-wing aircraft is considerably less than that of conventional types ; the ailerons therefore have a wide chord and the Sabre's rate of roll is considered comparable with that of straight-wing fighters.

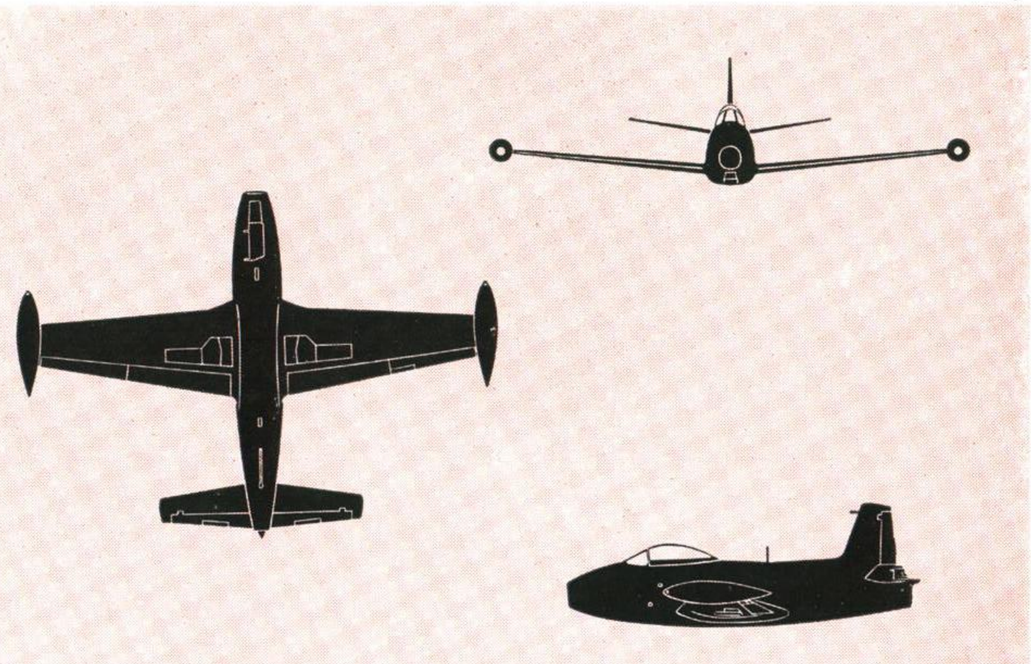
The Sabre has a tricycle undercarriage with inward retracting main wheels. The nose unit retracts aft and rotates through 90 degrees to lie flat beneath the nose. Standard armament comprises six .50 machine guns, with the possible addition of 16 5 in. rockets, light bombs, or depth charges. Long-range drop tanks are carried a few feet from the centre-section, as a rearward tip location would alter the C.G. position.

FURY DATA

Span : 38 ft. 1 in.
Length : 33 ft. 7 in.
Loaded Weight : 12,679 lb.
Max. Speed : about 560 m.p.h.
Rate of Climb at sea level : 5,120 ft. per min.
Range : over 1,500 miles.

Pending current negotiations, a large number of Sabres will be produced for the R.C.A.F. under licence by Canadair. Some of these are expected to be fitted

North American FJ-1 Fury



North American FJ-1 Fury

with Avro Canada Orenda turbojets. Two of the latest Sabre variants are the F-95A (formerly the F-86D) all-weather interceptor, and the completely revised and cleaned-up YF-93.

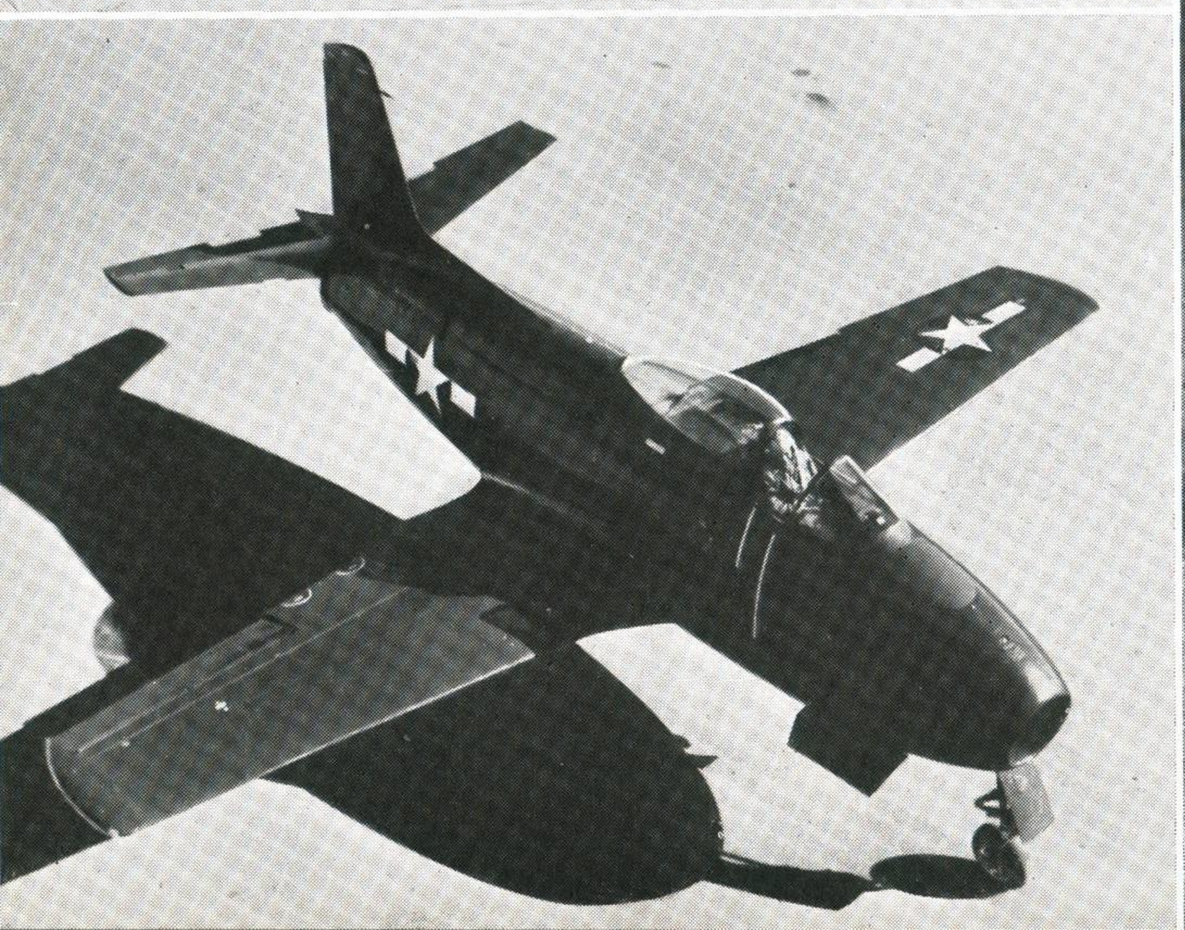
Nose of the F-95A contains radar in a boss-shaped protrusion, extending well ahead of the low intake duct. An afterburner is housed in the widened tail to increase the rate of climb for high-altitude interception. Slightly heavier than previous models, the F-95A has a length of 41 feet. An order has been placed by the U.S.A.F. for 122.

The YF-93, at present undergoing trials, is similar in general outline and construction to the F-86. Two major breakaways, however, are the exchange of a straight-through layout for flush intakes close to the cockpit, and the installation of a 6,250 lb. s.t. J-48 (Rolls-Royce Tay) turbojet with an afterburner.

This choice of installation for the YF-93 should ensure a useful transonic performance, and renews the relationship between Rolls-Royce and North American that began with the classical P-51D Mustang.

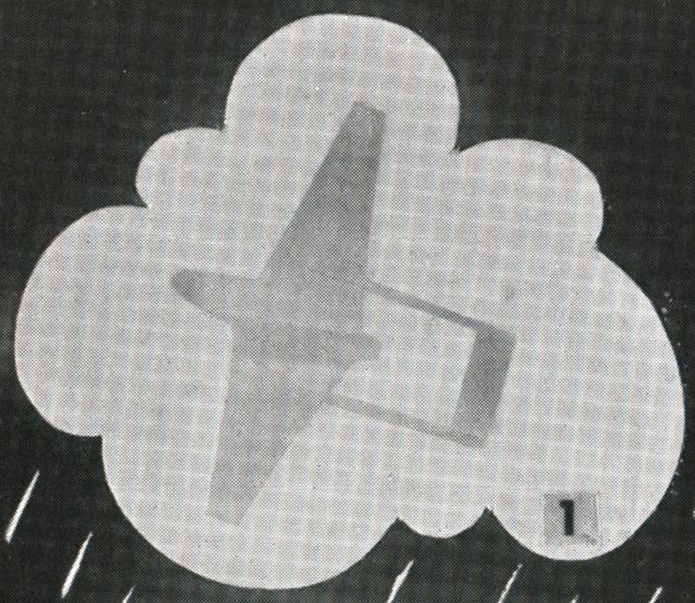
North American F-93A

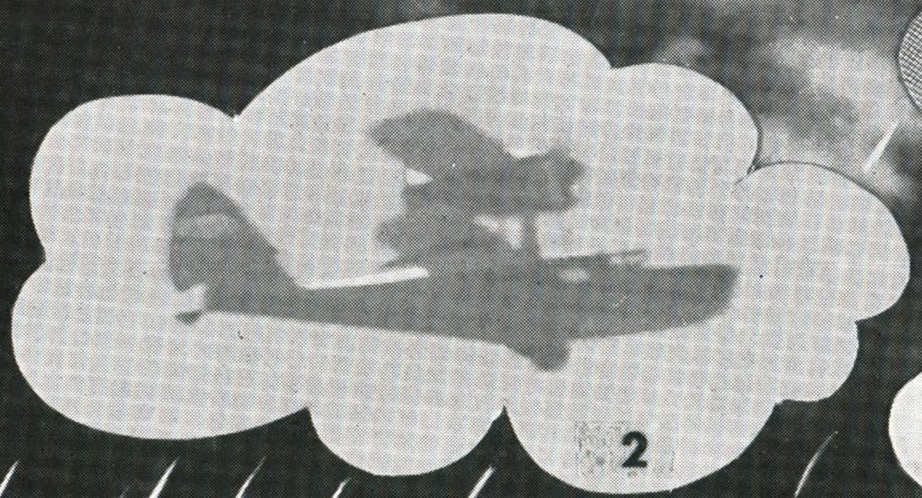


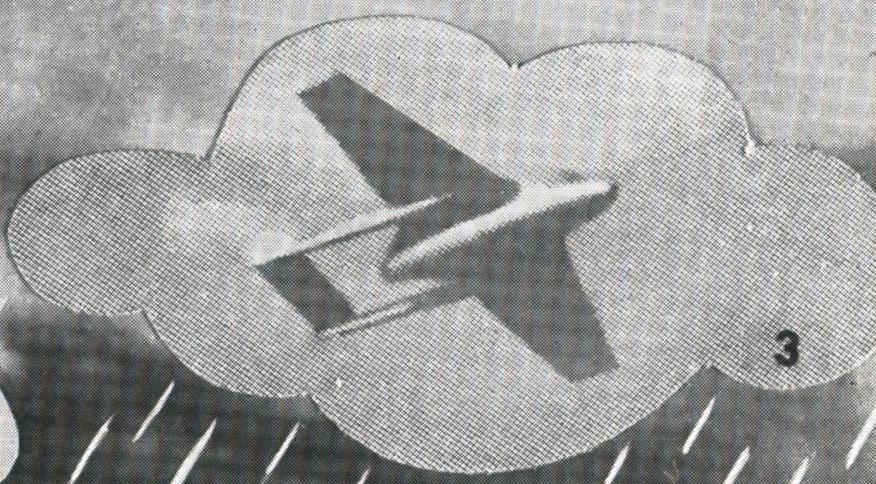


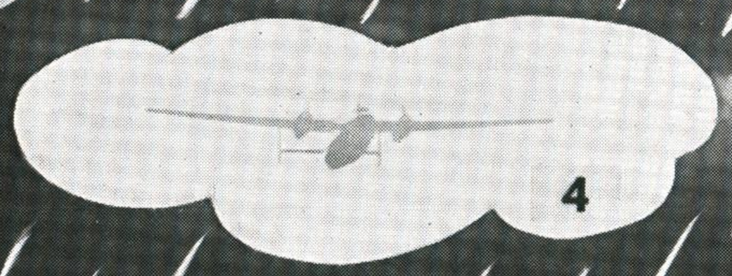


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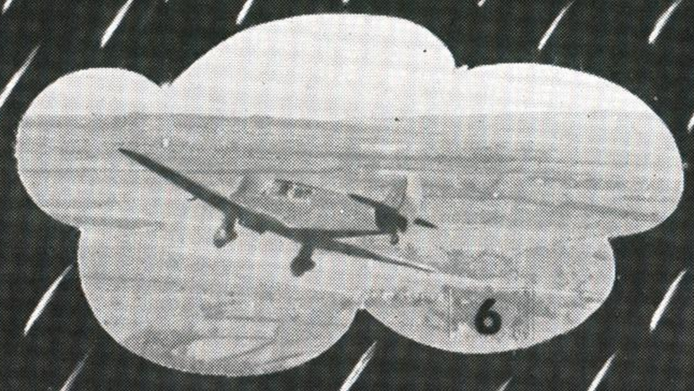

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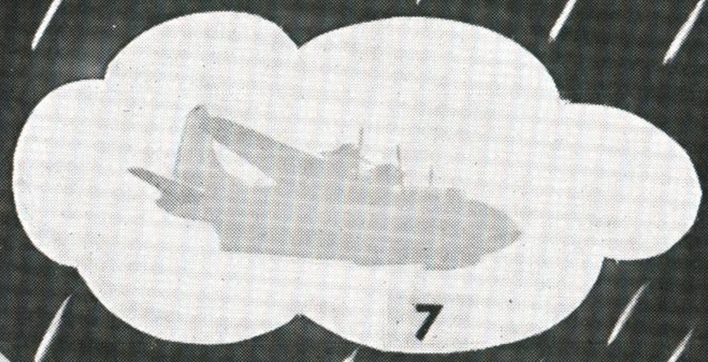

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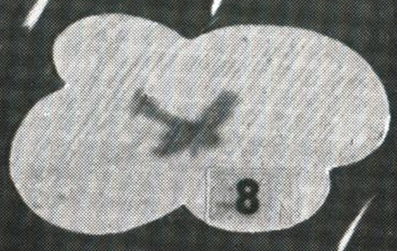

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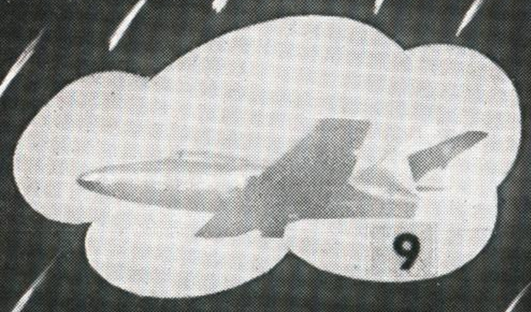

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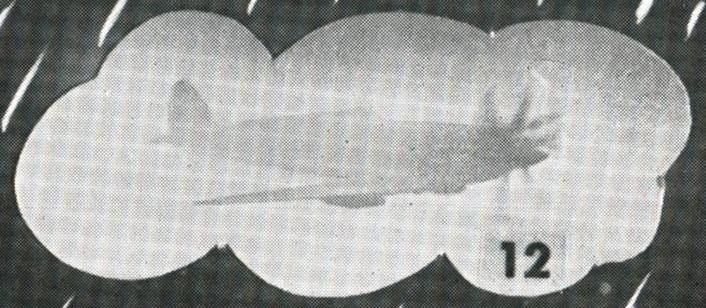

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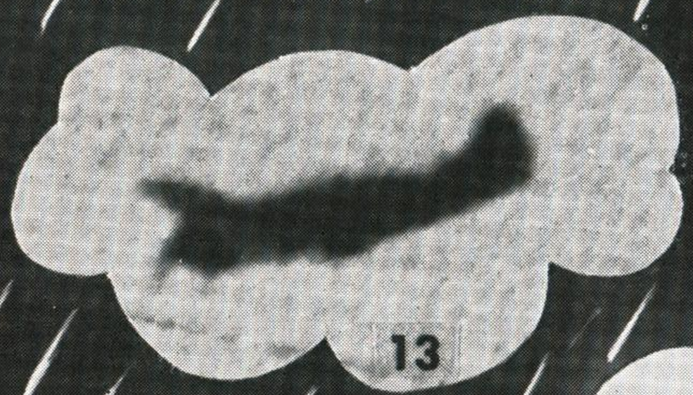

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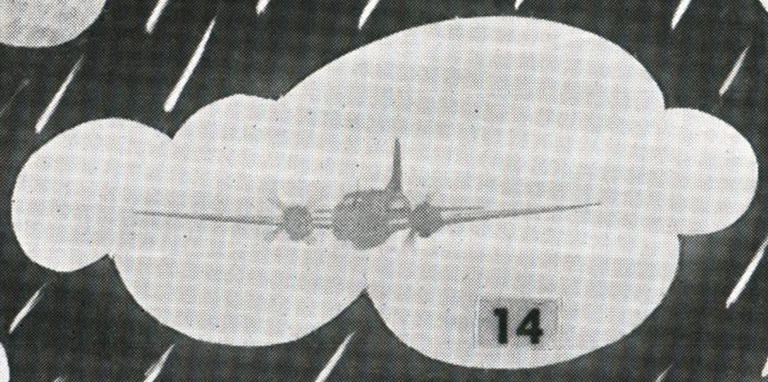

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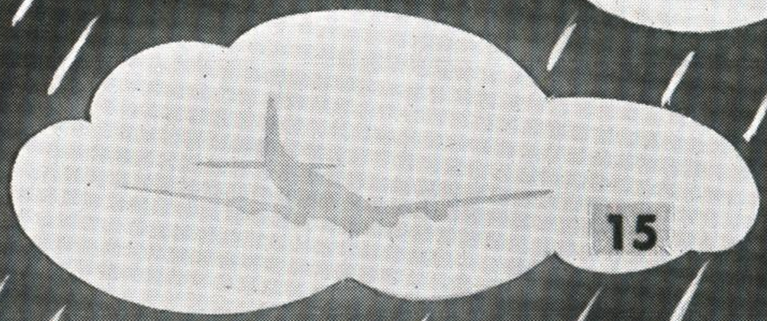

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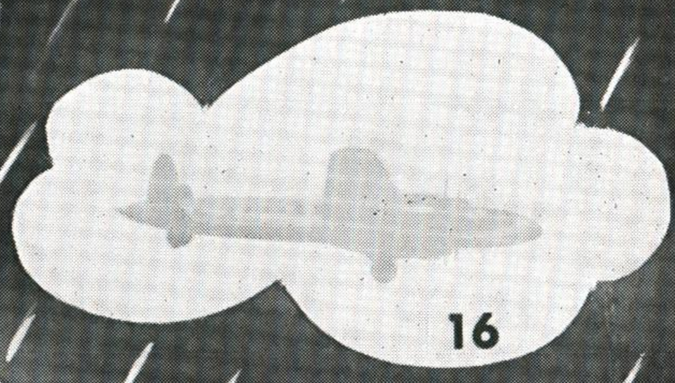

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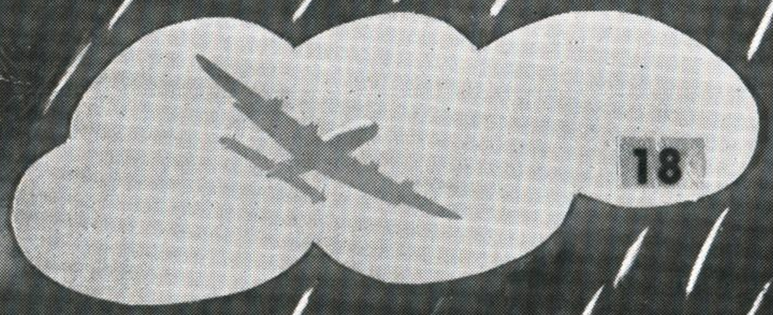

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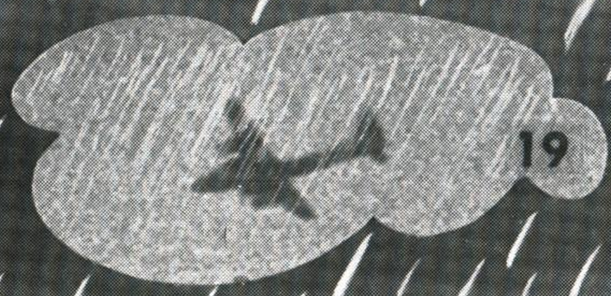

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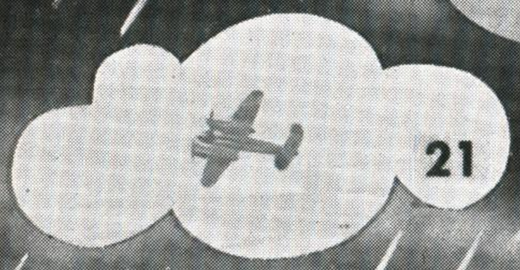

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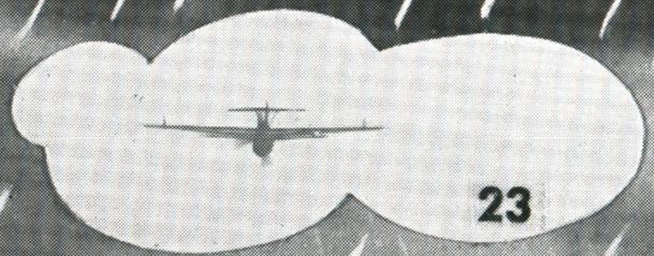

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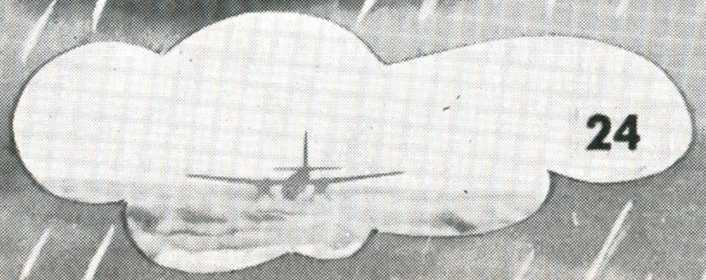

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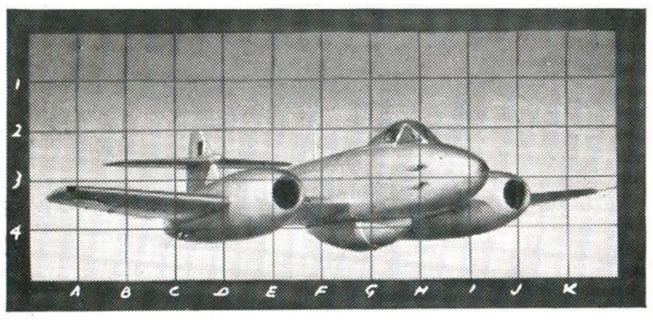

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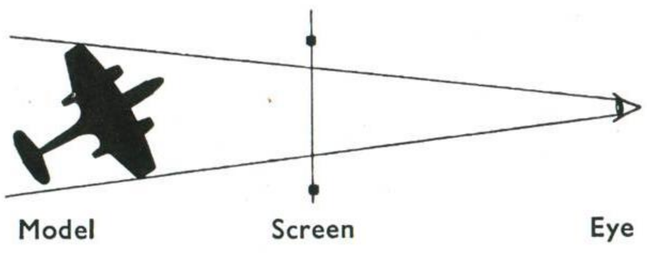

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STUDY FORM!

Part 3—Picture Plane

by FRANK WOOTTON

In this article Frank Wootton illustrates the third method by which readers, even if inexperienced in drawing, will be able to produce third dimensional sketches of aeroplanes from models. We shall be pleased to publish some examples of the work of readers who, though inexperienced in drawing, have successfully used any of the methods explained in this and the author's previous articles.

THIS is a well-known method of enlarging or reducing a two dimensional picture. Artists sometimes use it to reproduce their rough compositions on a more ambitious scale. For those of you who are not artists, however, the idea might have something to commend it if adapted to enable you to draw from a model.

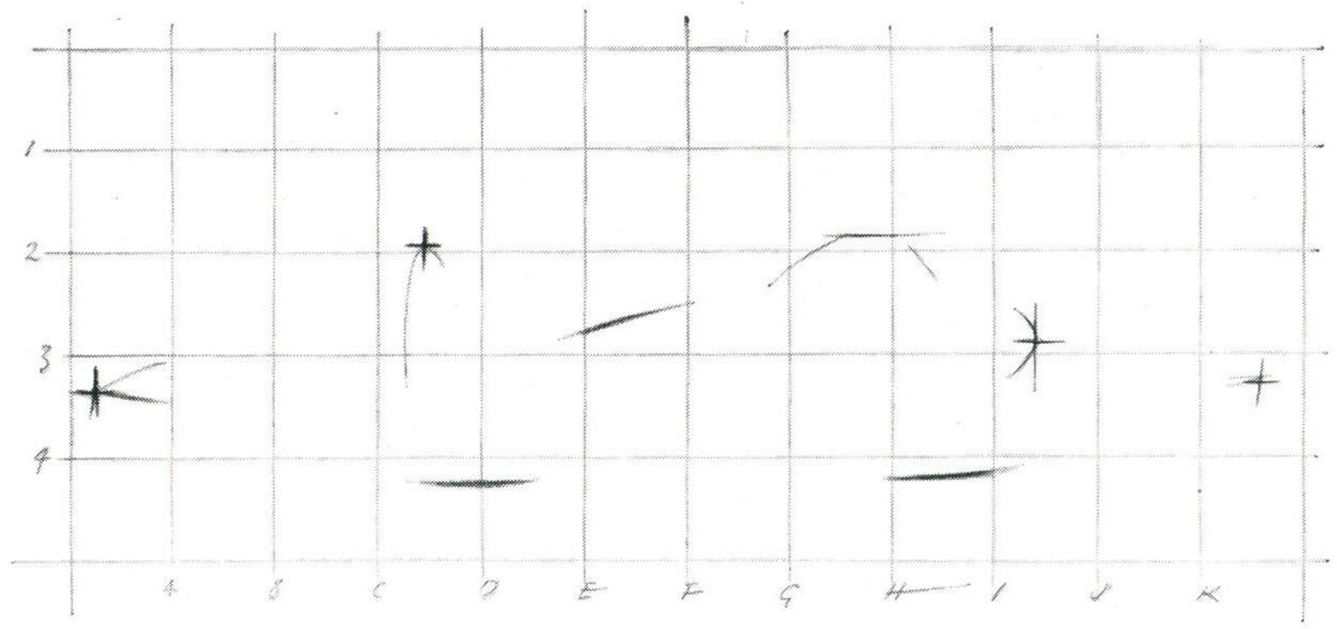
In using the method for drawing from the model it will be necessary to rule squares on a sheet of cellophane or glass which is large enough to frame the model when held at a comfortable distance from the eyes. If cellophane is used a cardboard frame will stiffen the sheet.

Having made the squared up frame you should also square up your drawing paper by ruling the same number of squares larger or smaller as you require your drawing to be.

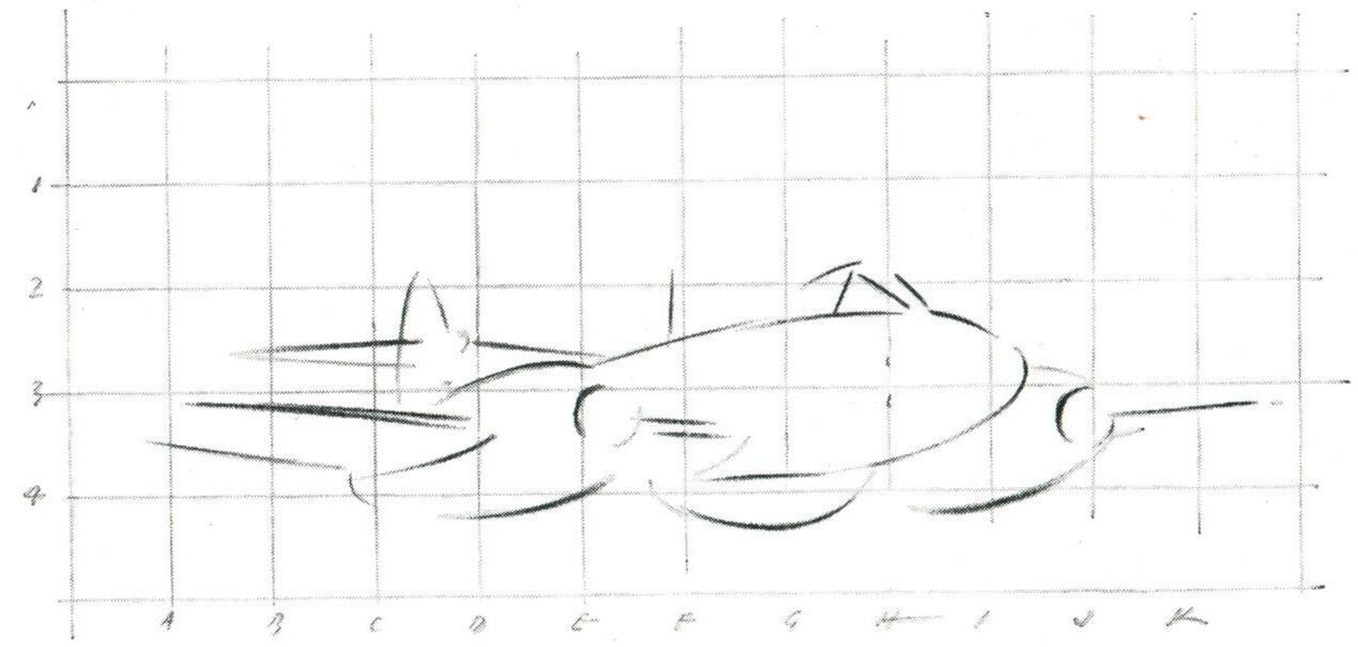
The procedure then is to sight the model through the transparent frame and mark off on your drawing paper where the lines intersect the contours of the model.

It is hardly necessary to add that you should not move the frame or your head in relation to the model, so, having established the positions of the model and the frame and fixed them so that they cannot move, make a note before commencing your drawing, of two opposite points of the model, for example the nose and the tail, mark these on your paper in their correct positions so that if you are disturbed before finishing the drawing, it will be a simple matter to realign your eye.

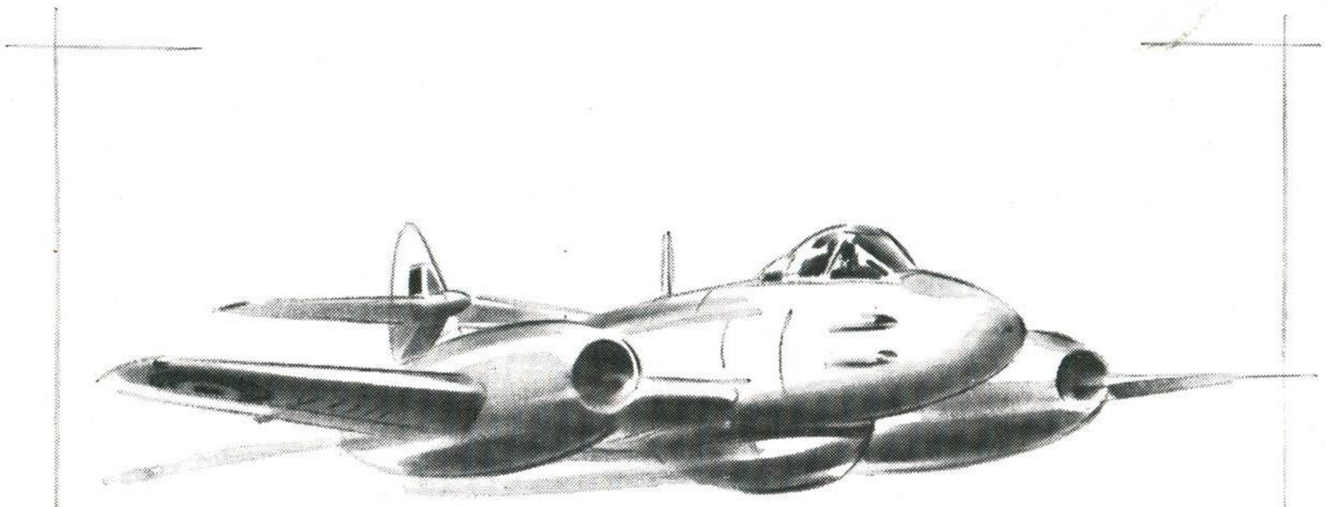
One point I should like to mention and that is on the number of squares or divisions you decide to use. There is no limit, of course, but it is obviously better training to use the least number as it makes the exercise less mechanical.



The frame-up.



The main lines.



The finished sketch.

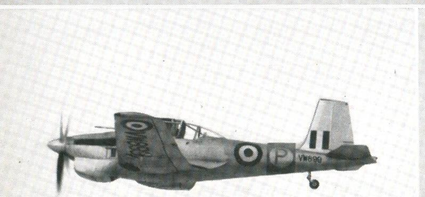
Balliol

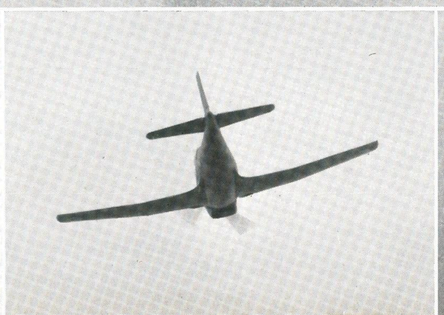


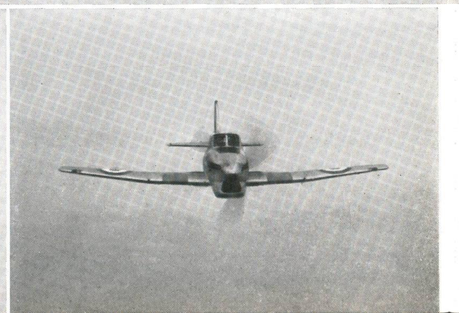












The Boulton Paul Balliol T Mk. 2 is an advanced trainer, which, after exhaustive tests and trials at home and abroad, has been selected as the new standard advanced trainer for the Royal Air Force. It includes in its duties pilot, gunnery, navigation, bombing, deck-landing and rocket-firing training. It is reported that several foreign air forces are also interested in the Balliol. " Advanced " is also applicable to some of its recognition characteristics, for its large radiator scoop, its squared-off wing and fin could scarcely be more advanced in their positioning. Together they produce what can only be described as a rather " forward character " which is capped by a large, almost " Crystal Palace " type of cockpit canopy, the complete and howling success of which seems to be portrayed in the bottom right-hand picture.

(Full technical data and description appear on Page 159 together with a silhouette.)



Britain's Spotting Possibles

Thanks to the enterprise and energy of many of our readers, who sent us extracts from their Spotting Logs, we are now able to present this completely revised list of aeroplanes sighted over Great Britain during the last few months.

We shall be interested to hear from readers who can add other aircraft to the list. Logs submitted should contain only the names of aeroplanes which have been seen flying within the last six months. Confirmation of types shown in the " reported but not confirmed " list underneath will also be welcome.

Aeronca
Aerovan
Ambassador
Anson
Apollo
Argus
Arrow
Athena
Attacker
Auster
Avenger
B-29 Superfortress
B-50 Superfortress
Balliol T Mk. 2
Barracuda TBR Mk. 5
Beaufighter
Bellatrix
Blackburn YA-5
Bonanza
Brabazon
Brigand
Buckmaster
Canadair DC-4M
Canberra
Chipmunk
Comet
Constellation
Consul
Convair-Liner
Cygnet
Dakota
DC-4 Skymaster
DC-4 M.
DC-6
Devon
D.H. 86B
Dominie
Dove
Dragon
Envoy
Ercoupe
Expeditor
F-80 Shooting Star
Fairey 17
Fiat G.212
Firebrand TF Mk. 5
Firefly 1, 4 and 5
Fox Moth
Freighter
Fulmar
Gemini
Globemaster
Globe Swift
Goeland
Gyrodyne
Hadrian
Halifax 9
Halton
Harvard
Hastings
Hawker P.1052
Hermes 4
Heston A2/45
Hornet
Hornet Moth
Horsa
Hoverfly 2
Hythe
Junkers Ju 52/3m
Junkers Ju 86
Junkers Ju 290
Lancaster
Lancaster (Python)
Lancastrian (Avon)
Languedoc
Liberator
Lincoln
Lockheed 12 (Super Electra)
Lockheed 18 (Lodestar)
Magister
Mallard
Marathon (Mamba)
Marathon I
Martinet
Master
Me 108
Mentor
Mercator
Messenger
Meteor F Mk. 4
Meteor T Mk. 7
Miles Falcon
Miles Monarch
Mitchell
Monitor
Mosquito TT Mk. 39
Neptune
Newbury Eon
Norecrin
Olympia Eon
Oxford
Packet
Piper Cub
Prentice
Proctor
Puss Moth
Sandringham
Seabee
Seafire Mk. 47
Seaford
Sea Fury
Sea Hawk
Sea Hornet NF Mk. 21
Seagull
Sea Otter
Sea Vampire F Mk. 20
Sentinel
Siebel 204 (N.C. 701)
Shackleton
Sikorski S.51 (Dragonfly H.R.1)
SM 95
Solent
Spitfire
SR/A1
Stratocruiser
Sturgeon TT Mk.2
Sunderland
Super Ace
Supermarine 510
Sycamore
Tempest 2 and 5
Tiger Moth
Tudor 2, 4 and 8
Valetta
Vampire 1, 3 and 5
Varsity
Viking
Viking (Nene)
Viscount
Walrus
Warwick
Wayfarer
Welkin
Wellington
Wyvern 2
York

Reported, but not confirmed:—

Airmaster
Arsenal VB-10
Cierva C-30
Club Cadet
Hudson
Invader
Piper Super Cruiser
Pitcairn Autogyro
Primer
Reliant
Scion Junior
Skyjeep
Swordfish
Taylorcraft Plus C
Whitney Straight

Show Business

Royal Air Force Display, Farnborough Airfield, Hants. Friday and Saturday, 7th and 8th July, 1950.

Society of British Aircraft Constructors' Flying Display and Exhibition, Farnborough Airfield, Hants., Wednesday 6th to Saturday 9th September, 1950.

NATIONAL AIR RACES, 1950

The King's Cup Air Race, Saturday, 17th June at the Municipal Aerodrome, Wolverhampton.

S.B.A.C. Challenge Cup, Saturday, 22nd July at Sherburn-in-Elmet Aerodrome, Leeds.

The Air League Challenge Cup, Saturday, 22nd July at Sherburn-in-Elmet Aerodrome, Leeds.

The Grosvenor Challenge Cup, Saturday, 29th July at Woolsington Aerodrome, Newcastle-upon-Tyne,

The Norton Griffiths Challenge Trophy, Saturday, 29th July at Woolsington Aerodrome, Newcastle-upon-Tyne.

The Kemsley Challenge Trophy, Saturday, 19th August at Fairwood Common Aerodrome, Swansea.

The Siddeley Challenge Trophy Race, Saturday, 2nd September at Baginton Aerodrome, Coventry.

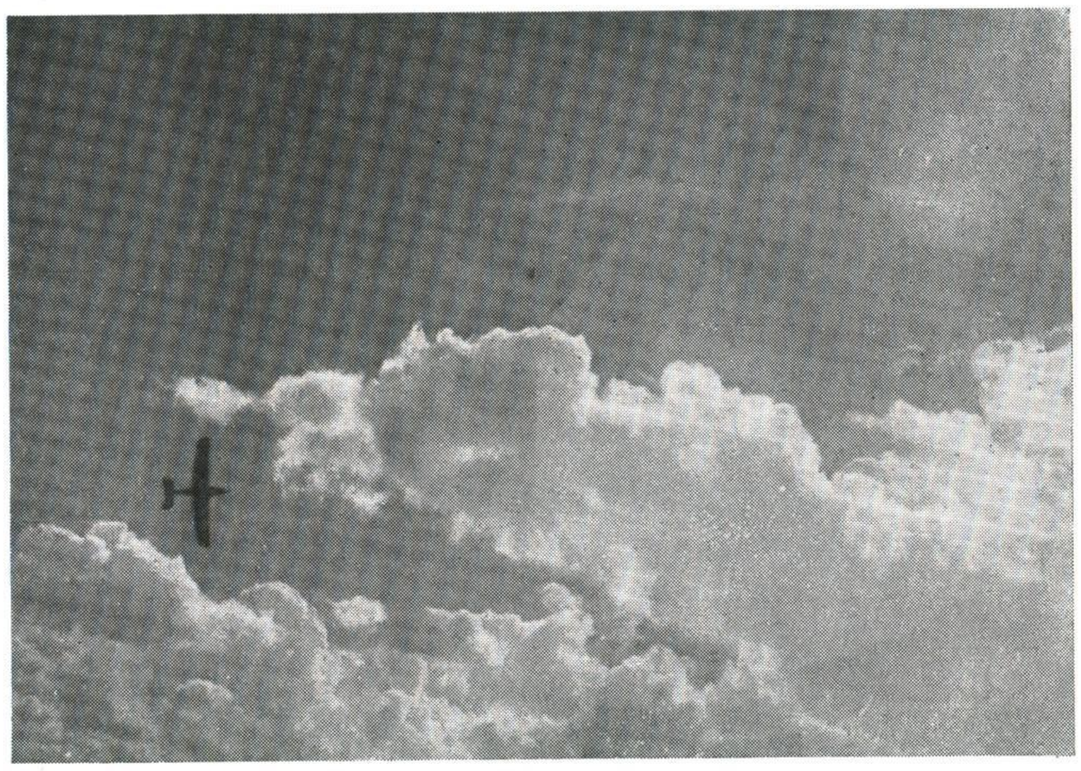
❖ ❖ ❖

This Month's Nonsense

It all started up again when our tame typewriter turned out a piece of nonsense about the Bristol Frighter (this will probably put us in a pretty big dog-house with B.A.C.) Still, they did once refer to the Freighter as " the ugliest aeroplane in the World " we believe—we hope. Worse followed in the shape of an Encoupe (this will doubtless put us in a chicken-house with Ercoupe). But suddenly we were assailed by a Halitax and a Super-axe, and, for one fearful moment, thought that Sir Stafford had taken an interest in aircraft recognition. However this was not so, and with a sigh of relief fell in to our usual deep mid-afternoon sleep, to dream of Fairey-like Firelfies scurrying past with such horrors as Brabazoons and Mosquirtos in hot pursuit. Up a nearby tree Chipminks were eating Argonuts (this ought to put us in a nut-house with someone) and the whole sky was filled with a great rustling of the comings and goings of Paper Cubs. Our dream ended abruptly when we were awakened by what we thought was a loud buzzing ; but it was only a Myth—a Tiger Myth.

❖ ❖ ❖

Aerogram



'e crept in (*Answer on rear cover*).

CHARACTER STUDY

No. 3—Hastings

THIS aircraft has dined well; has taken a deep breath; blown itself out like an aerostatic sausage; and held it. When the R.A.F. paints a hull stripe round the ample and rotund nose, the sausage starts to grin and look smug. This well-fed look is evident from all angles and the great tail assembly, with its comfortable curves, enhances the solid, post-prandial appearance of the machine. It should have been christened the Handley Page EMBONPOINT. From ahead the fuselage looks quite circular; from the side the leisurely lines of top and bottom curve down to meet in a good strong point.

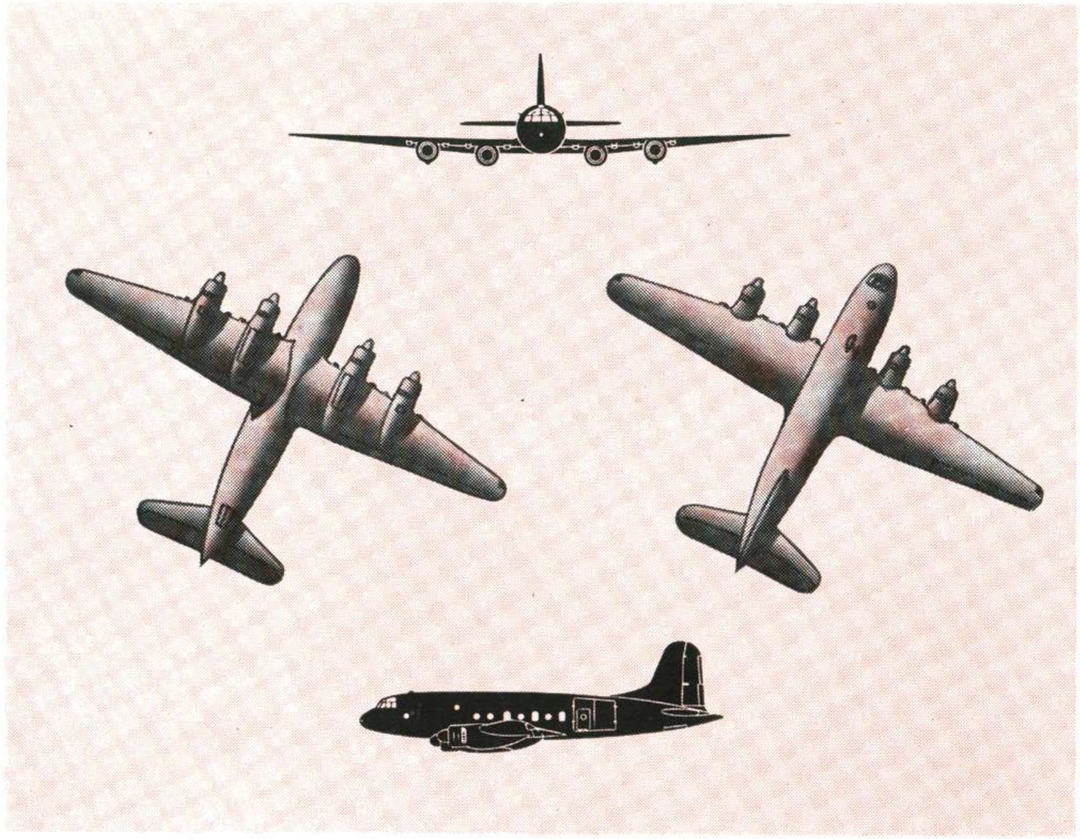
Another outstanding feature, especially for airborne recognition but visible to ground observers as well, is the manner in which the fuselage rides high on the wings; the wings weigh down on the engines; and the engines, with their depressed, head-down look, seem to struggle along beneath their heavy Falstaffian load.

From any view above the Hastings, a clearly appreciated characteristic is the clear smooth surface of the wings, unbroken by nacelles, with the large round fuselage lying across the centre section. From below, the deep low-slung nacelles break up the under surface of the wings into deep shadow patterns.

The Hastings is a worthy descendant of the first R.A.F. four-engined bomber, the Handley Page V/1500. More immediately it is a modification of the Civil Hermes, which in its turn is descended from the Halifax bomber. The Hastings first flew on 7th May, 1946 and is now a standard R.A.F. transport. Essential figures are:—

Origin: Great Britain. Length: 96 ft. 10 ins. Span: 113 ft. 0 ins. Cruising speed: 273 m.p.h. Maker: Handley Page. Engines: 4 Bristol Hercules radials. Function: general purpose transport used by Great Britain.

C. H. GIBBS-SMITH



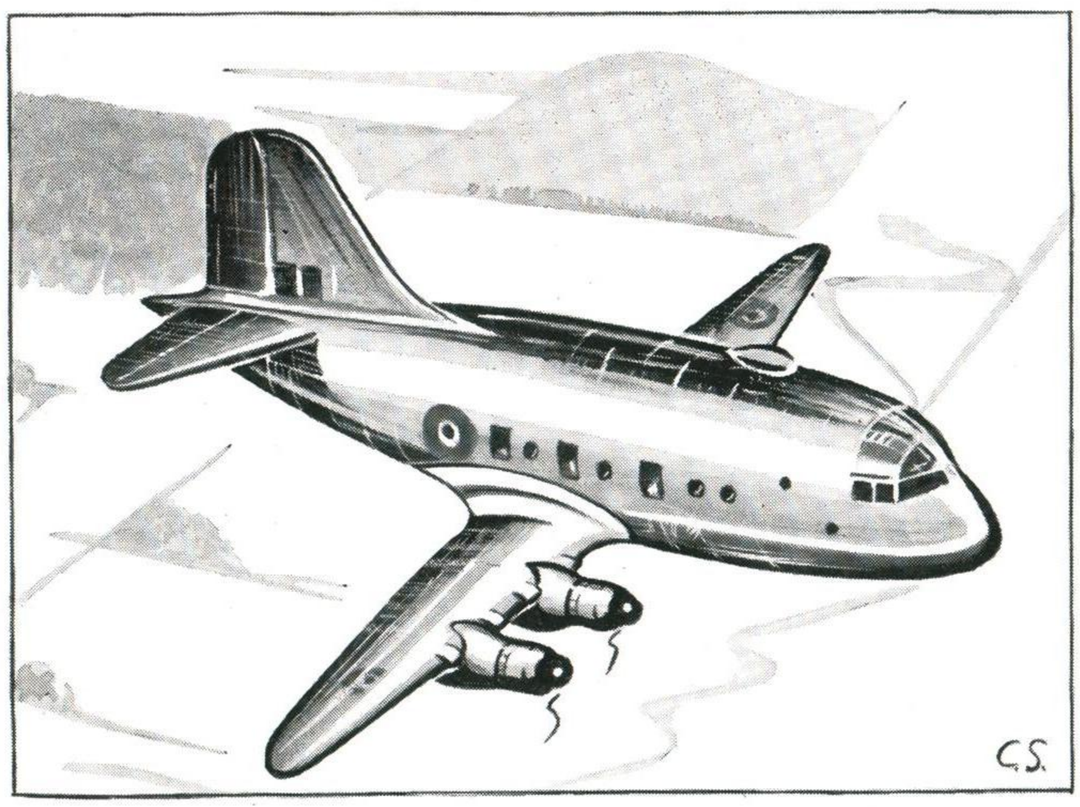
. . . an aerostatic sausage . . .



. . . the fuselage rides high . . .



This aircraft has dined well . . .

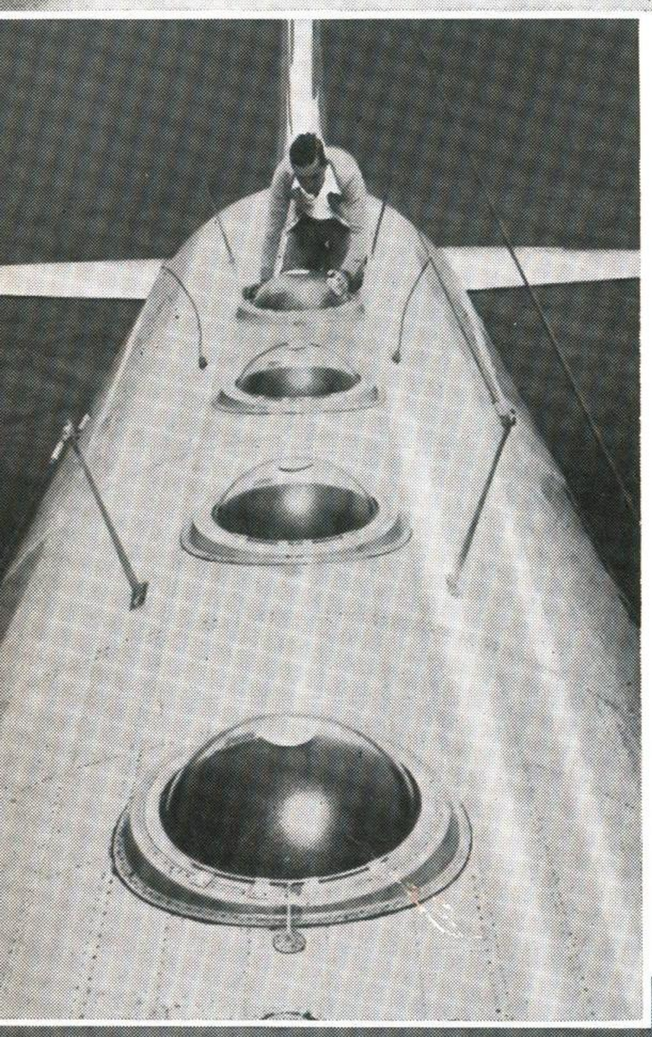


. . . head down look . . .

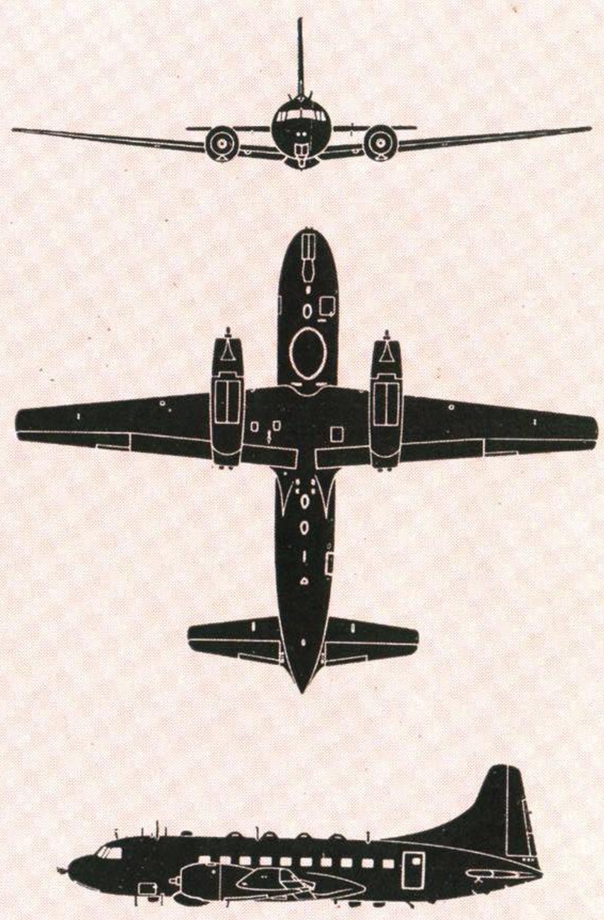




Convair T-29



"BRISTLING" is the word which comes most readily to mind—with visions of angry cats or porcupines—when contemplating the T-29—a military navigator-trainer version of the now well known Convair-Liner. As a flying classroom it will carry 14 instructors and pupils. Training "en masse" calls for many separate radio and radar installations, and is responsible for this rather pimpled, bulged and bewiskered version of an otherwise smooth and sleek aeroplane. Engines are Pratt and Whitney Double Wasp radials of 2,400 h.p. each. They have exhaust-thrust augmenters. (See *Journal* for Nov. 1949 for article on Convair-Liner).





IF RUSSIA decided upon hostilities and launched an all-out attack, there seems little doubt that every machine capable of taking the air would be pressed into service in some capacity or other. Most of the aircraft types in service in the various branches of the Soviet Air Force, and those in service in the countries dominated by Soviet Russia, are given in this list of

★ "IRON CURTAIN" AIRCRAFT ★

SOVIET AIR FORCE

Aircraft in service in large numbers :—

Fighters :
YAK-3, YAK-9, LA-7, P-39, P-63.

Bombers and Ground Attack :
PE-2, TU-2, IL-10.

Transport :
LI-2.

Trainers :
YAK-18 LI-2, (U.S. Dakota), PO-2.

New types of aircraft recently introduced :—

Fighters :
Swept-wing jet fighters, LA-9, LA-11.

Bombers :
TU-4 (Russian-built B-29).

Transport :
IL-12.

Trainer :
YAK-11.

Aircraft in service in small numbers :—

Fighters :
MIG-9, YAK-15, LA-5, Spitfire (probably Mk. 5), P-40 (U.S. Tomahawk).

Bombers and Ground Attack :
IL-4, IL-2, PE-8, TU-6, B-25 (U.S. Mitchell).

Reconnaissance :
MBR-2, Catalina.

Transport :
SHCH-2, YAK-6, YAK-8, IL-12.

Trainers :
YAK-18, PO-2, UT-2.

Obsolescent aircraft :—

Fighters :
YAK-1, YAK-7B.

Bombers :
DB-3, PE-8, IL-2.

Trainers :
YAK-7, YAK-14.

Reconnaissance :
MBR-2.

Distribution of aircraft to various commands within the Soviet Air Force.

Tactical Air Forces :—

Fighters :
YAK-3, YAK-9, LA-5, LA-7, LA-9, P-63 (U.S. Kingcobra), P-40 (U.S. Tomahawk), P-39 (U.S. Airacobra)

Bombers and Ground Attack :
IL-2, IL-10, PE-2, TU-2, TU-6, A-20 (U.S. Havoc).

Transport :
LI-2, IL-12, C-47 (U.S. Skytrain or Dakota).

Fighter Defence Force :—

Fighters :
YAK-9, LA-7.

Trainers :
YAK-11, Spitfire 5, P-39 (U.S. Airacobra).

Naval Air Forces :—

Fighters :
YAK-3, YAK-9, LA-7, P-39 (U.S. Airacobra), P-63 (U.S. Kingcobra).

Bombers, Ground Attack, and Mine and Torpedo :
PE-2, IL-4, TU-2, IL-10, A-20 (U.S. Havoc).

Transport :
LI-2, PO-2.

Reconnaissance :
MBR-2, DB-3, Catalina.

Trainers :
YAK-11, UT-2.

Long Range Air Force :—

Fighters :
LA-11.

Bombers :
TU-4, PE-8, IL-4, B-25 (U.S. Mitchell).

Transport :
LI-2

FINNISH AIR FORCE

Fighters :
Me 109 G.

Transport :
DC-2.

Trainers :
Fw 44 J Stieglitz, Viima (Finnish produced trainer), Pyry (Finnish produced trainer).

POLISH AIR FORCE

Fighters :
YAK-3, YAK-9.

Bombers :
PE-2.

Ground Attack :
IL-2.

Transport :
DC-3.

Liaison :
PO-2.

Trainers :
UT-2, P-2.

CZECHOSLOVAK AIR FORCE

Fighters :
Messerschmitt Me 109 G, LA-5, LA-7.

Ground Attack :
IL-2.

Bombers :
PE-2, Mosquito 6.

Reconnaissance :
Siebel D-3, Fieseler Fi 156 Storch.

Transport :
Ju-52, DC-3.

Trainers :
Siebel C 103, Messerschmitt Me 109 G (2-seat), Arado Ar 96, Bücker Bu 131, Bücker Bu 181.

HUNGARIAN AIR FORCE

Trainers :
Arado Ar 96, Zlin 20, 26, UT-2, Bücker Bu 131.

RUMANIAN AIR FORCE

Fighters :
Messerschmitt Me 109 G

Ground Attack :
IAR-80.

Reconnaissance :
IAR-39, He 114.

Transport :
Ju 52, SM 79.

Liaison :
Fieseler Fi 156 Storch.

Trainers :
Nardi F.N. 305, Focke Wulf Fw 58, Fleet 10G.

BULGARIAN AIR FORCE

Fighters:
YAK-9.

Ground Attack :
IL-2.

Bombers :
PE-2.

Transport :
Ju 52.

Trainers :
PO-2, Arado Ar 96.

YUGOSLAV AIR FORCE

Fighters :
YAK-3, YAK-9, Messerschmitt Me 109 (Mk. uncertain)

Ground Attack :
IL-2.

Bombers :
PE-2.

Reconnaissance :
Spitfire 5, Spitfire 9, Hurricane Harvard.

Transport :
LI-2, Ju 52.

Trainers :
UT-2, Aero 2.

RUSSIAN AIRCRAFT DESIGNATIONS

AT FIRST SIGHT, the names given to Russian aircraft are somewhat confusing, but a little study will show that the Russians have devised an admirably simple system of naming and numbering their aircraft which facilitates the ready identification of aircraft by rôle and type.

The present system was adopted early in the war, replacing, fortunately, a system which was ill adapted to aircraft recognition training. Under the old system, aircraft were given an initial letter or letters, which were an abbreviation of the Russian words describing their functions, fighter, medium bomber, etc. These initials were followed by a number which had no particular significance for recognition purposes.

The new system is apparently directly copied from that which the Germans employed, whereby aircraft were associated with their designers and not directly with their rôle, thus, in the same way that "He" was used for "Heinkel" aircraft, "YAK" indicated that the designer was Yakovlev, "TU" that the designer was Tupolev, and so on. As many Russian designers concentrate on aircraft for a particular rôle this often gives a general indication of the function of the aircraft. A further identification of the rôle is supplied by the number, which follows the initials, odd numbers invariably being used for fighter type aircraft and even numbers for other types of aircraft. The individual designers number their aircraft progressively as they are cleared for production ; thus we have the LA-5, LA-7, LA-9 and LA-11, all fighters ; the latest one to appear was the LA-11. A break in the numbers, such as occurs between the YAK-11 and the YAK-15 would indicate that there was a YAK-13 design, which was not accepted for general production.

In some cases it is possible to recognise the designer's "trade mark" on a new type of aircraft, for example, in the distinctive fin and rudder conformation on Yakovlev and on Ilyushin designs. This is becoming less easy with the introduction of radically new types of aircraft, such as the swept-wing jets, whose design provides no obvious clue as to their respective designers. They will no doubt prove to be the products of two of the trio of fighter aircraft designers—Mikoyan, Lavochkin and Yakovlev—and should fall in with the present system of nomenclature.

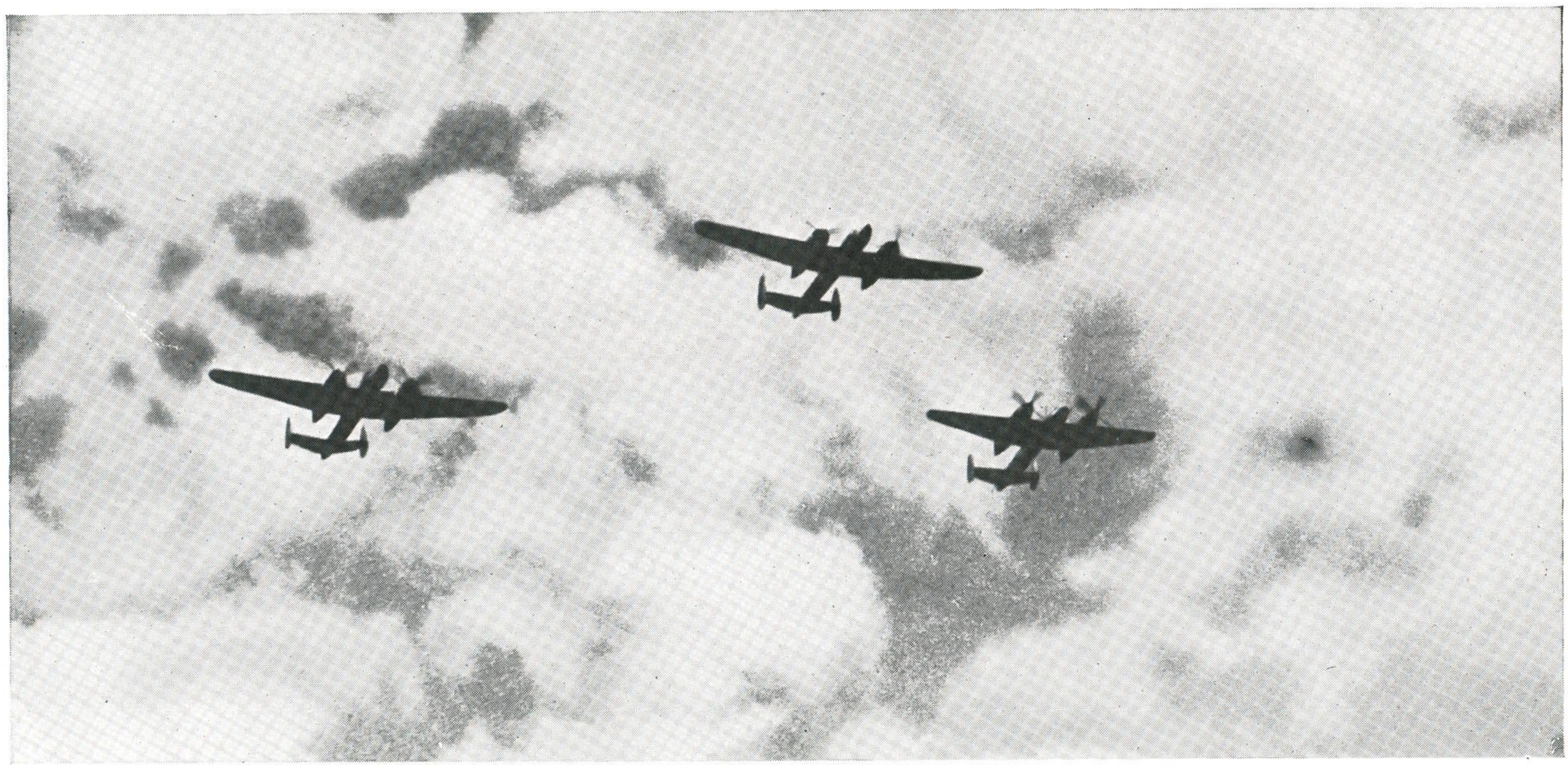
Prisons and Prizes

As with all other spheres of Soviet individual activity, aircraft designing is a chancy business, the awards for which can vary between high honours with a cash nexus attached for a successful design, or a spell in prison for one not so successful. The latter is usually characterised as "sabotage", investigation of which may reveal that the designer has "deviationist tendencies". It must be conceded, however, that the Soviets have a strictly practical outlook as they permit and, indeed, encourage the disgraced designer to continue his work whilst in prison. A period of segregation from the normal every day stresses of Soviet life often enables a designer to give of his best so that it is not uncommon for him to emerge from prison with a prize-winning design. Thus it will be seen that, in the Soviet Union, prisons and prizes are not incompatible after all.

Soviet Designers

The design of aircraft in the Soviet Union is in the hands of a small band of experts who have their own design staffs and even their own factories in which development work can be carried out. As one would expect in a country where technical specialists are at a considerable premium, they have been showered with

A mixed Russian trio—the TU-2 light bomber on the right of this formation is accompanied by two TU-2s with modified wings of increased span. These modified TU-2s are probably designed for high altitude long range reconnaissance duties in the Soviet Air Force. Two of the aircraft appear to be fitted with four-bladed propellers



honours and favours. In particular, it has become the custom to grant successful designers high rank in the Engineering Service of the Soviet Air Force. Promotion appears to be according to a combination of age and the success of new designs. With the emoluments of their honorary rank, plus the large cash prizes, the aircraft designers are probably among the richest men in the U.S.S.R., outside the ranks of the senior state officials.

Lieutenant General Andrei Nikolaevich Tupolev is perhaps the best known and is the doyen of Soviet aircraft designers. Together with Professor N. E. Zhukovski, he founded TsAGI, the Central Aerodynamics Research Institute. He has specialised in the design of heavy aircraft, notably the ANT-1 and the ANT-3, which Gromov flew round Europe in 1926 ; the 5-engined ANT-14 and the ANT-25 which Gromov flew from Moscow to the U.S.A. in 1937. The designation ANT was the result of yet another earlier method of aircraft numbering and it is, of course, the initials of Tupolev. In that year, Tupolev disappeared from public view as a result of the 1937 purge trials, and turned up again only after the Nazi attack on Russia in 1941. He then designed 4-engined bombers, including the TB-3 and the TB-7, and more recently the TU-4, which is the Soviet copy of the American Boeing B-29. His other recent designs include the TU-2, which began to appear at the end of the war, and the TU-6 which is a reconnaissance version of the TU-2.

Vladimir Petlyakov was born in Rostov in 1891, and started his working life as a railway labourer. At the age of 31, he passed his examination as a mechanical engineer and was admitted to TsAGI, where he became Tupolev's assistant. His best known design is the PE-2 light bomber, of which there is a night fighter version designated the PE-3. He also re-designed the Tupolev TB-7 heavy bomber, which in its new form was re-designated the PE-8.

Lieutenant General Sergei A. Ilyushin joined the Zhukovski Academy after World War I and graduated from there to TsAGI in 1926. His first notable design was the IL-4 attack bomber which was followed by the famous series of Stormovik ground/attack aircraft, the IL-2 and IL-10. He also has been responsible for Russia's standard transport aircraft, the twin-engined IL-12 and for the 4-engined IL-18.

Colonel General Alexander S. Yakolev is the youngest and the highest ranking of the well-known Russian aircraft designers, and is thought to be a Kremlin favourite. Son of a schoolmaster and now aged 43, he joined the Zhukovski Academy in 1926, where he designed his first aircraft, a light 'plane. In 1936 he won first prize during the round Russia flight with his UT-2 trainer. Since before the late war he concentrated on the design of fighter aircraft, notably the YAK-1, the YAK-3 and YAK-9, and more recently, he has been responsible for the YAK-11 fighter trainer and the YAK-15 jet fighter. He also created the YAK-16 twin-engined feeder type transport aircraft which is at present in use.

Lieutenant General Semyon A. Lavochkin was born in Smolensk in 1900 and also has made fighter aircraft his speciality. Together with Gorbunov and Gudkov, he designed the LAGG-1 fighter before the war. In 1940 there followed the LAGG-3, which performed very well against the Germans a year later. At the end of the war, the LA-5 was one of the Soviet Air Force's standard fighters. This type has since been superseded by the LA-7, the LA-9 and the LA-11 ; the latter is a long range escort fighter and possibly the last conventional fighter which will be adopted by the Soviets. Lavochkin may also have been resposible for the swept-wing jet-fighter which has recently appeared.

Major General Artem I. Mikoyan is a Russian Armenian, and about 50 years of age. With Mikhail I. Gurevich he has long formed an outstandingly successful fighter designing team which has produced such types as the MIG-1, MIG-3 and MIG-5, as well as one of the Soviet's first and best standard jet-fighters, the MIG-9. It is reported that Mikoyan and Gurevich are now working indepedently, and that Gurevich has since completed a jet fighter of his own design. This team may also have been responsible for a swept-wing jet aircraft which recently appeared.

Designations—Some Exceptions

The aircraft designations quoted in the foregoing discussion on the designers, illustrate the working of the aircraft naming system. As with most things, however, there are exceptions to the rule. Seaplanes appear to have retained the old naming system, for example, the letters of the designations MDR-6 and MBR-2 are abbreviations indicating that these are respectively long and short range flying boats. They are of ancient vintage and it is to be expected that they will before long be replaced by new designs conforming to the new naming system.

Since 1941 there have, of course, been a large number of American and British types of aircraft in service in the Soviet Air Force which appear to have retained their original foreign designations—thus the P-63 King Cobra. These exceptions to the general rule will disappear in time, as the aircraft concerned are diminishing in numbers.

Licence and " Tu-plication "

Foreign aircraft constructed in Russia under licence were, however, given a purely Russian designation. Thus the Dakota was renamed the LI-2, being attributed to a minor designer Lisitsin. And the Russians have, of course, produced a pirated copy of the American Superfortress, blandly attributing it to Tupolev and awarding him a Stalin Prize on the strength of it.

Certain aircraft which are training versions of operational types carry the prefix " U "—thus the UYAK-3, etc. This may also be a diminishing factor as specially designed operational trainers are introduced, such as the YAK-11 fighter/trainer.

It will be seen that eventually all Russian aircraft should conform to the system described—certainly the important operational types will. Some of the abbreviations may present difficulties of pronunciation for operational purposes. " YAK ", " MIG " and " LA " are euphonious, but " TU ", " PE " and " IL " may perhaps be considered dysphonic. It is beyond the scope of this article to discuss the niceties of diction and enunciation, but perhaps the use of the designer's full name might provide the answer to this possible difficulty.

WHAT'S THE DIFFERENCE ?

Attacker and F-80 in comparative views

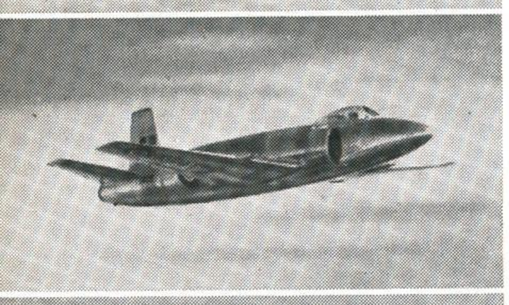
The **Attacker** has slit intakes in the fuselage ; dihedral in tailplane ; a pointed nose ; " bullet " body ; straight tapered and squared-off flying surfaces ; fin and rudder set forward of large tailplane.

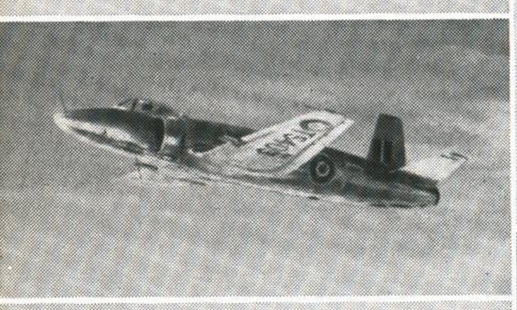
The **F-80** has nostril intakes at the wing-roots ; a rounded nose (side view) ; diamond shaped flying surfaces with rounded tips (wings set well back on fuselage) ; fin and rudder set aft of small tailplane.

Detail : Attacker cockpit set on top of nose ; F-80 cockpit set further back. Provision for wing-tip tanks on the F-80.

Attacker

F-80

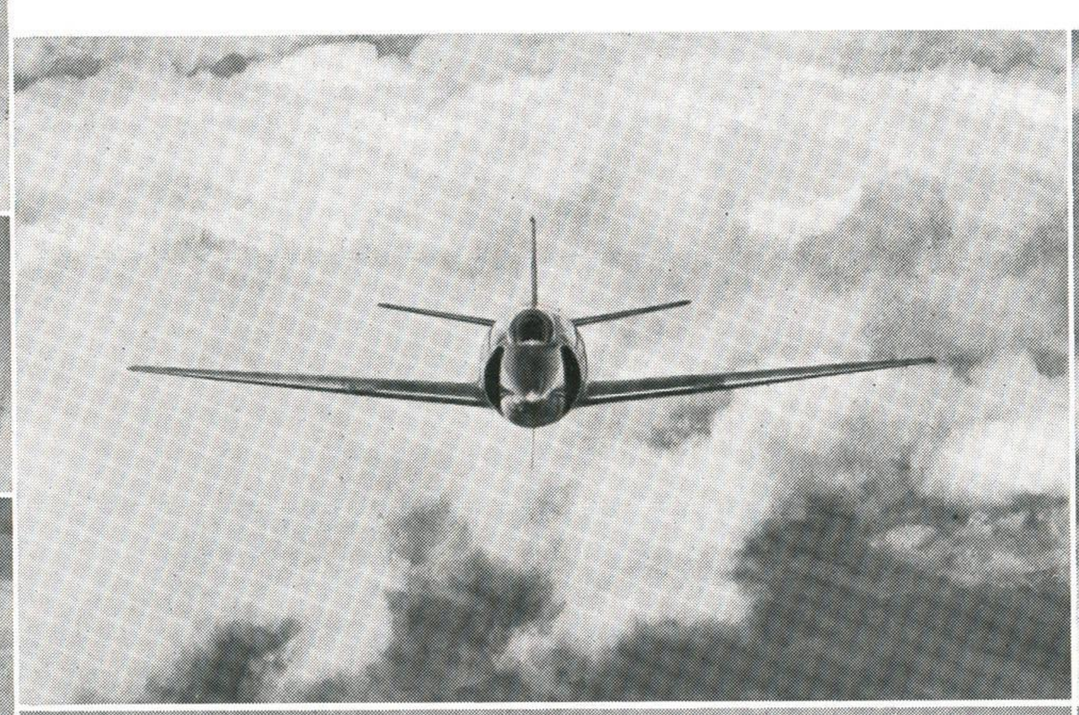
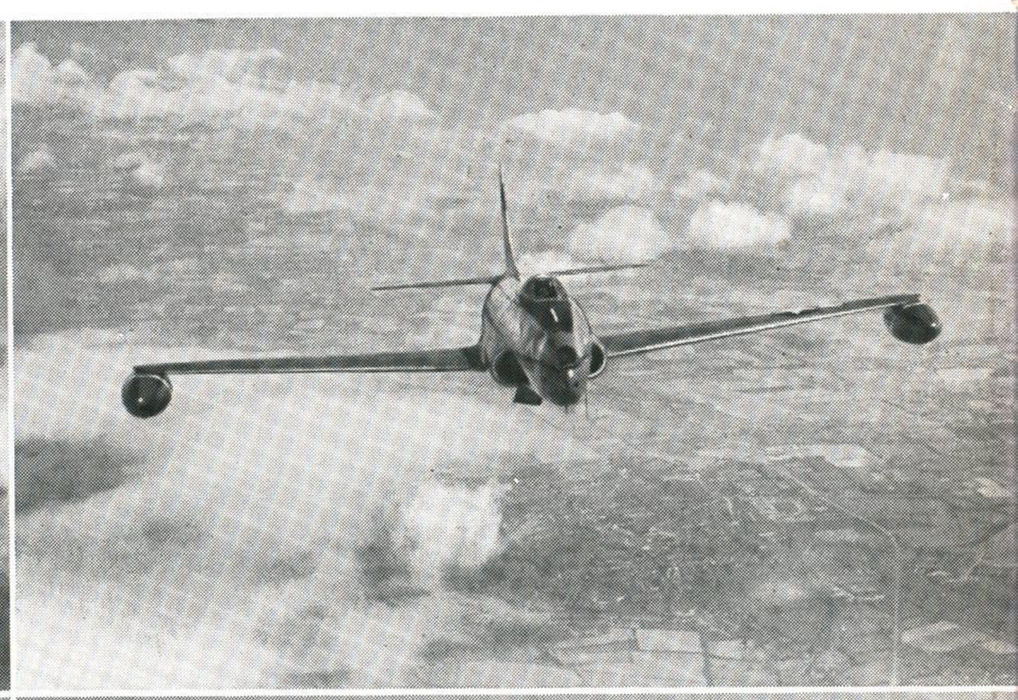
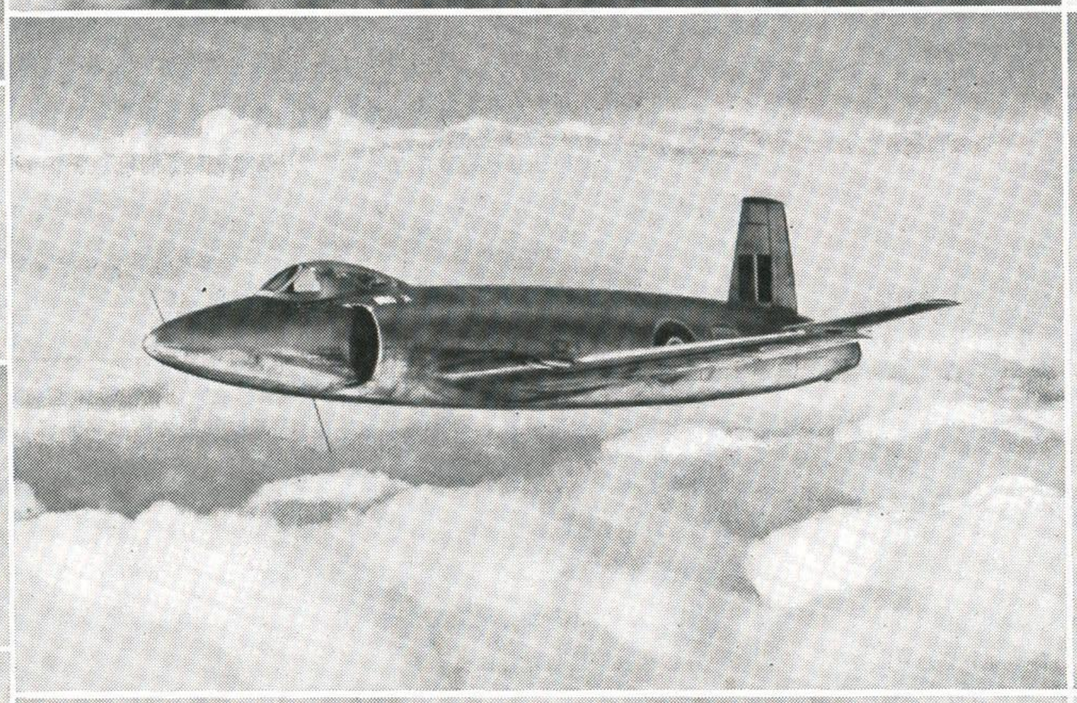



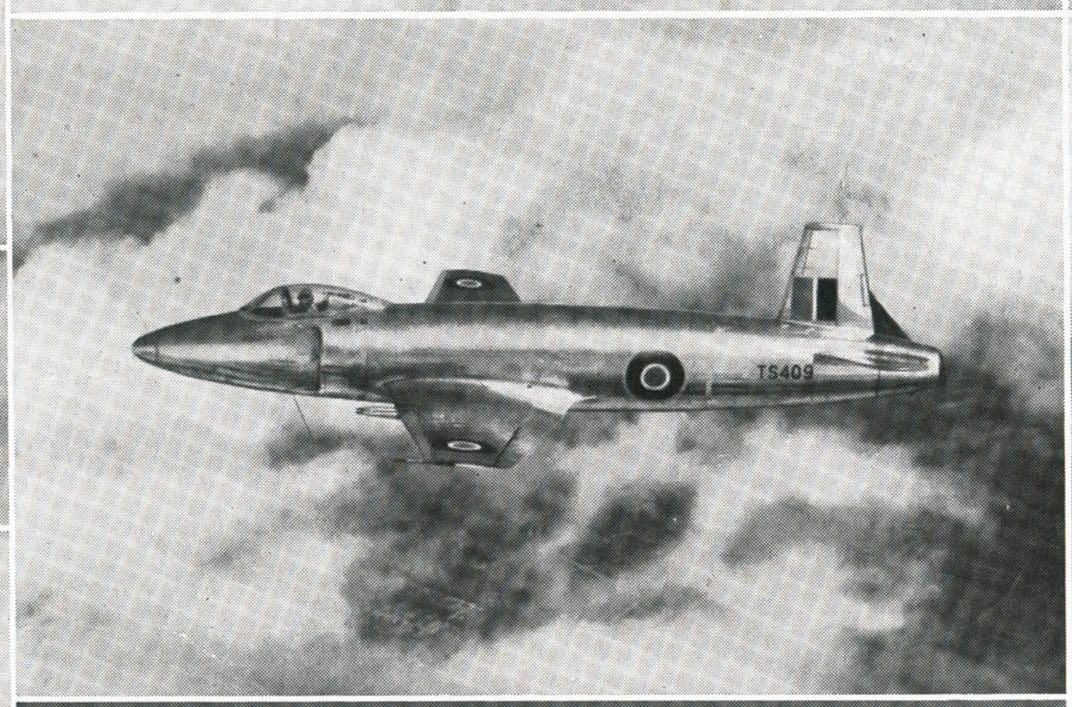
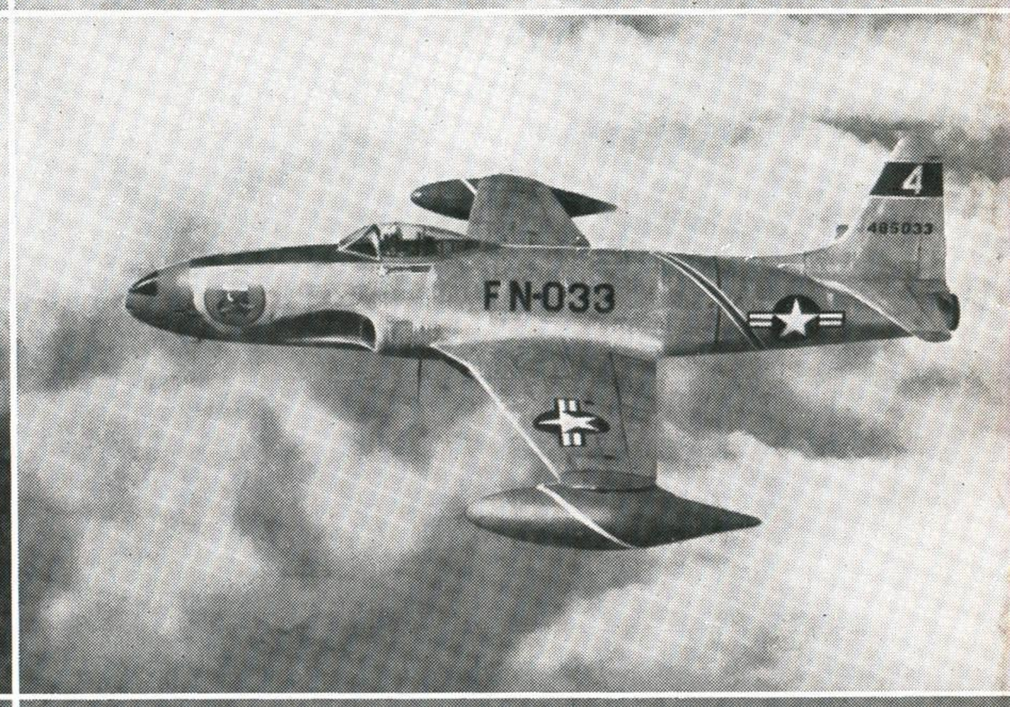







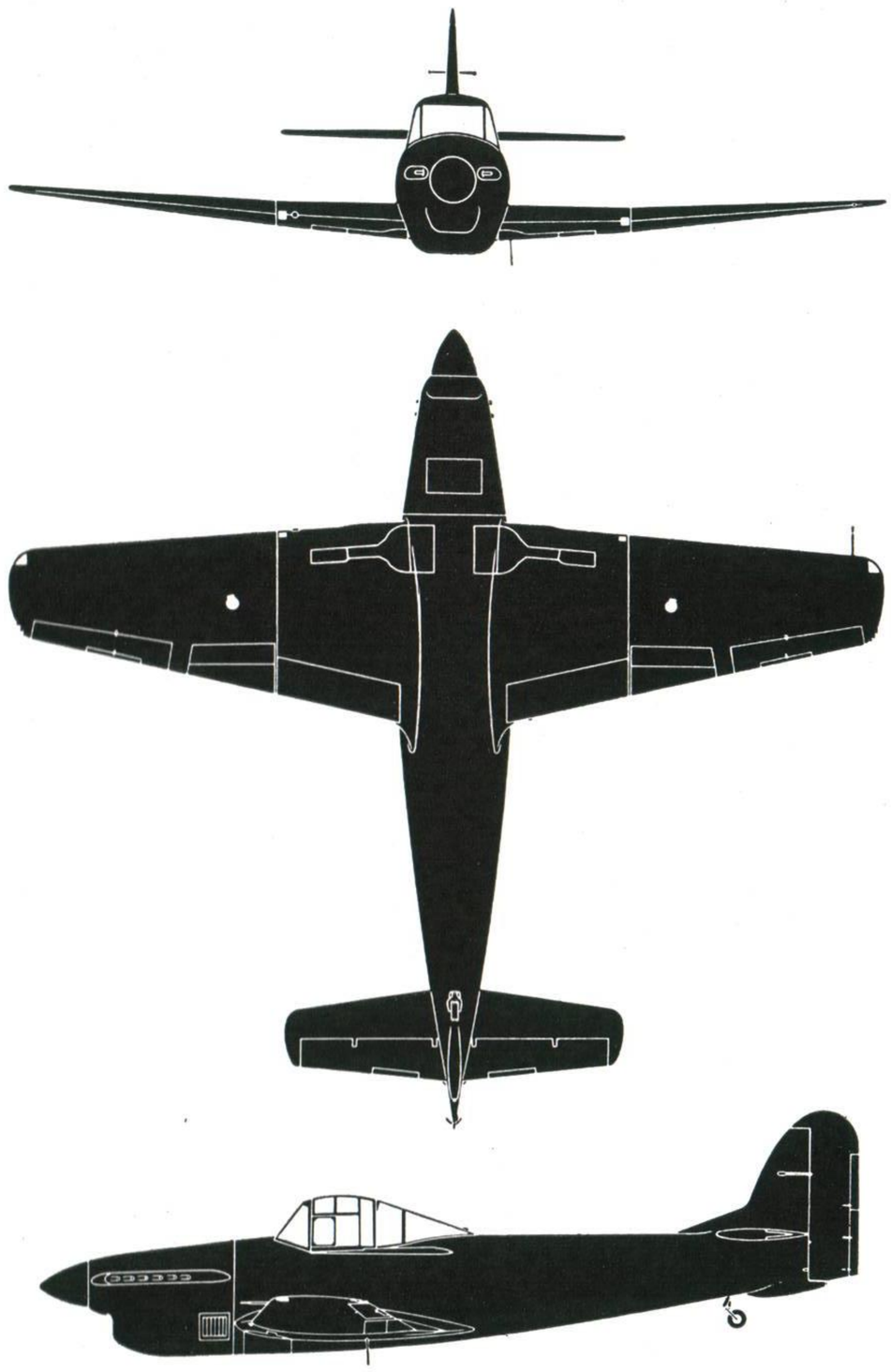


SILHOUETTES—SINGLE-ENGINE TRAINERS

AVRO ATHENA T Mk. 2



British Trainer

Engine : one Rolls-Royce Merlin 35

Span : 40 ft. 0 ins. Length : 37 ft. 6 ins.

Recognition Points :

Wings : low, forward-set, slight dihedral from roots and centre-section, straight taper (more marked on trailing edge), blunt tips.

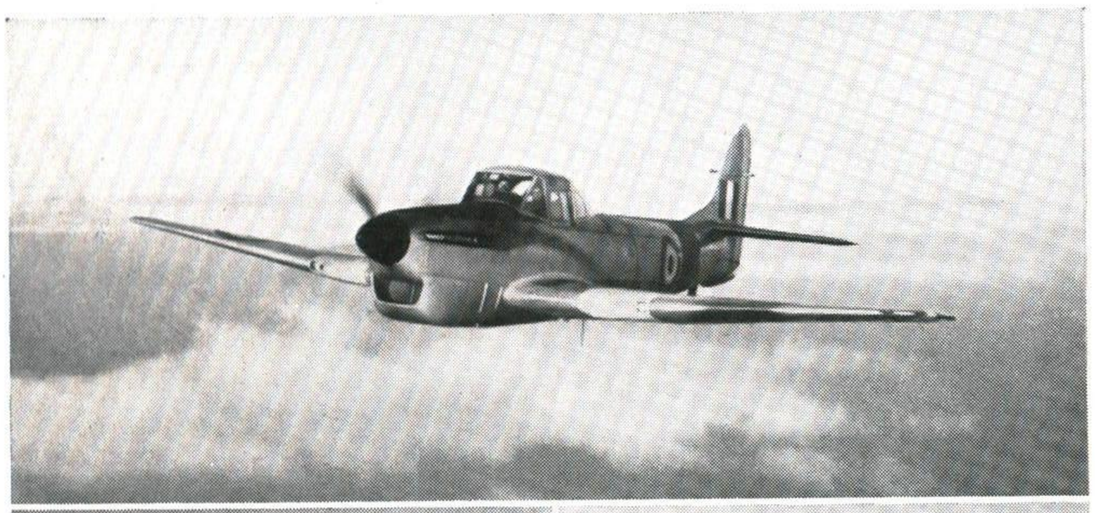
Engine : short cowling with pointed spinner, large radiator scoop beneath nose faired in to fuselage.

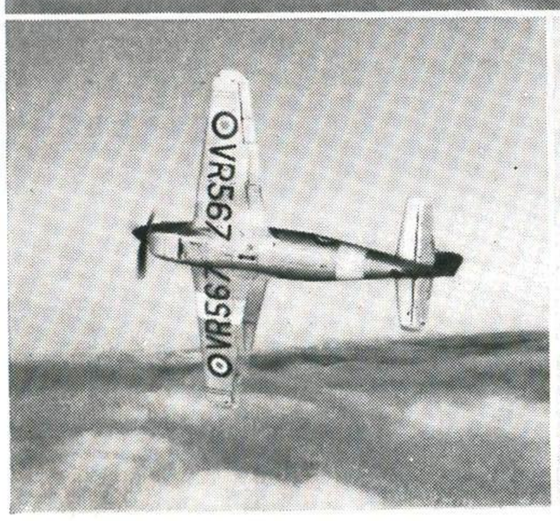
Fuselage : oval section aft, straight top, upswept baseline.

Tailplane : equi-straight taper, blunt tips.

Fin and Rudder : rounded leading edge and tip, short dorsal fairing, straight trailing edge forming angle with fuselage baseline.

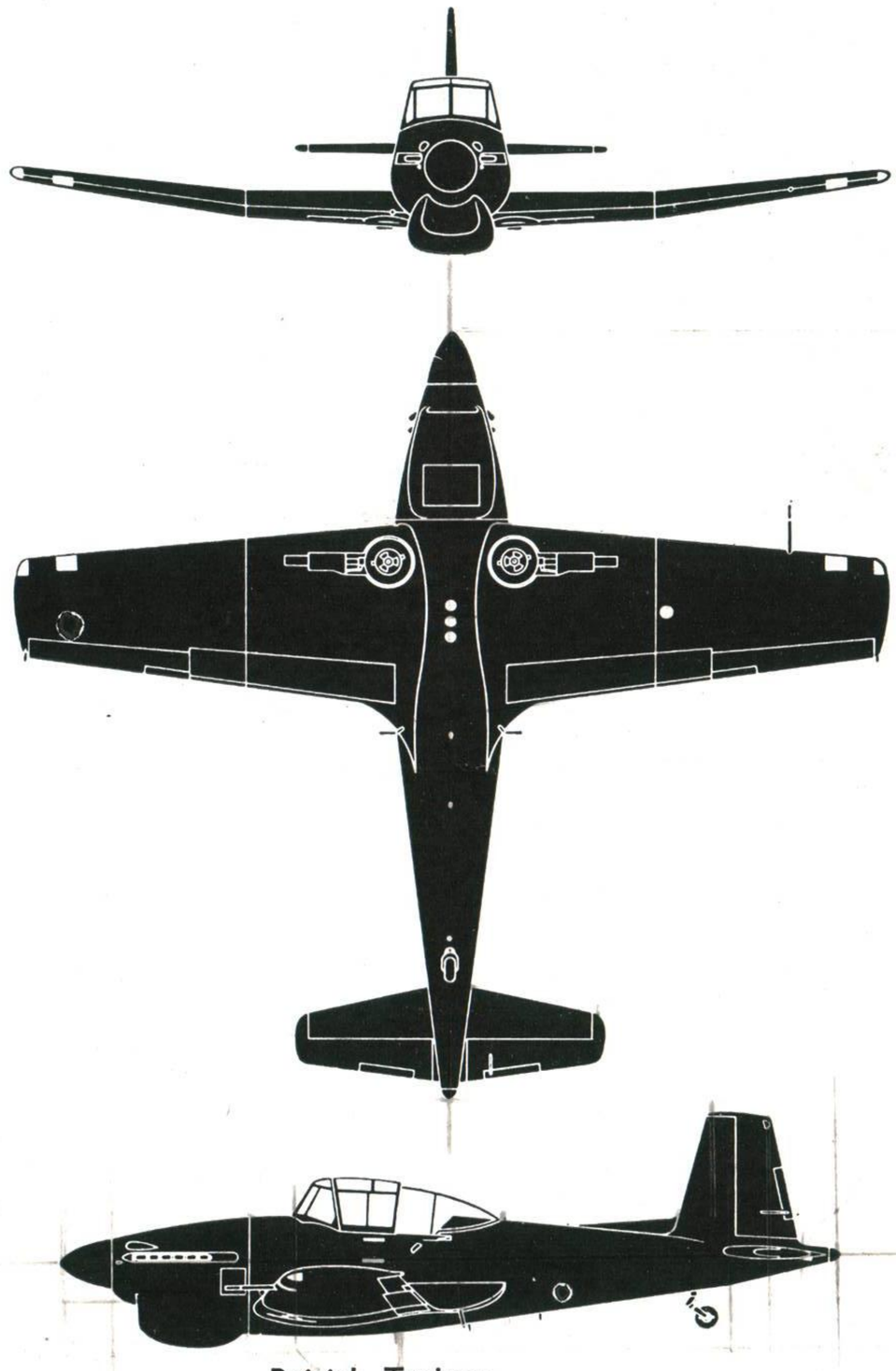
Detail : large "Crystal Palace" cockpit cover, fixed tailwheel, fairing for towing gear below fin and rudder.







BOULTON PAUL BALLIOL T Mk. 2



British Trainer

Engine : one Rolls-Royce Merlin 35

Span : 39 ft. 4 ins. Length : 53 ft. 1 in.

Recognition Points:

Wings : low, forward-set, slight dihedral from roots, moderate dihedral from centre-section, straight equi-taper, square-cut tips.

Engine : short cowling with pointed spinner, bulging intake below.

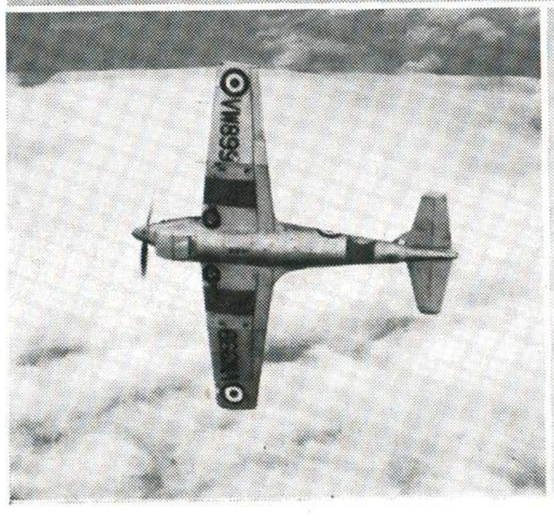
Fuselage : conical rear fuselage, tip extending aft of tail unit.

Tailplane : near-diamond shape with blunt tips.

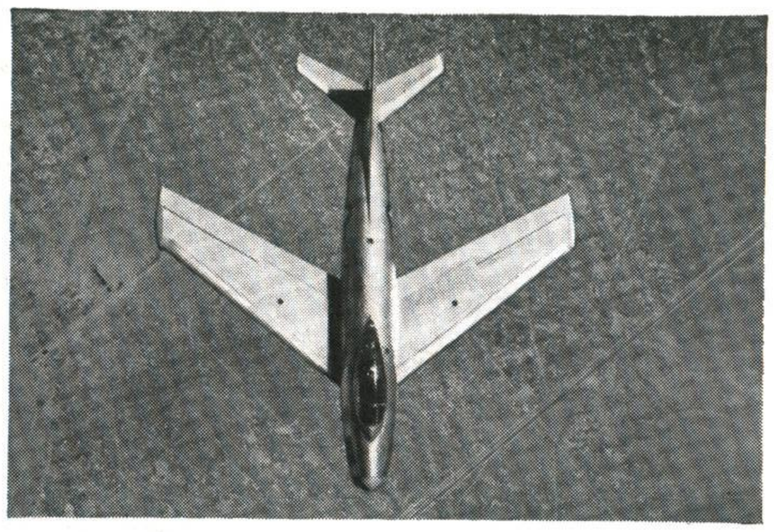
Fin and Rudder : set forward of tailplane, straight taper, square-cut tip, dorsal fairing.

Detail : large " Crystal Palace " cockpit cover, fixed tailwheel.

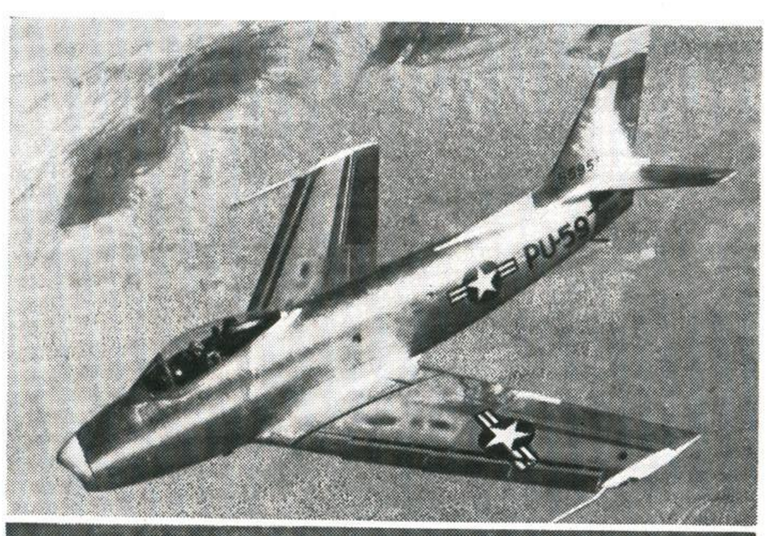








COVER PHOTO : The North American F-86A Sabre. Though distinctive enough in its own right, we must be certain that we can distinguish it from other swept-wing fighters.







SOLUTIONS TO RECOGNITION TESTS IN THIS EDITION :

ELEMENTARY

760 Prince
761 B-45A Tornado
762 F9F-3 Panther
763 P2V-2 Neptune
764 Ambassador
765 Anson 19
766 Seafire F Mk. 17
767 Auster AOP 6
768 B-36A
769 P.1040
770 Chipmunk
771 Navion
772 F-86 Sabre
773 Attacker F Mk. 1
774 C-82 Packet
775 F8F Bearcat
776 F2H-1 Banshee
777 FH-1 Phantom
778 Balliol T Mk. 2
779 Proctor T Mk. 4
780 Buckmaster T Mk. 1

DIM VIEWS

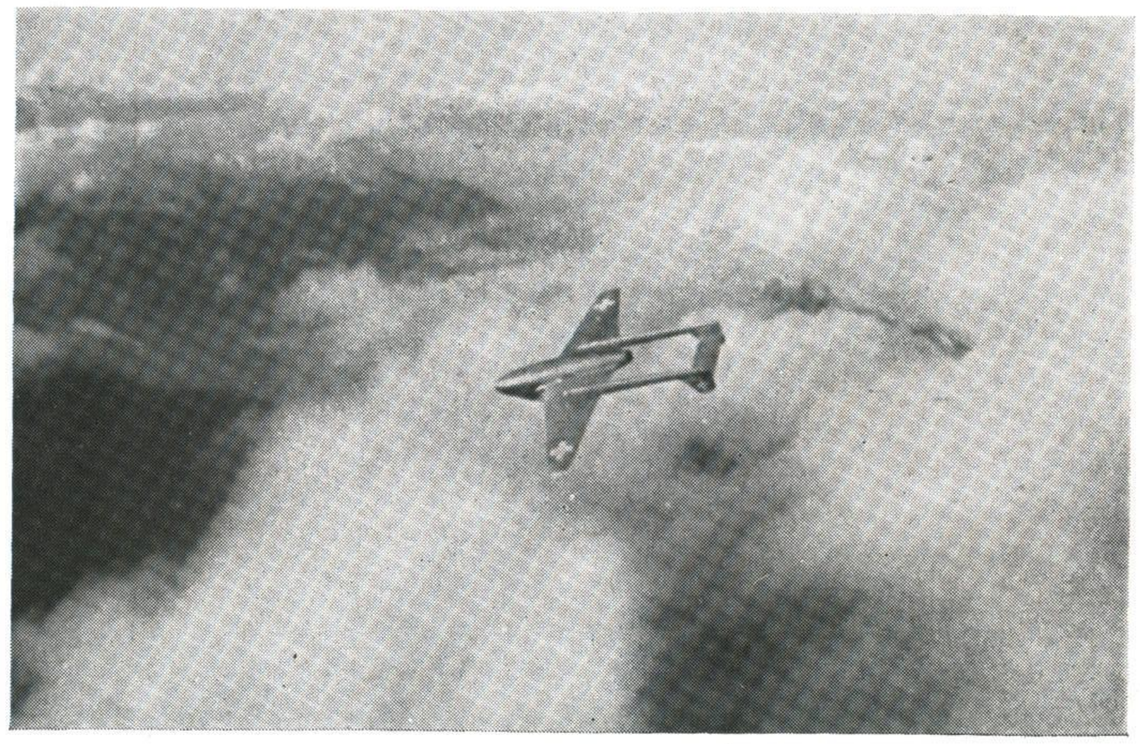
1 Vampire FB Mk. 5 .
2 Sea Otter ASR Mk 2
3 Venom FB Mk. 1
4 Ambassador
5 Viscount
6 Proctor T Mk. 4
7 Solent
8 Tiger Moth T Mk. 2
9 F9F Panther
10 Sunderland GR Mk.5
11 F-80A Shooting Star
12 Spitfire FR Mk. 19
13 LA-9
14 Varsity T Mk. 1
15 DC-6
16 Lancastrian
17 Firebrand TFB Mk. 5
18 Constellation
19 B-29 Superfortress
20 Comet
21 Buckmaster T Mk. 1
22 B-50 Superfortress
23 Barracuda TBR Mk. 5
24 P2V-2 Neptune
25 Sea Hornet NF Mk. 21

AEROGRAM

'e crept in = Prentice

TRICKY TRIO

Left to right : Hawker P. 1052 ; North American F-86 Sabre ; Russian nameless swept-wing jet-fighter



Swiss Roll A de Havilland Mk. 6 of the Swiss Air Force aerobatting on its own particular bumpy wicket.

TRICKY TRIO



52M 4/50 38-241·0

Printed under the Authority of H.M. Stationery Office by Fosh & Cross Ltd., London