

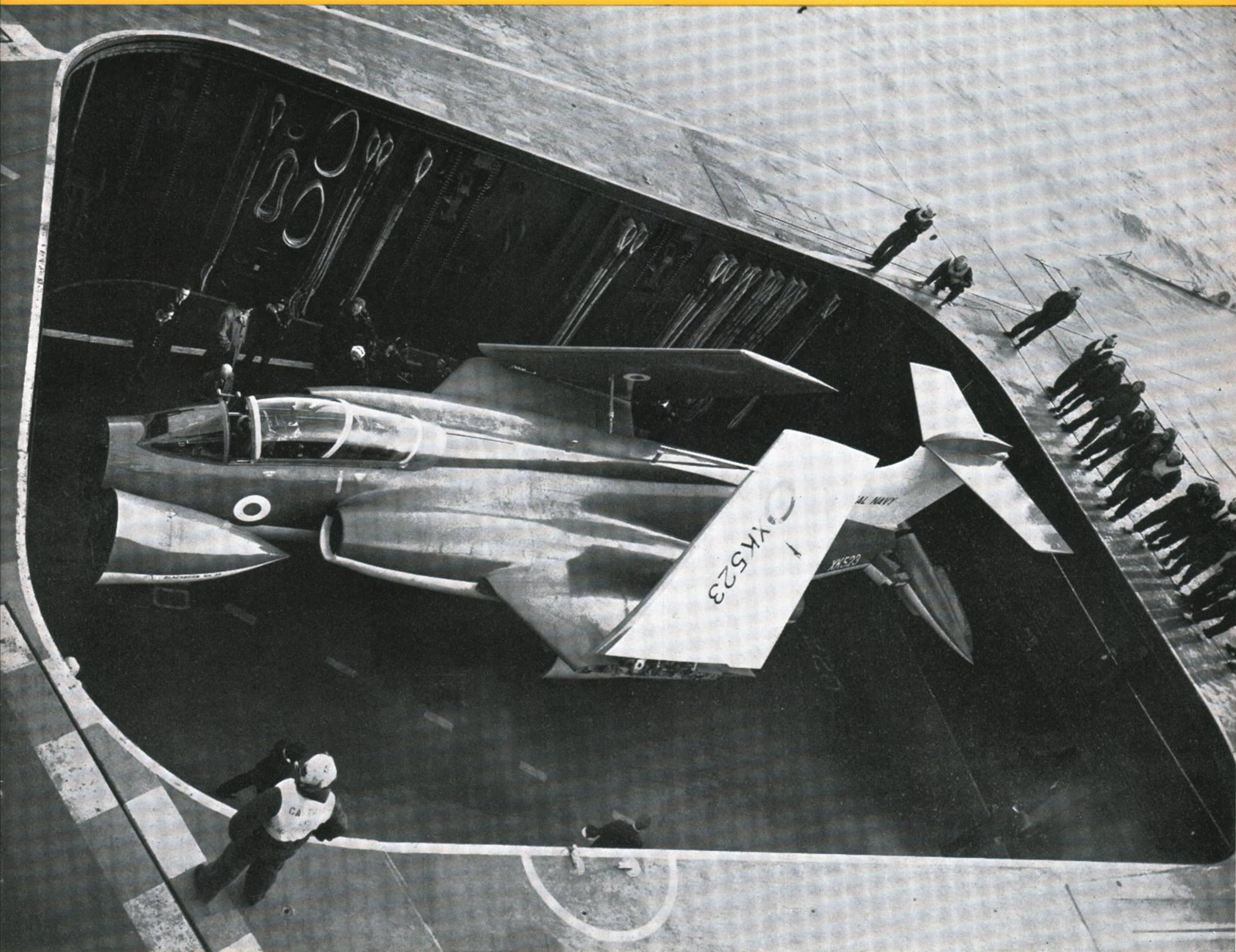
THE ROYAL



OBSERVER CORPS

# RECOGNITION

*Journal*  
and R.O.C. GAZETTE



Vol. 2 MAY 1960 No. 5




## *Crusaders Up to Date*

**T**HE CONCEPT of the Crusader as an interceptor of high power, low weight and drag and using a variable incidence wing, won a design contest in 1953 and gained a development contract for the Chance Vought Corporation. The prototype Crusader, XF8U-1, first flew on March 25th, 1955, when it exceeded Mach 1.

The first production F8U-1 flew several months later and, by April 1956, had completed its acceptance trials in the U.S.S. *Forrestal*. Another F8U-1 Crusader established a new United States national speed record of Mach 1.538 in 1956; this was 116 miles an hour slower than the then existing World Air Speed Record. This Crusader had in fact flown faster than that earlier in the year when preparing for an attempt on the World Air Speed Record, but before an attempt could be made the United States Department of Defense put an embargo on record attempts by this aircraft. Nevertheless, it was an outstanding performance for a production fighter in 1956.

Since that time much more has been seen of and made known about the Crusader. Now in its fourth year of operational service with the United States Navy (and Marine Corps) over 500 have been produced of all types.

THE ROYAL OBSERVER CORPS  
  
 RECOGNITION JOURNAL  
 AND R.O.C. GAZETTE

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\*Identification Lessons

The Royal Observer Corps Recognition Journal and Gazette is a monthly publication produced in the Department of the Assistant Chief of the Air Staff (Training), Air Ministry, and prepared in collaboration with the Ministry of Aviation (Air Technical Publications). Applications for copies must be submitted through the normal official publications supply channels—not to the Editorial Office or direct to the Air Ministry.

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*crusaders up to date ...*

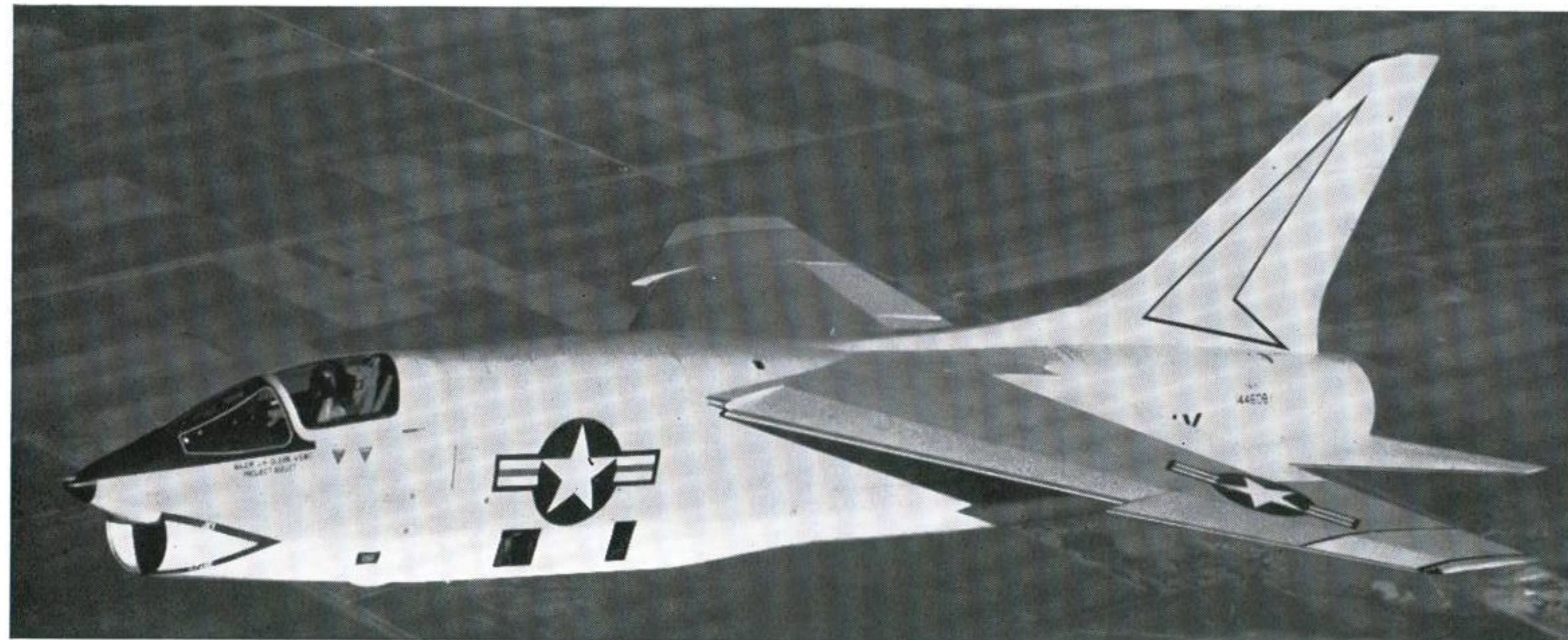
The first photographic/reconnaissance version appeared in 1956 (the supersonic F8U-IP). The year 1957 saw the first new improved fighter variant, the F8U-2; in 1959 the redesigned larger and very fast (Mach 2 plus) all-weather model, the F8U-3, known as the Crusader 3; and now in February, 1960, the first F8U-2N, the new all-weather variant of the F8U-2, was airborne and is soon to commence service.



Incidentally, production of the Crusader 3 was cancelled in 1958 during an economic cut-back but five of them still fly as research vehicles for the National Aeronautics Space Administration; they are concerned with the development of supersonic jet transport projects.

The future of the new F8U-2N is assured, and it is scheduled to replace the F8U-2 in front-line service. Its performance is near Mach 2 and it incorporates a number of refinements and improvements in range, radar and power amongst many others. Equipped with the Chance Vought push-button auto-pilot to allow the pilot to concentrate on his mission, it carries, in addition to four cannons, thirty-two rockets and two Sidewinder rockets. This Crusader will also carry new, advanced missiles now under development by the time it joins the United States fleet.

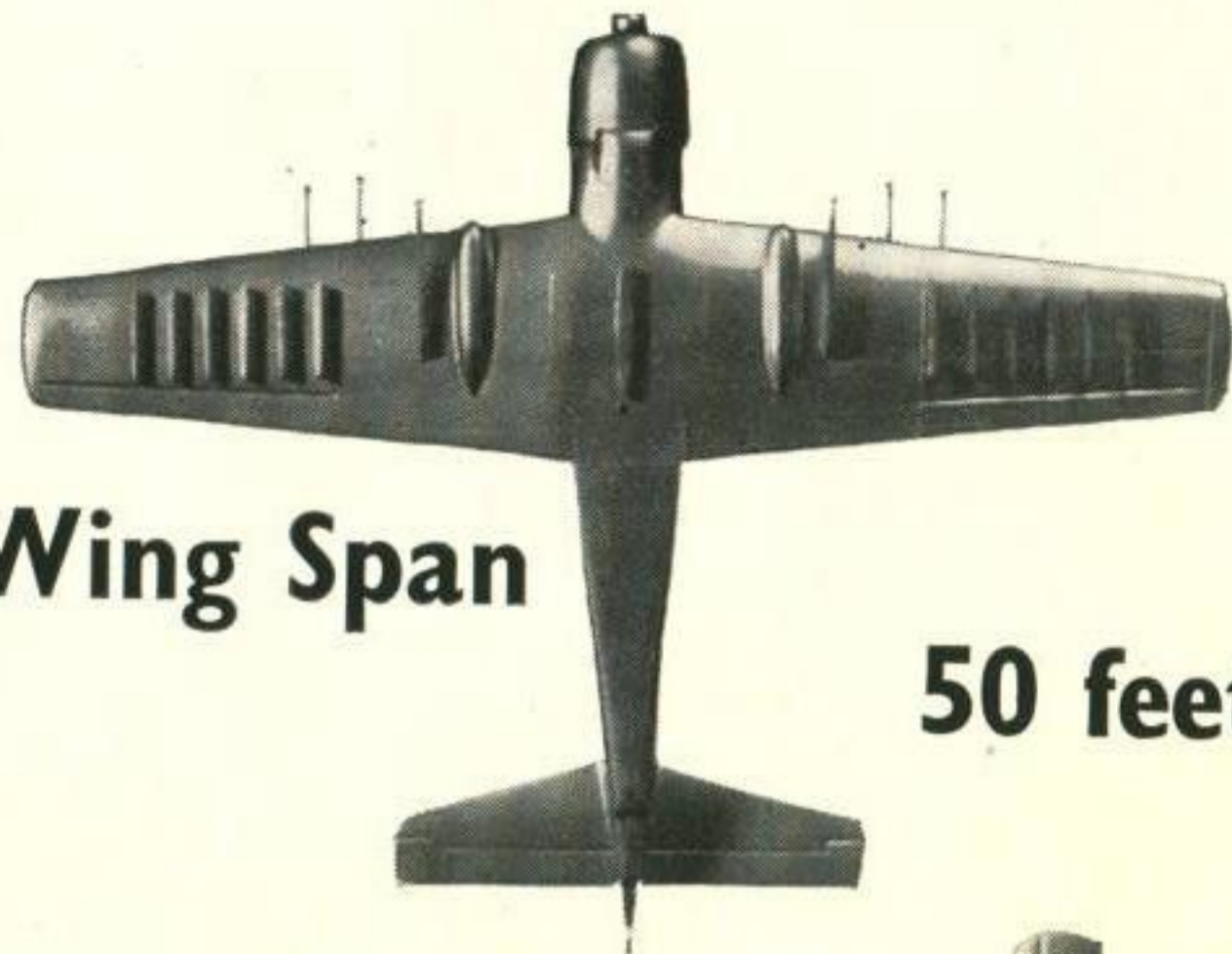
The F8U-2N Crusader is one of the new generation of supersonic interceptors. The "area ruled" fuselage and its high-set,



short, broad-chord wings, may not look pretty to some eyes, but the result is a high performance and extremely functional weapons system which makes it the fastest fighter in the business so far as operational service at sea is concerned.



**Douglas A.D. Skyraider**



**Wing Span**

**50 feet**



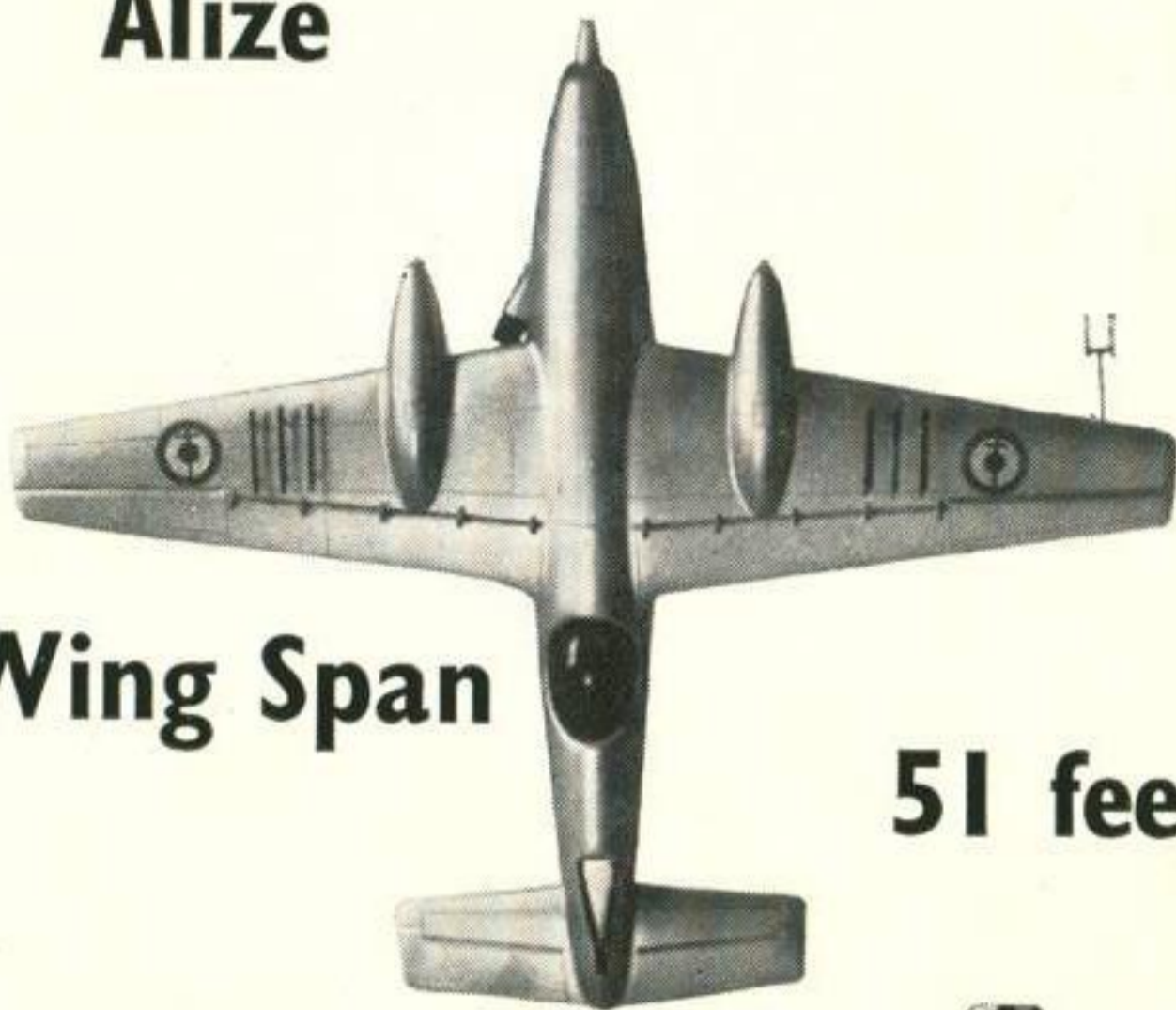
**WHO'S WHO?**

**A Refresher Course**

In putting these two carrier-borne anti-submarine aircraft together we are not suggesting they are more than superficially confusable. But in operations, when carrying a great deal more external paraphernalia as they may well do, they need to be thoroughly well known. That aside, you still have to learn to identify each without hesitation and you can't do that on sight unless you practise doing it here; that's what this refresher course is for. It is not a hard task and if you don't know the procedure—as you oughter—you'll find it laid down on rear cover.

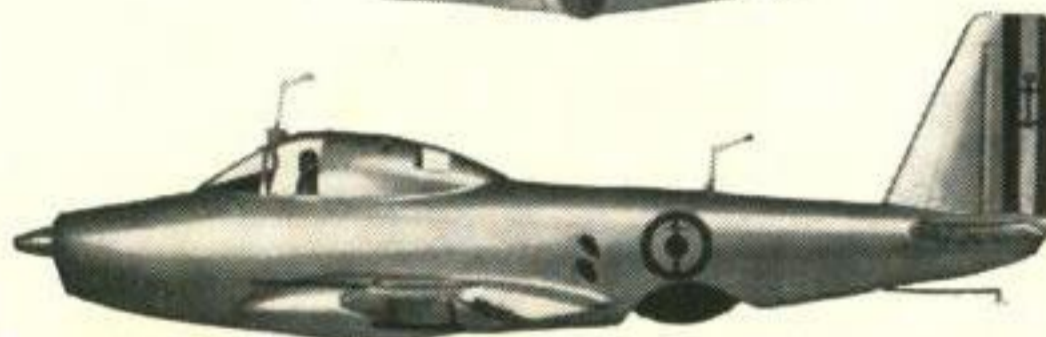


**Alizé**



**Wing Span**

**51 feet**

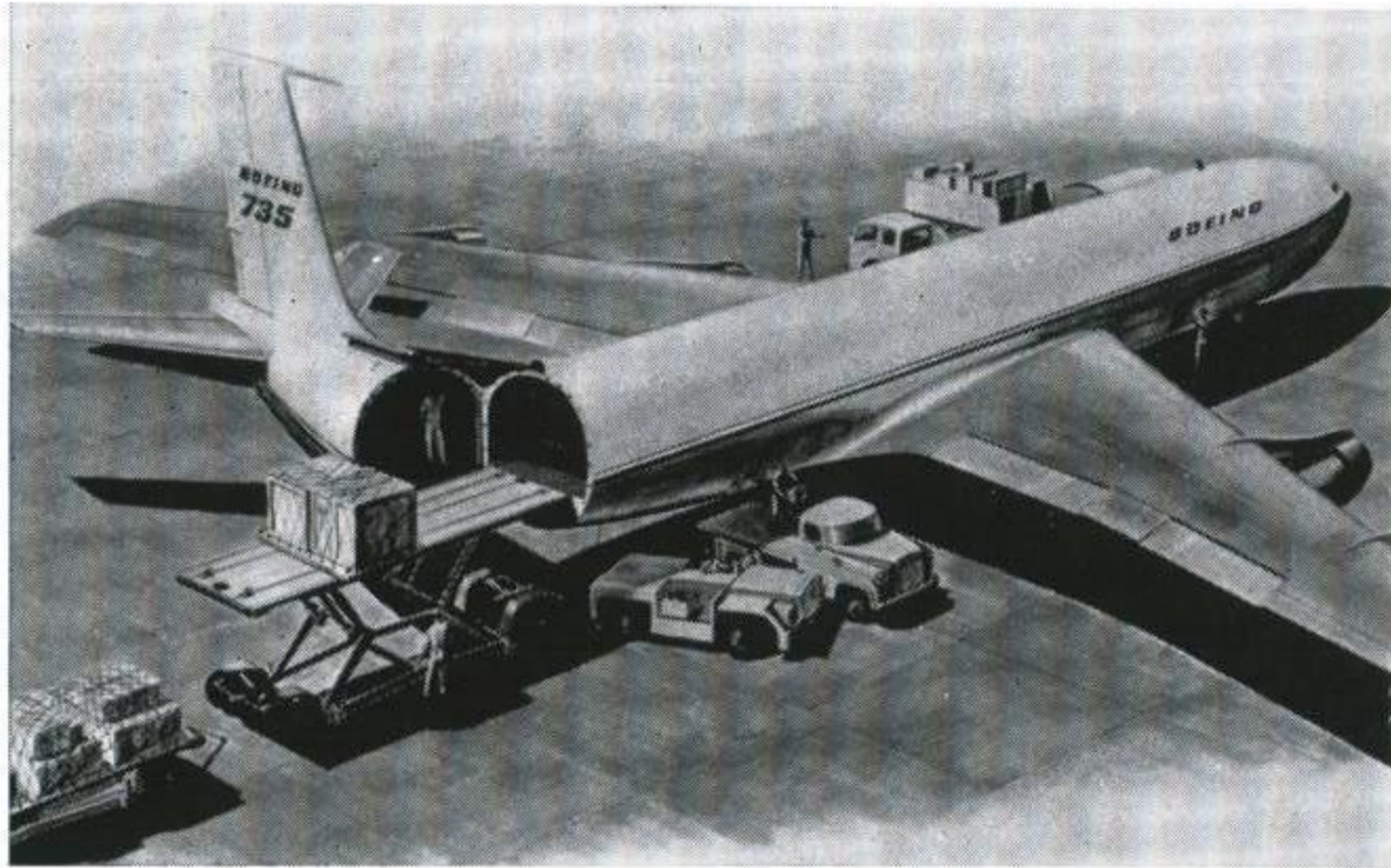


# Briefs

A collection of items  
of news and interest.

## Boeing's New Baby

An artist's impression of the new Boeing 735 cargo liner showing its swing-tail loading arrangement. Able to carry a payload of over 100,000 lb. and to fly up to 600 m.p.h., the 735 is based upon the 707-320 Intercontinental airliner. The makers say the first one will be flying within a year.



## Dial 999

The present policy of keeping a small, highly mobile "fire-brigade" army in Britain able to fly anywhere at a moment's notice, presupposes a fleet of fast, modern transports. R.A.F. Transport Command at present has Comet 2s, Britannias, Beverleys, Hastings and Valettas in service. The Hastings (12 years' service) and the Beverley (4 years' service) have had to be used in roles for which they were not intended, although the introduction of the Comet 2 and Britannia have eased this situation. According to the Air Estimates for 1960-1961 new aircraft on order for the Command are the Britannic, strategic heavy freighter (a development of the Britannia), and a military version of the Argosy (A.W. 660), as a tactical transport/freighter.

## Pilotless Starfighters

Four drone variants (as unmanned missile targets), designated QF-104, derived from the F-104 Starfighter, are under construction at Lockheed for the U.S.A.F.

## Rotodynasty

The Fairey Rotodyne, seen here as an artist's impression, is the second prototype and the one on which the production models will be based. Powered by Tynes, this Rotodyne is longer, larger and quieter than the first prototype and has been ordered by three airlines.



## Side-by-Side in Canada

Airborne on its maiden flight last January—our picture shows the Canadair CL-41 primary and basic jet trainer prototype. This was Canadair's third new airplane to fly within two months—the others were the CL-44 long-range freighter and the 540 medium-range airliner, both turboprop powered.

## Helicopter Happenings

Westlands, shortly to become the largest helicopter manufacturing organisation in Europe, propose to develop two more helicopters. One, a twin Gnome turbine version of the Wessex with increased performance at altitude: there will be a civil version able to carry up to fourteen passengers. The other will be the Wiltshire, a boat-hulled helicopter with twin Gazelle turbines (perhaps with three turbines later) for both military and civil work and able to carry up to twenty-three passengers. The first Wiltshire is expected to fly this year.

## Breguet 1150 Atlantic

Another new aircraft expected to fly within the year is the "Atlantic." Chosen by NATO as the replacement for Lockheed P2V Neptunes now in service with NATO units it is a twin Tyne-engined naval reconnaissance and anti-submarine aircraft with a double-bubble fuselage but otherwise conventional appearance. Two prototypes are under construction and production figures are expected to reach at least 100 aircraft—the work being shared between several European and U.S. firms.

# Gannet AEW Mk. 3



## "It's an Early Bird . . ."

This Gannet replaces the Navy's Skyraiders in the Fleet's early warning service. She's different in shape from her sub-sinking relatives (see January 1959 Journal for the family album). Smoother in fuselage, squared off in the fin and carrying a giant radar bulge, someone is going to say "You can't miss her!" That may be true, but you've also got to be able to identify her; so, grasping a pencil firmly in the right hand, list the target numbers and then identify each. When you've written down all the answers you should know something about her. You can check your list with ours on the cover.





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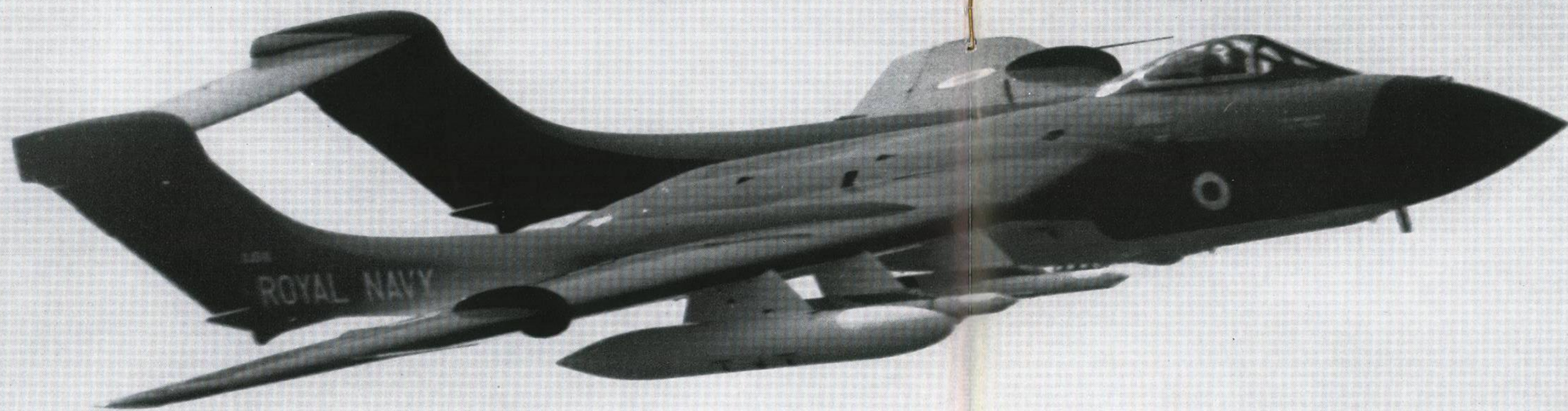
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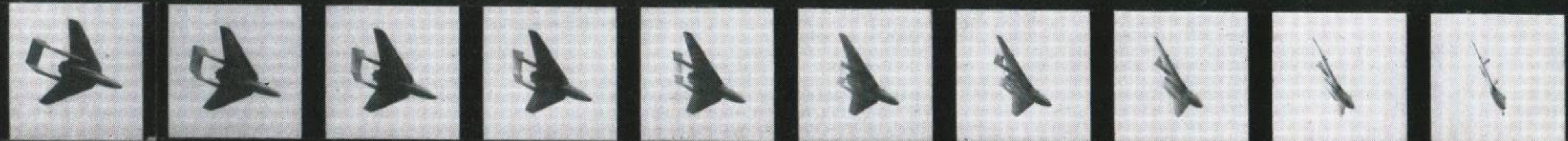
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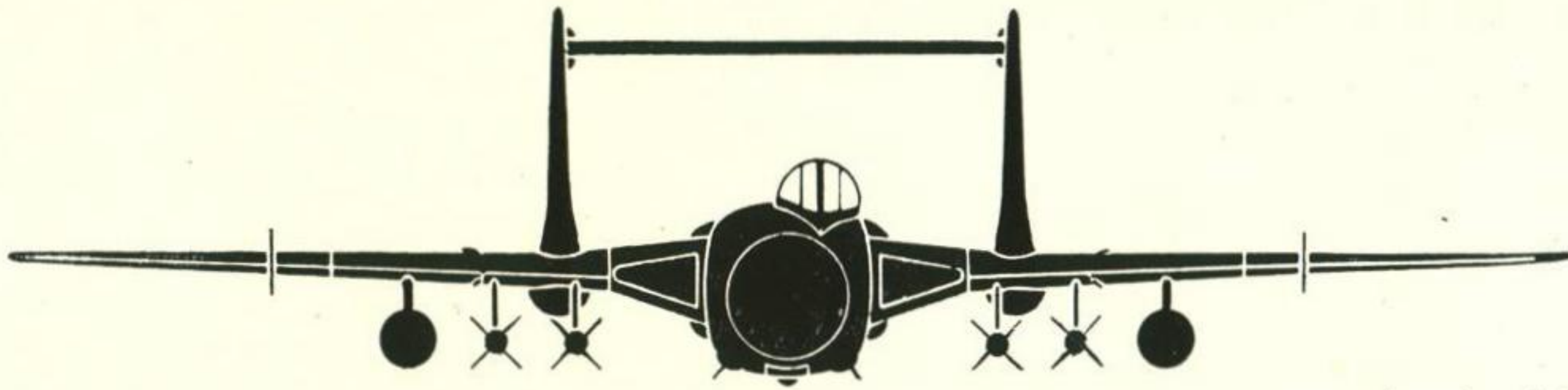


# Sea Vixen

Now in service with the fleet, the Sea Vixen is the first British fighter without gun armament. Instead she has packs of 2-inch rockets (normally retracted into the fuselage). She also carries a wide range of other warlike underwing stores. Though the Sea Vixen is the only twin-boom fighter in production today, a fact which should also make her a striking aircraft from the point of view of appearance,

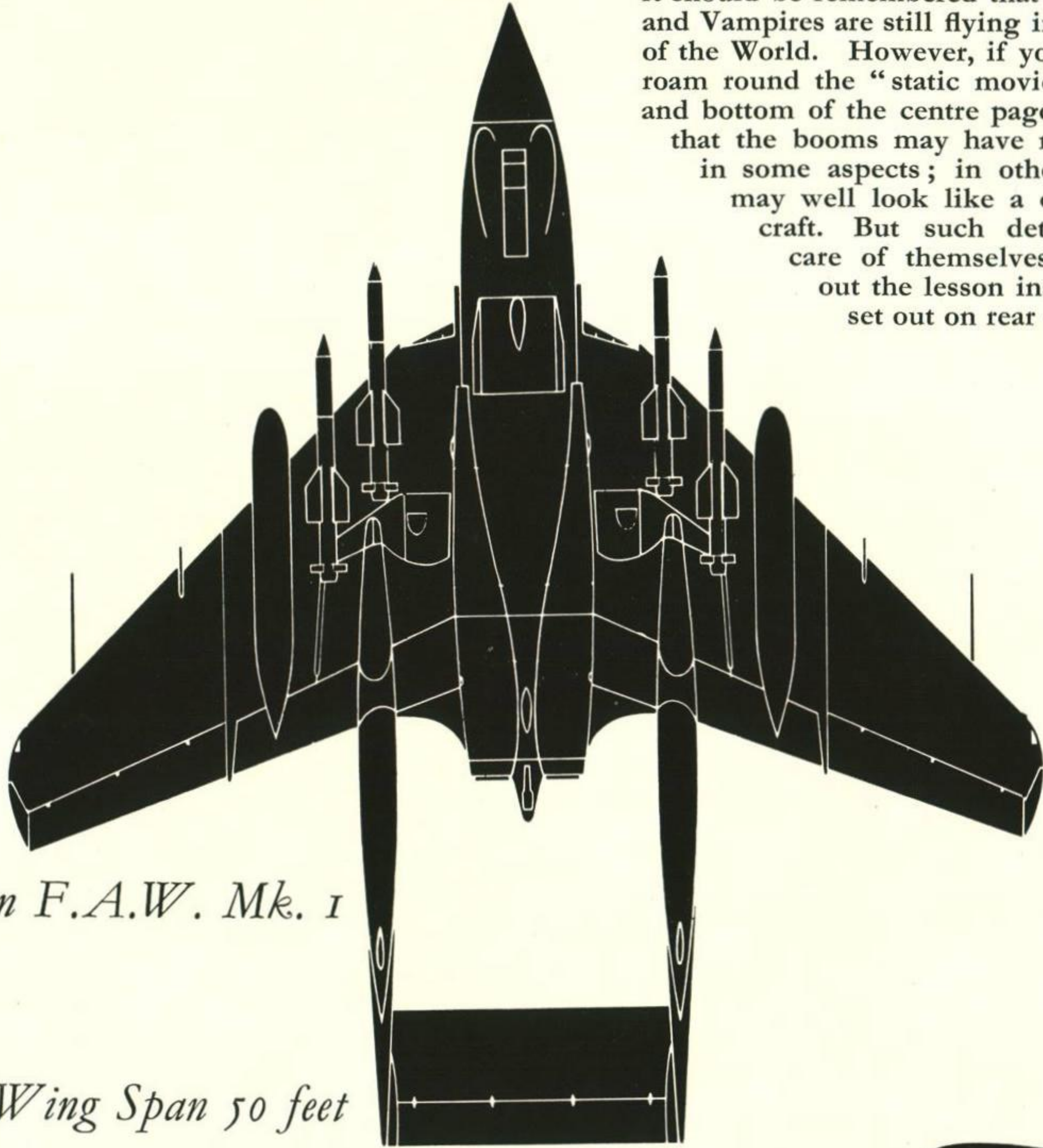
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it should be remembered that many Venoms and Vampires are still flying in various parts of the World. However, if you let your eye roam round the "static movies" at the top and bottom of the centre pages you will see that the booms may have no significance in some aspects; in others, Sea Vixen may well look like a delta-wing aircraft. But such details will take care of themselves if you carry out the lesson instructions fully set out on rear cover.

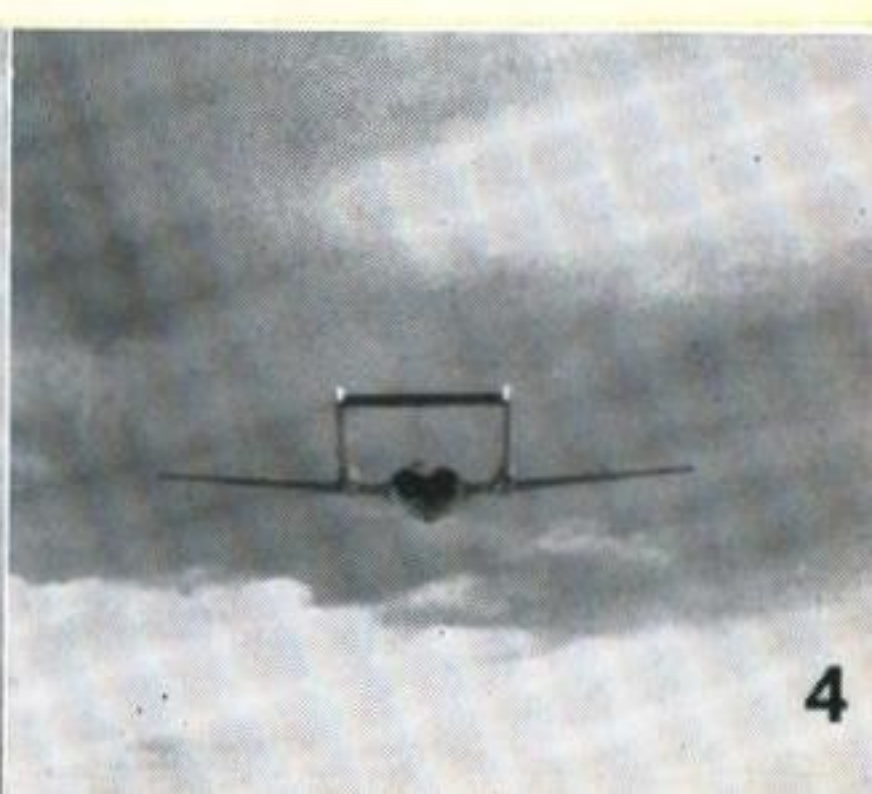


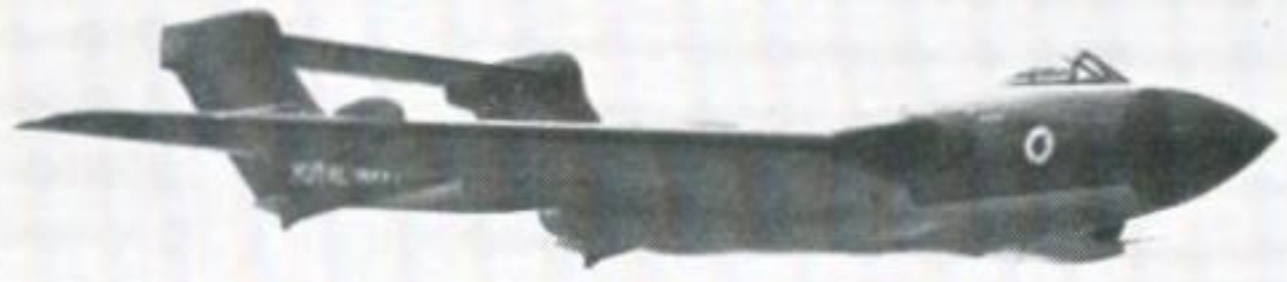
*Sea Vixen F.A.W. Mk. 1*

*Wing Span 50 feet*



**Targets Start Here**





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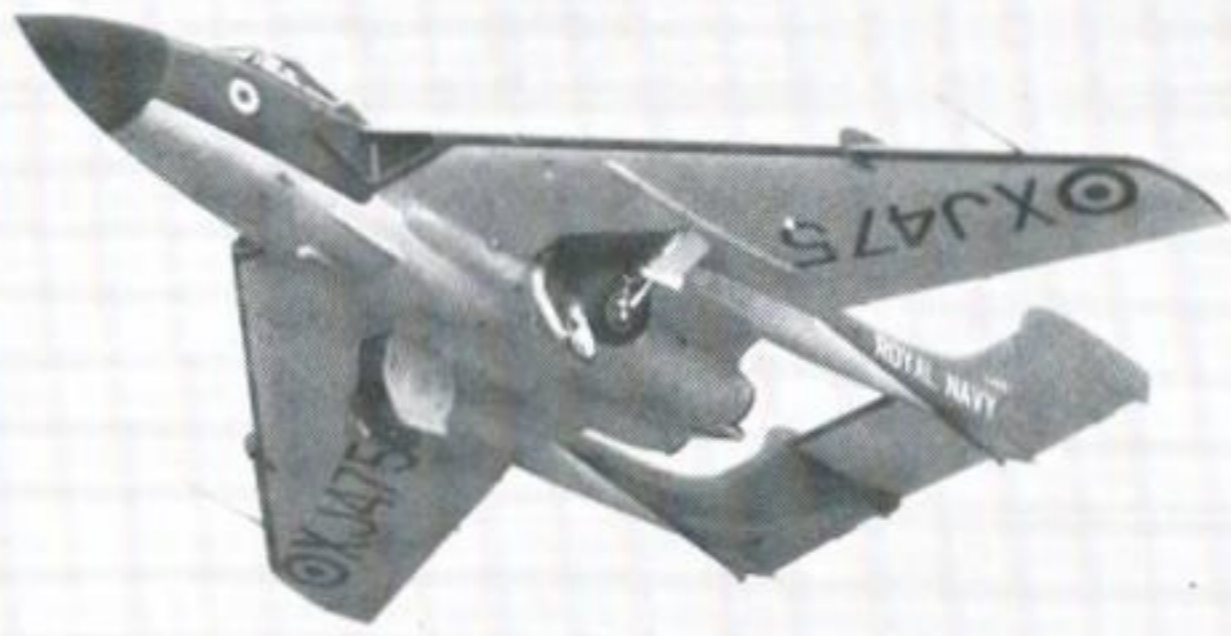
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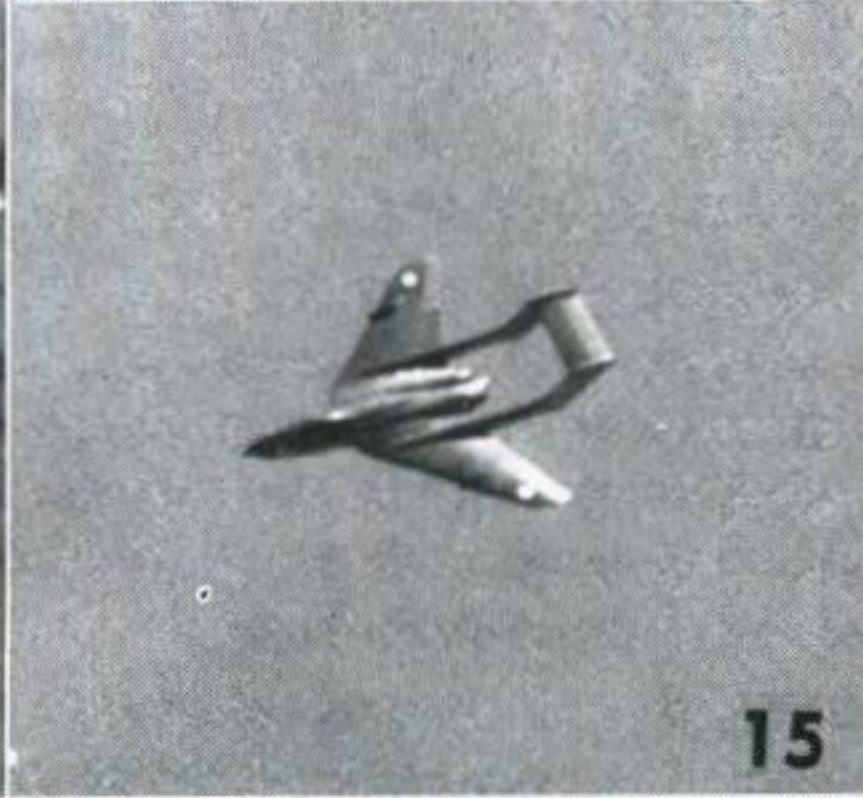
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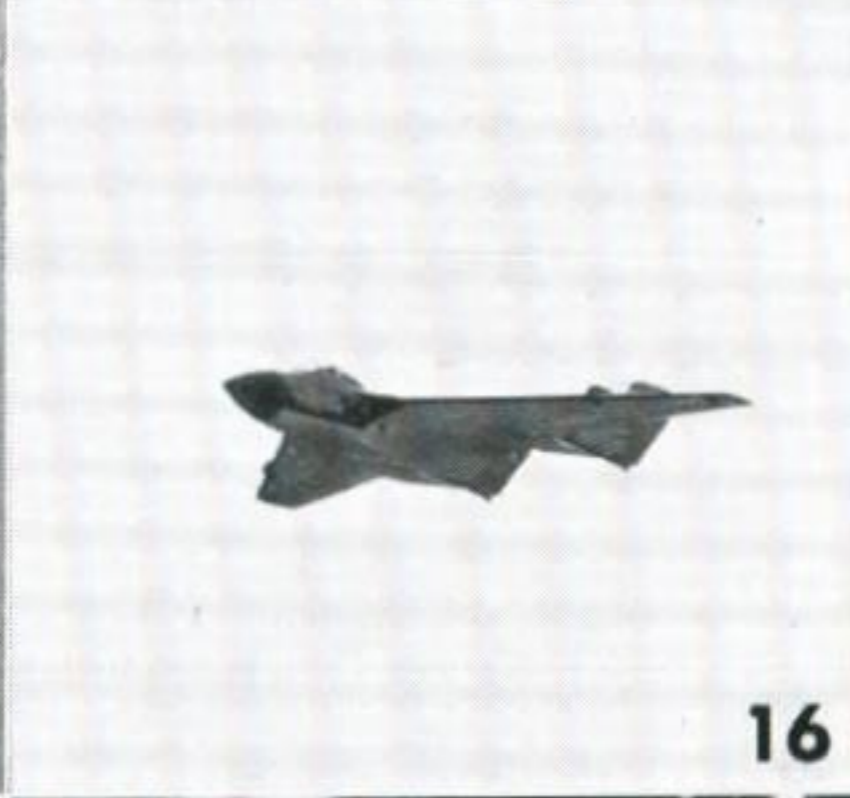
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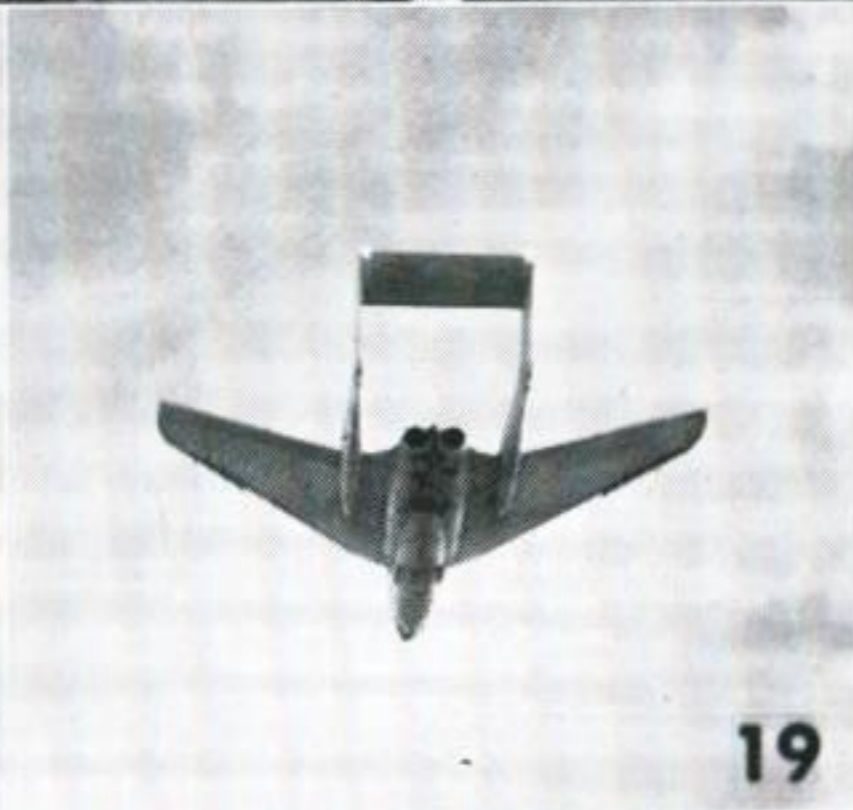
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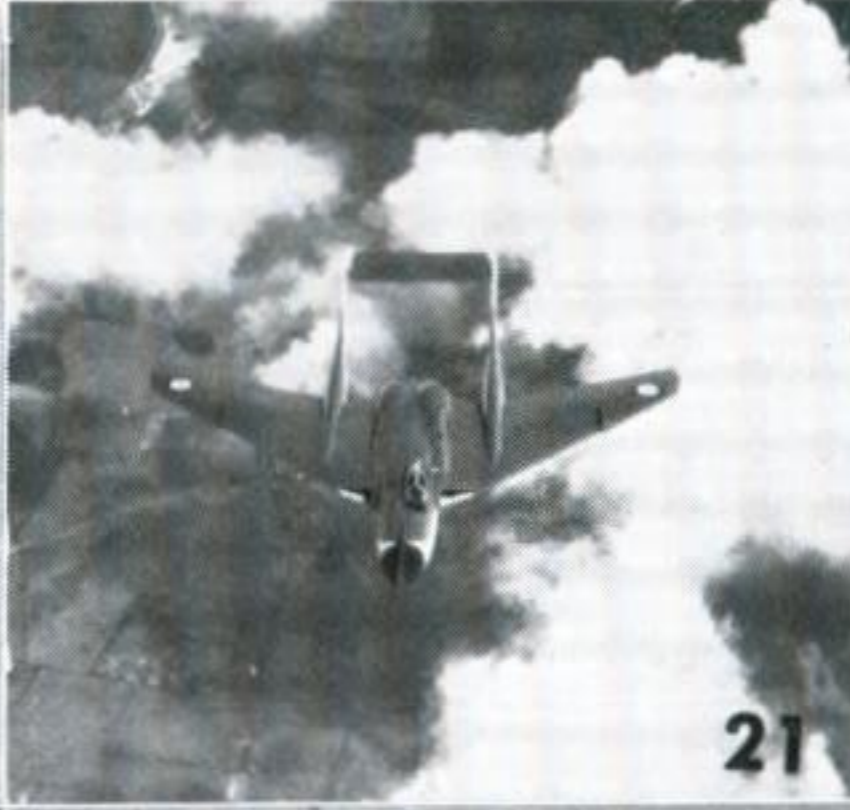
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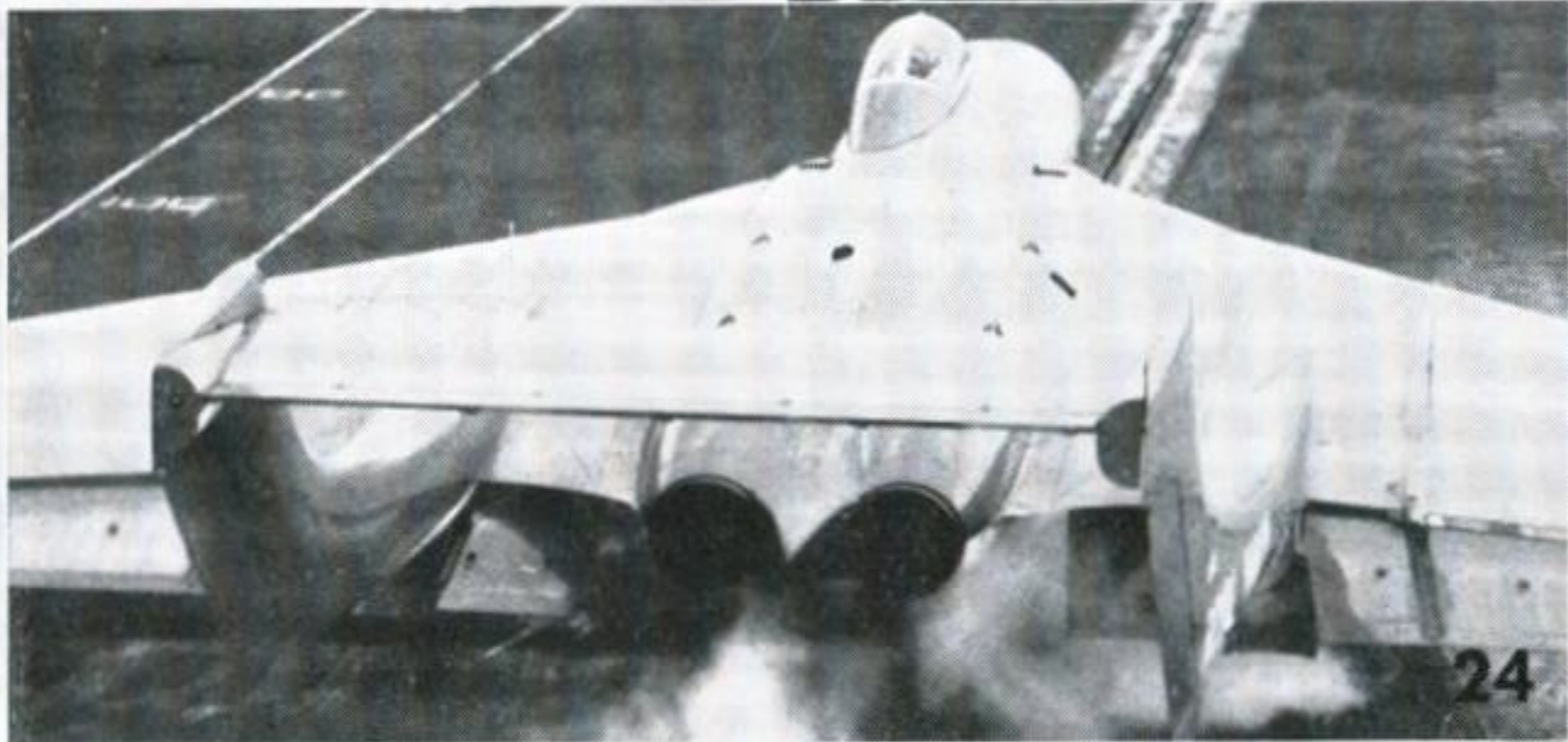
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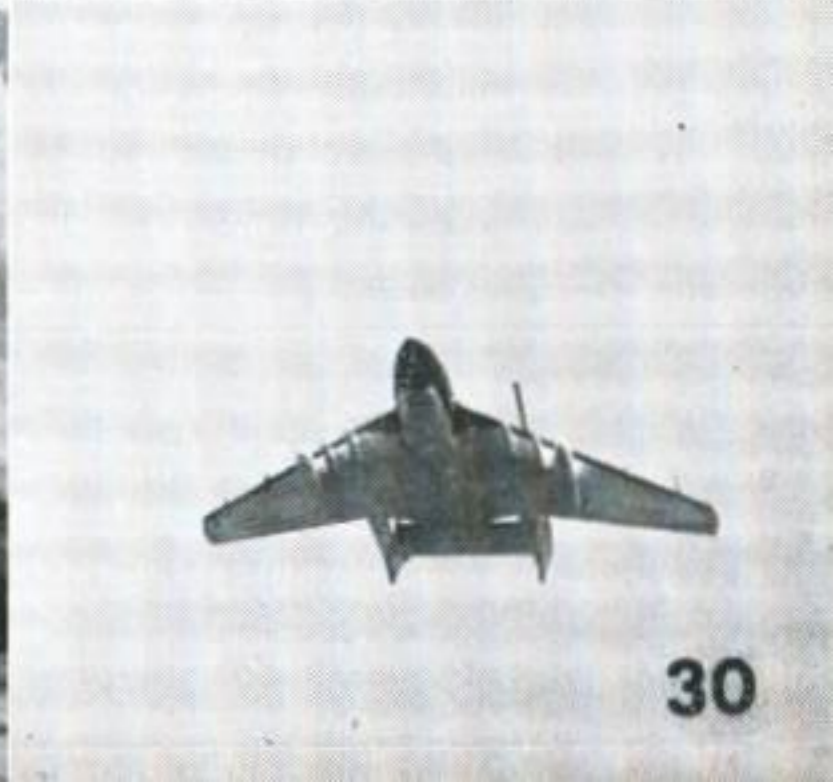
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# QUARTS

## From a Pint Pot

"EVER SINCE flying first started, the performance of aeroplanes and sophistication in their design has been increasing—recently at an alarming rate." These words were spoken by Air Marshal Sir Richard Atcherley, of Follands, on the occasion of the first flight of the Gnat T Mk. 4. He went on to say, "At regular intervals this has called for the design of new trainers—especially advanced trainers—to match the front-line performance of today. With the immense developments that lie ahead, civil aviation faces the same training dilemma as its military colleagues. The fantastic cost of front-line aircraft today makes it more important than ever that the advanced trainer should be capable of giving pupils indoctrination in the modern front-line performance environment. It should also instil the necessary confidence and skill to get the last ounce out of an aircraft's performance and manoeuvrability."

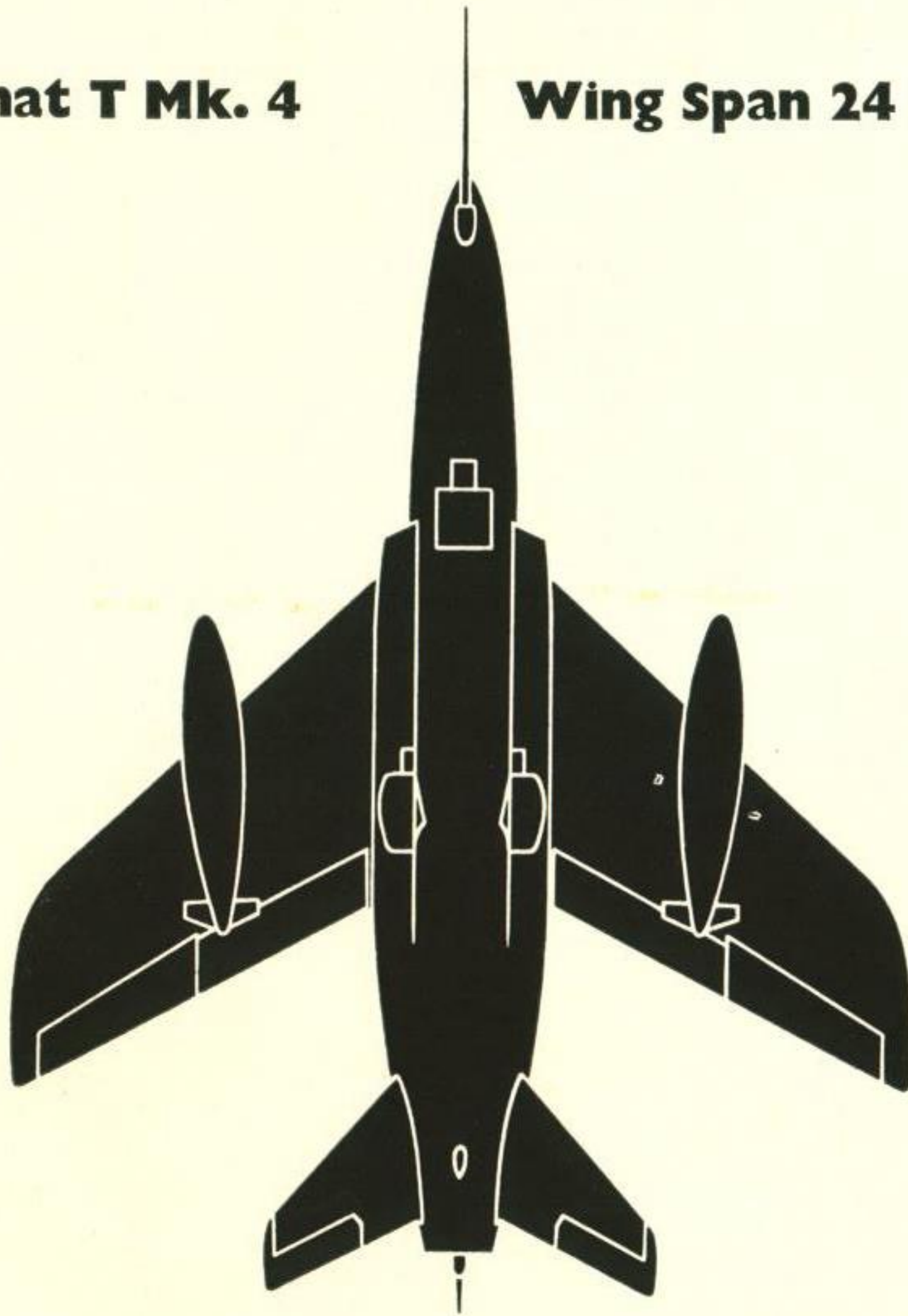
Folland's Gnat T Mk. 4 is in production for the Royal Air Force. Similar to the single-seat Mk. 1 fighter, the T Mk. 4 combines the speed and manoeuvrability of the former with the low-speed handling requirements of a trainer. Developments include a supersonic naval strike/fighter with a high rate of climb.

The Gnat Mk. 1 is half the size, a third of the weight, and easier to produce than a standard jet fighter, and remains a centre of controversy among military planners and a talking point for technicians. But there is no doubt that the small size of the Gnat has resulted in an extremely low structure weight—under three tons loaded—while further weight saving has been achieved by the ingenious use of components which

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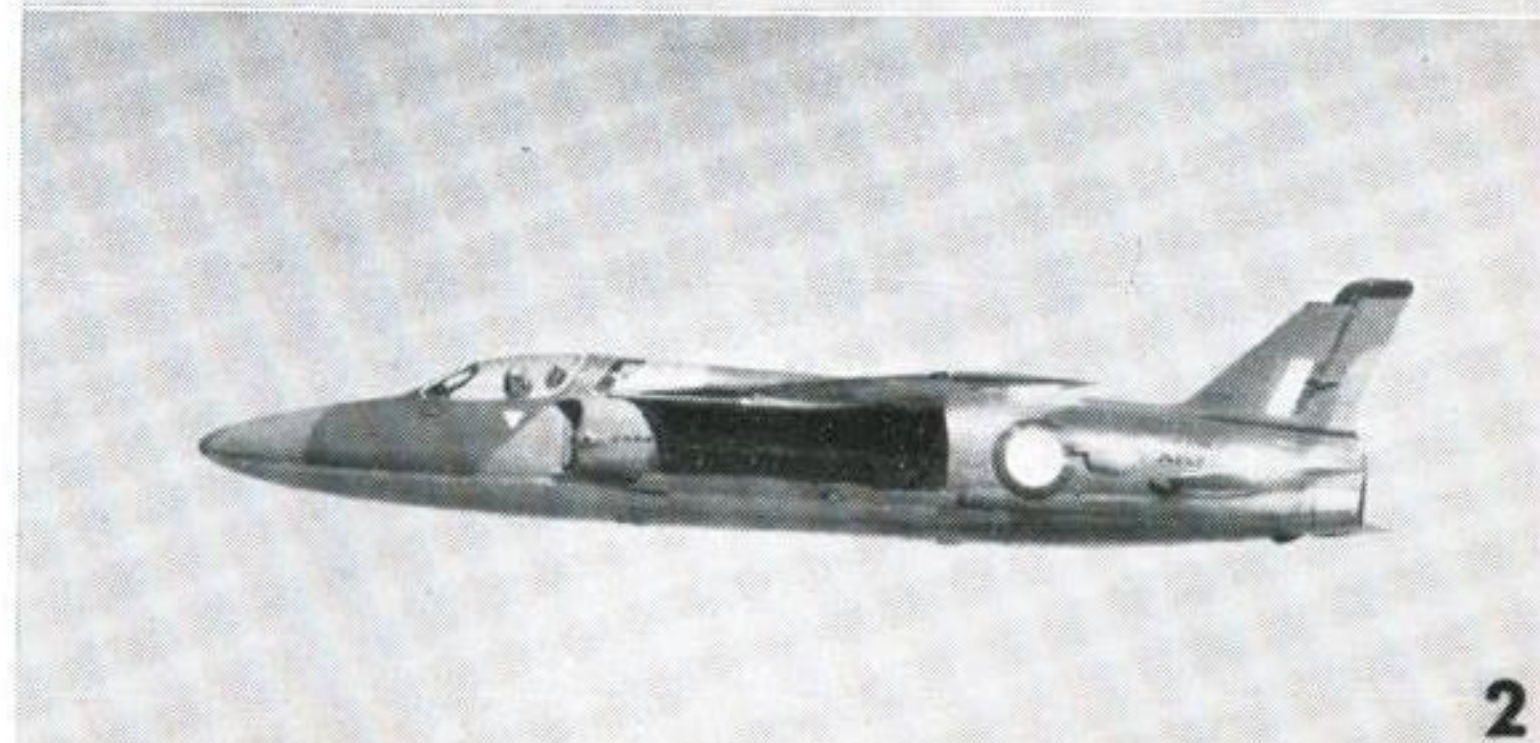
**Gnat T Mk. 4**

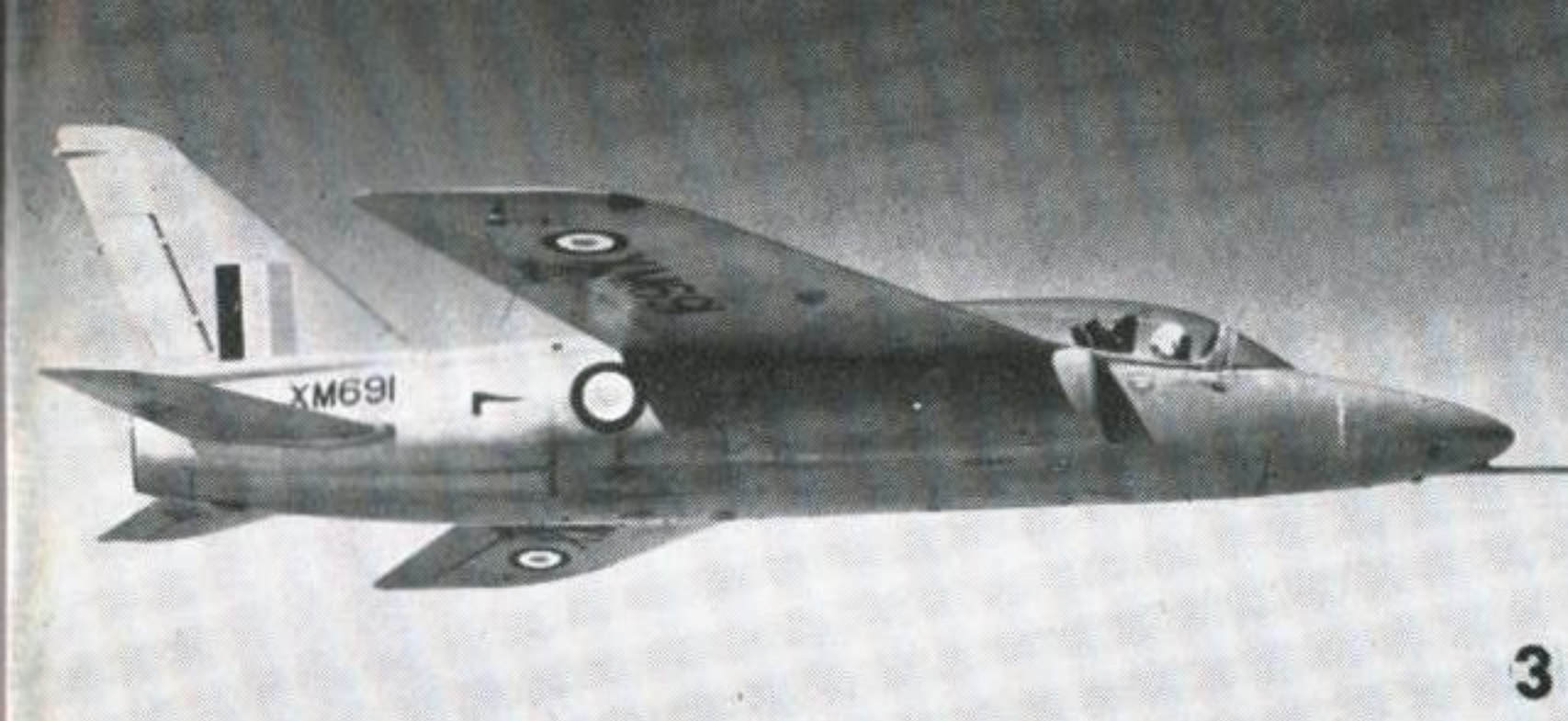
**Wing Span 24 feet**



**Gnat F Mk. 1 (top)**

**Gnat T Mk. 4**

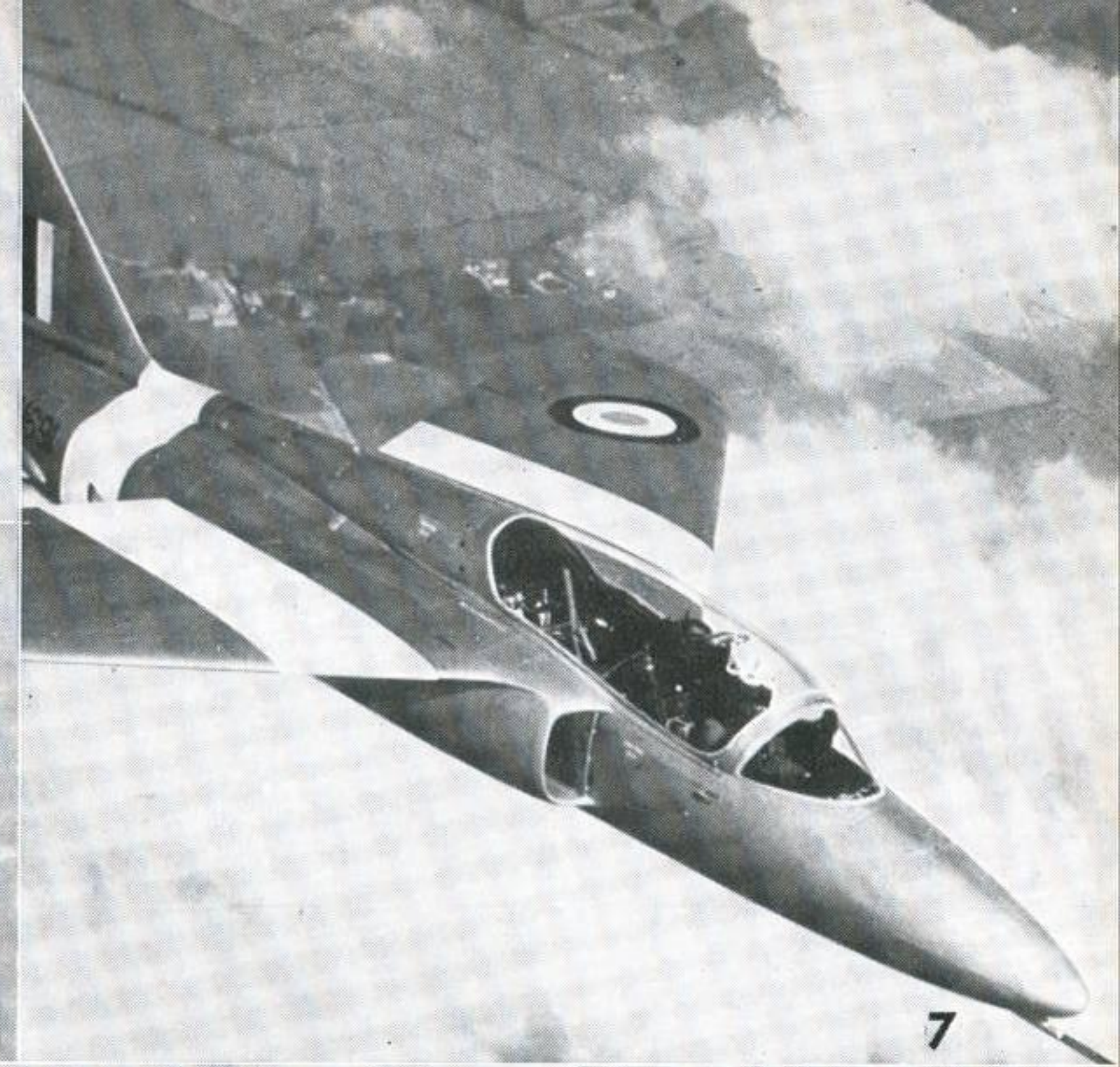




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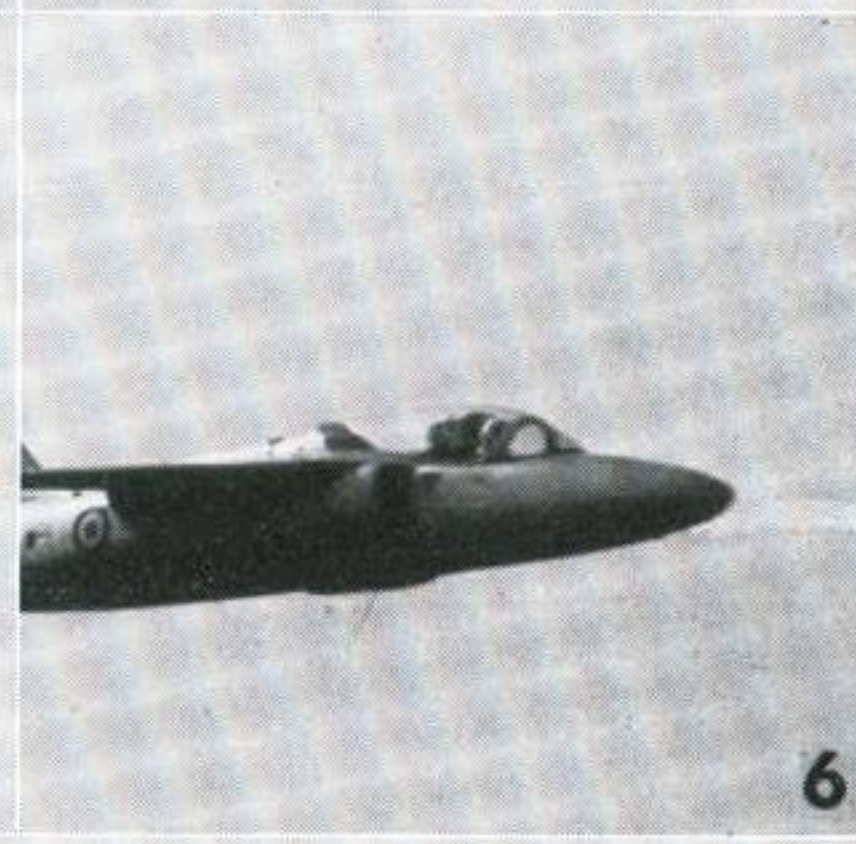
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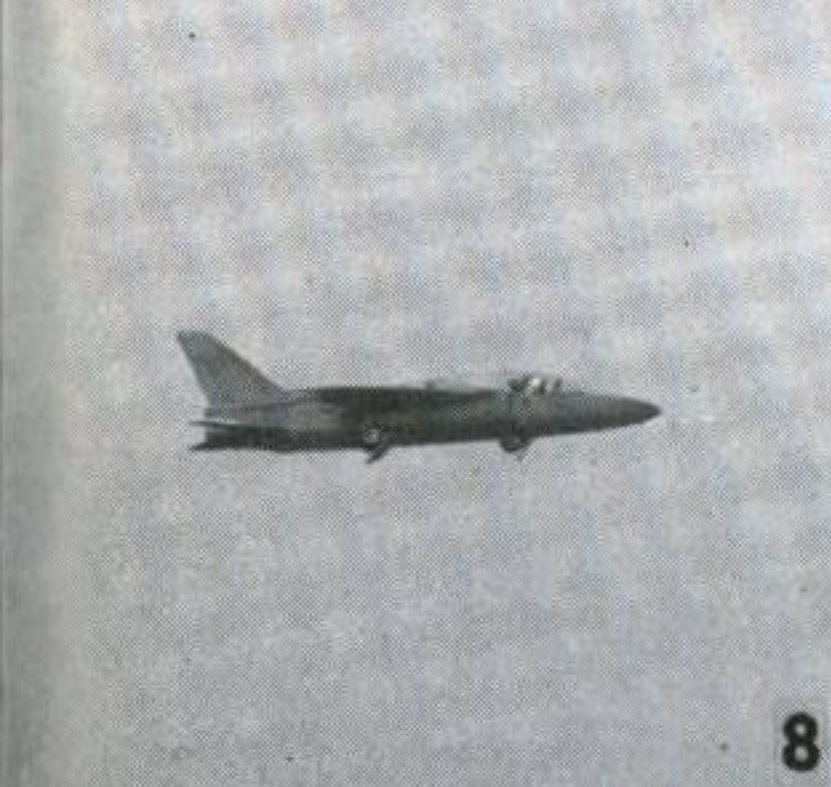
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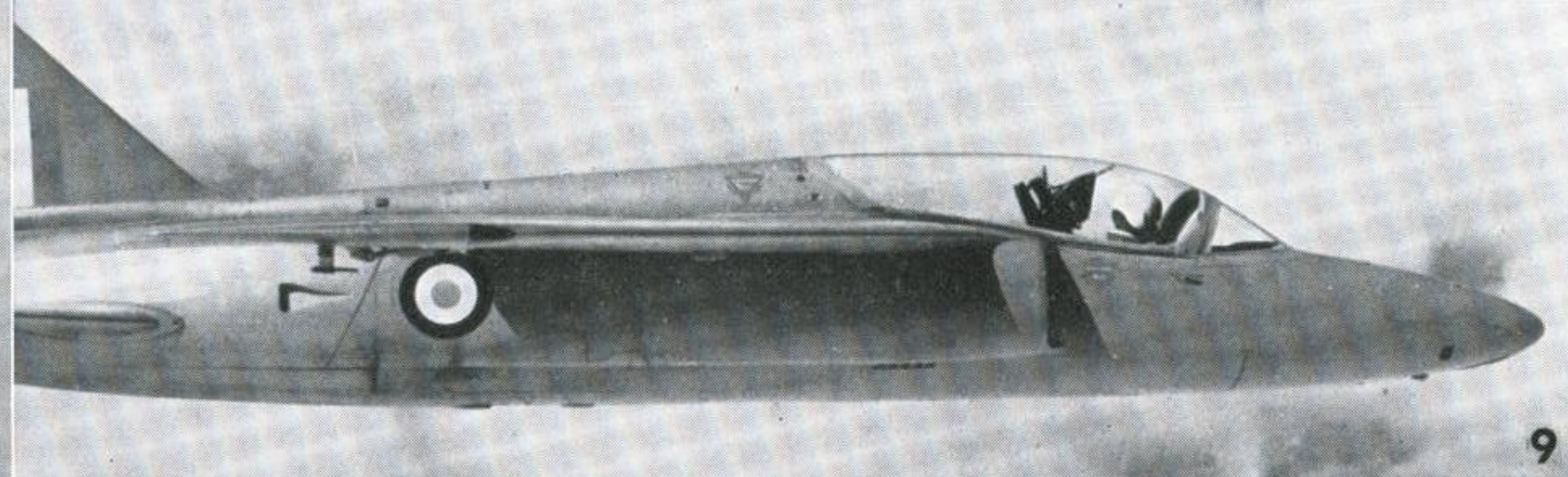
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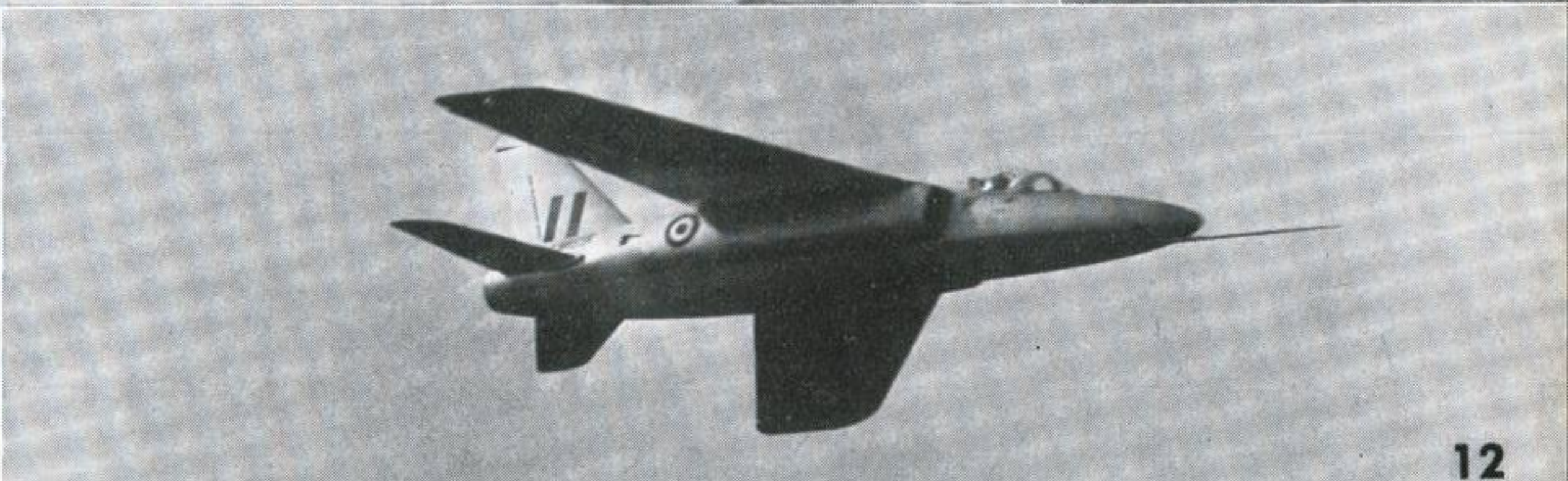
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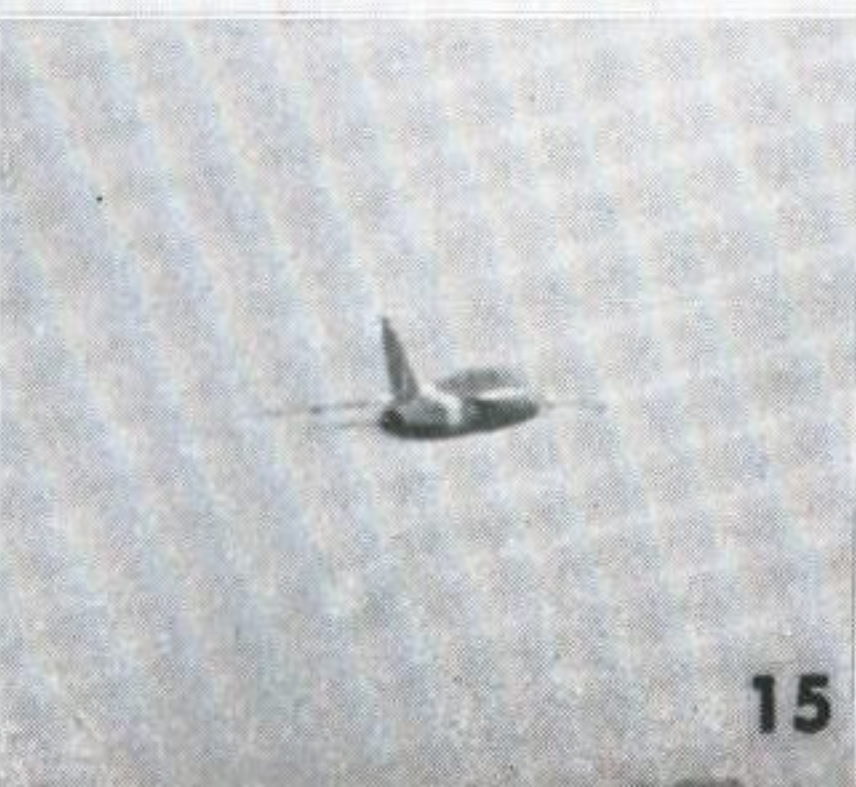


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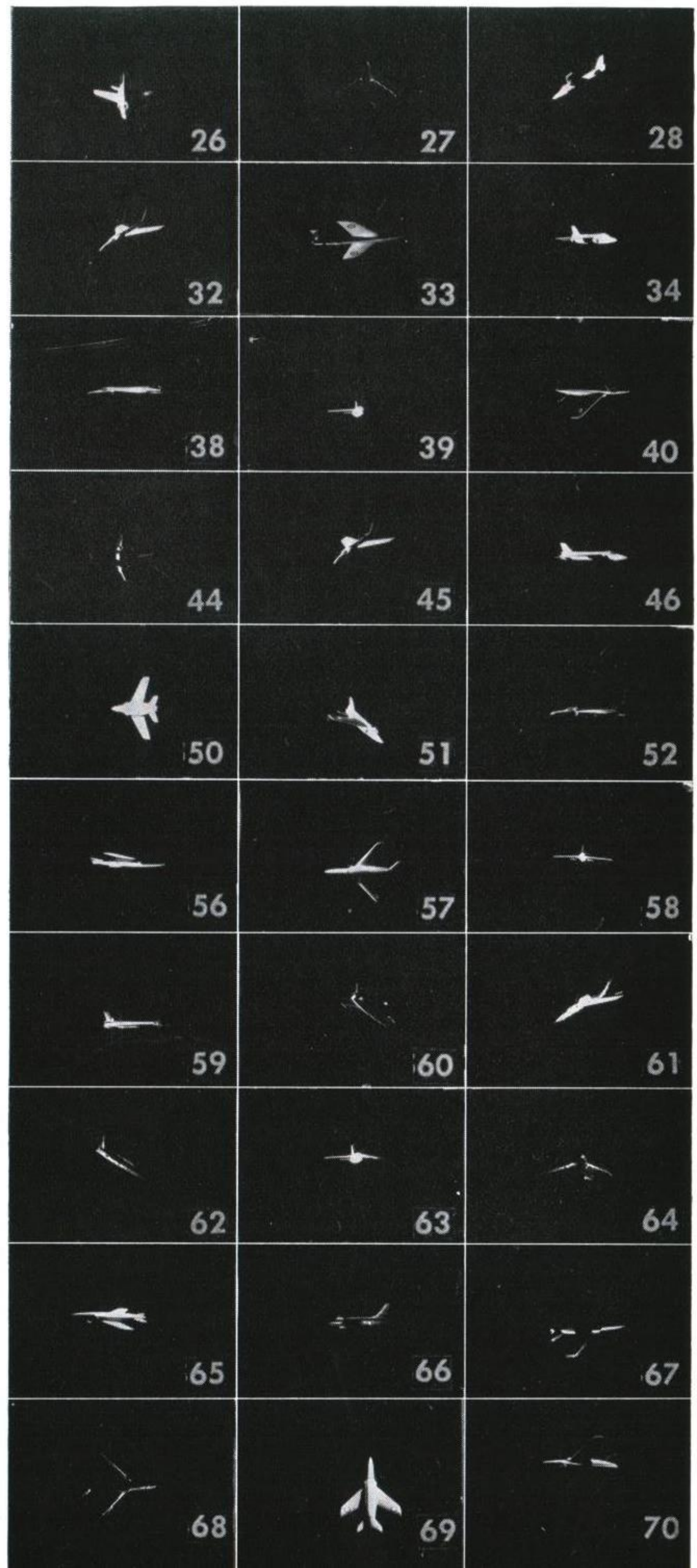
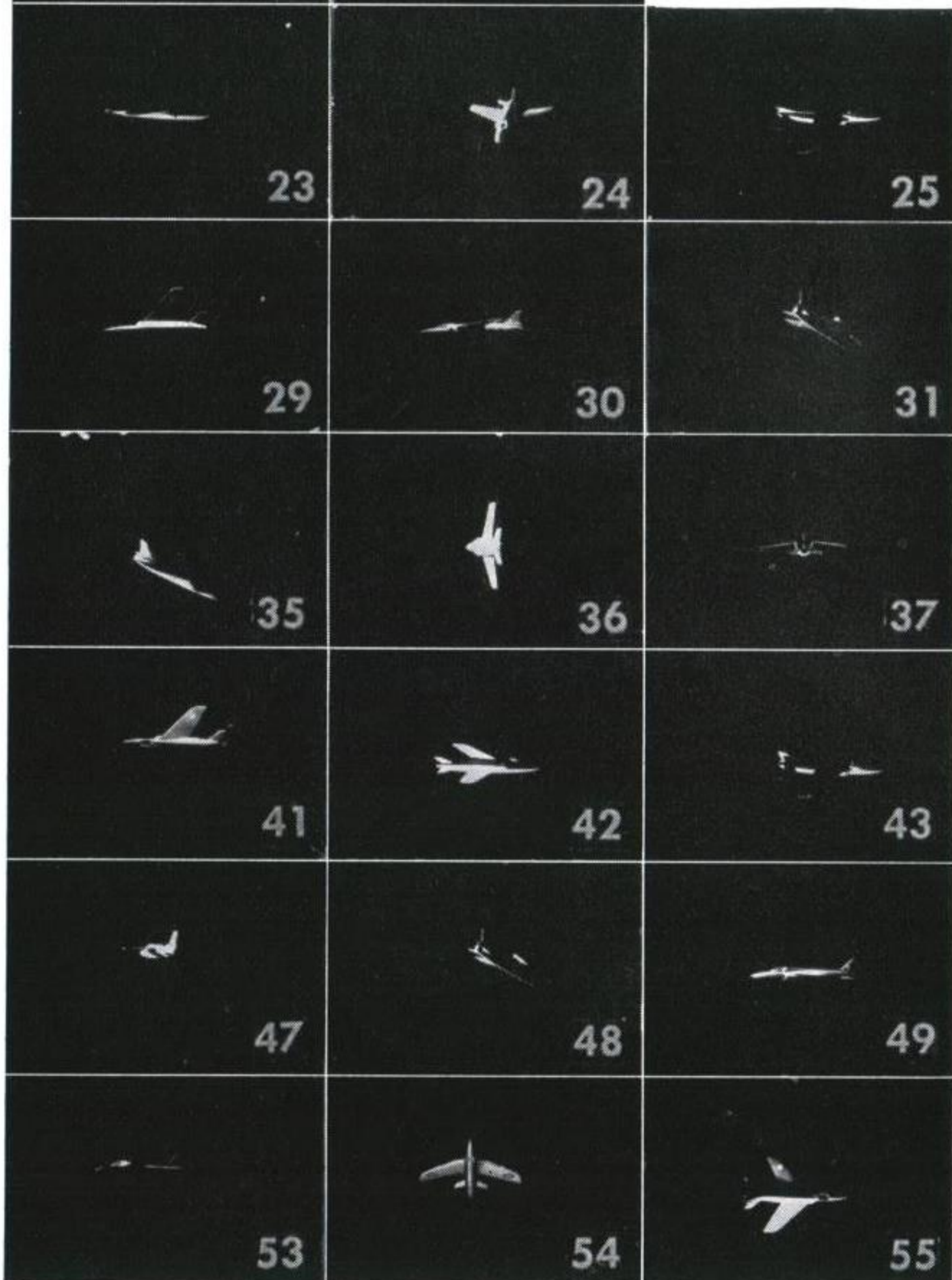
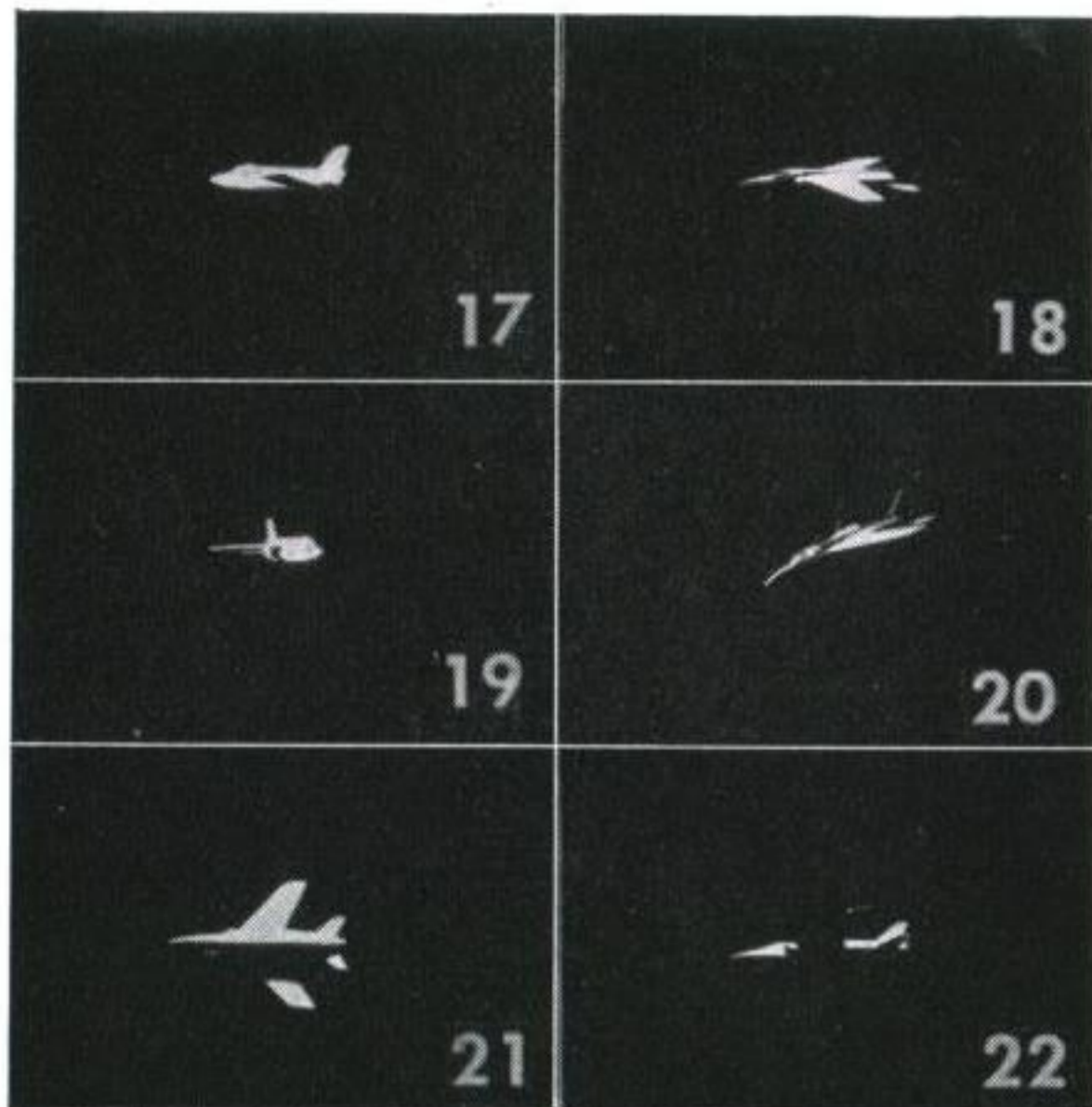
This is a lesson on the Gnat T Mk. 4 which can be distinguished here from the F Mk. 1 by its larger fin, cockpit canopy and fairing, and rounded nose. Carry out this lesson in accordance with the usual lesson instructions which are detailed on the cover. Incidentally there is another swarm overleaf.



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combine more than one function. All this adds up to the fact that the Gnat's future seems assured and that it will be buzzing about our heads for some years to come.

## Swat These Gnats

If you are not familiar with the Gnat, the lesson on the T Mk. 4 on the previous page will help you. The aircraft portrayed here are all Gnats F Mk. I except, perhaps, for a joker here and there. It is difficult to distinguish T Mk. 4s from F Mk. Is at this range. The quickest way to do this lesson is to pick out the easy targets first and fill in the gaps afterwards. Lesson instructions (in full) are given on the cover.

# Around The World In 80 Minutes

by William Jury

JULES VERNE got the jump on science nearly a century ago with a tale of a long-range submarine, but he missed by a mile with his story of a slowpoke who took 80 days to journey around the world.

Even Verne, whose fertile imagination conceived the "Nautilus," never dreamed of such a machine as Dyna-Soar, a space glider which will travel at speeds approaching 18,000 miles an hour.

Speed isn't Dyna-Soar's only attribute. Designed to circle the globe as a satellite does, Dyna-Soar will combine the controlled and accurate flight of a conventional airplane with the velocity of a ballistic missile. Launched from Cape Canaveral, Florida, for example, Dyna-Soar could circle the world and come to a controlled landing at an air base anywhere in the country.

The Air Force has explained that Dyna-Soar will accomplish boost-glide flight by using both centrifugal force and aerodynamic lift. This concept also is known as dynamic soaring, which explains the contraction, "Dyna-Soar."

The vehicle portion of Dyna-Soar will be a manned space glider. Boosted out of the earth's atmosphere into the vacuum conditions of space, the glider would encounter no atmospheric resistance and easily could circle the earth. The glider will be designed so that its pilot retains full control of his manoeuvres once he has re-entered the atmosphere.

The military advantages of such a vehicle "are tremendous," Lt. Gen. Bernard A. Schriever, head of the Air Force Air Research and Development Command, recently pointed out. Dyna-Soar will permit the introduction of human discretion. The vehicle's pilot will be able to choose almost an infinite number of flight paths.

General Schriever said that later versions of the space glider can be made to orbit the earth many times and re-enter the atmosphere for a specific mission.

"Such a vehicle could be used as a satellite interceptor to inspect, board, disable and possibly destroy hostile satellites," the general added.

Did distinguished military leaders have Dyna-Soar in mind years ago when they predicted the importance of aero-space and pure-space flight activity?

"Predictions made by General Billy Mitchell and other military strategists were based upon fundamental principles," believes George H. Stoner, Dyna-Soar programme manager of Boeing. "For example, the ability to move out into space adds a new dimension to our capability to observe events taking place on or near the surface of the earth. A comparatively small number of reconnaissance vehicles deployed from close-in orbital altitudes can maintain essentially continuous surveillance of the earth's surface. From far-out orbital positions nearly half the earth's surface can be seen from one vehicle, though with reduced ability to observe details."

Stoner also pointed out that the use of space opens up new freedom in communication. Direct line-of-sight communi-

cation to a space vehicle can be maintained from a broad area of the earth's surface.

He cited indefinite duration of flight as another fundamental principle. The flight time of aircraft today is eclipsed many times over by the potential flight time of orbiting objects. Ballistic missiles, of course, have much shorter flight times even than airplanes.

It isn't necessary to know all the details of an operational weapon system, Stoner said, to appreciate the tremendous inherent capability associated with indefinite, continuous alert of a highly mobile, force-in-motion weapon system.

"As General Thomas White has suggested we start with the fundamental doctrine that space superiority will become a strategic necessity in the next decade or two," Stoner said. "On the basis of this fundamental doctrine, we proceed to develop the means to fly into space with men and materials and to return safely."

Where does Dyna-Soar fit into America's space programme? The Mercury Project, which already is under way, would put man into orbit, but would bring him back from the satellite in a capsule that will return to earth by parachute. The X-15 rocket plane is being counted on to send a man into the border area of space and the earth's thin air and bring him back.

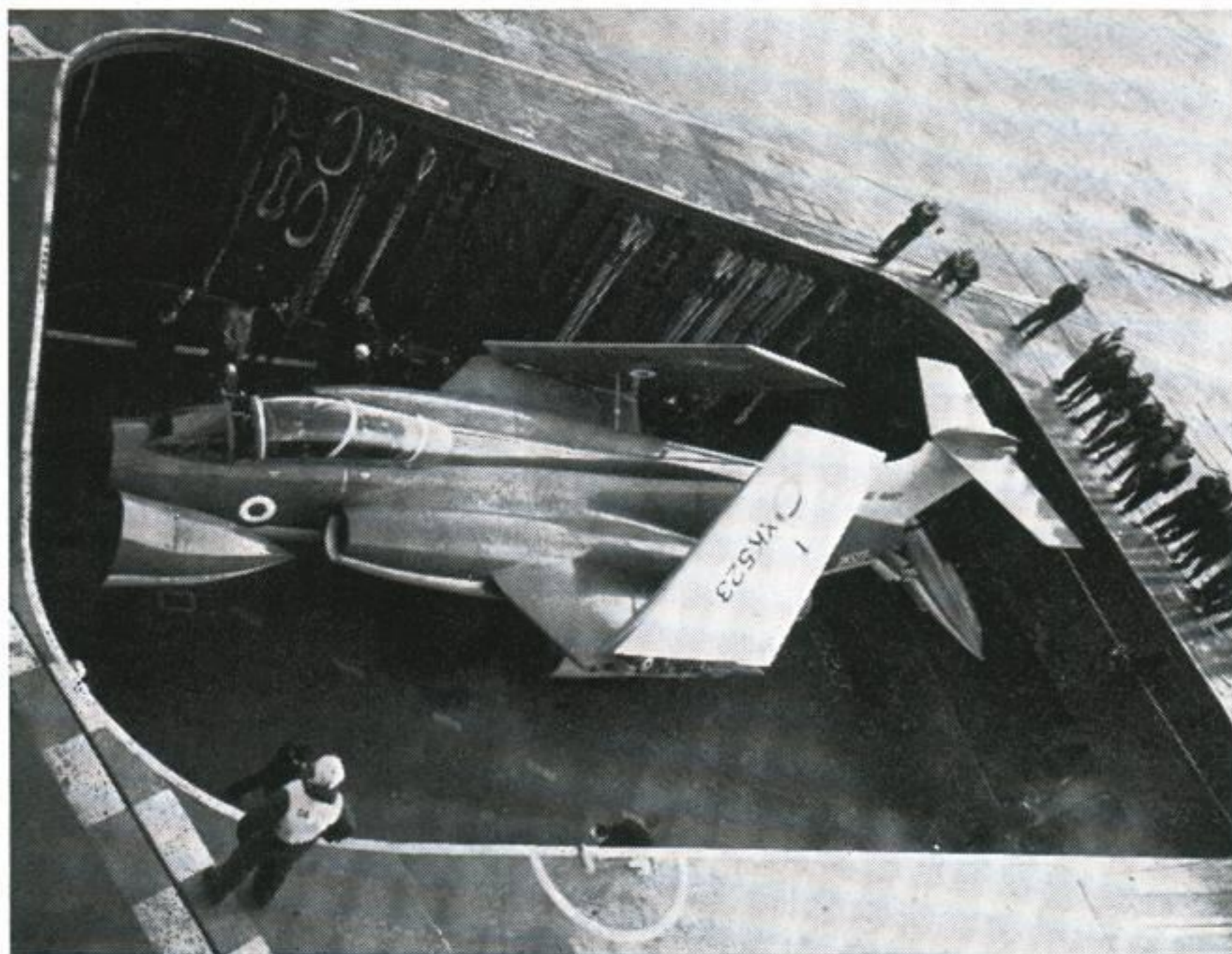
The man in the Mercury capsule, it has been noted, is "just along for the ride." The X-15 will be flown by man to the fringes of space. Dyna-Soar will accomplish both: it will take a man over the threshold and will provide him with the means of getting home again by his own hand.

The Boeing Company will be responsible for the manufacture of the vehicle portion of the system, and, through a new management relationship with the Wright Air Development Division, will be responsible for integration of vehicle subsystems, integration of vehicle and booster, and assembly and test. The Martin Company, which competed with Boeing for the Dyna-Soar contract, will manufacture the booster portion of the system. The Air Research and Development Command, Wright Air Development Division, will act as systems manager. The Air Force Ballistic Missile Division will be the principal agency for the adaptation of boosters for the Dyna-Soar system.

First step in the development programme will be design and test of a glider which will bring a man back to a normal landing from hypersonic flight speeds. Unmanned gliders and, later, manned gliders, will be launched from Cape Canaveral down the Atlantic missile range to explore technical and military problems associated with flight at speed approaching orbital velocity (18,000 miles an hour).

Imagine the look on the face of Phineas Fogg when he looks down from his vantage point and sees a man circling the earth in approximately 80 minutes.

*We are indebted to the Editor of Boeing Magazine, in which this article first appeared, for permission to print it here.*



**Cover Picture: Down the Hatch:** "Topped and tailed," a Blackburn N.A.39, on trial in H.M.S. Victorious, goes below.

**SEA VIXEN F.A.W. Mk. I**

All targets are **Sea Vixen** except No. 11, which is a **Sea Venom**.



**GANNET AEW. Mk. 3**

All targets are **Gannet AEW. Mk. 3** except No. 18, which is a **Skyraider AD-4W**, and No. 22, which is a **Gannet A.S. Mk. I**.



**GNATS**

Targets 1 to 16 are **Gnat T Mk. 4** except Nos. 2 and 11, which are **Gnat F Mk. I**, and No. 10, which is a **Hunter**. Targets 17 to 70 are **Gnat F Mk. I** except Nos. 33, 54 and 66, which are **Hunters**.



**SOLUTIONS TO TESTS AND LESSONS  
IN THIS EDITION**

**SKYRAIDER/ALIZÉ**

- |                   |               |               |
|-------------------|---------------|---------------|
| 1. Alizé          | 13. Skyraider | 25. Alizé     |
| 2. Skyraider AD-7 | 14. Alizé     | 26. Skyraider |
| 3. Alizé          | 15. Skyraider | 27. Skyraider |
| 4. Skyraider      | 16. Alizé     | 28. Alizé     |
| 5. Skyraider      | 17. Skyraider | 29. Alizé     |
| 6. Alizé          | 18. Skyraider | 30. Skyraider |
| 7. Skyraider      | 19. Skyraider | 31. Alizé     |
| 8. Skyraider      | 20. Alizé     | 32. Skyraider |
| 9. Alizé          | 21. Skyraider | 33. Alizé     |
| 10. Skyraider     | 22. Alizé     | 34. Alizé     |
| 11. Alizé         | 23. Skyraider |               |
| 12. Alizé         | 24. Alizé     |               |

**GENERAL INSTRUCTIONS FOR CARRYING OUT IDENTIFICATION LESSONS IN THE JOURNAL**

To get the maximum benefit from the identification lessons in this *Journal*, the procedure set out below should be carefully followed:

1. Read all text associated with the lesson.
2. List the target numbers on a piece of paper.
3. Use the key information to identify easy targets first so as to gain experience, also use known targets to help identify unknown ones and let the eye range freely between key and target views all the time.
4. When certain of an identity, write down its name immediately against the target number.

**NOTE:** Writing down the name at once after each identification is an important part of the procedure because it trains you to name it.

