

THE INTER



SERVICES

# AIRCRAFT RECOGNITION

*Journal*



FIGHTER NUMBER

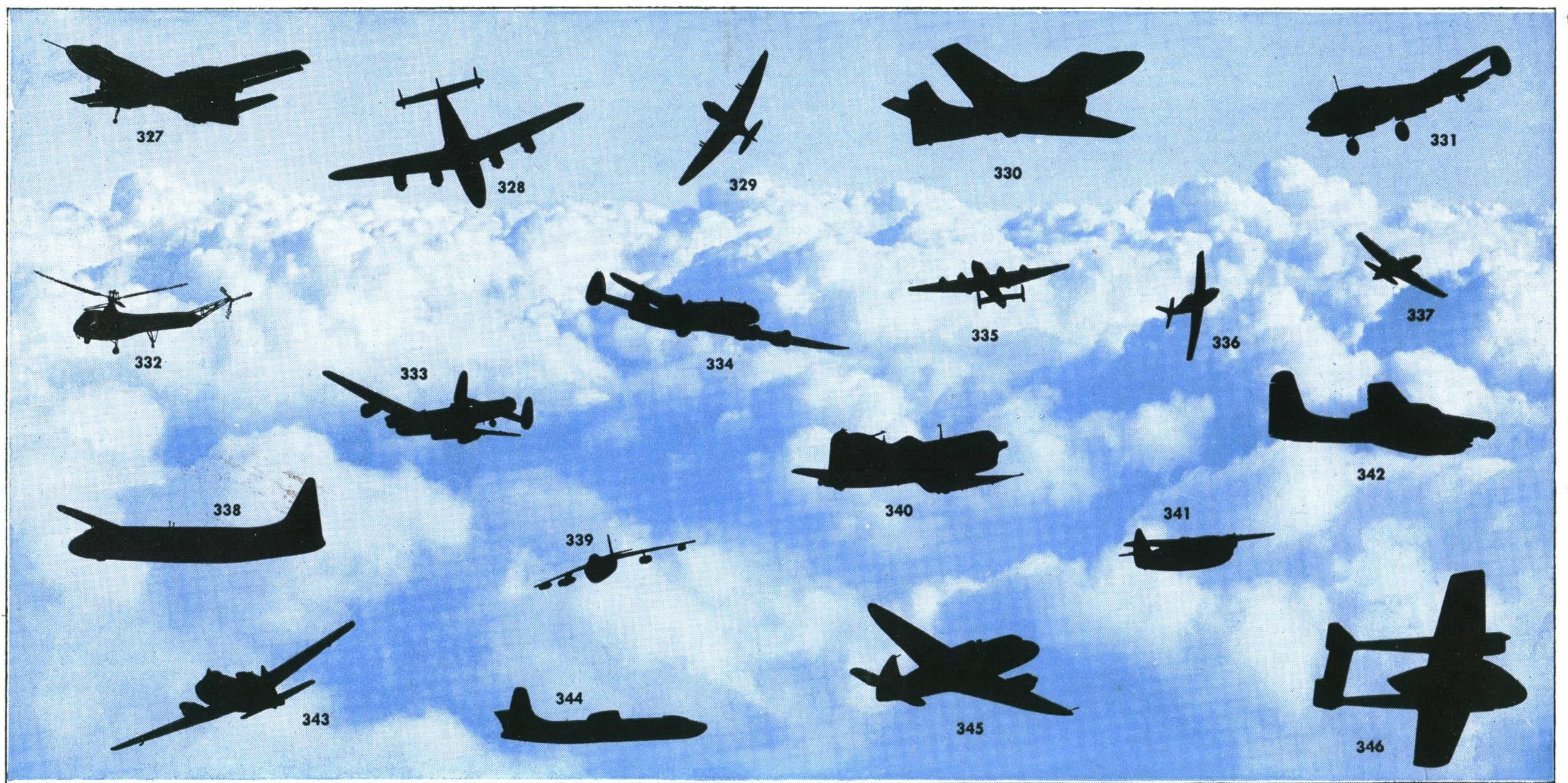
New Series

JANUARY 1948

Volume 2. No. 6

# SILLOGRAPHS

Recognition Test No. 53



# ADVANCED SPOTTING

Recognition Test No. 54



THE INTER



SERVICES

# AIRCRAFT RECOGNITION JOURNAL

(NEW SERIES)

## Editorial

### FIGHTERS

**WE ARE NOW** in the middle of what we might call the second revolution in the design of fighter aircraft. Perhaps we are getting a little beyond the middle, because there are now some broad indications of the form that the next race of fighting aircraft will take.

The first revolution occurred during the nineteen-thirties, when the two-to-four-gun biplane fighter gave way to the multi-gun monoplane. That revolution can be attributed to the development of the stressed skin type of construction, which replaced the old "stick and string" type as it was familiarly called. The new revolution has been brought about by the advent of the turbojet. This revolution is more violent and is causing changes as sweeping and as radical as the introduction of the steam engine into industry.

One of the great qualities of the turbojet power unit is its extraordinary flexibility in installation. It can be tailored into the aircraft layout almost anywhere, and we find it hidden in wing-roots, buried in wings, in fuselages, suspended from wing-tips, and even riding pick-a-back on the fuselage. This flexibility of installation is largely responsible for the widely differing designs of jet-aircraft generally, and of jet-fighters in particular, which are in existence today. Jet-fighters have not yet been canalized into definite types. Designers are giving full rein to their widely differing ideas for employing the turbojet and we are seeing and shall continue to see, for a time, quite a variety of designs. Consider, for example, the differences between such aircraft as the De Havilland "Vampire" and the Lockheed "Shooting Star"; or the Gloster "Meteor" and the McDonnell "Banshee".

Despite these differences, the world's jet-fighters in service today are, in reality, quite conventionally designed aeroplanes with the new jet power plant simply replacing the reciprocating engine. Higher speeds have called for more drastic streamlining, but they all look very much like aeroplanes as we have known them hitherto. Perhaps the greatest changes in appearance are in the general contraction of wing areas, a general lowering of the aspect-ratio of wings, and, in the case of aircraft with turbojets in the fuselage, a tendency for the wings to be positioned rather far back. These jet aircraft are, however, limited in speed. This is not entirely due to lack of power or thrust, but because the shock of meeting the so-called sonic barrier makes control difficult and damages the airframe. In present form—the technical term is conformation—they cannot greatly exceed a speed of about 80 per cent of that of sound.

Higher speeds mean new types of airframes. These are in fact being built. It is hoped by conformation to reduce, and by structure strength, to resist the shock of passing the barrier. These airframes will include such novel structures as solid "needle noses" to fuselages; solid leading edges to knife-section flying surfaces, and perhaps even solid wings. What is more to our particular point, however, is the sweeping back of flying surfaces. It is even possible that angles of sweep-back will be variable and eventually we may see aircraft with retractable wings. In recognition, therefore, we may later have to reckon with aircraft which change shape in flight. Because of its small size, the fighter aircraft lends itself fairly well to strengthening and shaping for transonic and supersonic flight; it can also be more easily powered in proportion; for these reasons it may well be that the first aircraft to pierce the barrier will be of the fighter type.

Meantime the airscrew-fighter of World War II remains the equipment, either wholly or in part, of many of the world's air forces. There are still large numbers of Spitfires, Tempests, Mustangs, Thunderbolts and others on the active list. This is all right so long as there are no jet-bombers to worry about, but their demob as fighters, will not now be very long delayed. The airscrew-fighter always had the "legs" of the airscrew-bomber, but there is no such speed margin between the jet-fighter and the jet-bomber, and, just at present, metaphorically speaking, we can see them racing neck and neck, bumping their noses against the sonic barrier. No speed margin means new problems of interception and of tactics even on this side of the sonic barrier. What will happen on the other side is, for the moment, anyone's guess.

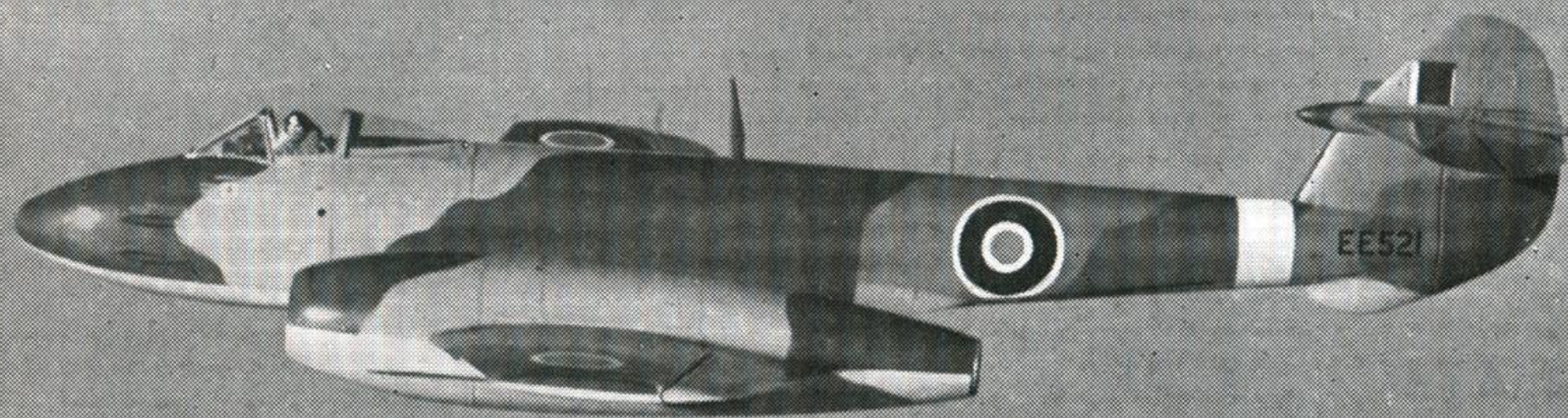


It is much easier to see differences between similar types of aircraft when they are side by side. For this reason we have adopted a standard layout, in the following pages, so that all fighters of all types can be studied side by side when necessary. As new fighters go into service we shall reproduce the odd page or two of them which can be taken out and added to the collection. Within a few months we shall also reproduce similar sets of current bomber and transport aircraft.

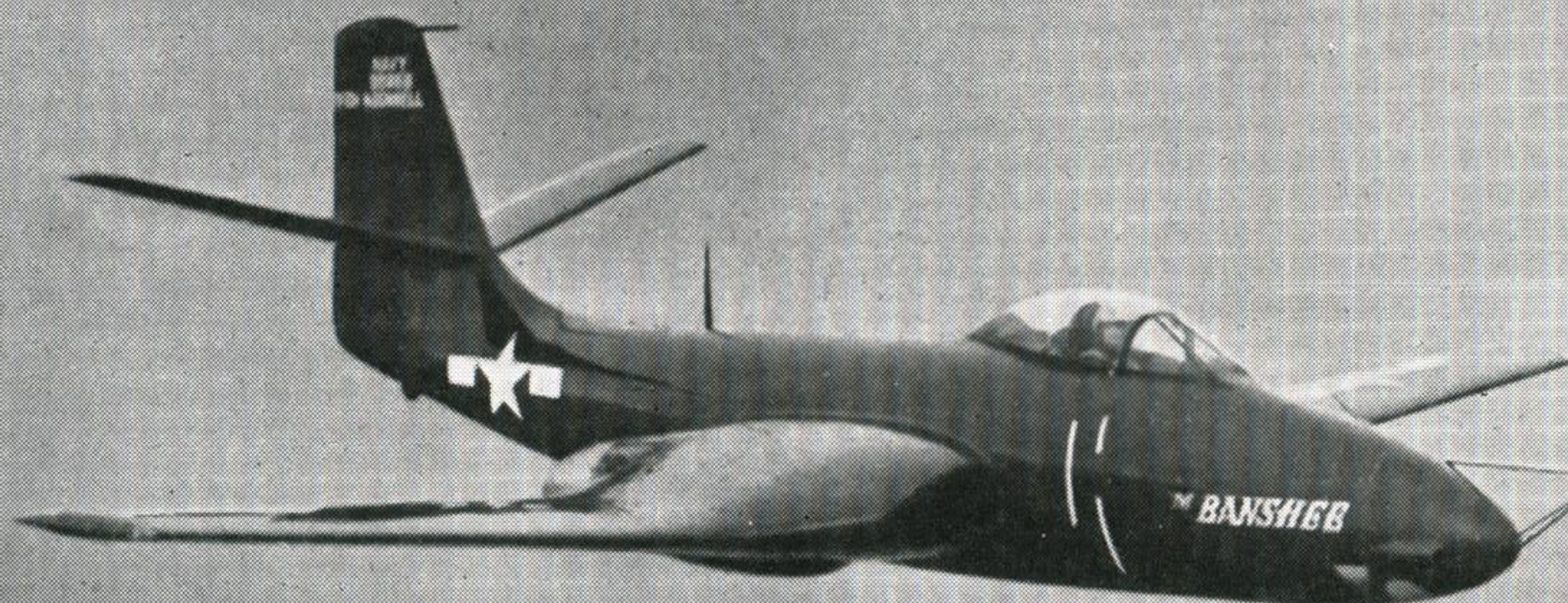
(In the background on this page is the North American XP-86. The head-on views approaching in formation are the P-47N, Firefly IV, Tempest II, Tempest VI and Spitfire XIV.)

# Twin

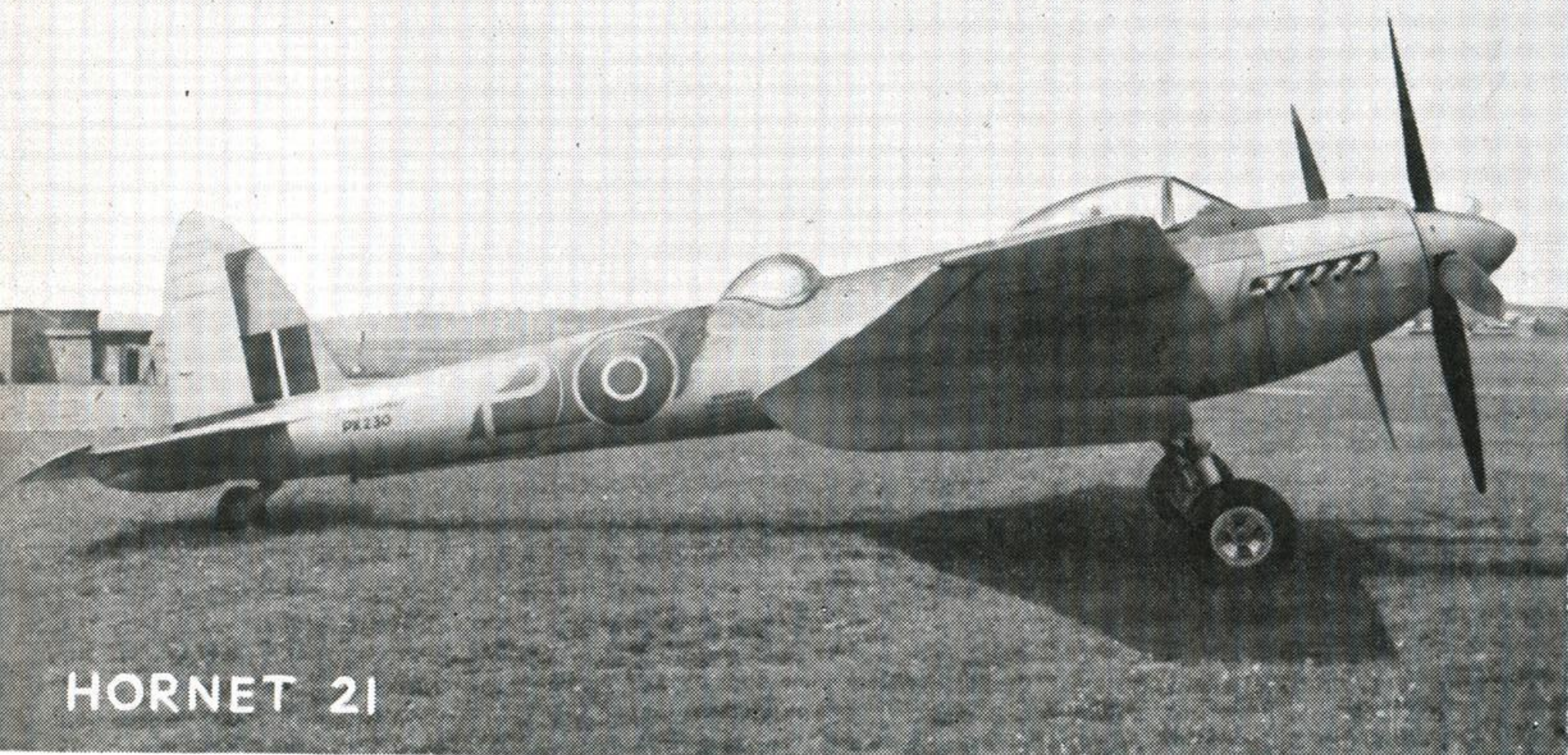
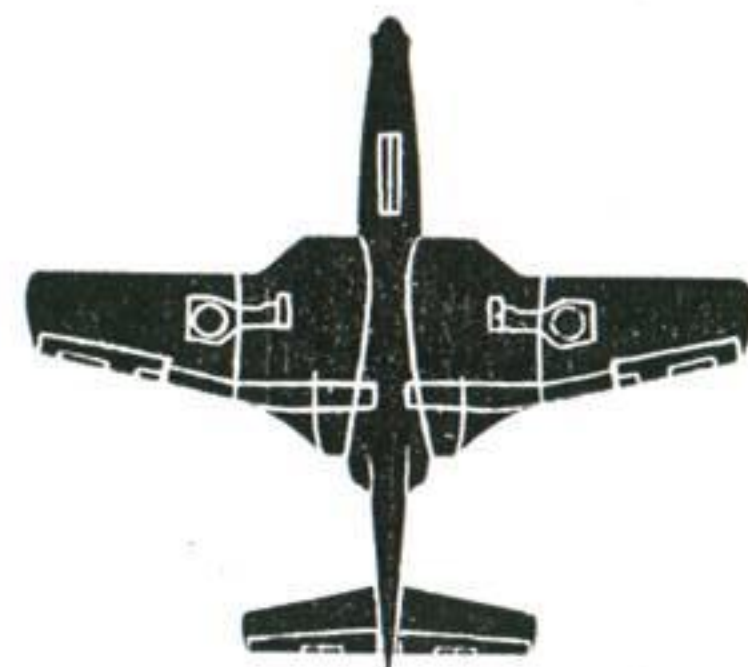
# Engine



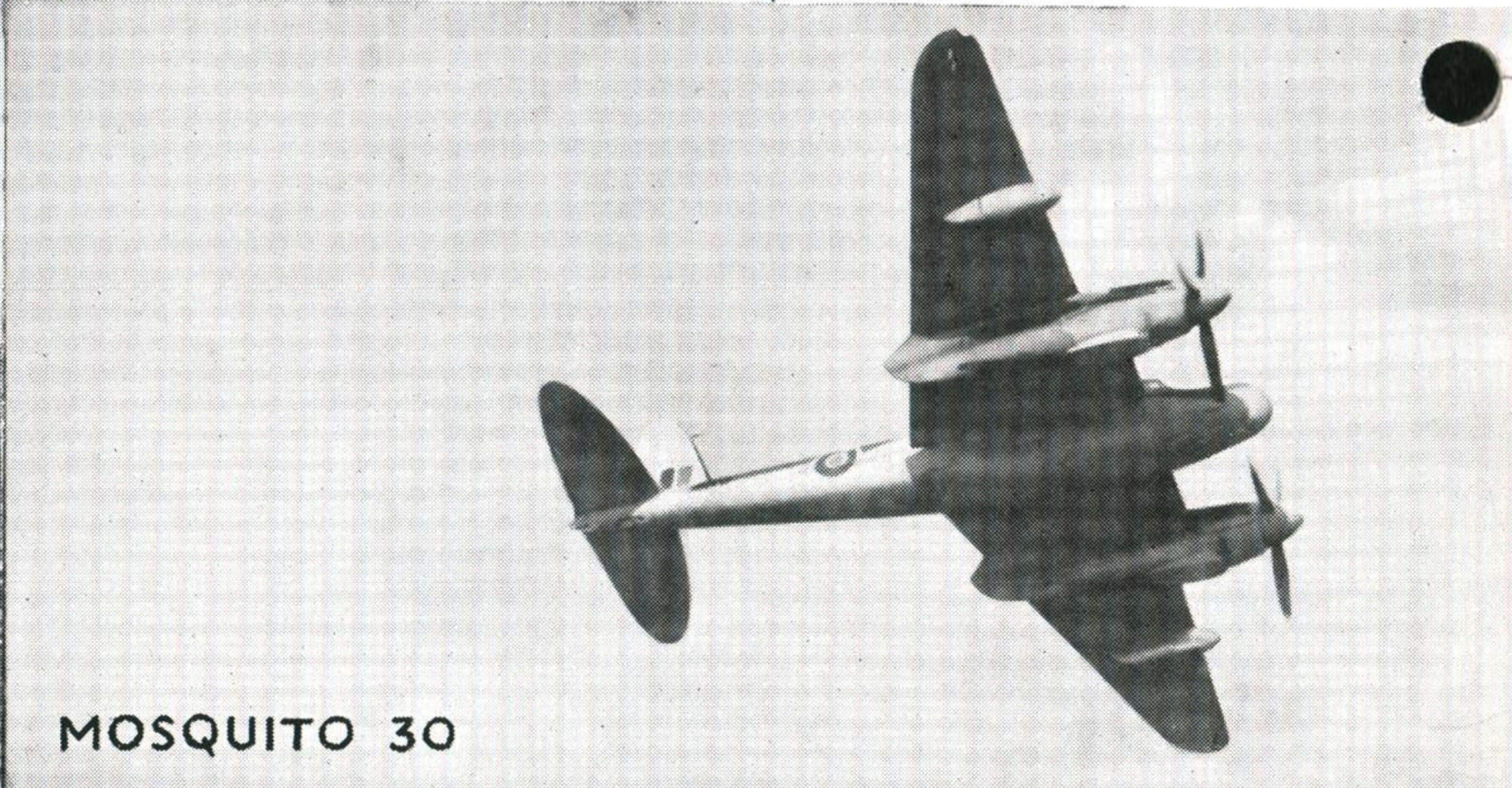
METEOR



BANSHEE



HORNET 21



MOSQUITO 30



## Gloster Meteor F. Mk. IV

(Two Rolls Royce Derwent turbojets, 3500 lbs. s.t. each)  
Span : 37 ft. 2 ins. Length : 41 ft. 4 ins.  
Top Speed : 580 m.p.h.

Main features : short span, deep chord, low-set squared off wing—long jet nacelles—long slender fuselage—cruciform tail-unit formed of "butterfly wing" fin and rudder and elliptical tailplane. Aircraft can carry belly tank.

## McDonnell F2H-1 Banshee

(Two Westinghouse J-34 turbojets, 3900 lbs. s.t. each)  
Span : 41 ft. 0 ins. Length : 39 ft. 0 ins.  
Top Speed : 550 m.p.h. +

Main features : long nose—exaggerated wing form due to turbojets in wing roots—large intakes at root leading edges and exaggerated trailing edge root fillets round jet-pipes—squared-off, low set wing, far back on slender fuselage—high set wide span tail plane, with dihedral.

## D.H. Sea Hornet N.F. Mk. 21

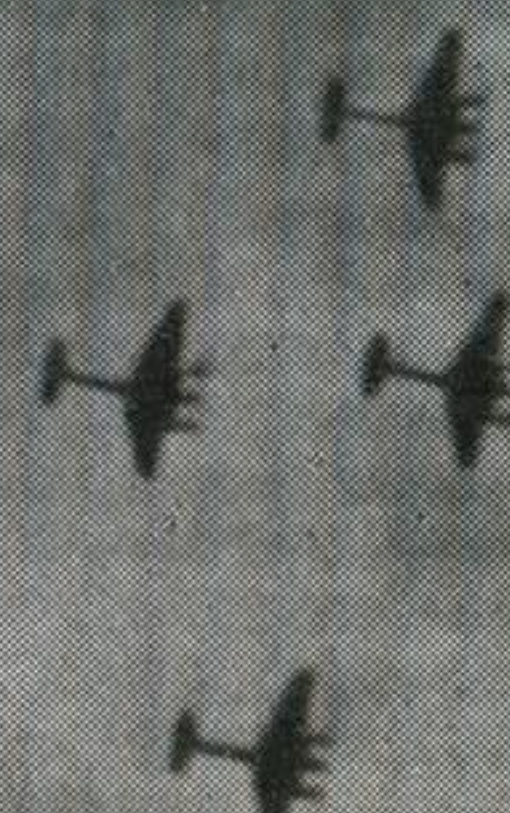
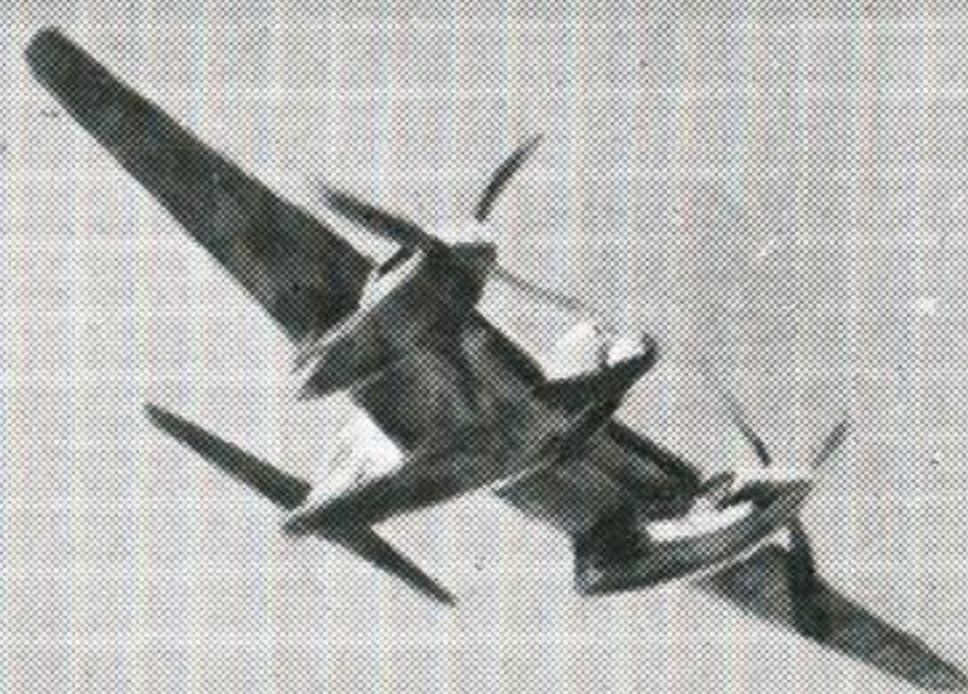
(Two Rolls Royce Merlin, 2030 h.p. each)  
Span : 45 ft. 0 ins. Length : 38 ft. 4 ins.  
Top Speed : 460 m.p.h.

Main features : forward-tapered clipped wing, set well forward—nose and engines in line—radiators formed on leading edge of wing between fuselage and engines, engine nacelles extend over trailing edge—long slender fuselage with radar "snout"—small tailplane at extreme rear, tapered backwards—D.H. "acorn" fin and rudder ahead of tailplane

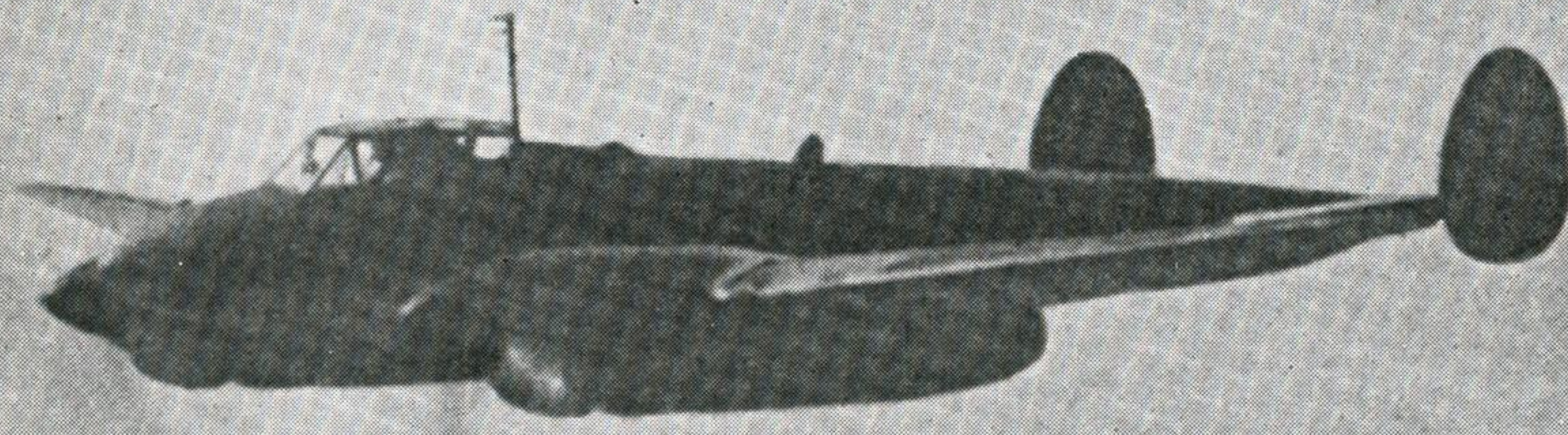
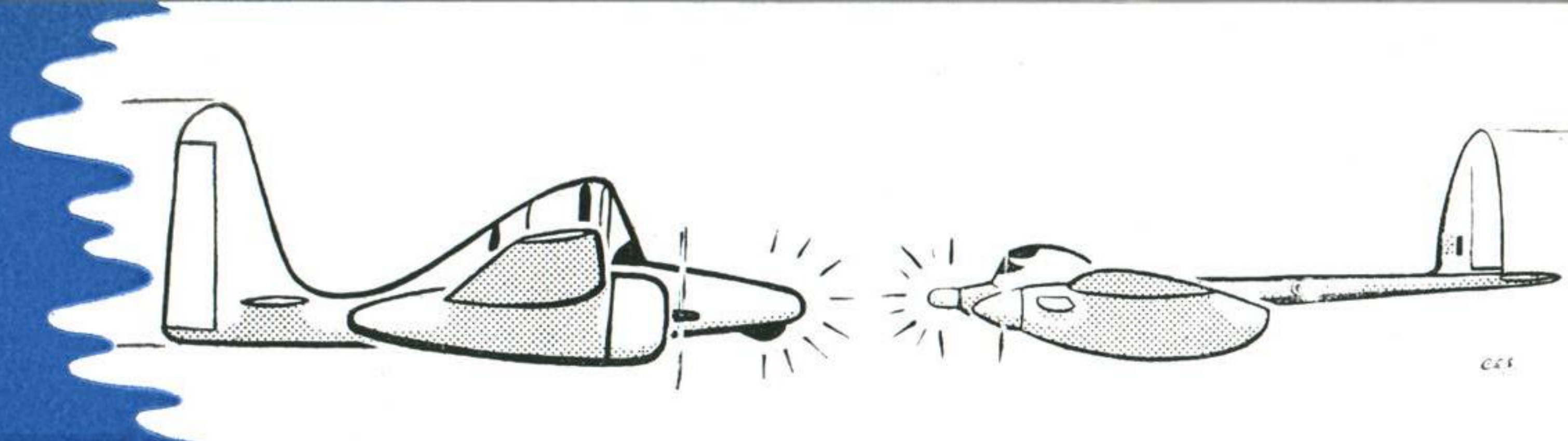
## D.H. Mosquito N.F. Mk. 30

(Two Rolls Royce Merlin, 1710 h.p. each)  
Span : 54 ft. 2 ins. Length : 41 ft. 6 ins.  
Top Speed : 407 m.p.h.

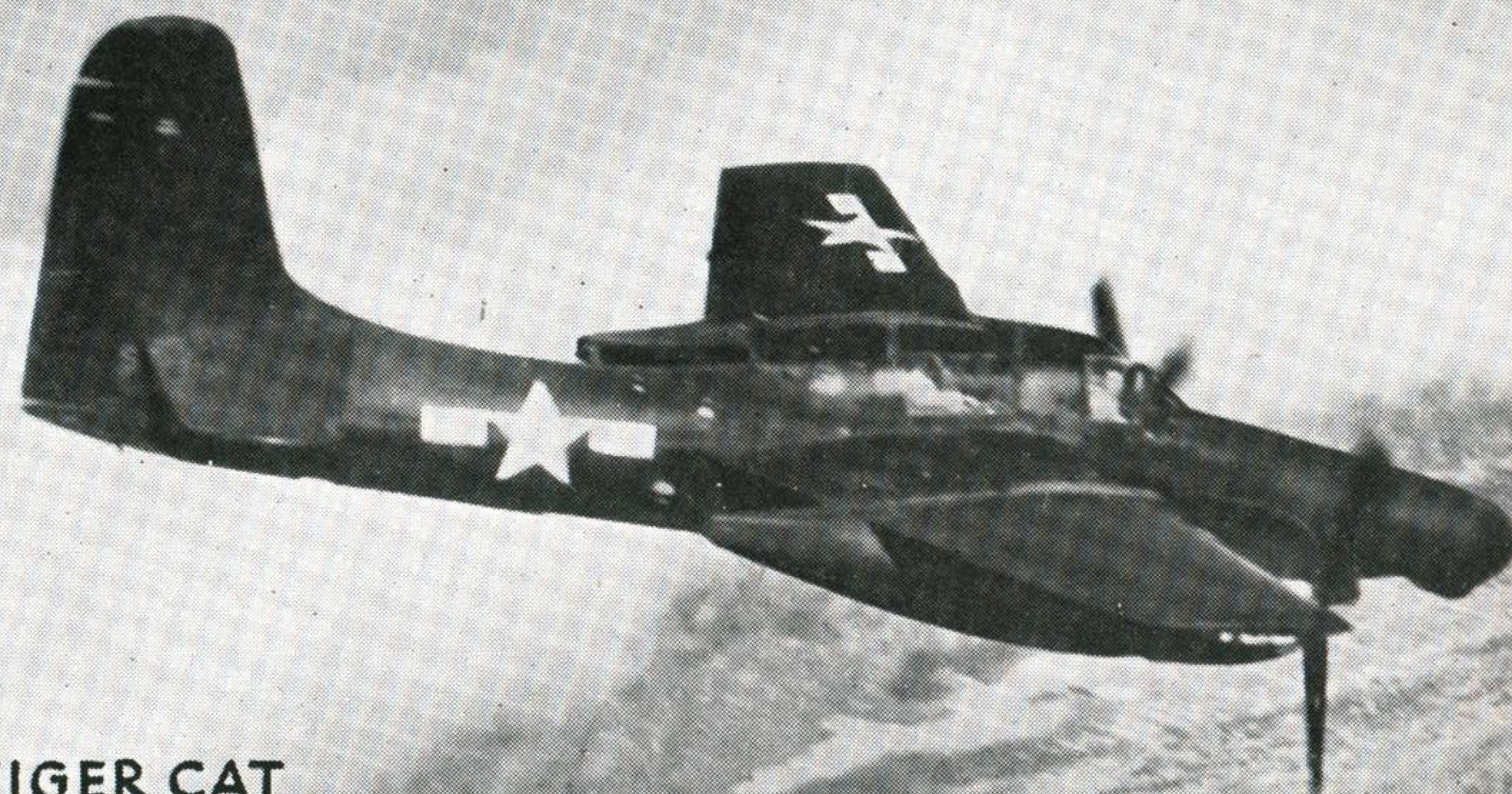
Main features : nose (radar snout) and engines in line, nacelles extend over trailing edge—forward tapered wings, forward rounded tips—long slender fuselage, elliptical tailplane at extremity—D.H. "acorn" fin and rudder ahead of tailplane.



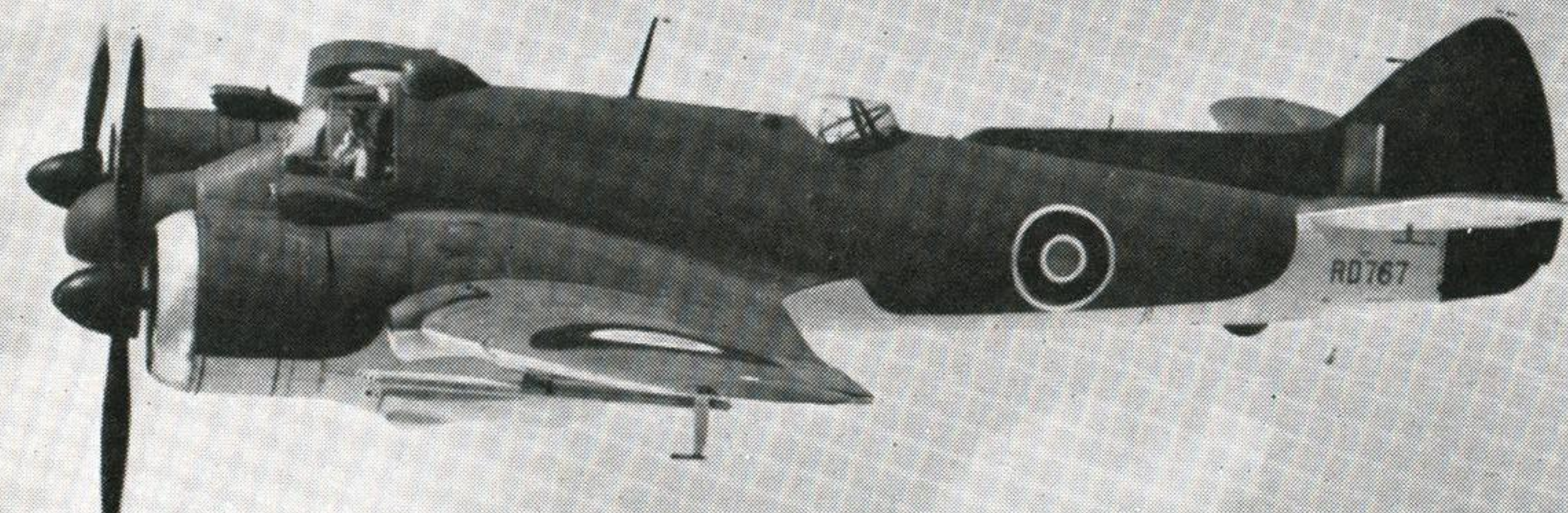
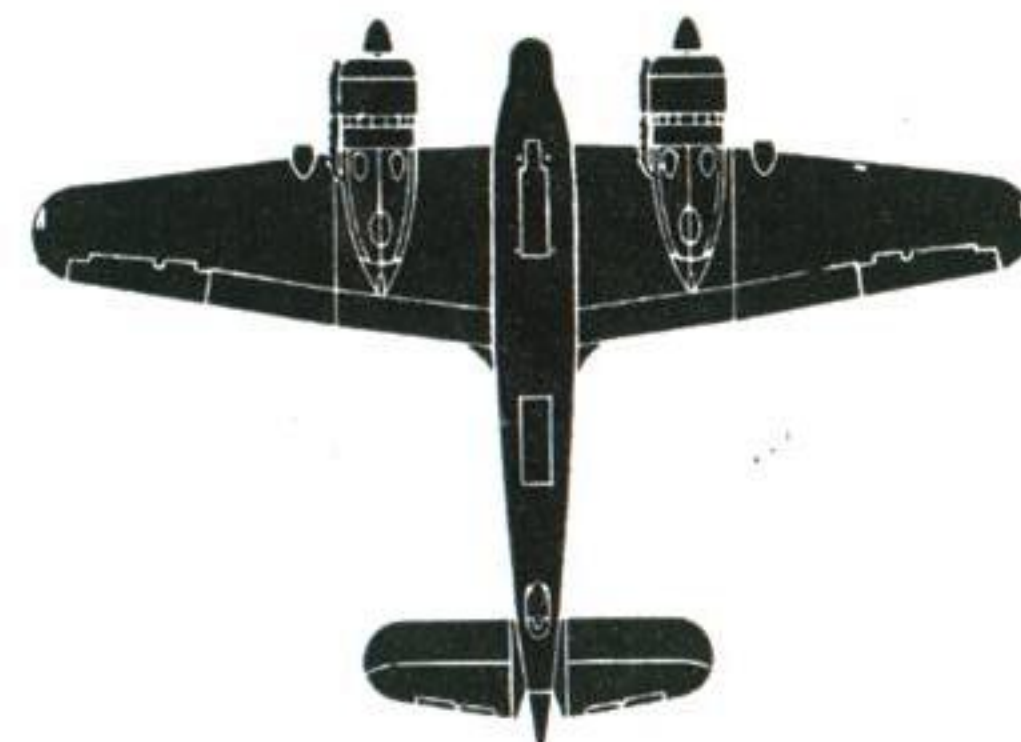
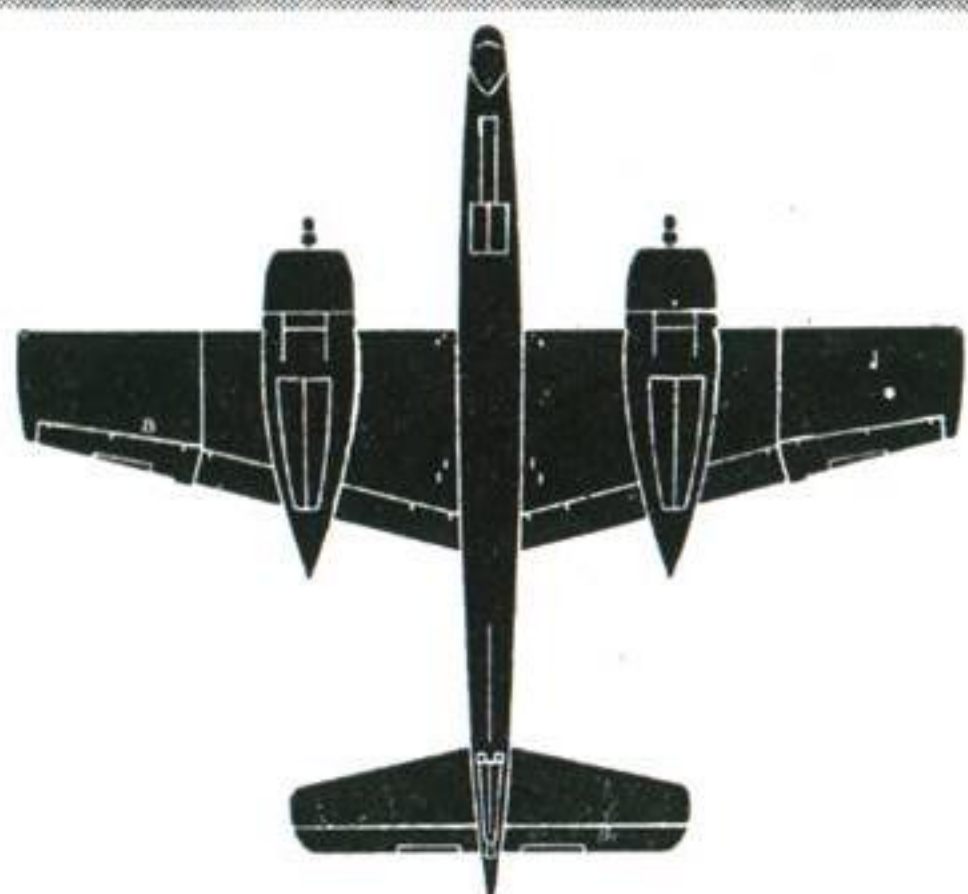
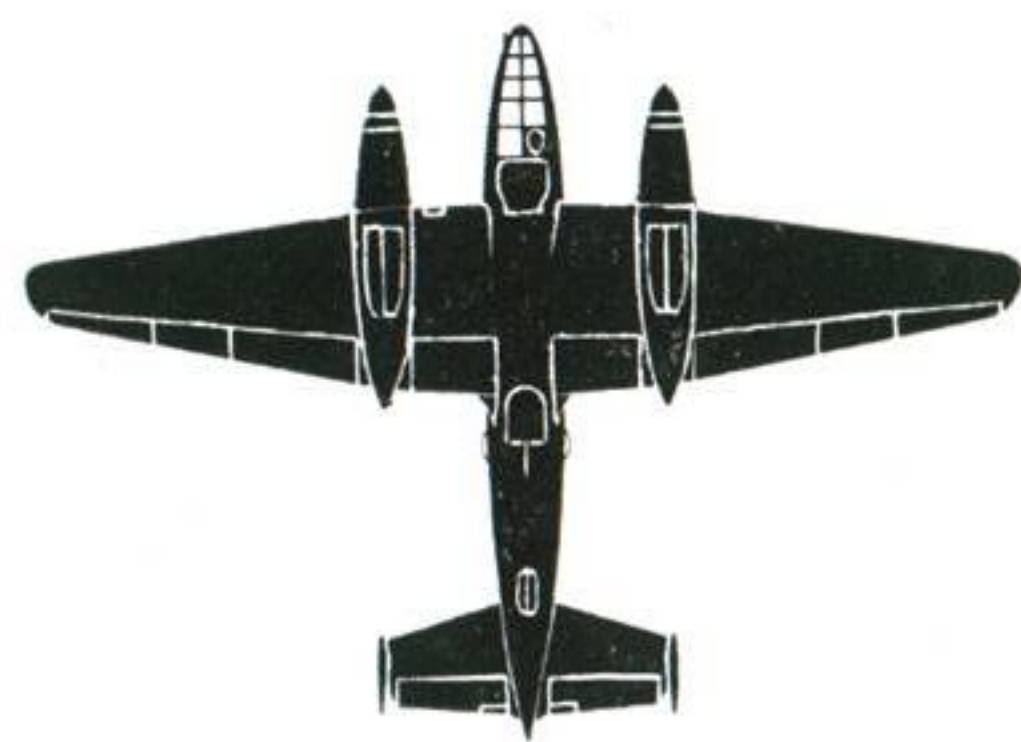
# Fighters



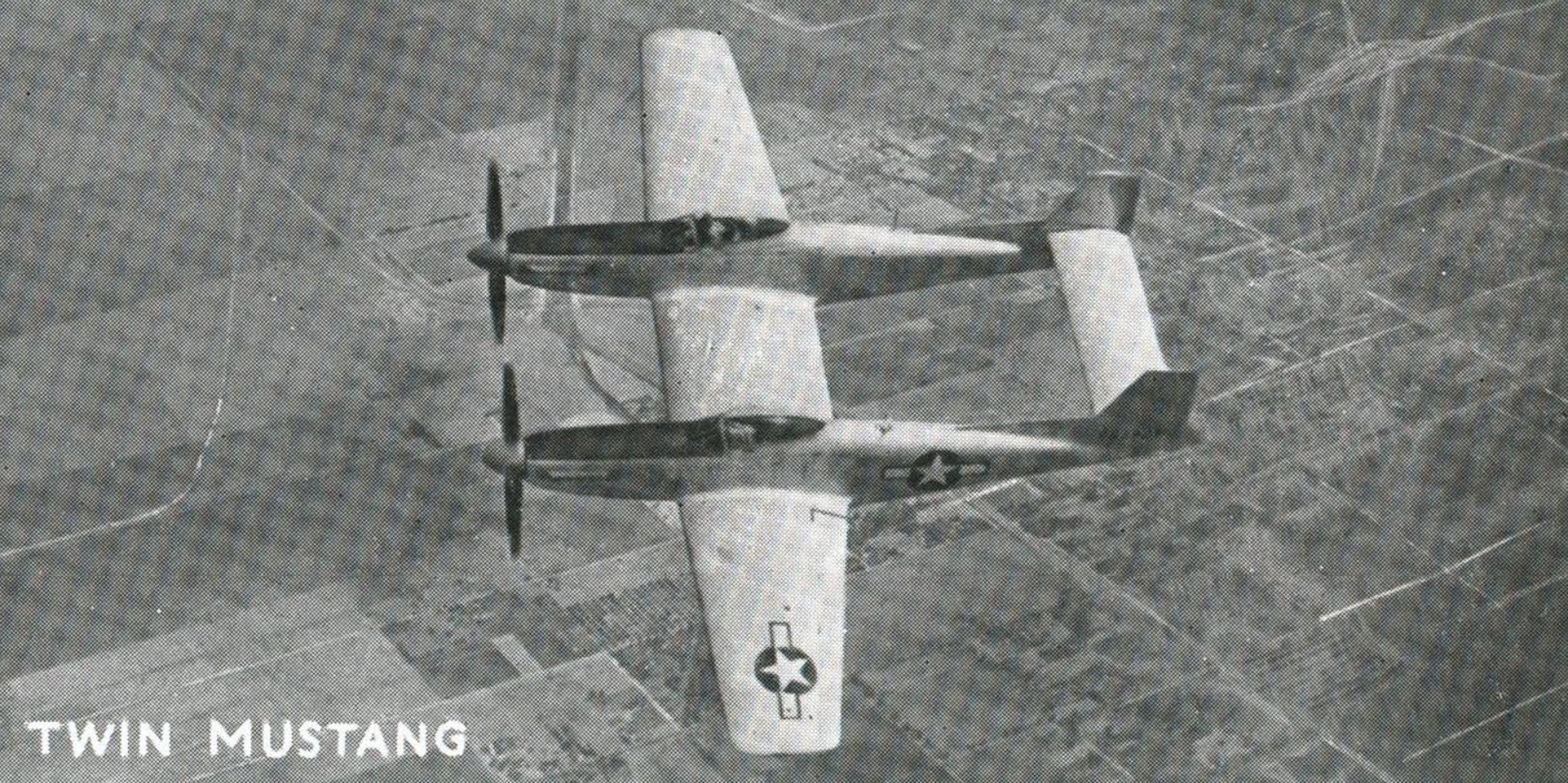
PE-3



TIGER CAT



BEAUFIGHTER



TWIN MUSTANG



## PE-3

(Two M-105 P.F. 1310 h.p. each approx.)  
Span : 56 ft. 4 ins. Length : 41 ft. 5 ins.  
Top Speed : 340 m.p.h.

Main features: long fat nose—slender motors with intakes beneath, extending well forward—nacelle tips extending over trailing edge of wing—near-diamond-shaped wing—forward rounded tips—short-fattish fuselage—backward tapered, deep-chord tailplane with dihedral angle, oval-shape twin fins and rudders.

## Grumman F7F-3N Tiger Cat

(Two Wright's Cyclone R 2600, 2100 h.p. each)  
Span : 51 ft. 6 ins. Length : 47 ft. 2 ins.  
Top Speed : 425 m.p.h.

Main features: exaggerated length of nose with "radar 'wart'"—deep slender fuselage—sharply squared off, deep chord forward tapered wing, set well back and shoulder high, sharp dihedral angle—large underslung radial motors with nacelles projecting over trailing edge—high mounted, backward tapered, wide span tailplane with blunt tips—tall narrow fin and rudder, small fin fairing.

## Bristol Beaufighter T.F. Mk. X

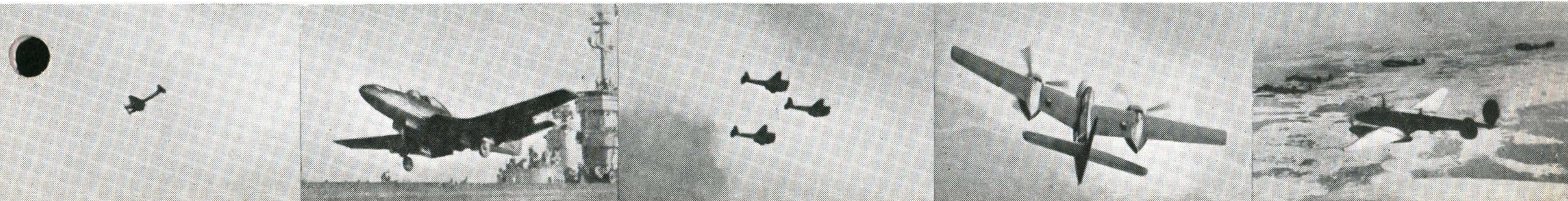
(Two Bristol Hercules, 1770 h.p. each)  
Span : 57 ft. 10 ins. Length : 41 ft. 8 ins.  
Top Speed : 303 m.p.h.

Main features: short nose (radar snout) in line with motors—radial, centrally mounted motors on ends of centre section—equi-tapered mid-set wing, dihedral in outer panels, rounded wing tips—of deep fattish fuselage ending in triangular fin and rudder with very long fin fairing—tapered forward tailplane, rounded tips, sharp dihedral angle.

## North American P-82 Twin Mustang

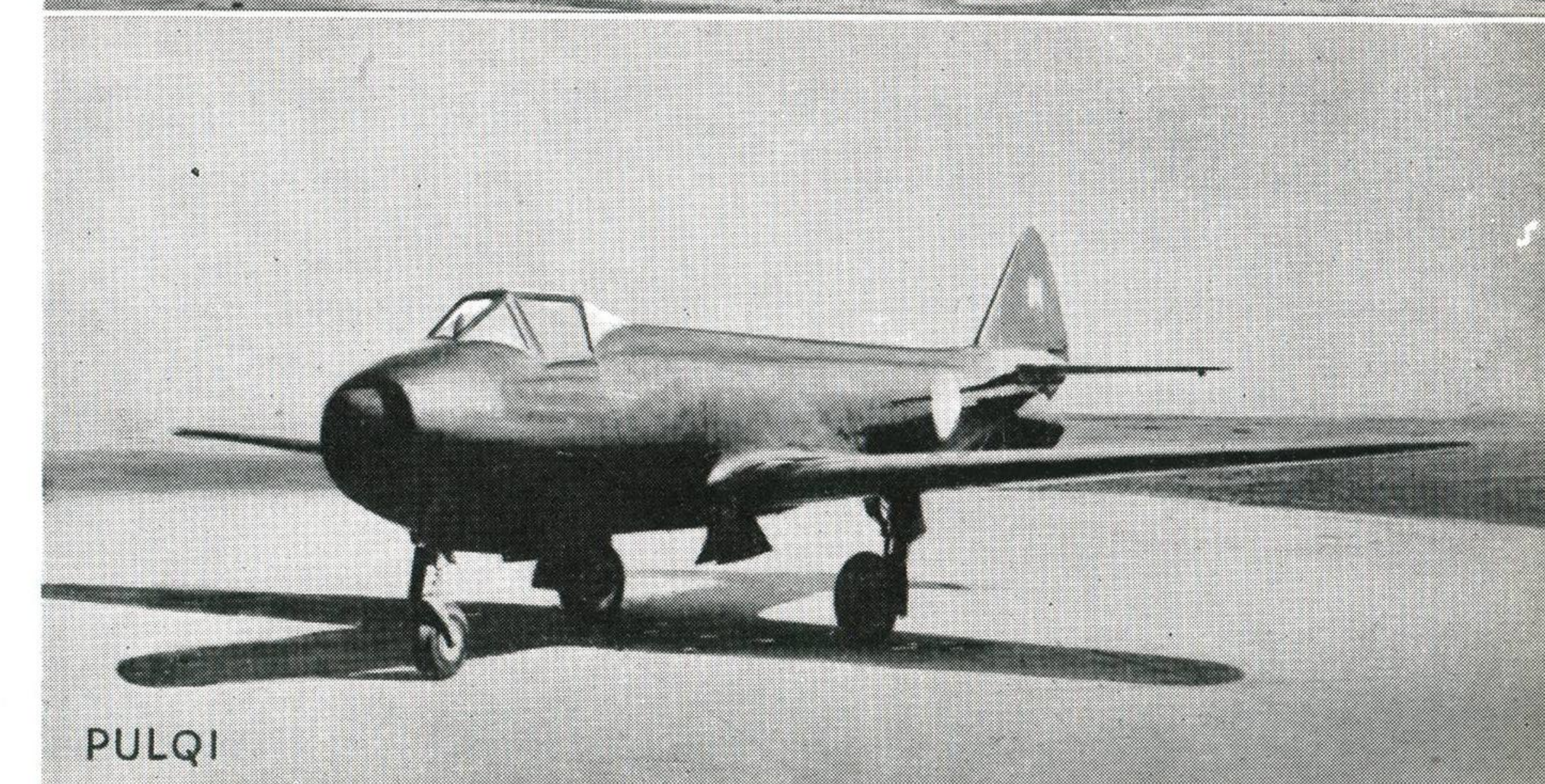
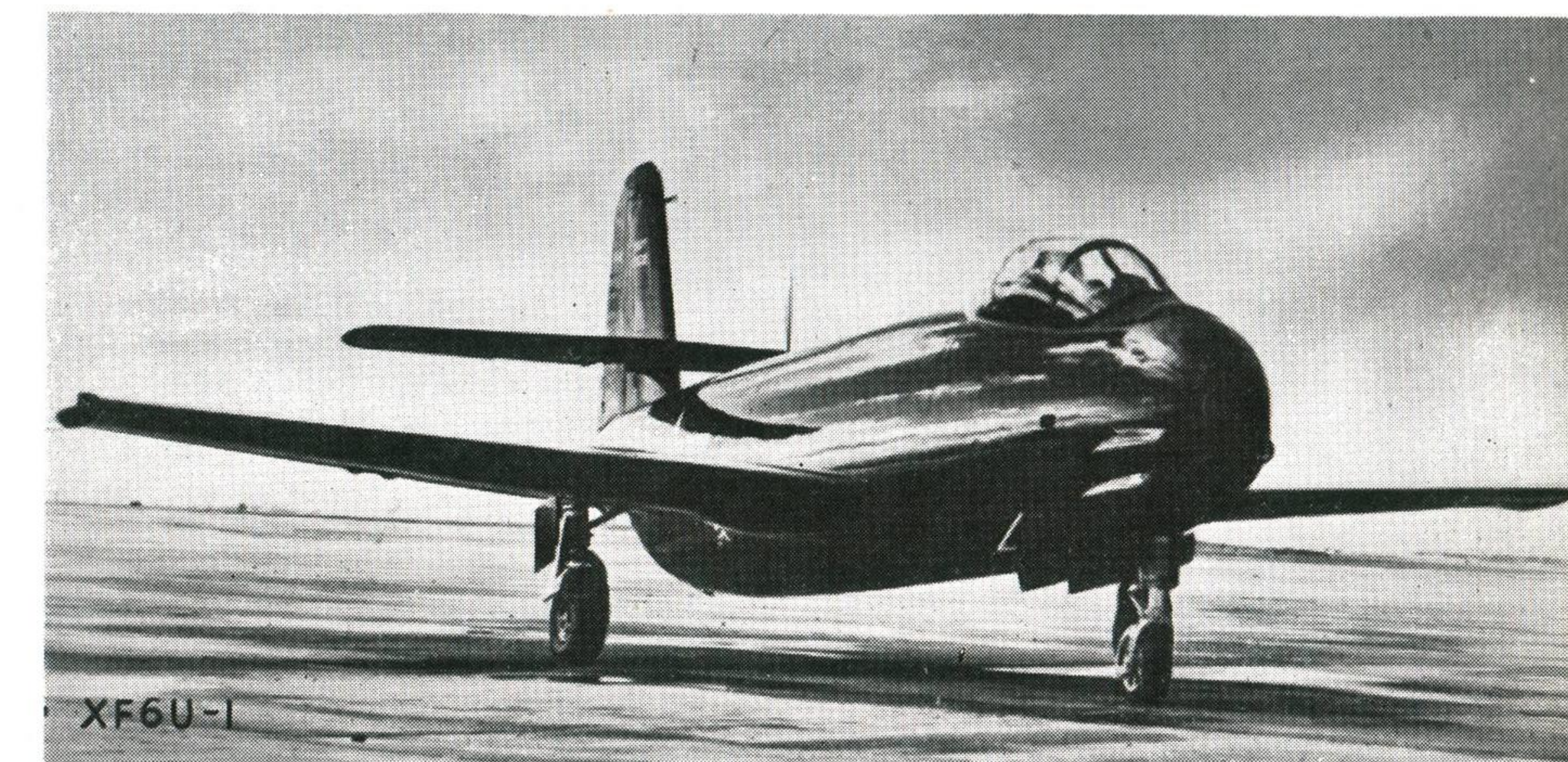
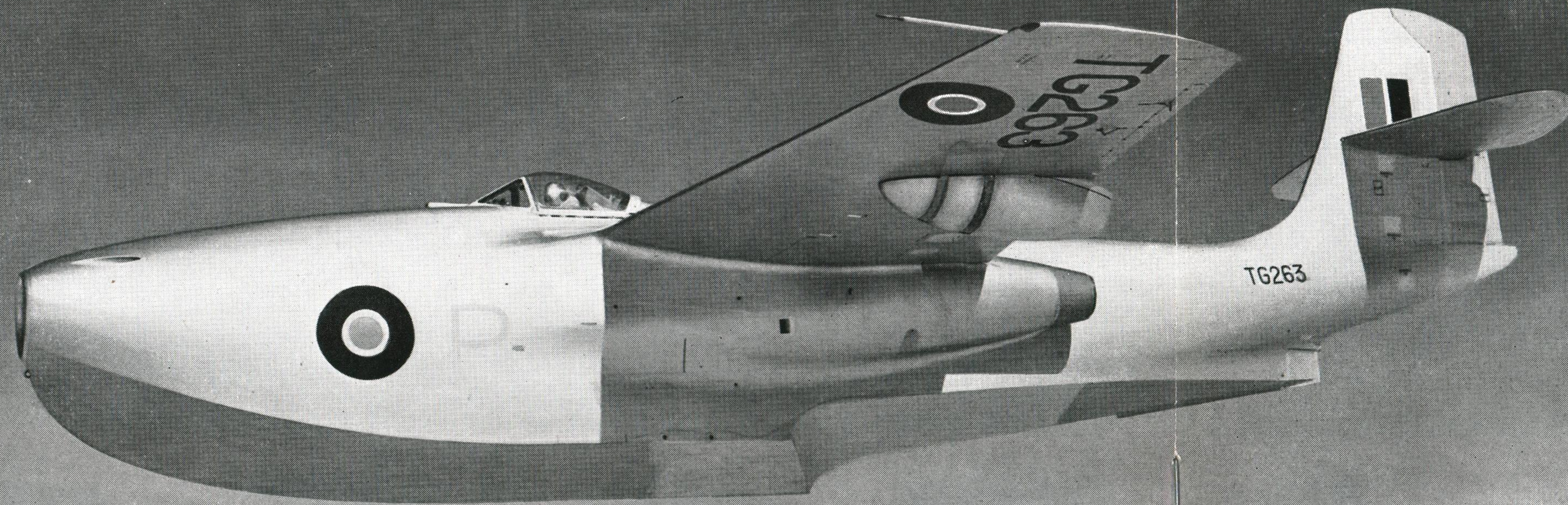
(Two Packard Merlin, 1920 h.p. each)  
Span : 51 ft. 3 ins. Length : 38 ft. 1 in.  
Top Speed : 480 m.p.h.+

Main features: twin noses—twin fuselages, separated by rectangular centre section and rectangular tailplane—forward tapered squared off wings—deep narrow fuselages with long belly radiators—twin fins and rudders, angular and with long fin fairings—twin cockpits well forward.



# FIGHTERS

*of the future!*

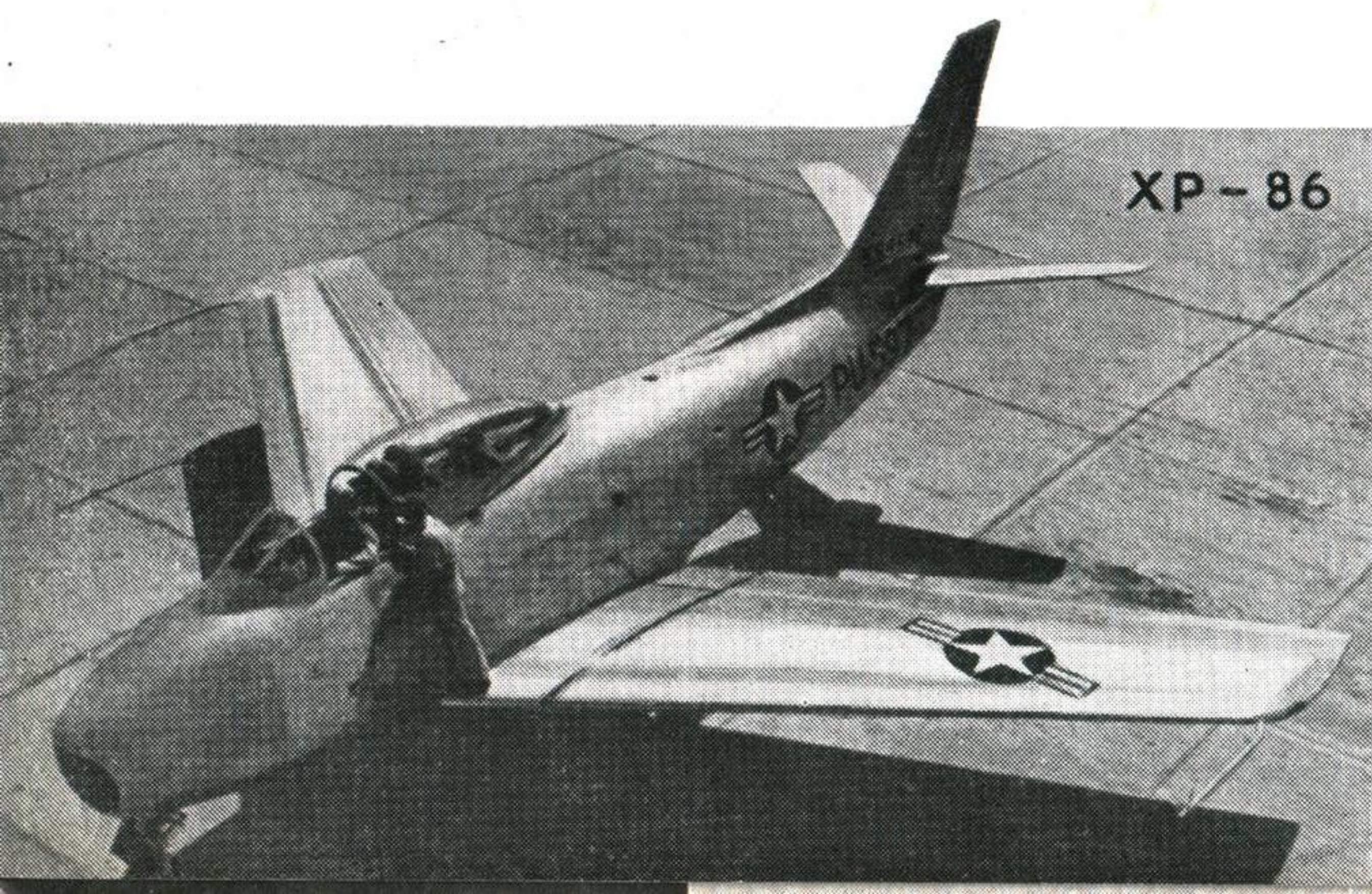
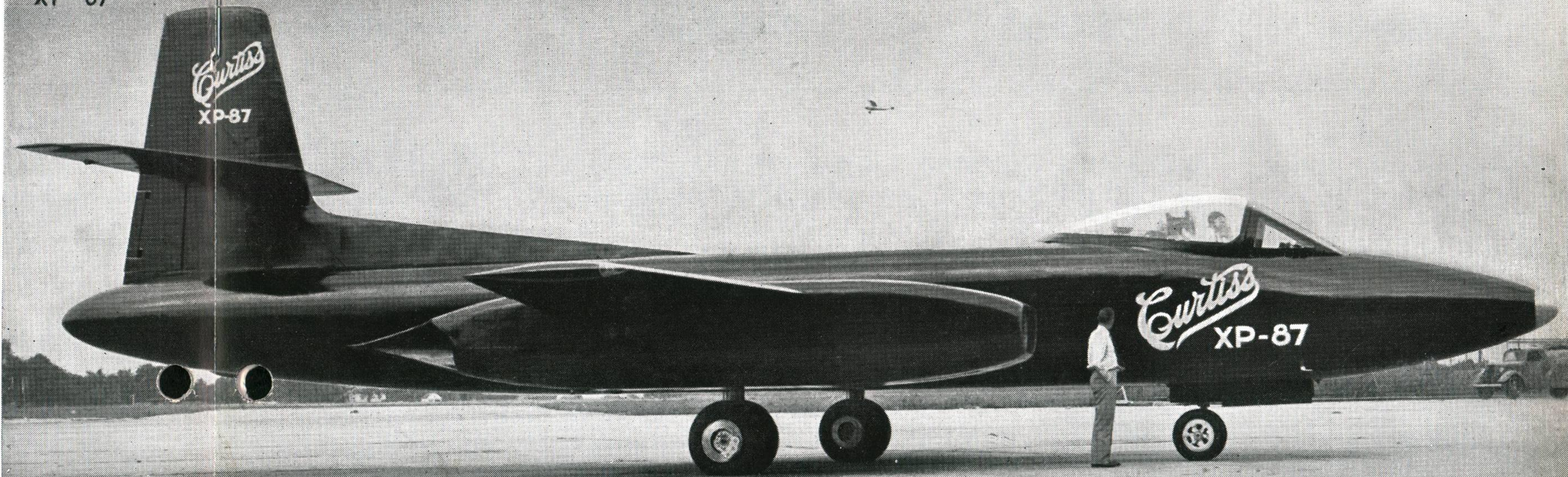


Chance Vought XF6U-1 Pirate, (one Westinghouse 24C turbojet of 3,000 lbs. s.t.) top speed : 500 m.p.h. plus (U.S.).

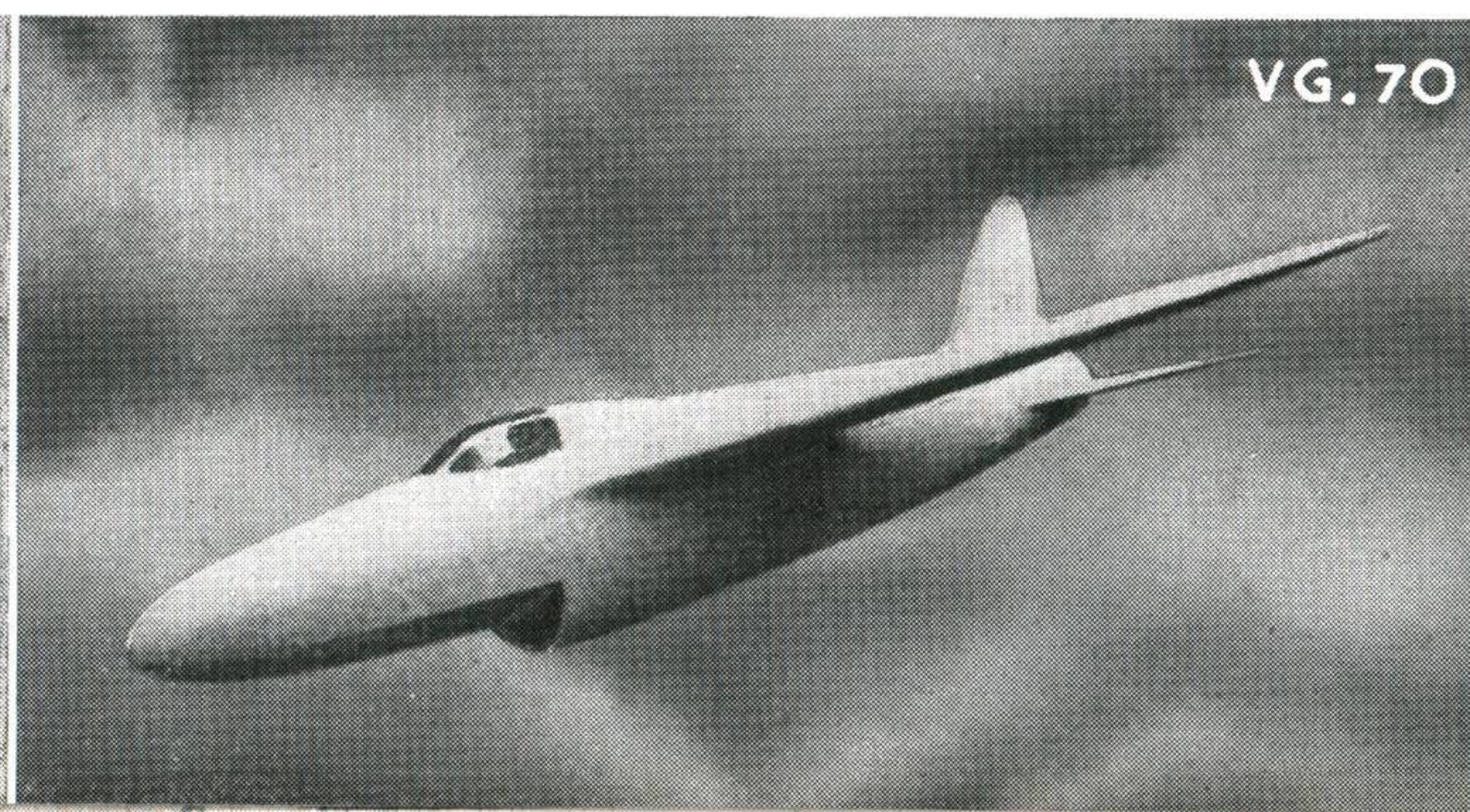
SARO SR/A1

THE SAUNDERS-ROE SRA/1 (2 Metrovick Beryl turbojets of 4,000lbs. s.t.) top speed 400 m.p.h. plus (Great Britain). The North American XP-86 (one G.E.J.-35 turbojet (TG-180) of 4,000 lbs. s.t.), top speed 650 m.p.h. plus (U.S.). The Arsenal de l'Aeronautique VG. 70 (one Jumo 004 turbojet of 2,000 lbs s.t.) top speed : 560 m.p.h. (France). Curtiss-Wright XP-87 (four Westinghouse 24C turbojets of 3,000 lbs. s.t. each) top speed : 620 m.p.h. (U.S.). The Instituto Aerotecnico de Cordoba IAe-27 "Pulqi" (one Rolls Royce Derwent turbojet of 3,500 lbs. s.t.) top speed : 500 m.p.h. plus (Argentina).

XP-87

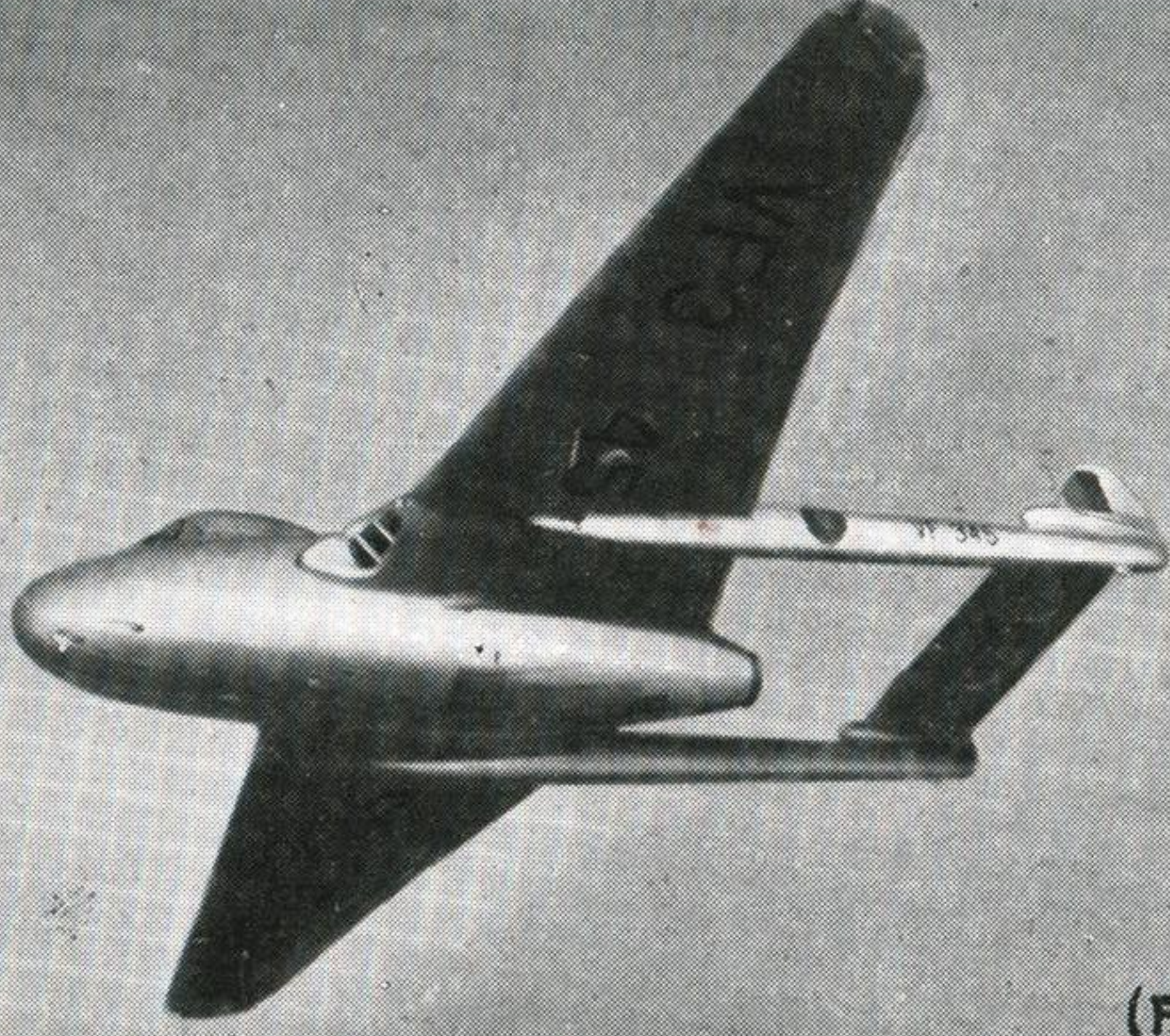


XP-86



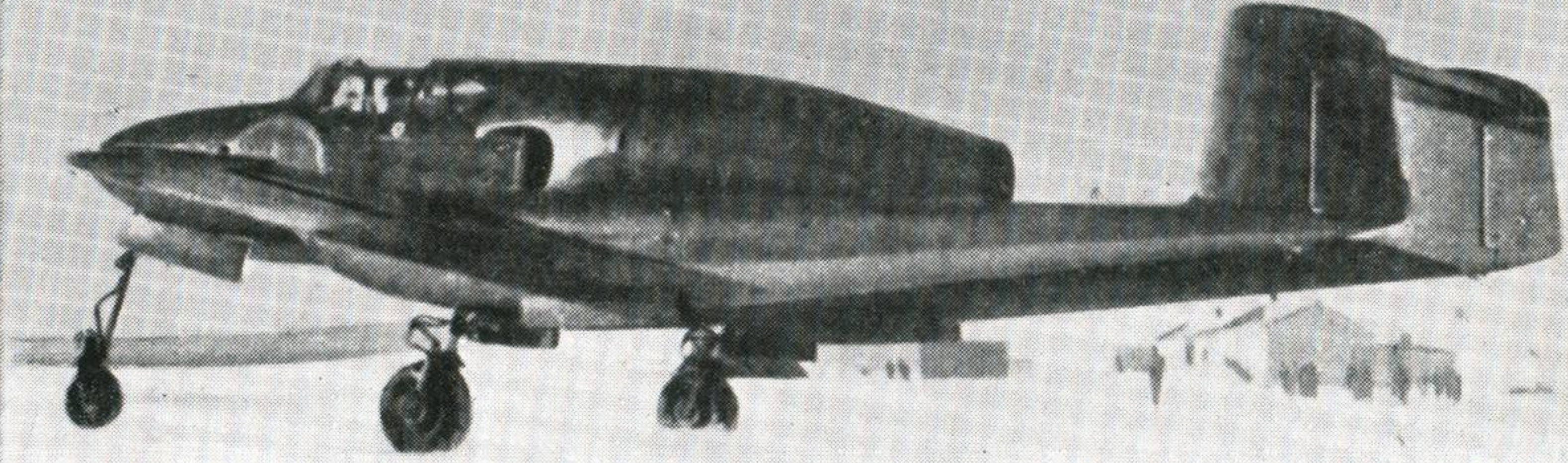
VG.70

# Single Engine

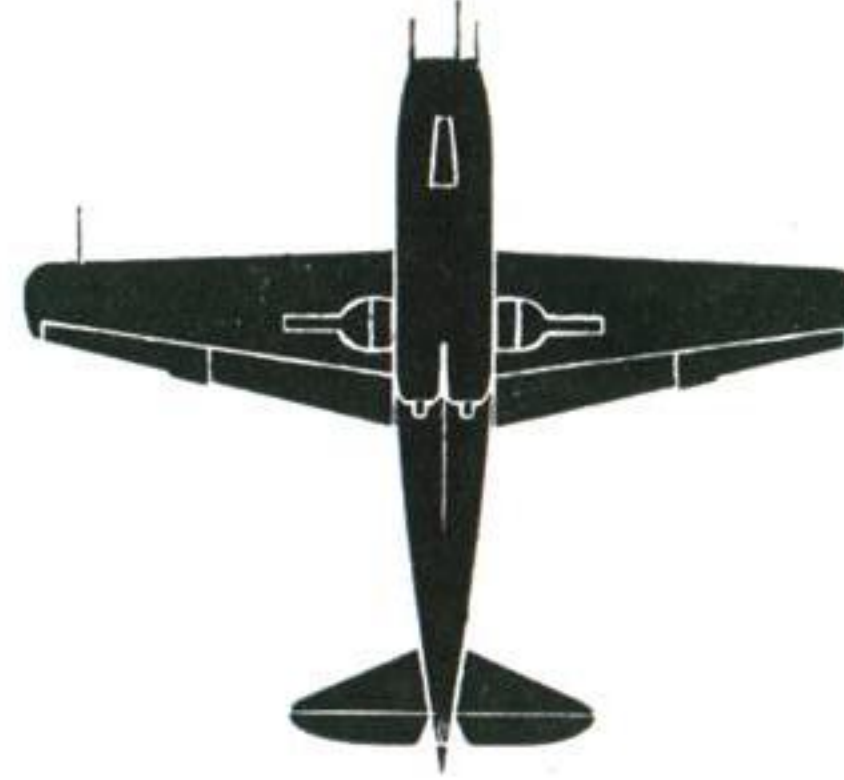
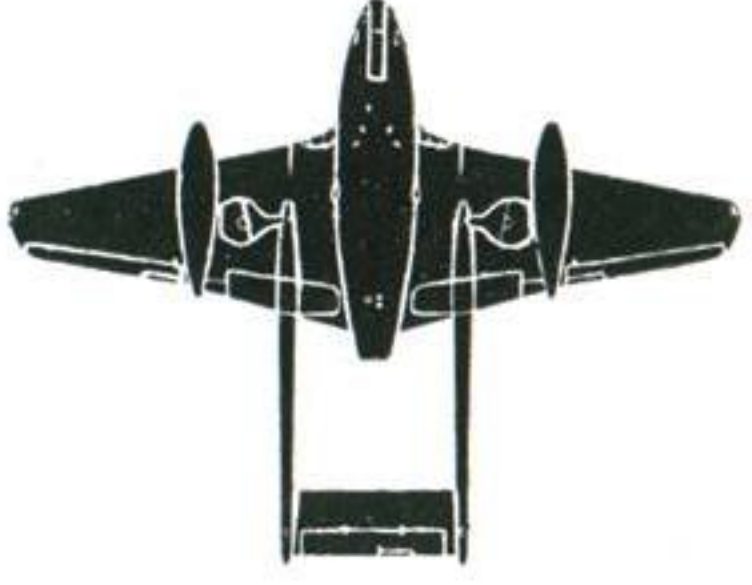


VAMPIRE

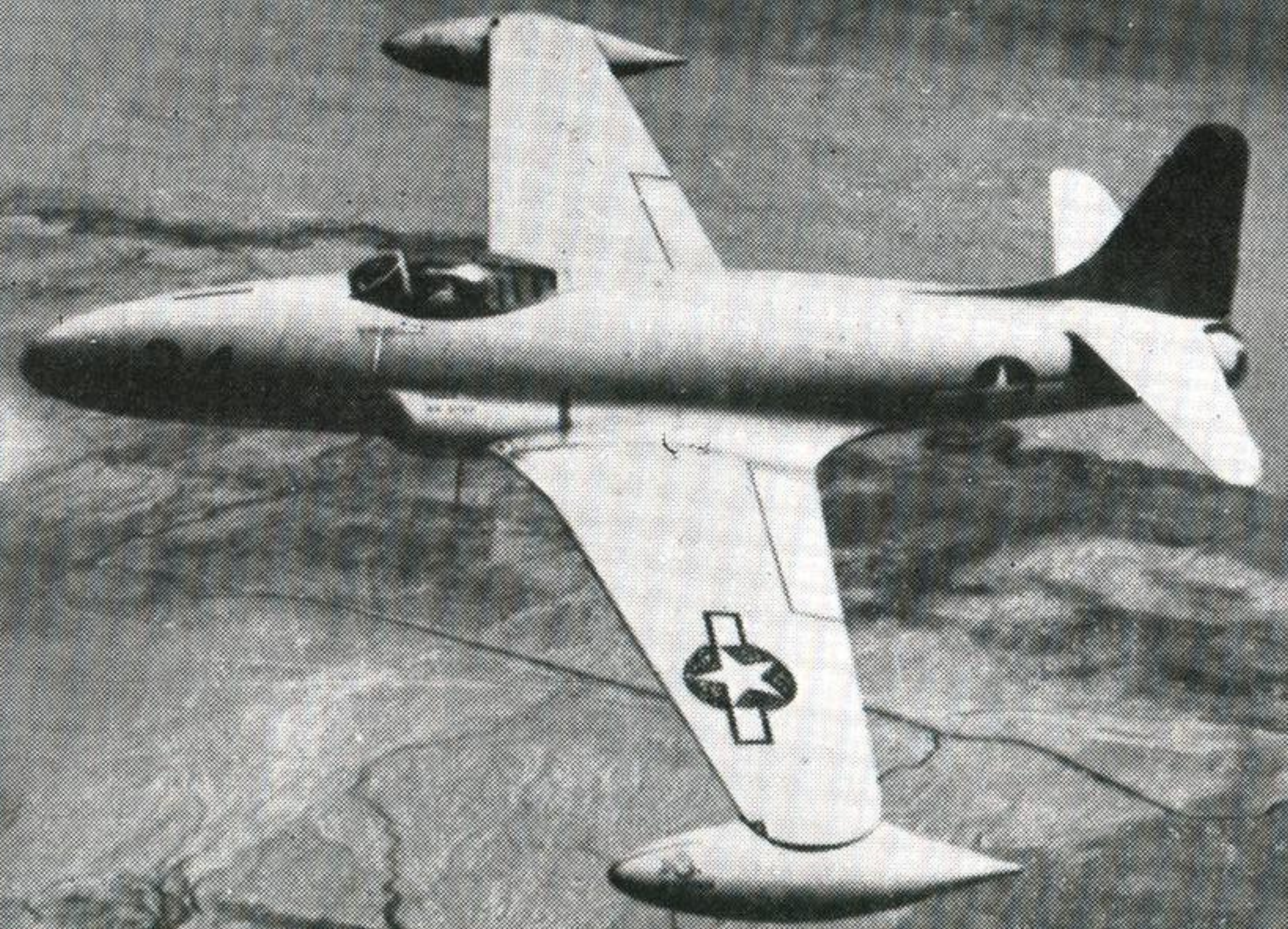
(Flight Photo)



J 21 R



MIG JET



P-80



## D.H. Vampire F. Mk. III

(One D.H. Goblin II turbojet, 3000 lbs. s.t.)  
Span : 40 ft. 0 ins. Length : 30 ft. 6 ins.  
Top Speed : 540 m.p.h.

Main features : twin booms—bulbous body housing turbojet and pilot—diamond-shaped mid-wing, curved wing tips—rectangular tail plane, low set D.H. "acorn" fins and rudders—wing tanks sometimes.

## SAAB J 21R

(One D.H. Goblin II turbojet, 3000 lbs. s.t.)  
Span : 38 ft. 7 ins. Length : 34 ft. 9 ins.  
Top Speed : 500 m.p.h. (approx.)

Main features : twin booms—deep slender body housing turbojet and pilot—low set back swept slightly tapered wing, blunt tips—angular twin fins and rudders with rectangular tailplane, high-set, between them.

## MIG Jet

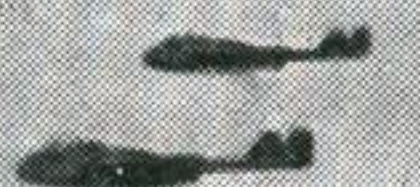
(Two B.M.W. 003 turbojets, 1750 lbs. s.t.)  
Span : 40 ft. 0 ins. Length : 35 ft. 0 ins.  
Top Speed : 350 m.p.h. (approx.)

Main features : long blunt nose—hull-like fuselage with twin jets underneath—forward tapered wing shoulder-high set—open "fan" tailplane high set on broad chord fin and rudder.

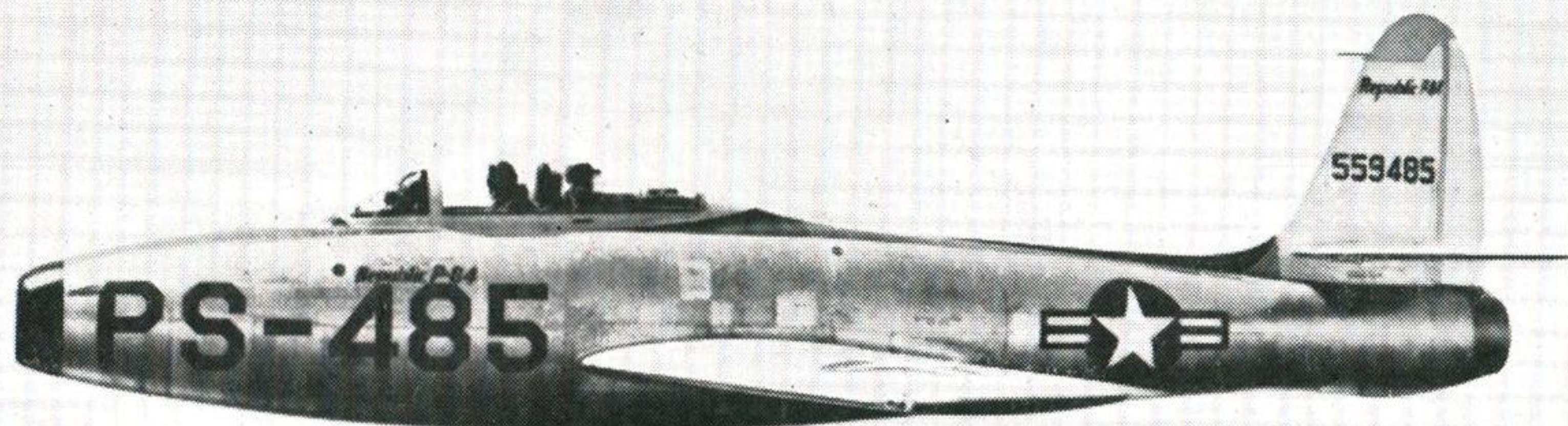
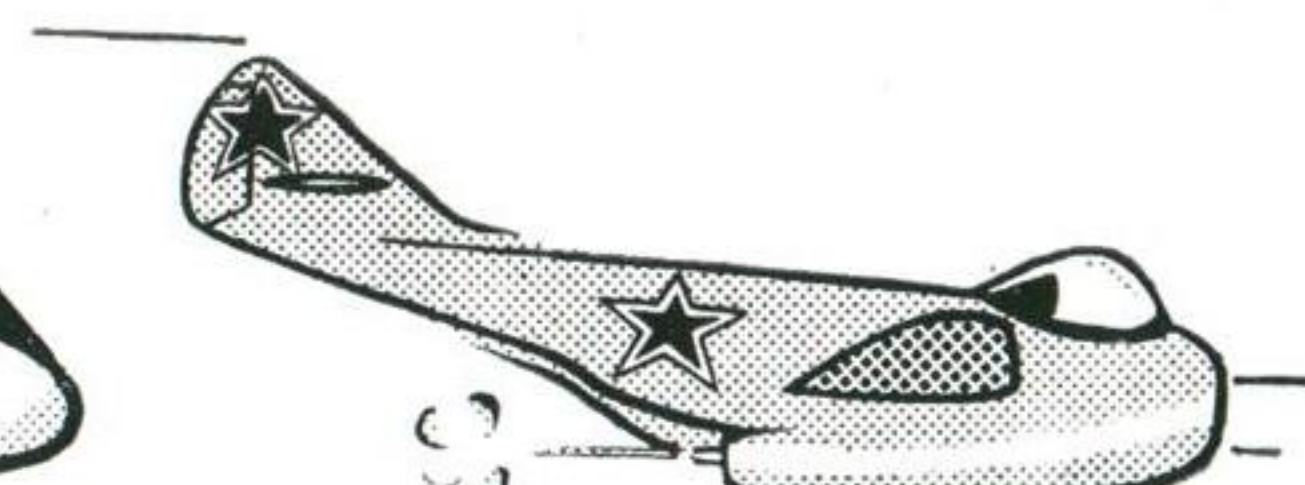
## Lockheed P-80 Shooting Star

(One G.E. J-33 turbojet, 3850 lbs. s.t.)  
Span : 38 ft. 10 ins. Length : 34 ft. 6 ins.  
Top Speed : 558 m.p.h.

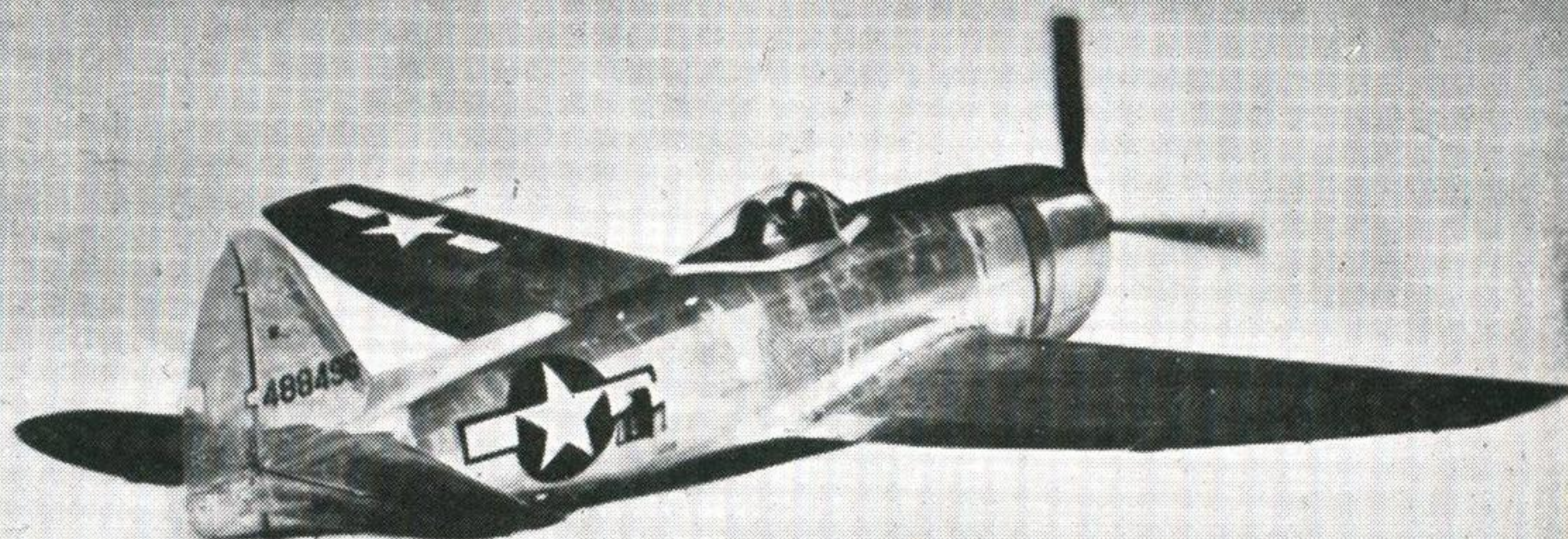
Main features : long sharp nose—clean, sleek fuselage form—low-set diamond shaped wing, blunt tips—leading edge root intakes and trailing edge fillets—high set large span, backward-tapered tailplane—small "sugar loaf" fin and rudder with fin fairing—sometimes wing tip drop-tanks.



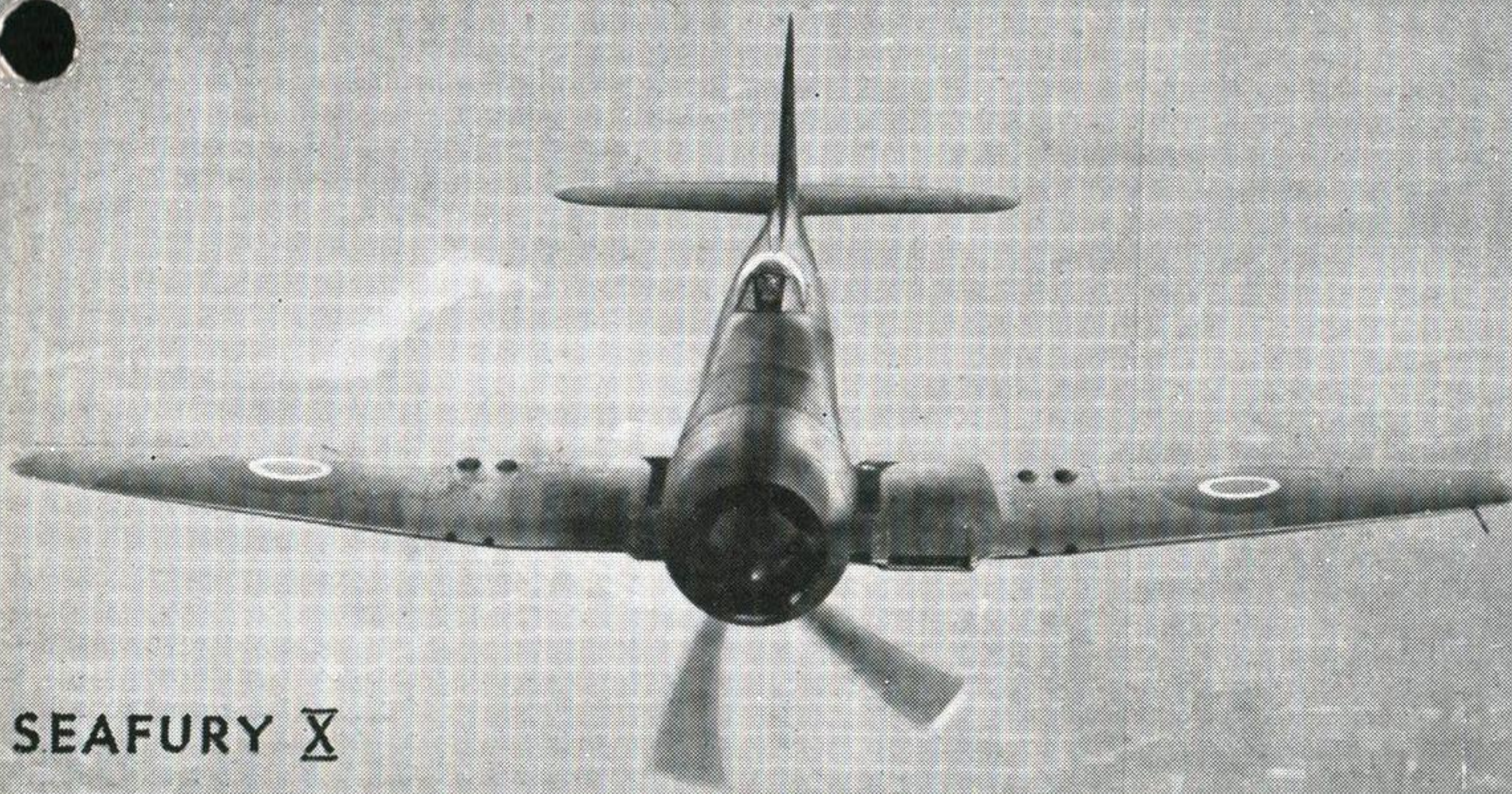
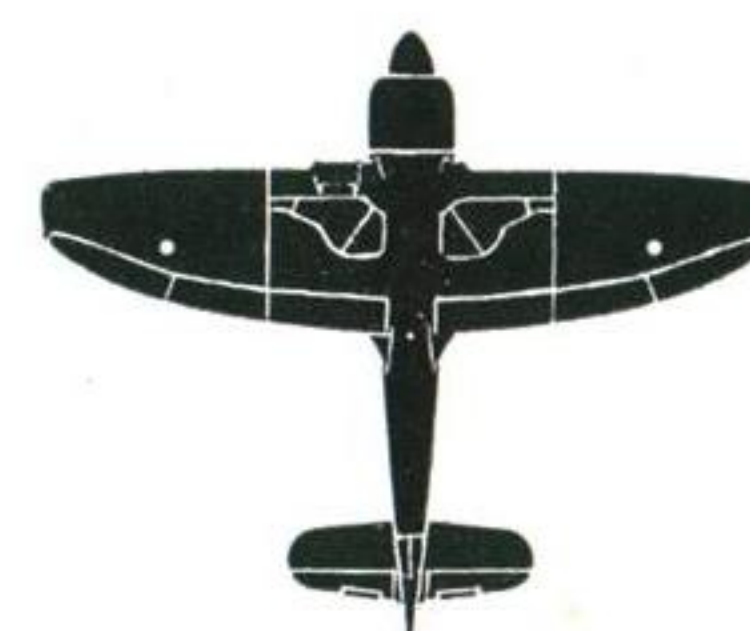
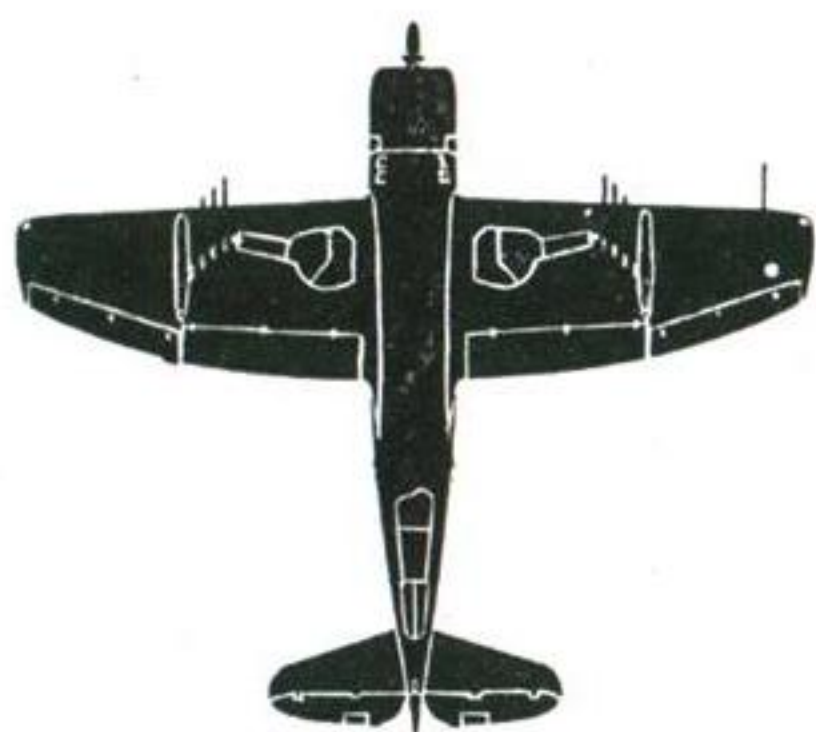
# Fighters



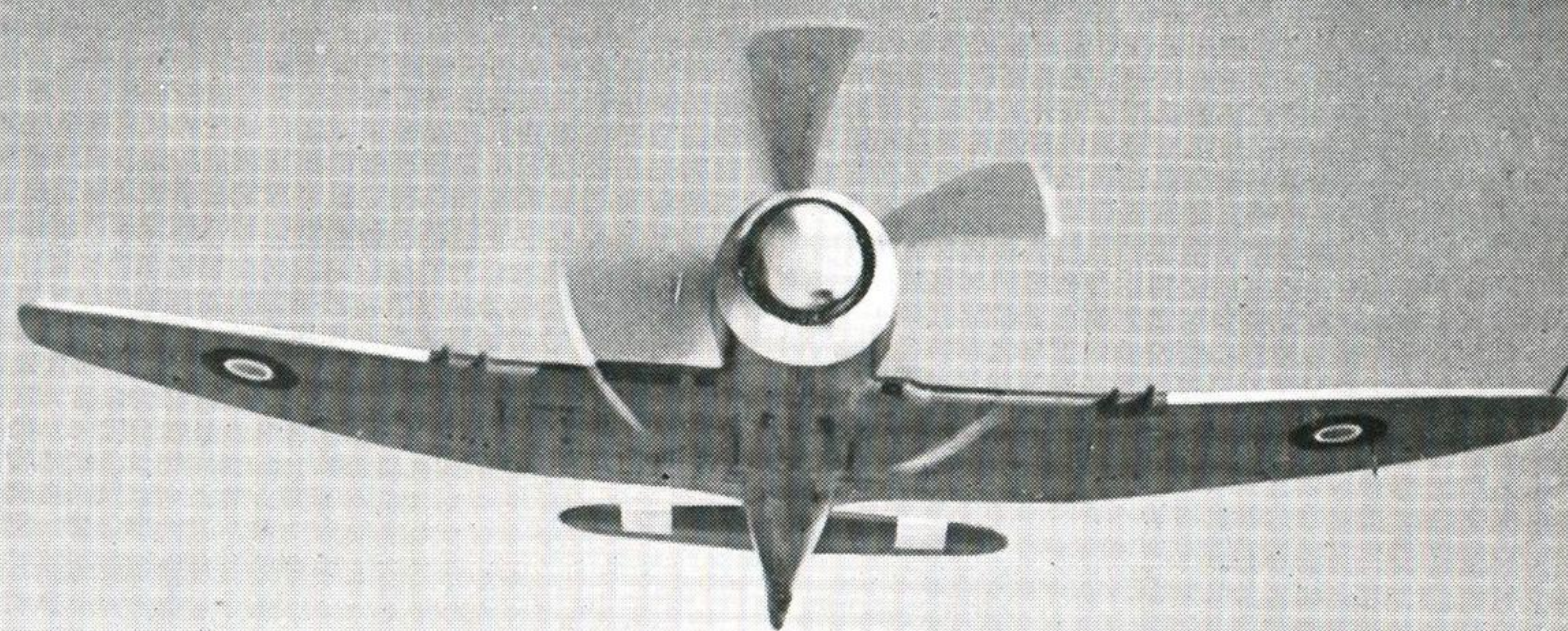
P-84



P-47N



SEAFURY X



TEMPEST II



## Republic P-84 Thunderjet

(One G.E. J-35 turbojet, 4000 lbs. s.t.)  
Span : 36 ft. 10 ins. Length : 36 ft. 6 ins.  
Top Speed : 600 m.p.h. +

Main features: long blunted nose—"bottle" fuselage form, stubby wings, low-mid position—high set slightly tapered tailplane with dihedral, set on base of fin and rudder basically ovoid, with fin fairing.

## Republic P-47N Thunderbolt

(One Double Wasp R-2800, 2100 h.p.)  
Span : 42 ft. 6 ins. Length : 36 ft. 2 ins.  
Top Speed : 448 m.p.h.

Main features: short fat blunt nose—low-mid near-elliptical wing and clipped tips—sharp angle of dihedral—long deep and fat fuselage—backward tapered tailplane—small "pear-shaped" fin and rudder with straight fin fairing.

## Hawker Sea Fury F. Mk. X

(One Bristol Centaurus, 2440 h.p.)  
Span : 38 ft. 5 ins. Length : 34 ft. 6 ins.  
Top Speed : 460 m.p.h.

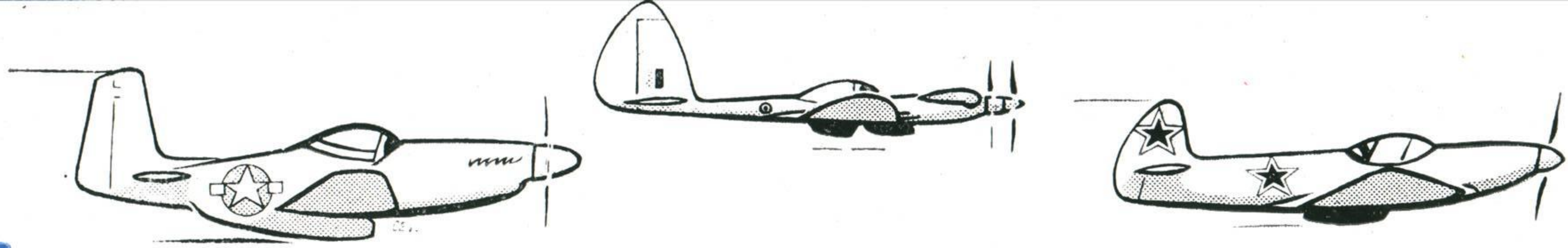
Main features: short blunt nose, central spinner—near-elliptical wing, clipped tips, root intakes larger on port side—slightly humped but slender fuselage, equi-tapered tailplane, high-set—"sugar-loaf" fin and rudder clipped at base.

## Hawker Tempest F. Mk. II

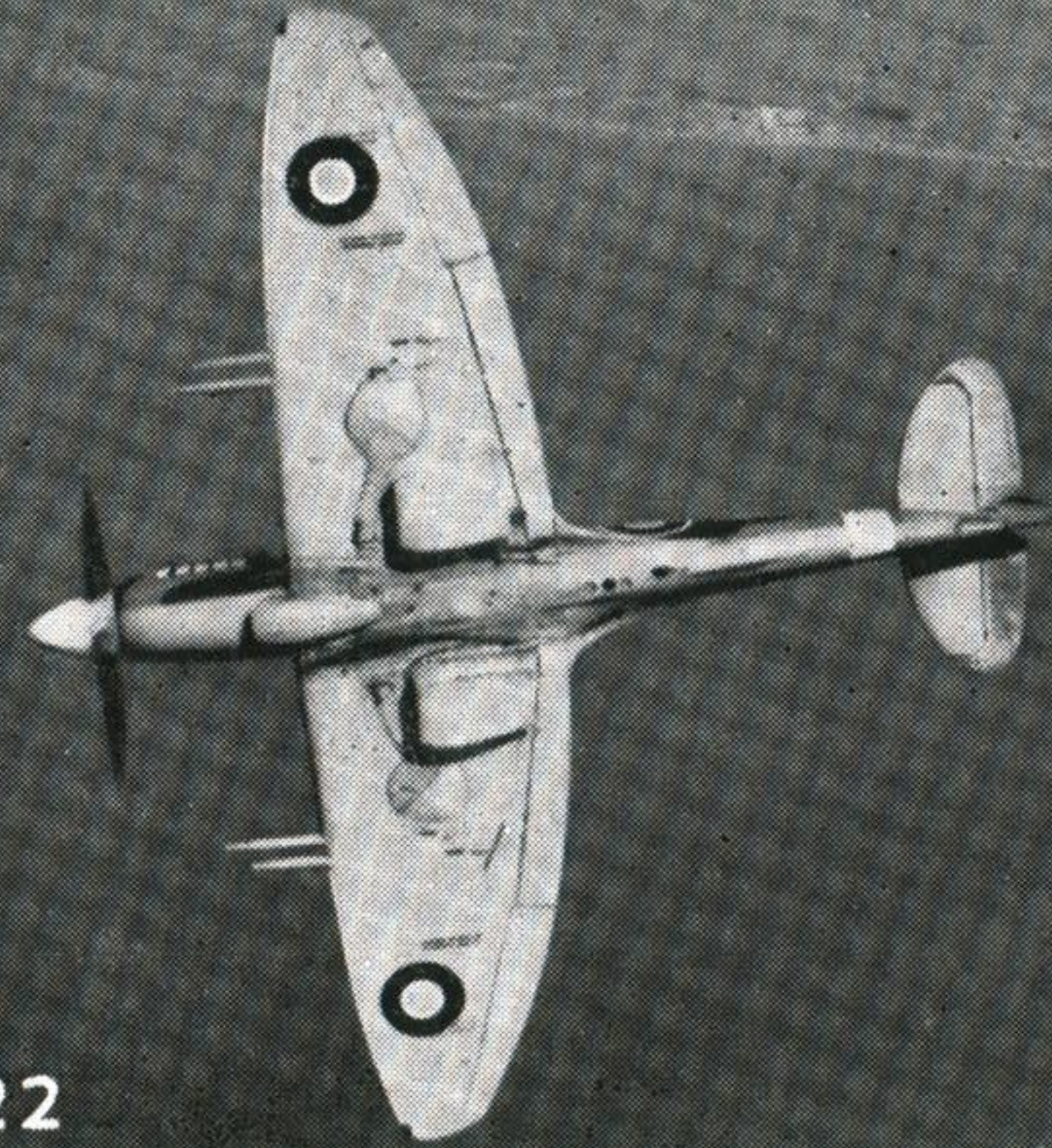
(One Bristol Centaurus, 2500 h.p.)  
Span : 41 ft. 0 ins. Length : 34 ft. 0 ins.  
Top Speed : 440 m.p.h.

Main features: short blunt nose, central spinner—near-elliptical wings—clipped tips—root intakes larger on starboard side—slender, "straight through" fuselage—large oval fin and rudder with fin fairing—high set equi-tapered tailplane.

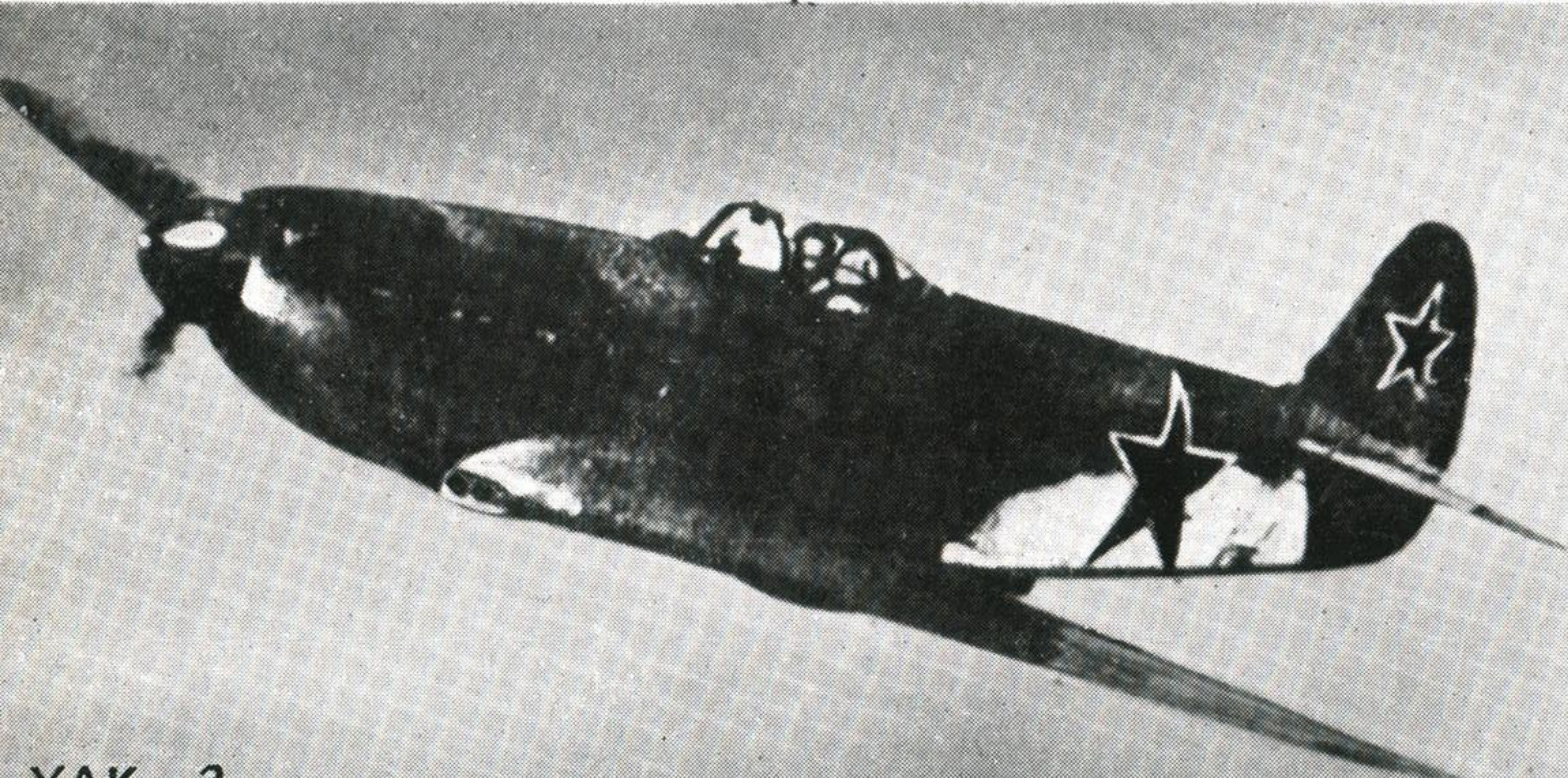




FIREFLY IV



SPITFIRE 22



YAK-3



P-51H



### Fairey Firefly F. Mk. IV

(One Rolls Royce Griffon, 2245 h.p.)  
Span : 41 ft. 2 ins. Length : 37 ft. 11 ins.  
Top Speed : 386 m.p.h.

Main features : long sharp nose—low-set near-elliptical wing, numerous leading edge projections, radiators at roots—deep narrow fuselage—broad triangular fin and rudder with shallow 'S' leading edge to fin—backward tapered tailplane well in advance of rudder.

### Vickers-Armstrong Spitfire F. Mk. 22

(One Rolls Royce Griffon 2375 h.p.)  
Span : 36 ft. 11 ins. Length : 32 ft. 8 ins.  
Top Speed : 450 m.p.h.

Main features : longish pointed nose, intake beneath—clean, low-set elliptical wing with box-like radiators beneath—long slender rear view fuselage—fat egg-shaped fin and rudder fair into fuselage—small elliptical tailplane in reverse form to wing.

### YAK-3

(One M-105 P.F. 2, 1310 h.p.)  
Span : 30 ft. 2 ins. Length : 22 ft. 9 ins.  
Top Speed : 360 m.p.h.

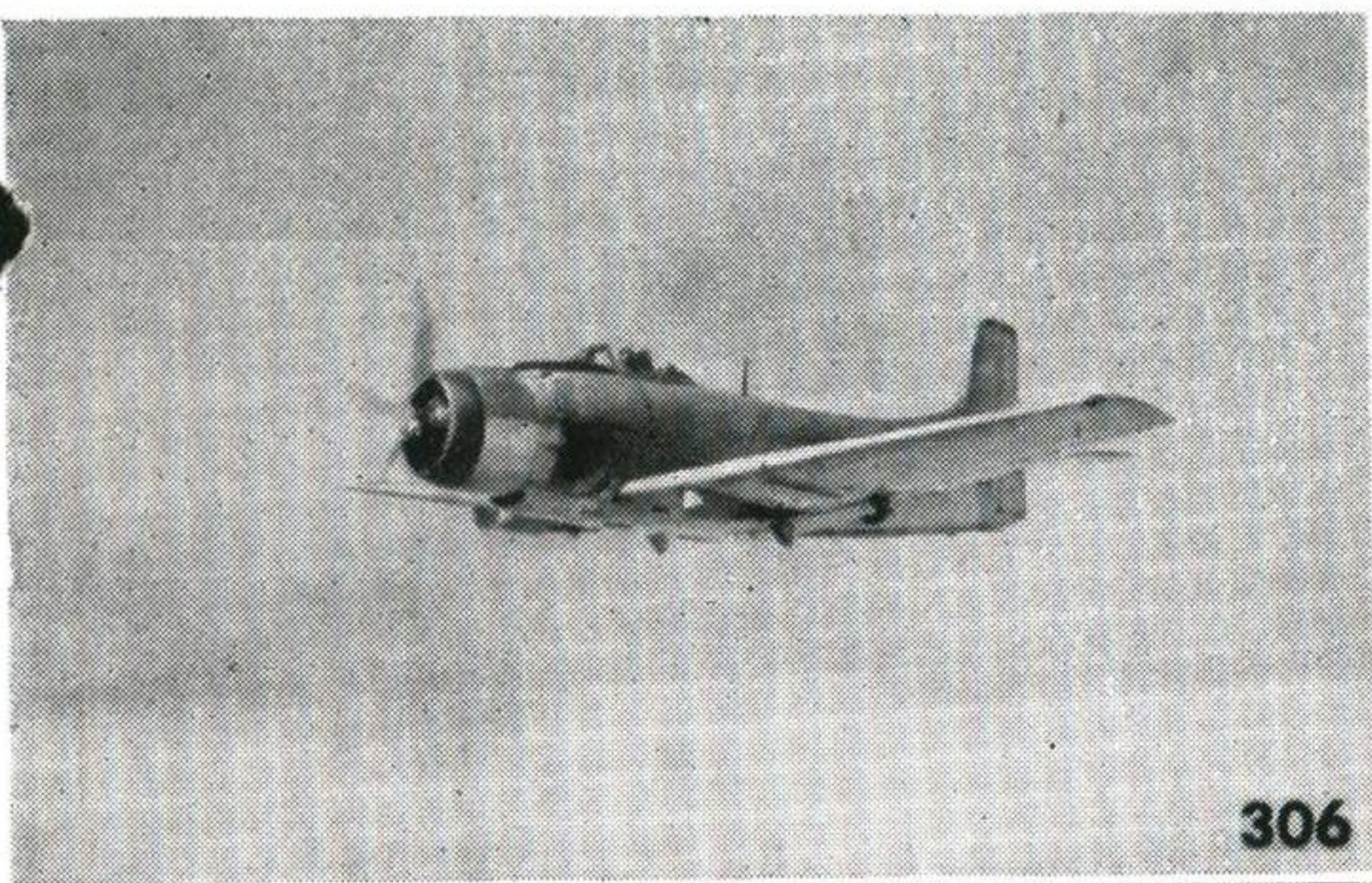
Main features : short pointed nose—low-set diamond wing shape with root leading edge intakes—short deep rear view fuselage with small box-like belly radiator—forward leaning fin and rudder roughly "pear-shaped"—backward taper to tailplane.

### North American P-51H Mustang

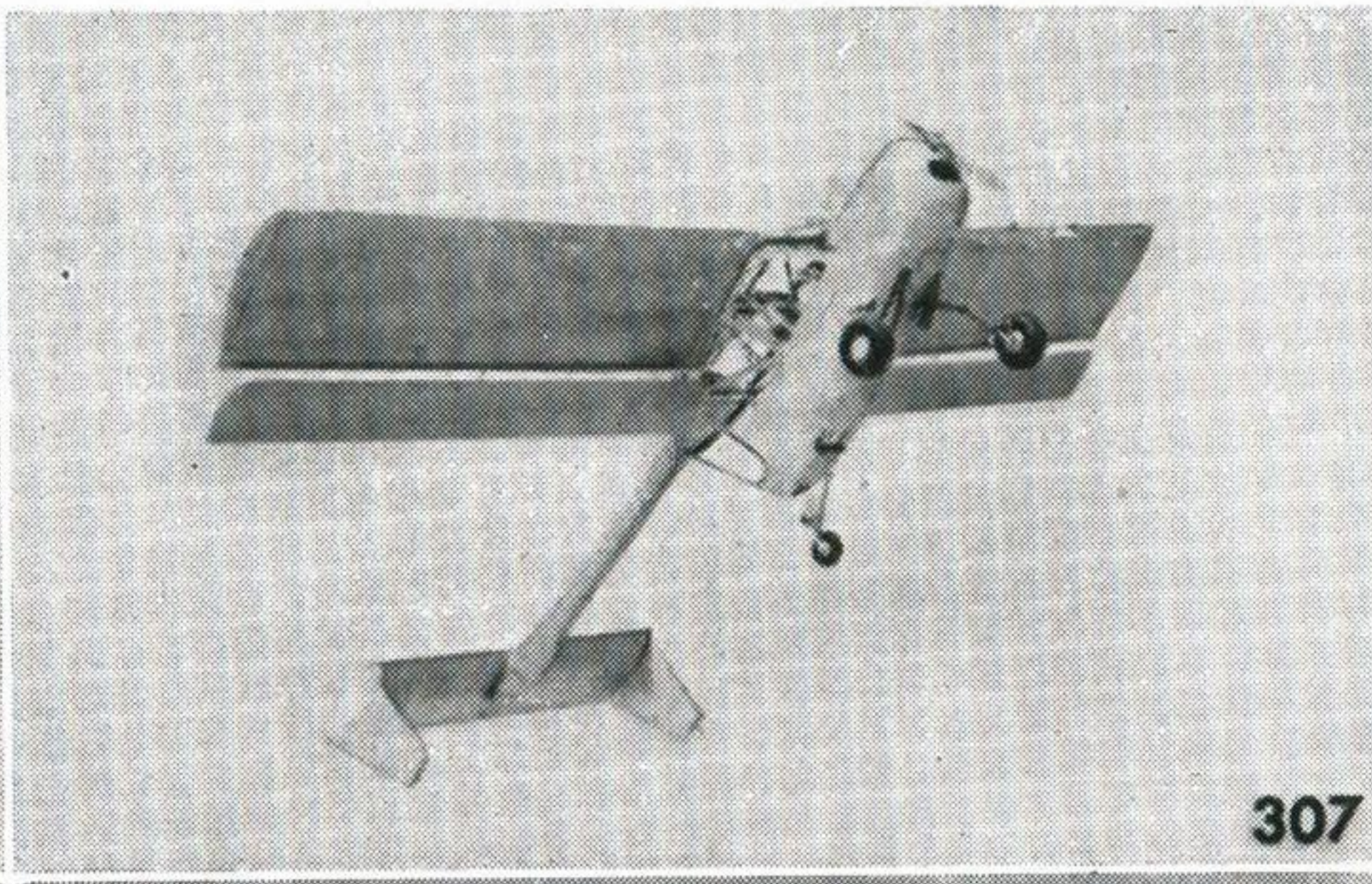
(One Packard Merlin, 1920 h.p.)  
Span : 37 ft. 0 ins. Length : 33 ft. 4 ins.  
Top Speed : 488 m.p.h.

Main features : long pointed nose—forward tapered sharply cut wing—rear view fuselage, depth exaggerated by long belly radiator—forward set cockpit—angular fin and rudder with fin fairing—forward set tailplane wide in span and angular.

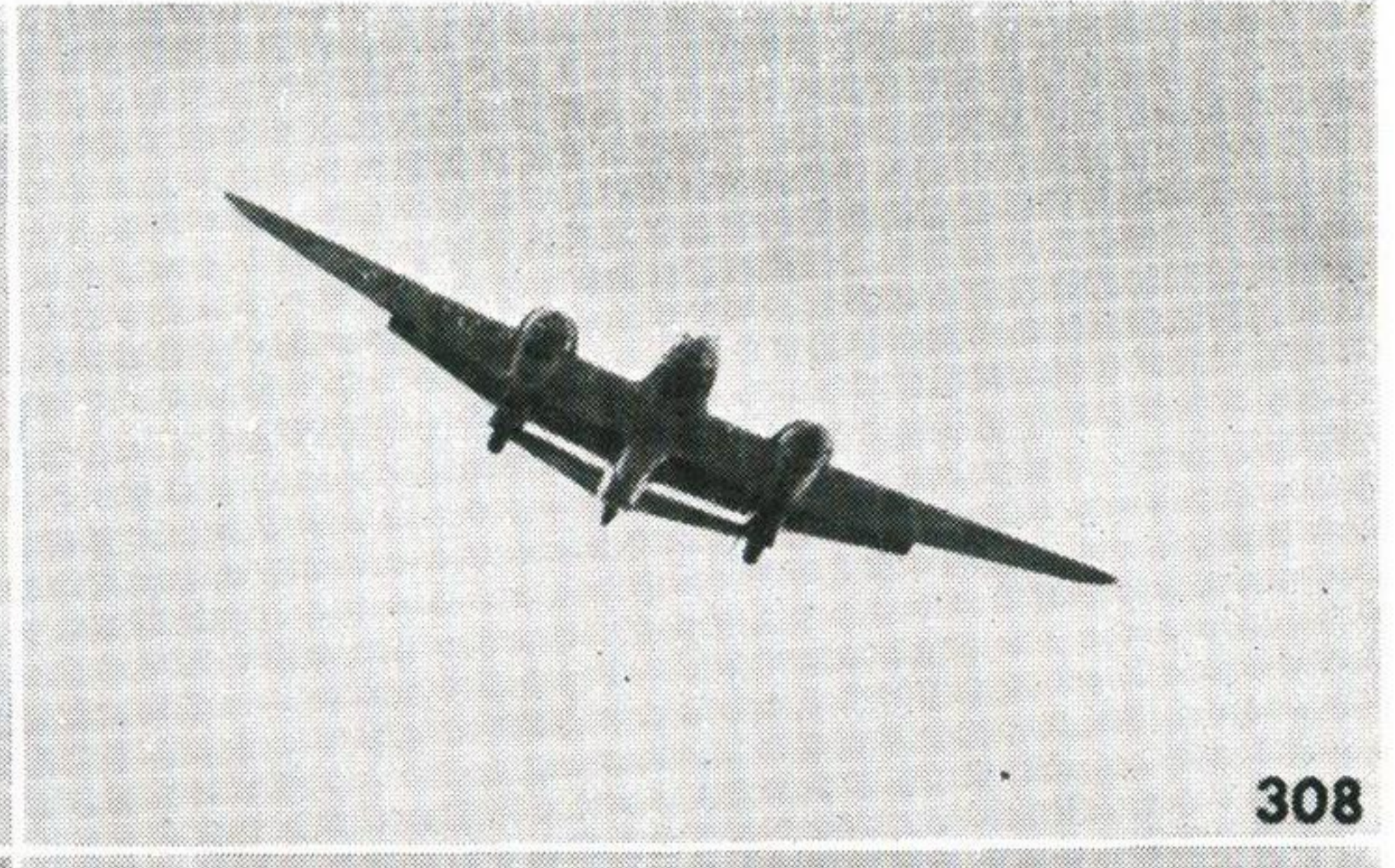




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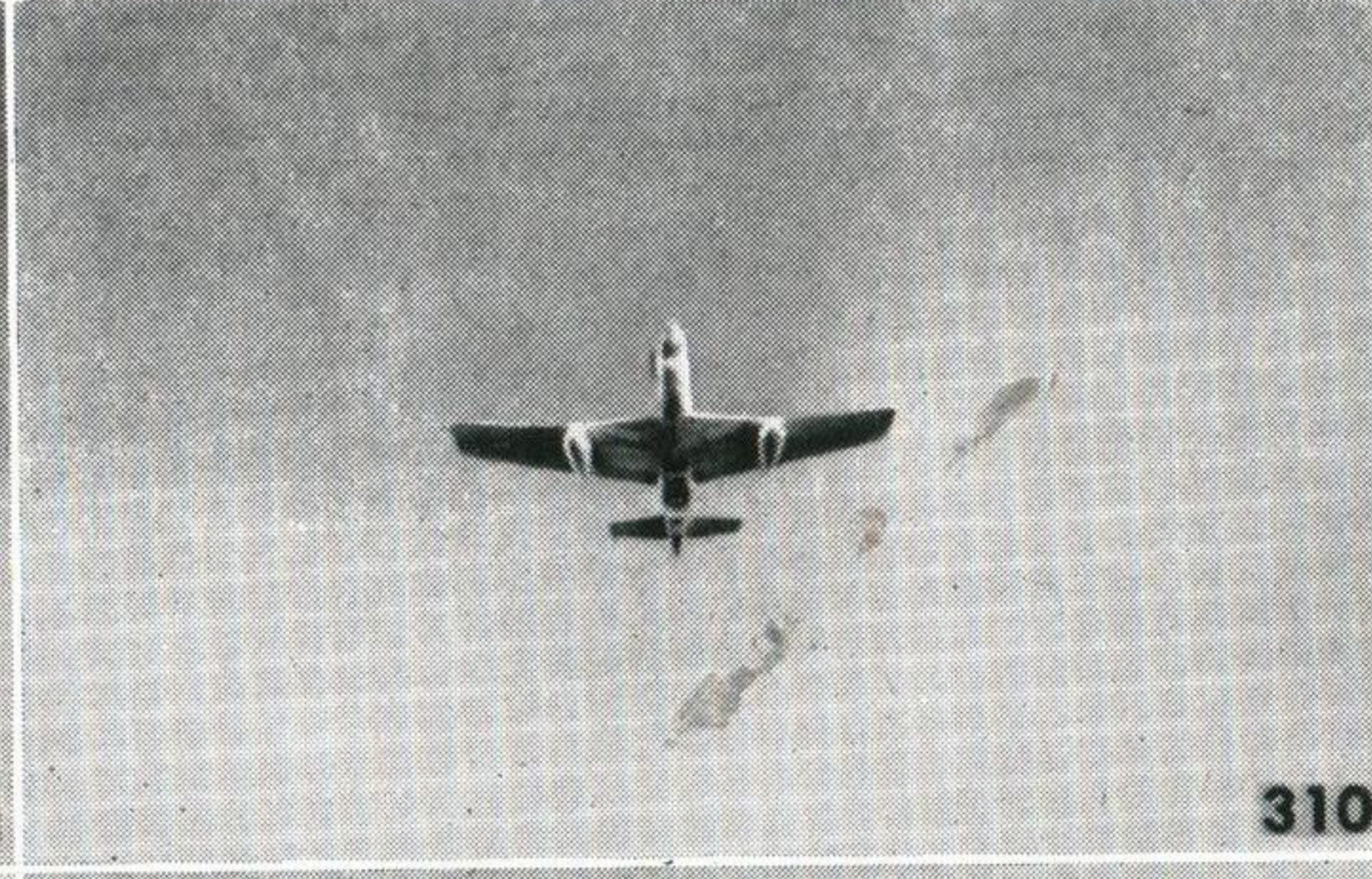
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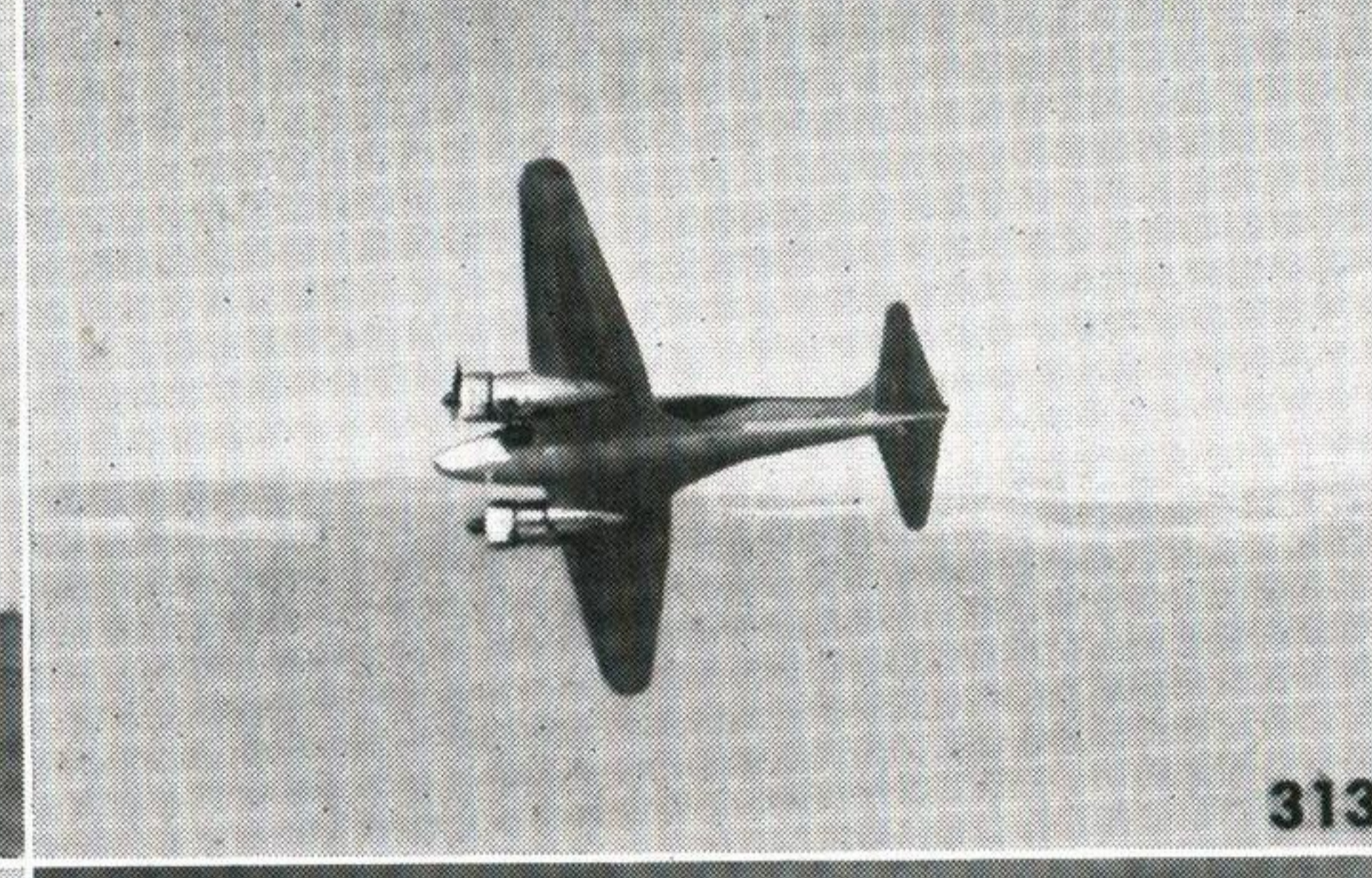
310



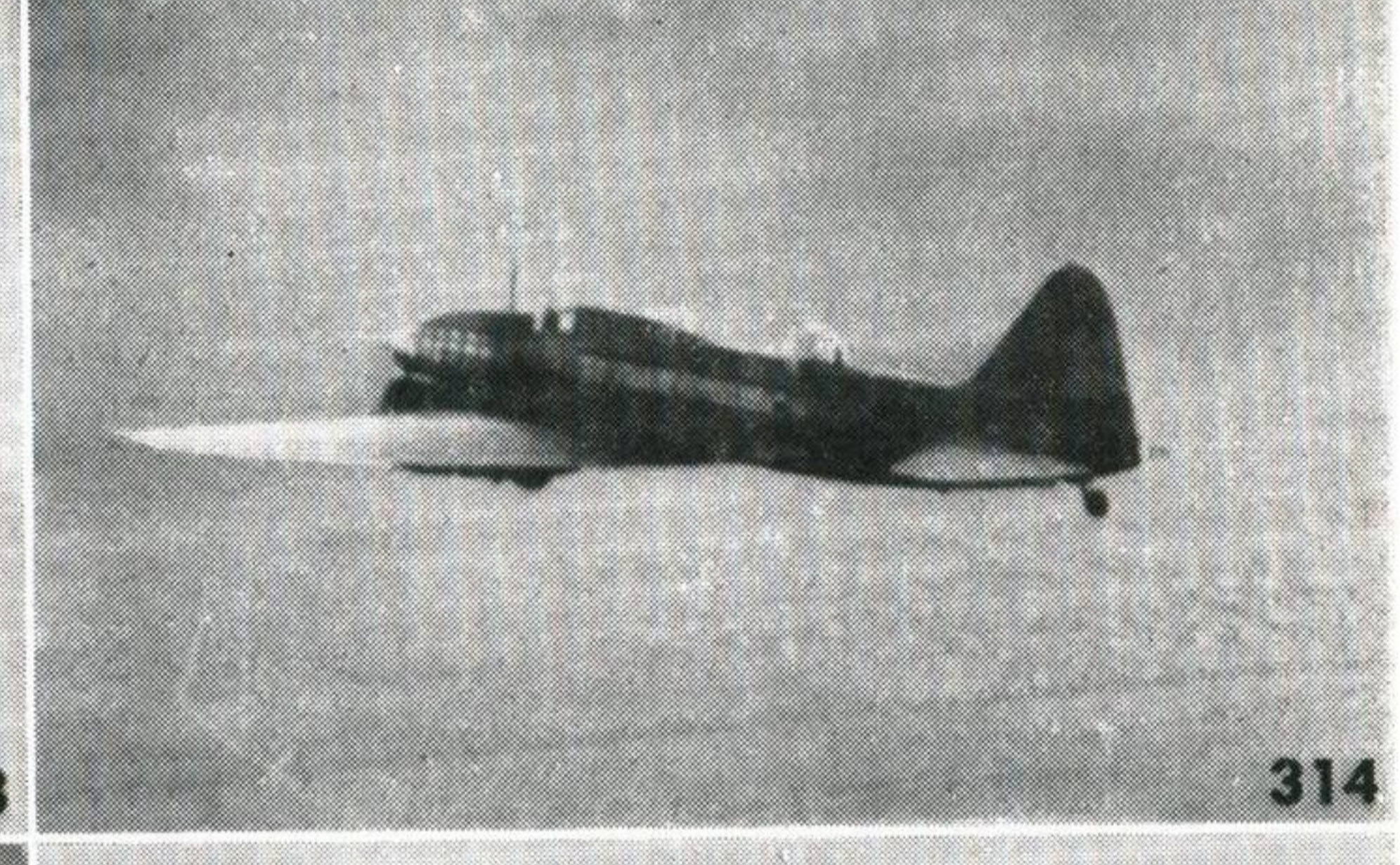
311



312



313



314



315



316



317



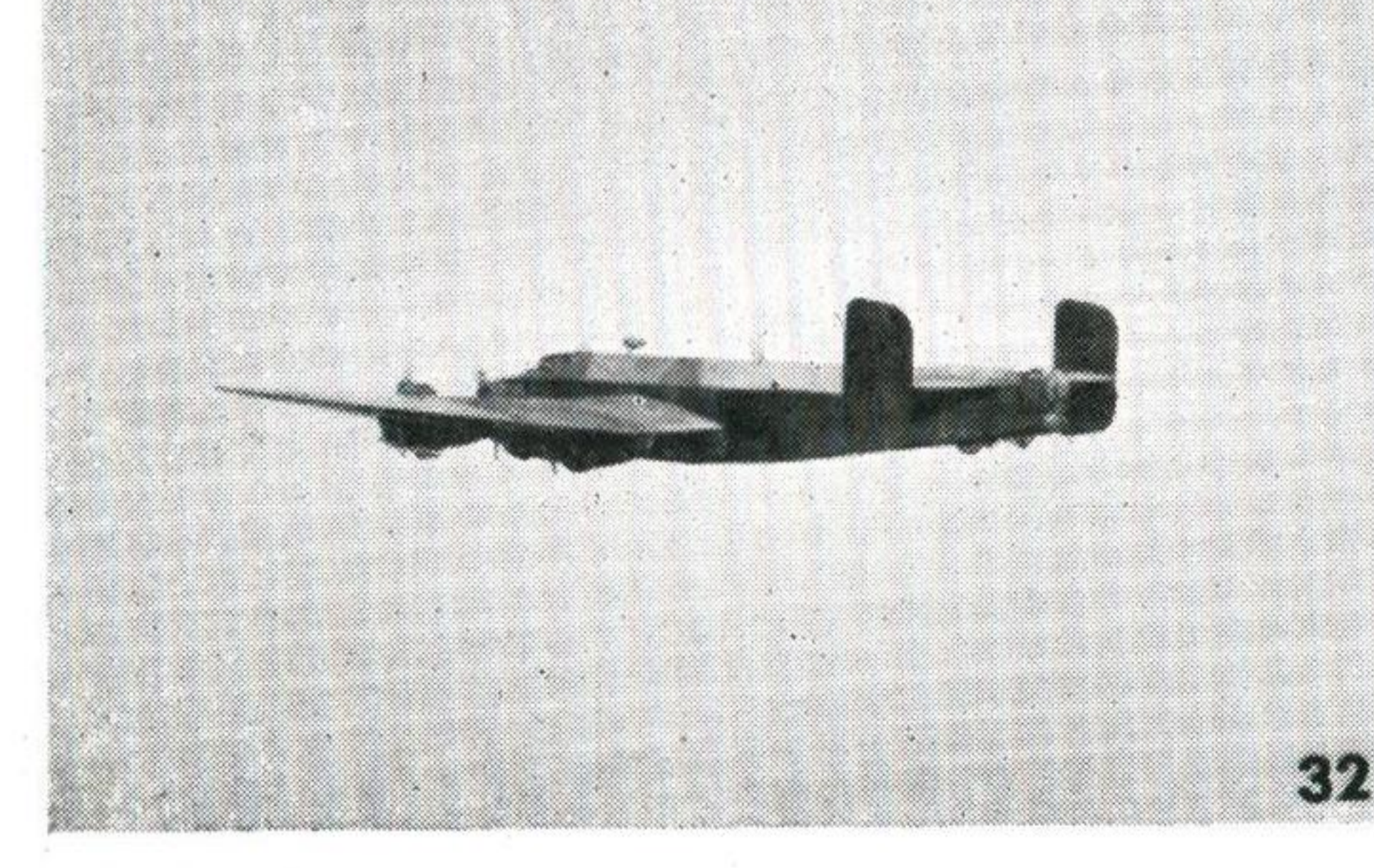
318



319



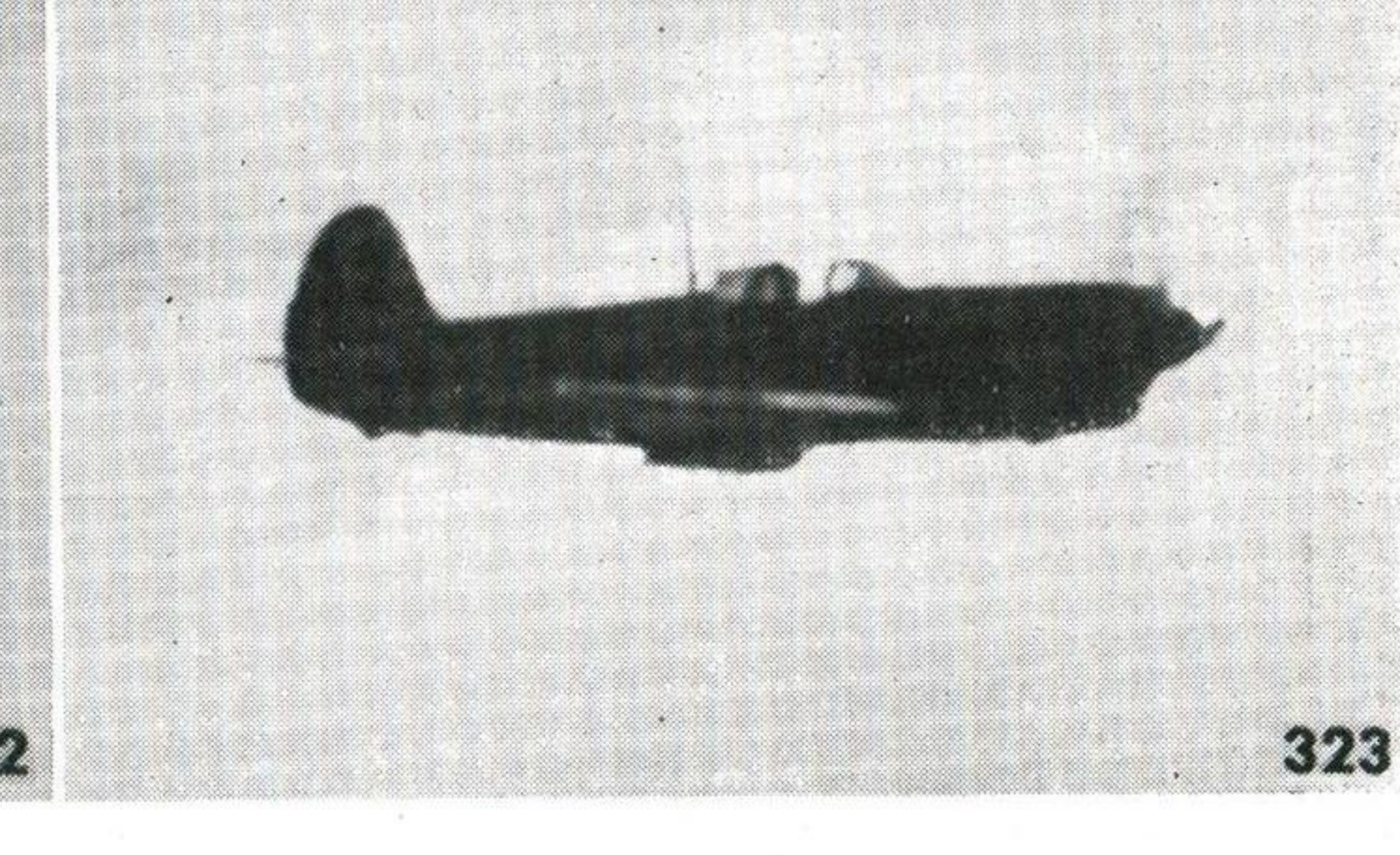
320



321

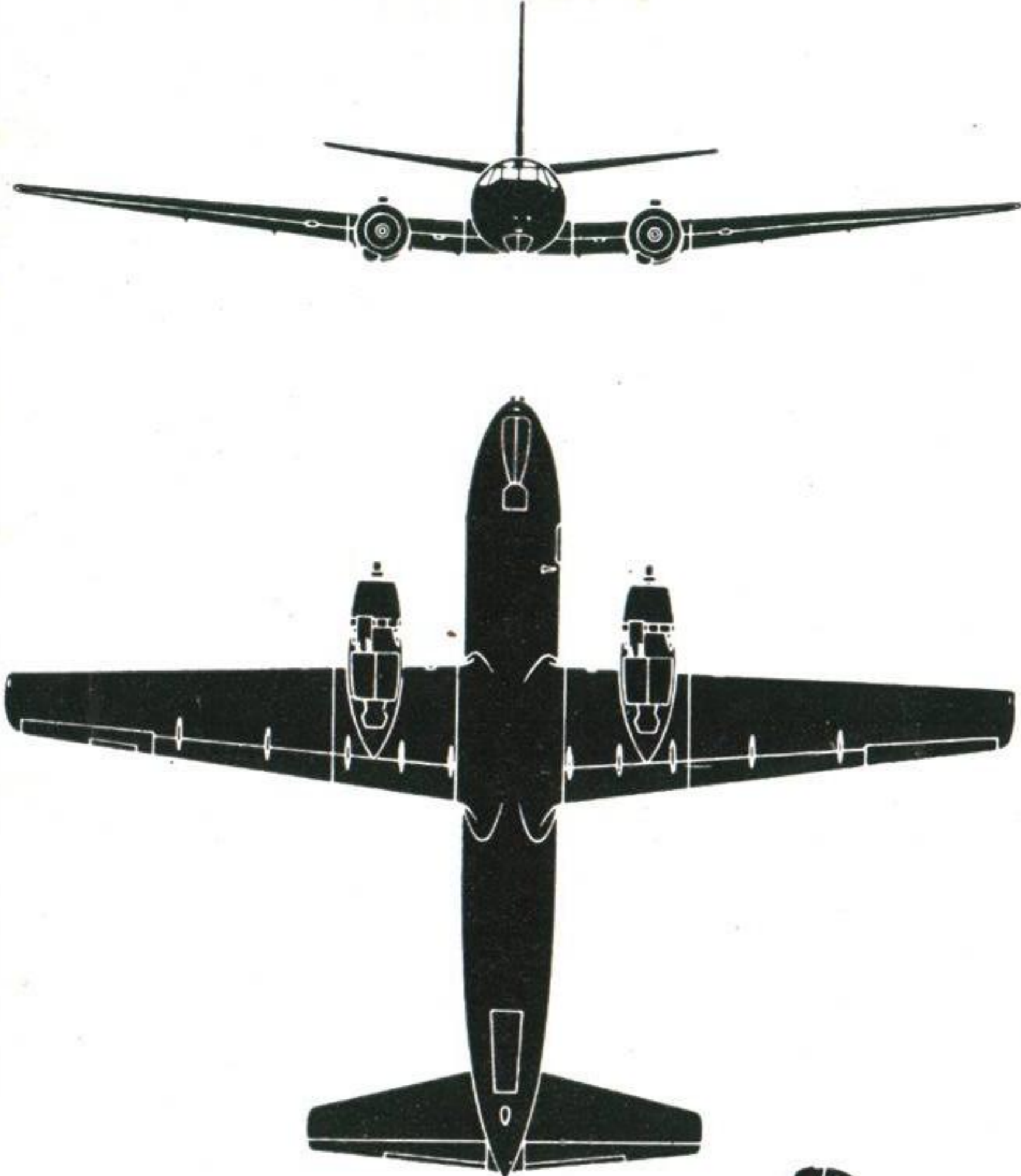


322



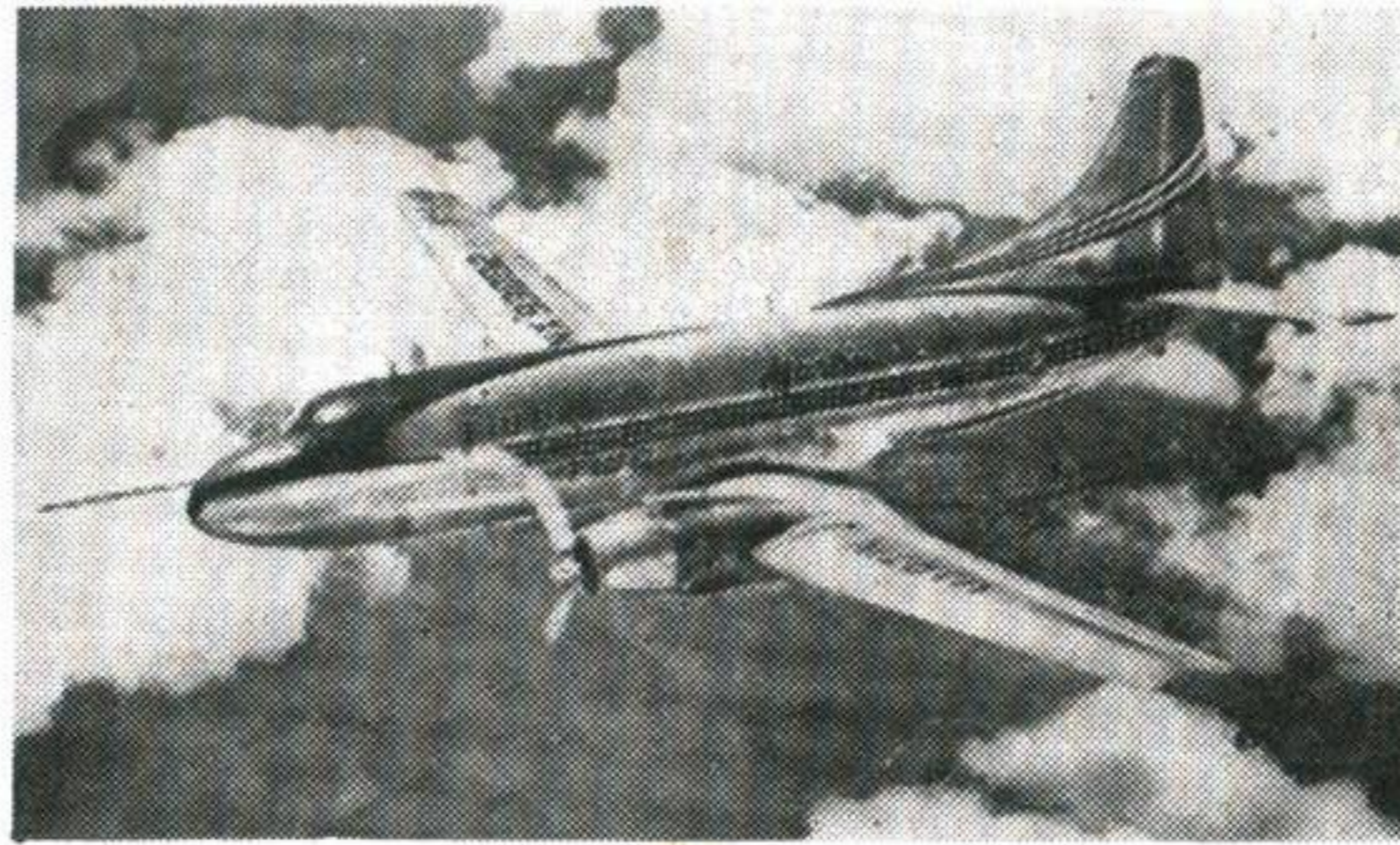
323

**MARTIN 2-0-2**



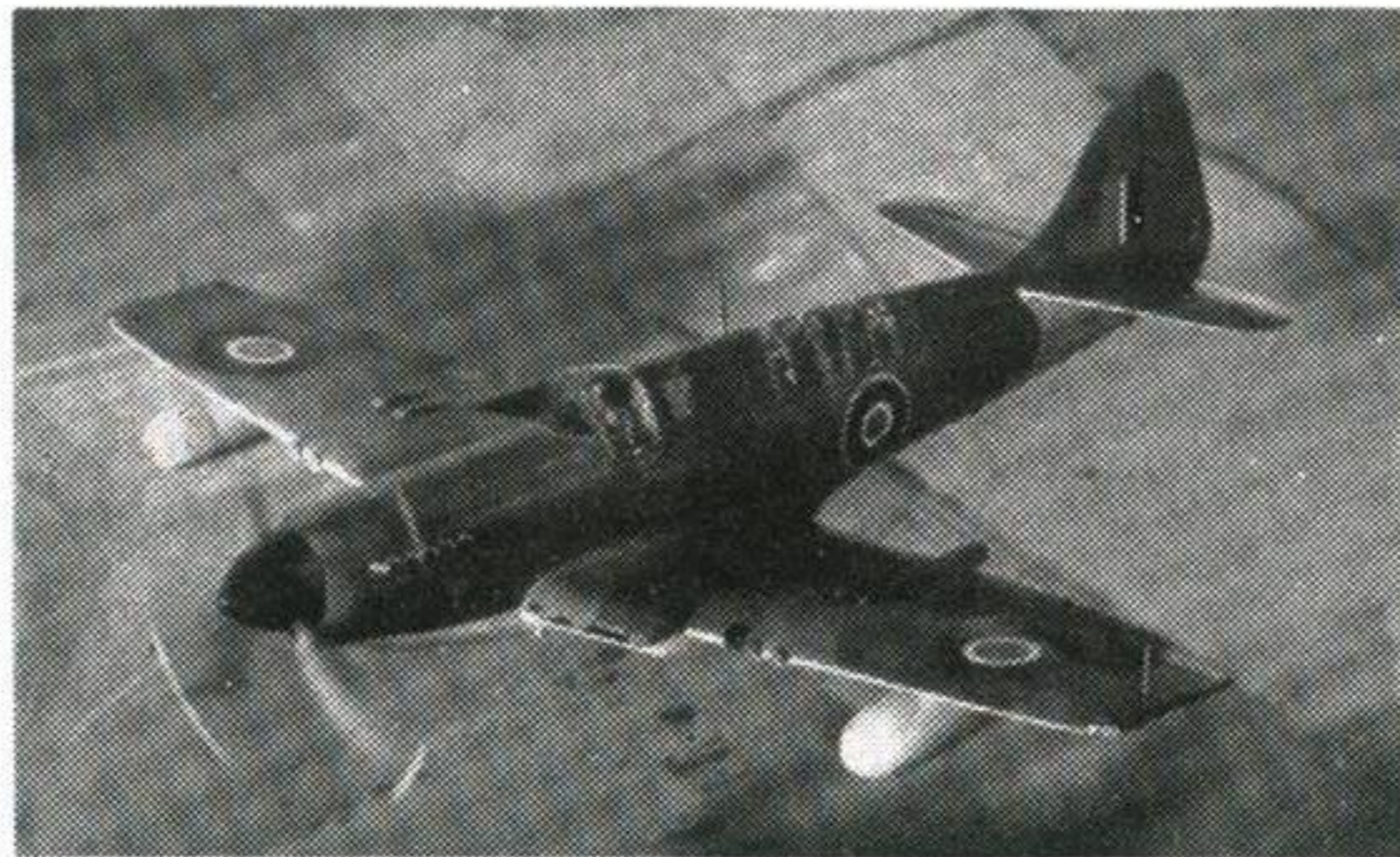
American Transport

2 DoubleWasp Radials Span : 95 ft. 9 ins.  
New Silhouette

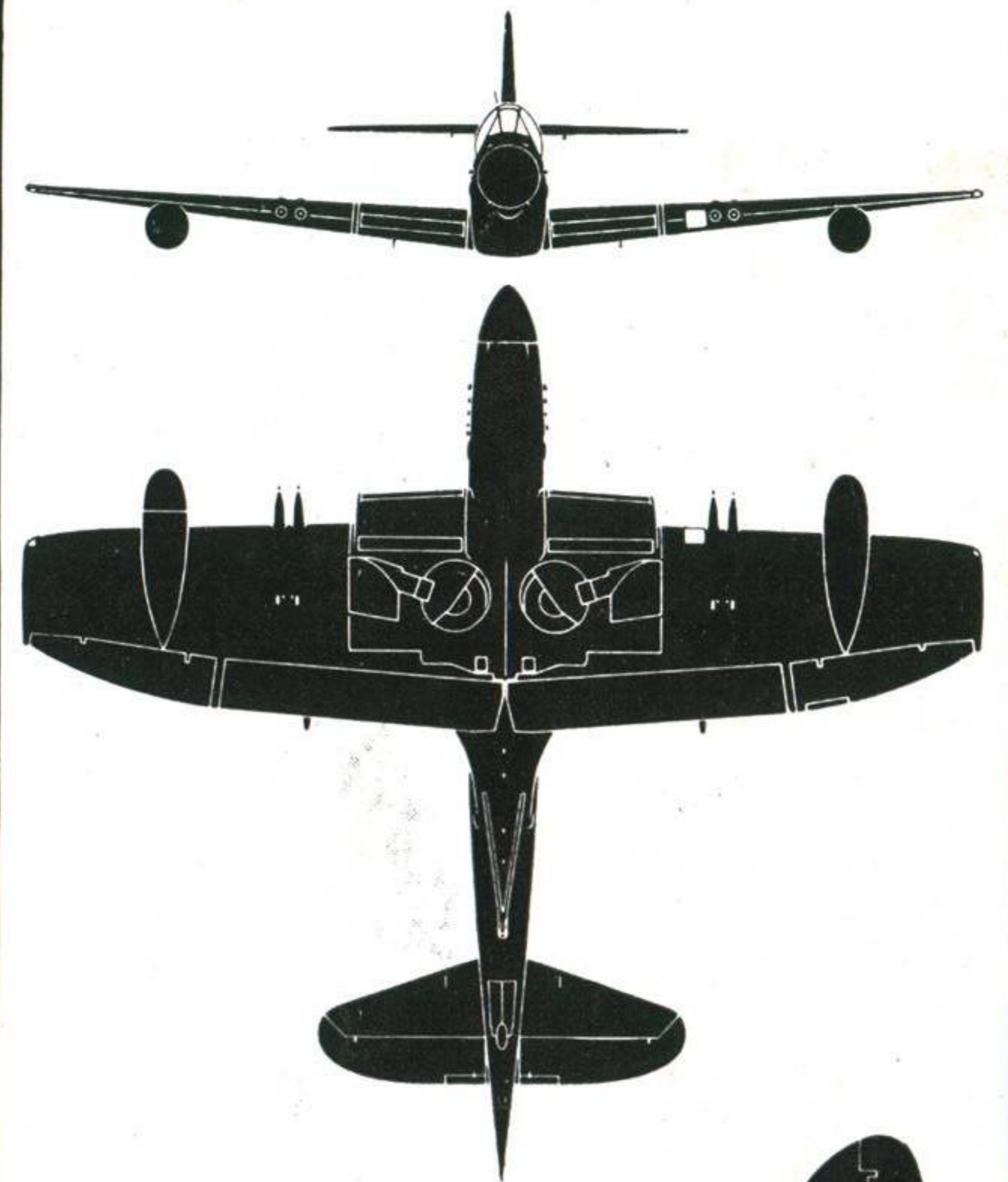


**TWO-O-TWO TRAITS:** Long nose to fat fuselage—low-set, narrow chord, forward-tapered wing, blunt tips and sharp dihedral angle—large sail-like fin and rudder and fairing—wide span tailplane with slight dihedral.

**FIREFLY FEATURES:** Long pointed nose, small "mouth" beneath spinner, near elliptical wing with numerous leading edge adornments, clipped tips—large backward tapered tailplane, high-set and well in advance of rudder—large, leaning-forward fin and rudder.



**FAIREY FIREFLY F Mk. IV**



British Fighter

1 R.R. Griffon Span 41 ft. 2 ins.  
New Silhouette

**SOLUTIONS TO RECOGNITION TESTS IN THIS ISSUE :**

**FRONT COVER :** D. H. Vampires. (Photo by Chas. E. Brown)

**No. 53 (SILLOGRAPHS)**

- |                        |                      |
|------------------------|----------------------|
| 327. XB-48             | 337. Firefly IV      |
| 328. Constellation     | 338. Constitution    |
| 329. Spitfire 21 or 22 | 339. XB-47           |
| 330. F2H-1 Banshee     | 340. Corsair F4U-4   |
| 331. PE-3              | 341. Merganser       |
| 332. Hoverfly I        | 342. Tigercat F7F-3N |
| 333. Lancaster         | 343. Dove            |
| 334. Constellation     | 344. XB-48           |
| 335. Halifax           | 345. Concordia       |
| 336. P.108 Balliol     | 346. Aerocar         |

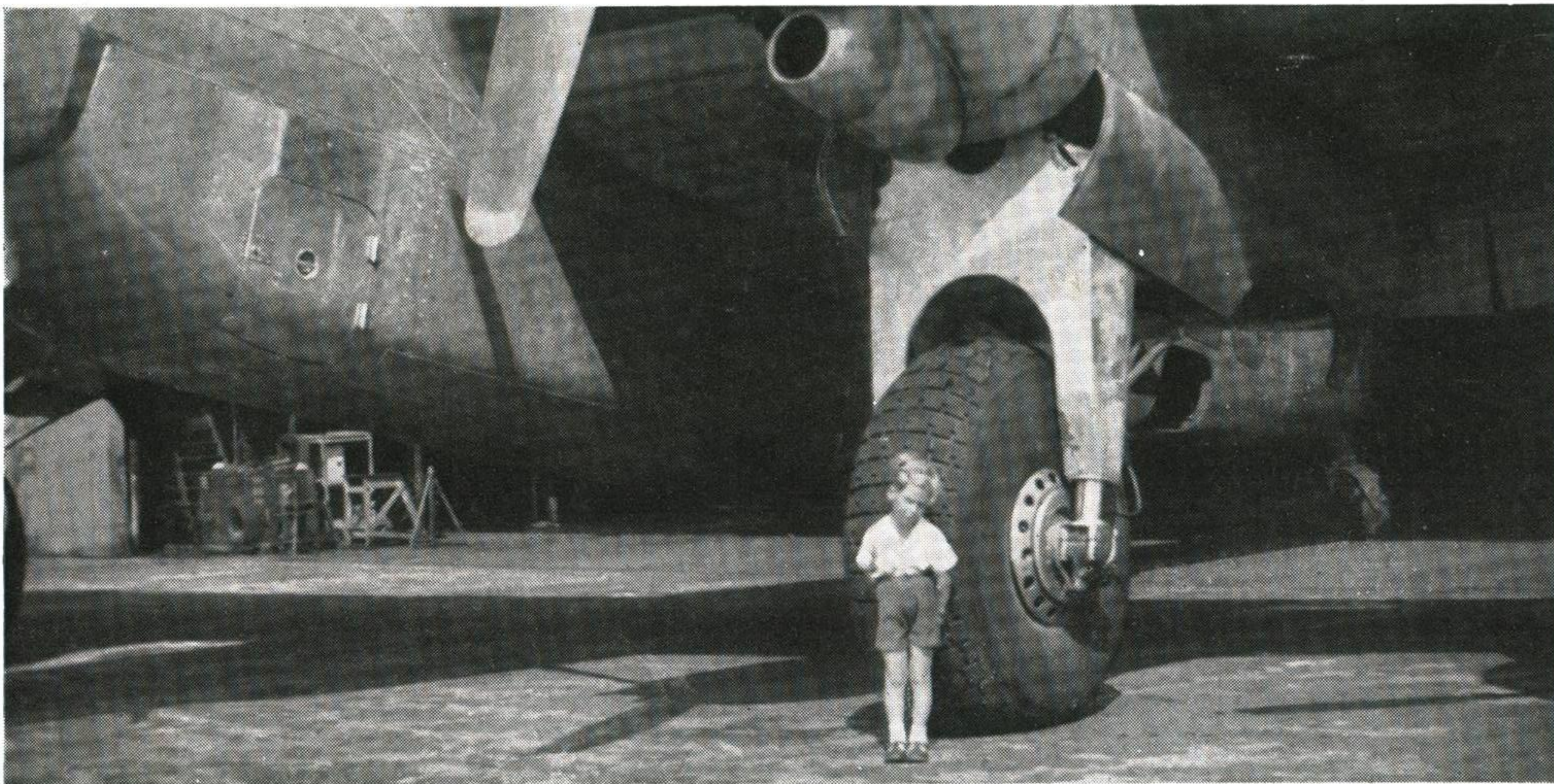
**No. 54 (ADVANCED)**

- |                        |                       |
|------------------------|-----------------------|
| 425. Horsa             | 438. Thunderjet       |
| 426. C-82 Packet       | 439. F2H-1 Banshee    |
| 427. Stratocruiser     | 440. Dove             |
| 428. Storch            | 441. Viking           |
| 429. Helldiver         | 442. Halifax A IX     |
| 430. Anson XIX         | 443. PE-3             |
| 431. Fairchild NQ-1    | 444. Tempest VI       |
| 432. Chipmunk          | 445. Sea Vampire      |
| 433. Spitfire 21 or 22 | 446. Sea Hornet       |
| 434. Martin XB-48      | 447. Firefly IV       |
| 435. Mosquitoes        | 448. Sunderland V     |
| 436. Tempest II        | 449. Tempest V and VI |
| 437. Wellington T. X   |                       |

**No. 55 (ELEMENTARY)**

- |                        |                        |
|------------------------|------------------------|
| 306. AD-1 Skyraider    | 315. Concordia         |
| 307. Boeing L-15       | 316. Sunderland V      |
| 308. PE-2 or 3         | 317. Hughes XF-11      |
| 309. Constellation     | 318. Valetta           |
| 310. P-51H Mustang     | 319. Meteor III        |
| 311. Tudor VII         | 320. YAK-1,            |
| 312. P-82 Twin Mustang | 321. Halifax A IX      |
| 313. Anson XIX         | 322. Ghost Lancastrian |
| 314. IL-4              | 323. YAK-9             |

**FIGHTER TEST RESULTS—Twin engine fighter test** (pages 64 and 65, left to right). (1) Meteor IV (unclipped). (2) Sea Hornet 21. (3) Beaufighter X. (4) Sea Hornet or Hornet. (5) Meteor IV. (6) Sea Hornet. (7) XF2H-1 Banshee. (8) Mosquitoes. (9) Tiger Cat. (10) PE-3. **Single engine fighter test** (pages 68 and 69, left to right) (1) P-80. (2) Vampire I. (3) J21R. (4) P-47N. (5) Vampire. (6) Tempest II or Sea Fury. (7) P-84. (8) Sea Fury. (9) P-47N. (10) Sea Fury. (page 70, left to right) (1) Firefly IV. Spitfire 22. (3) YAK-3. (4) P-51H. (5) Firefly IV.



**HUB-HIGH TO A HALIFAX :** We think this picture illustrates a number of points : (a) that one is never too old to take a keen interest in aeroplanes ; (b) that somebody's mother will have to use a well known brand of soap flakes to whiten that small shirt by the time its owner gets it home ; (c) that the Halton, nee Halifax, is now plying steadily along the World's trade routes. It will ply on until the Hermes comes into service. That pannier can take 8,000 lbs. of baggage or fifty little stowaways.

**NOTE**

The **McDonnell Banshee**, heretofore designated the F2D-1, is to be known as the F2H-1 Banshee. The letter D has been mistaken to indicate Douglas, so is replaced by H.

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