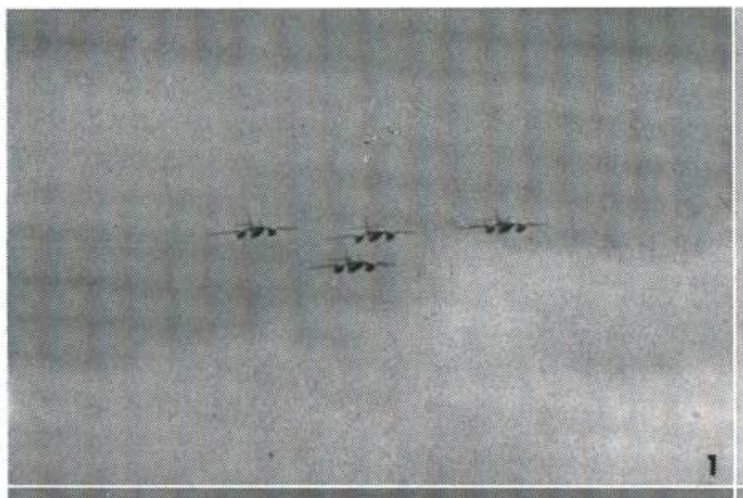
THE ROYAL OBSERVER CORPS

RECOGNITION

Journal

and R.O.C. GAZETTE

Vol. I SEPTEMBER 1959 No. 9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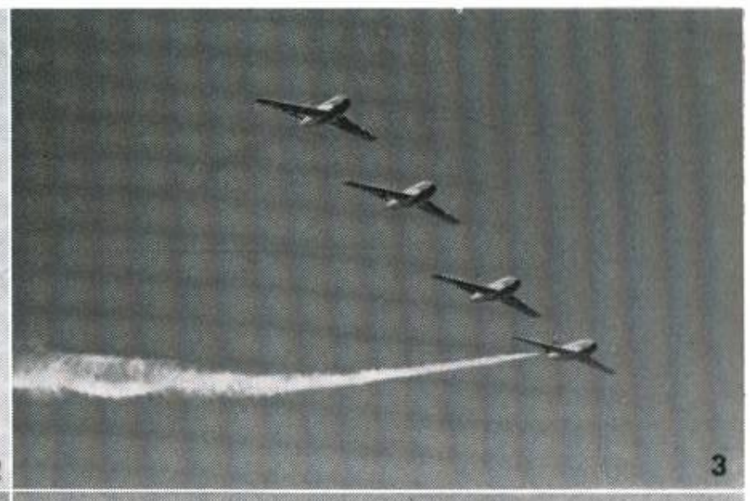
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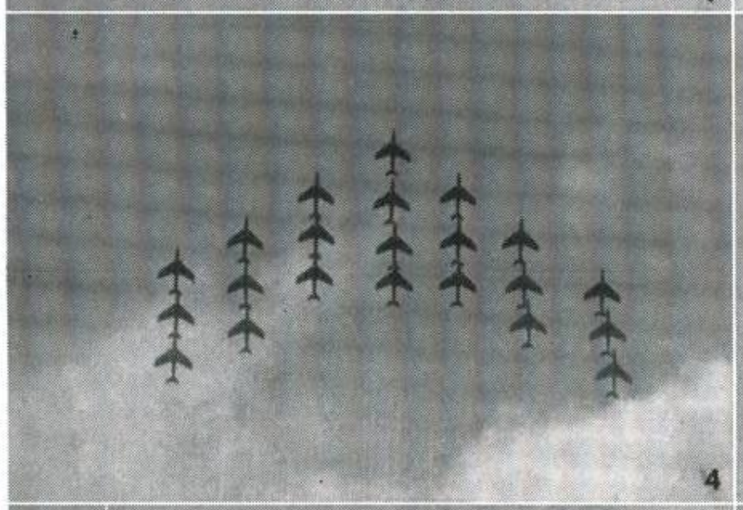
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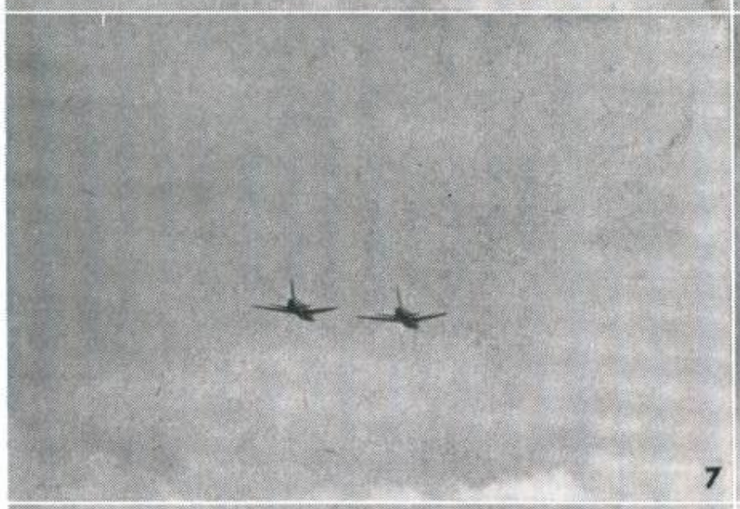
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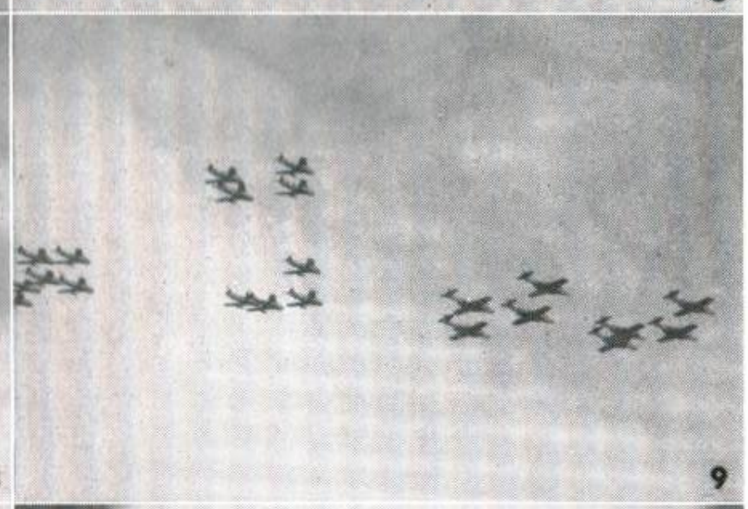
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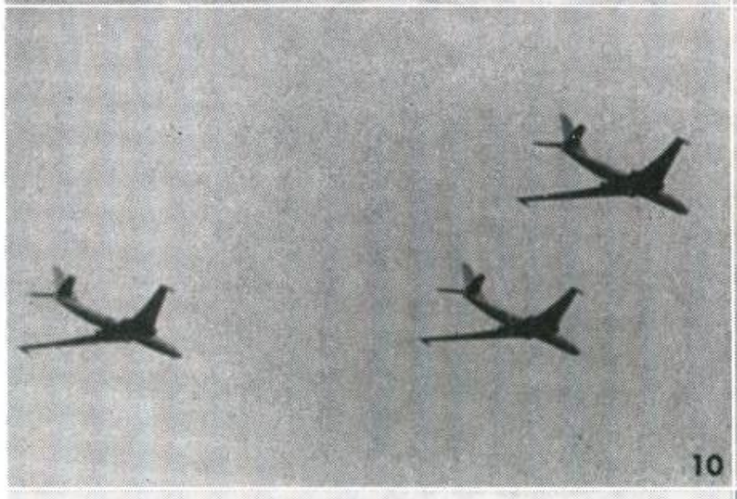
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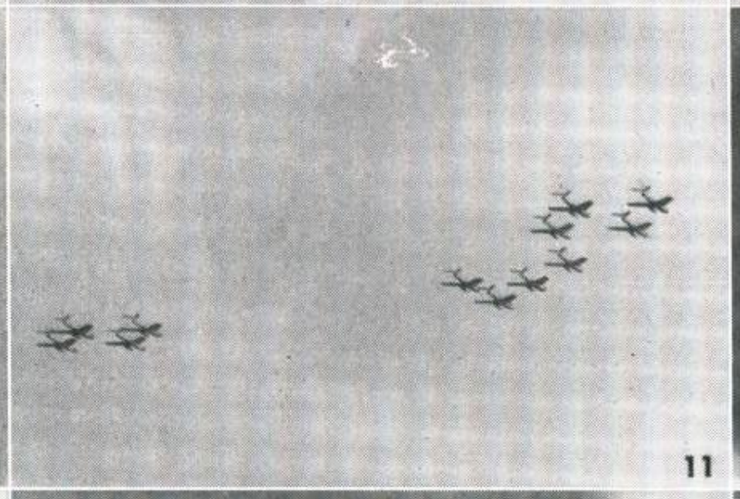
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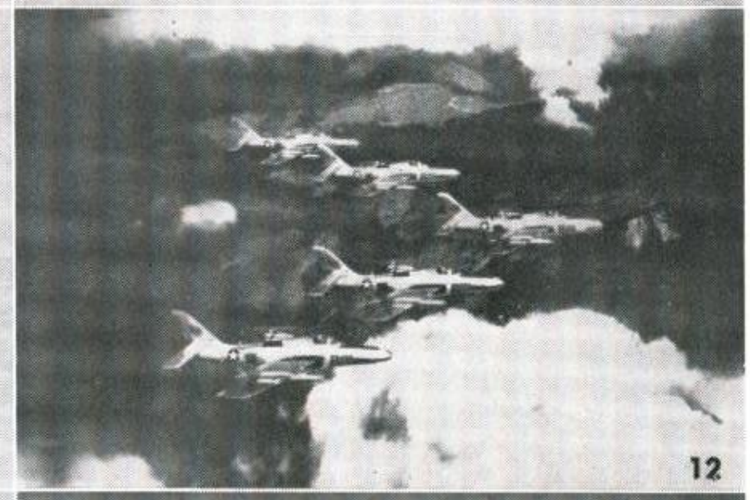
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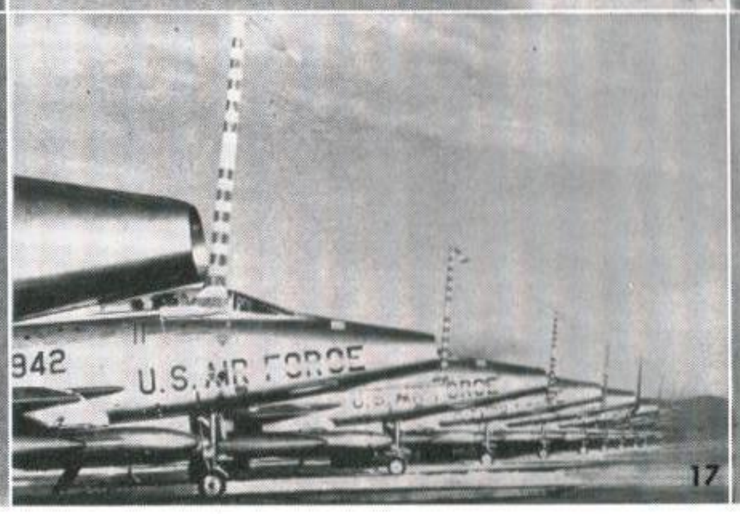

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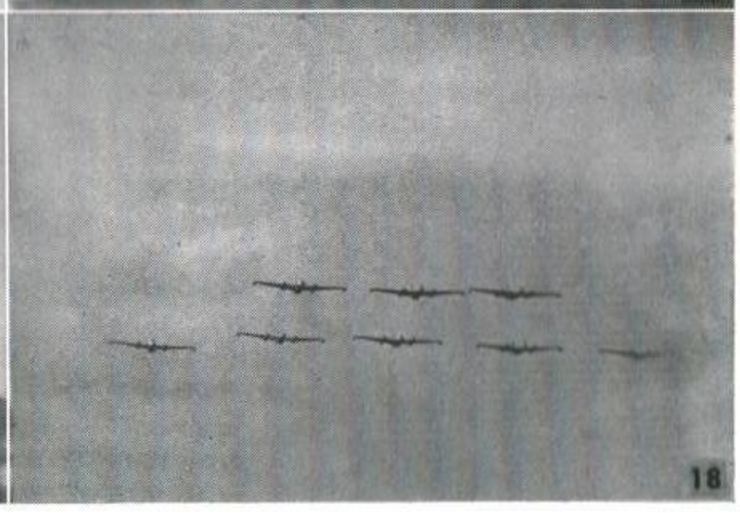
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Nice Work

(If you can get 'em. Answers on the cover)

SEPTEMBER 1959 Vol. I No. 9

THE ROYAL OBSERVER CORPS

RECOGNITION JOURNAL

AND R.O.C. GAZETTE

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ARGOSY

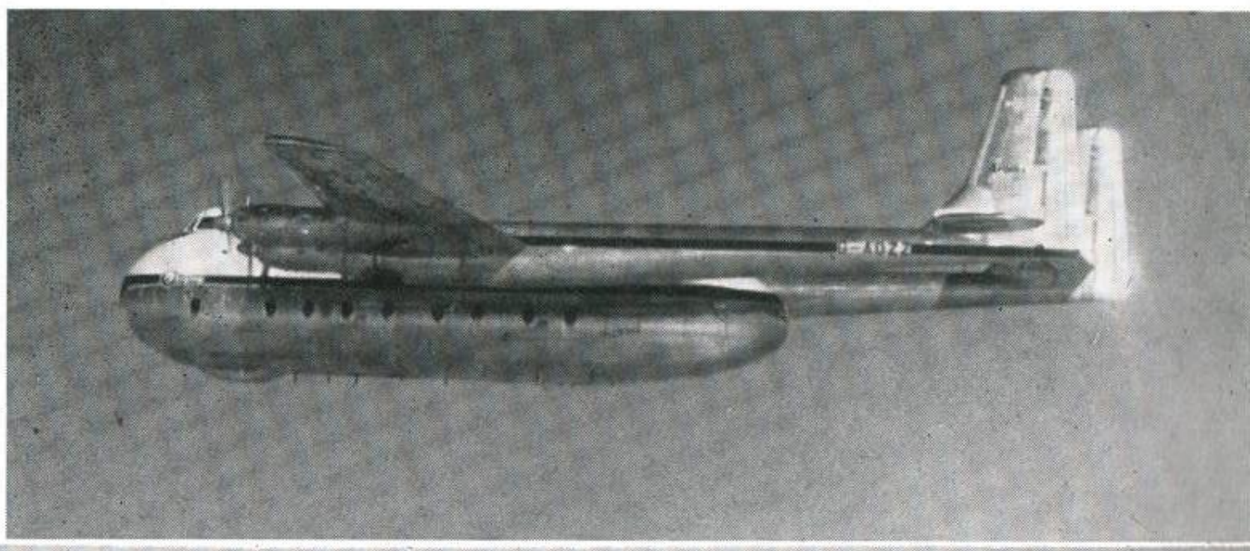
SEEING a double-decker bus on a fly-over may not, today, seem to be such a very unusual experience, but in a few short years from now the expression may take on an altogether different meaning.

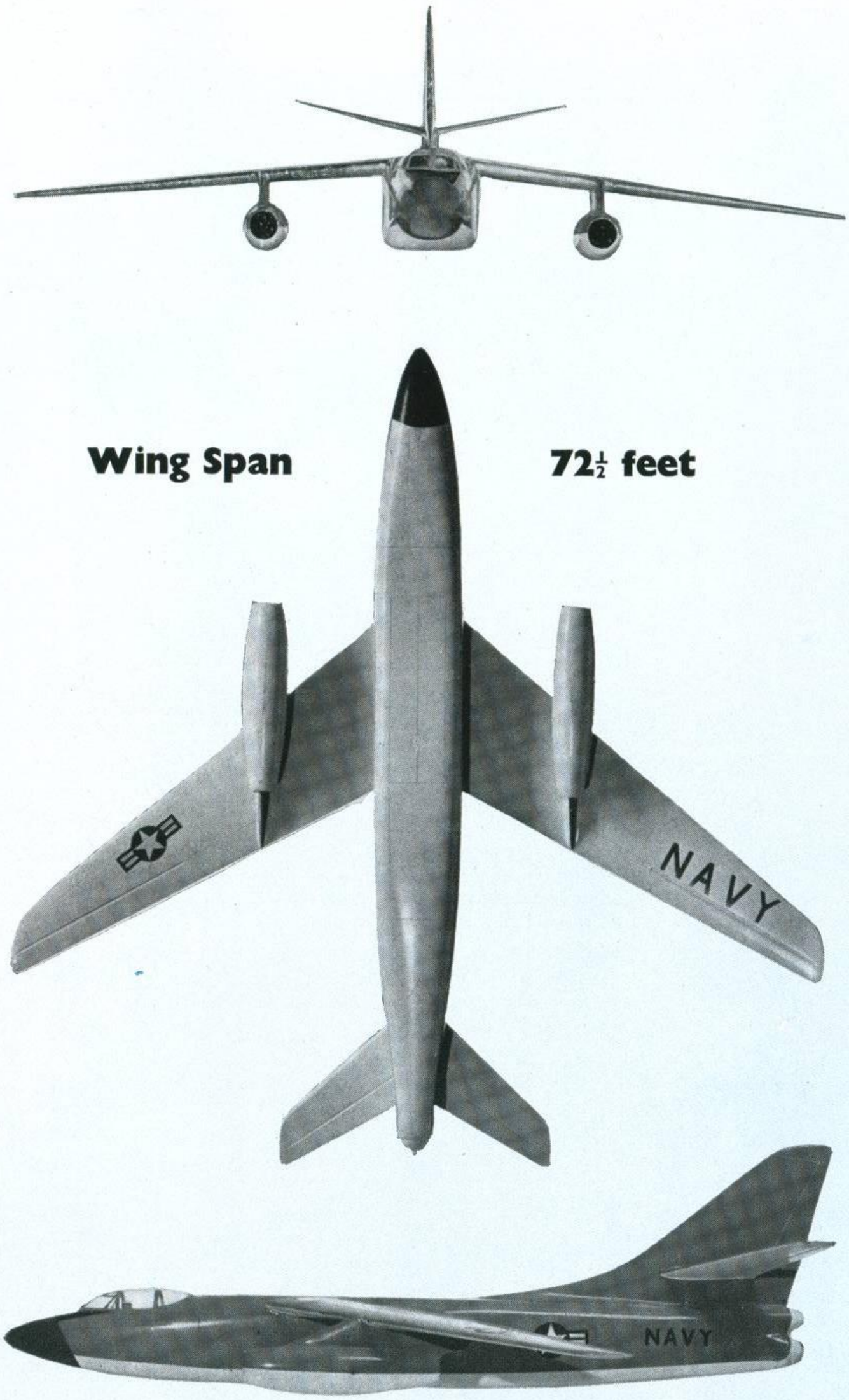
At the end of 1956, Armstrong Whitworth Aircraft Ltd. announced their intention to develop a short and medium haul passenger and freight aeroplane designated the A.W.650. The first of an initial batch of ten of these machines, subsequently named Argosy, was completed late in 1958 and made its first flight at the beginning of this year. It has since performed publicly at the Paris Aero Show in June and later at the S.B.A.C. Display at Farnborough.

However, the Argosy freighter is only a beginning: a regular family of machines of this type is envisaged by the manufacturers, including the A.W.670 Air Ferry, the A.W.671 Airbus and the A.W.660 military transport, all powered by four Rolls-Royce Dart turboprop engines. It is a slightly modified version of the A.W.660 which has been ordered for the Royal Air Force. The Company also have on paper a twin-engined counterpart of the Argosy, the A.W.651, and a twin-engined version of the military transport, the A.W.661, powered by Rolls-Royce Tynes.

The layout of the series is based on a twin-boom configuration with a central nacelle for the crew and payload, a formula successful over many years of operation in the U.S.A. and France but hitherto absent from any British transport aircraft inventory. The central pod can be varied in length or width according to rôle, on both the four- and the twin-engined versions; the wing unit, common to them all, is said to be based on "an operationally well-proven Avro design"—presumably that of the Shackleton.

It is evident that this series of "transport and general workers" has been designed mainly with an eye to the freighting side of the air transport business, and in this respect its timing coincides neatly with the need for an up-to-date successor to the Bristol Freighter. But the version which should most appeal to the man in the street is the Airbus: this is designed for very short route lengths of about 200 miles, taking 96 passengers on the lower deck and another 30 on the upper deck, with a direct operating cost claimed for it of less than 2d. a mile; at this rate you could fly from, say, London to Edinburgh for not much more than the present railway fare. The manufacturers are convinced that the day is not far off when some domestic air services will be run every hour on the hour, like buses. We hope they are right, for if they can achieve all their ambitions then air travel will for the average person at last be a genuine alternative in all respects to other forms of transportation.





Wing Span **72½ feet**

Refresher Course:—

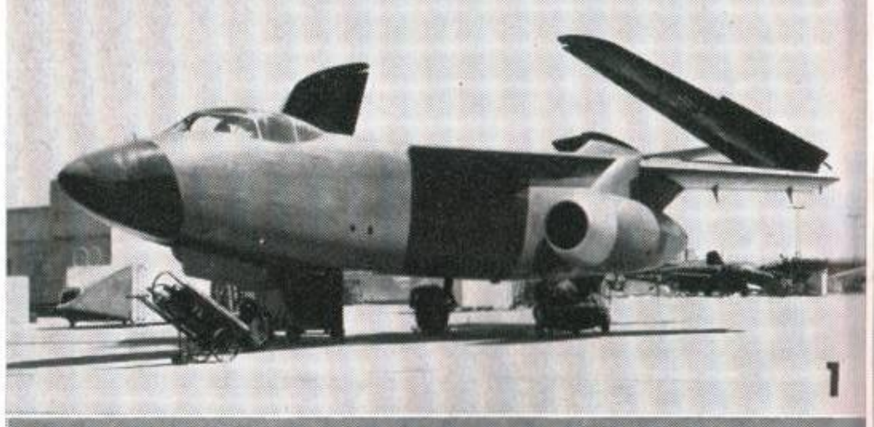
THE DOUGLAS A3D SKYWARRIOR

U.S. Naval Attack Bomber

MOST decidedly in the heavyweight class of carrier-based aeroplanes, the Douglas Skywarrior is in fact the heaviest ship-borne strike aircraft in the world and also the most powerful. It has been in operation with the U.S. Navy since early 1956 and serves aboard the *Essex*, *Midway* and *Forrestal* classes of American carriers.

In addition to its primary rôle of attack bomber, the Skywarrior can be employed as a high-altitude bomber, or as a torpedo bomber or minelayer at very low levels, and its advent has given to United States Naval task forces a striking power far beyond anything they have had before. The same may be said of the striking range, for the Skywarrior has a most respectable radius of action, something like 1,000 miles, combined with the capacity to refuel in flight from others of its kind. A special version, the A3D-2Q, carries a crew of seven on "radar countermeasures" duties, but the normal crew complement is three men.

The need to recognise and identify the Skywarrior thus clearly extends to almost every category of spotter, for it is just as liable to be encountered over land as over the sea in time of emergency.



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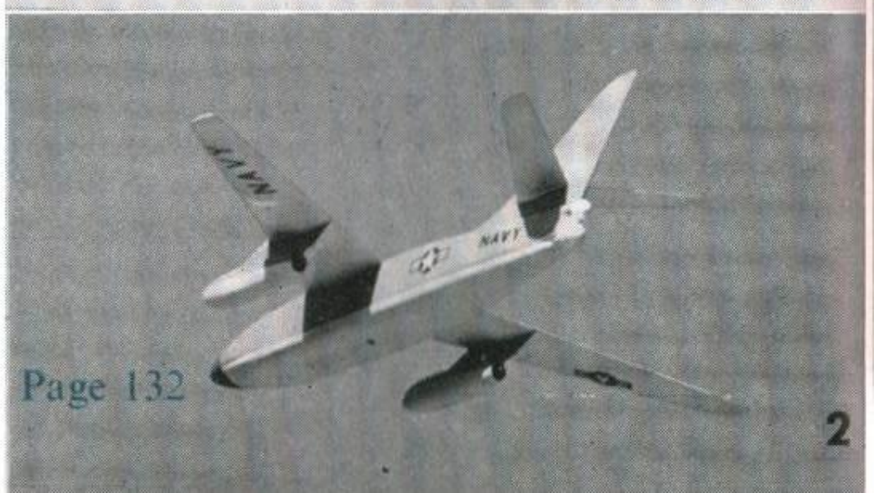

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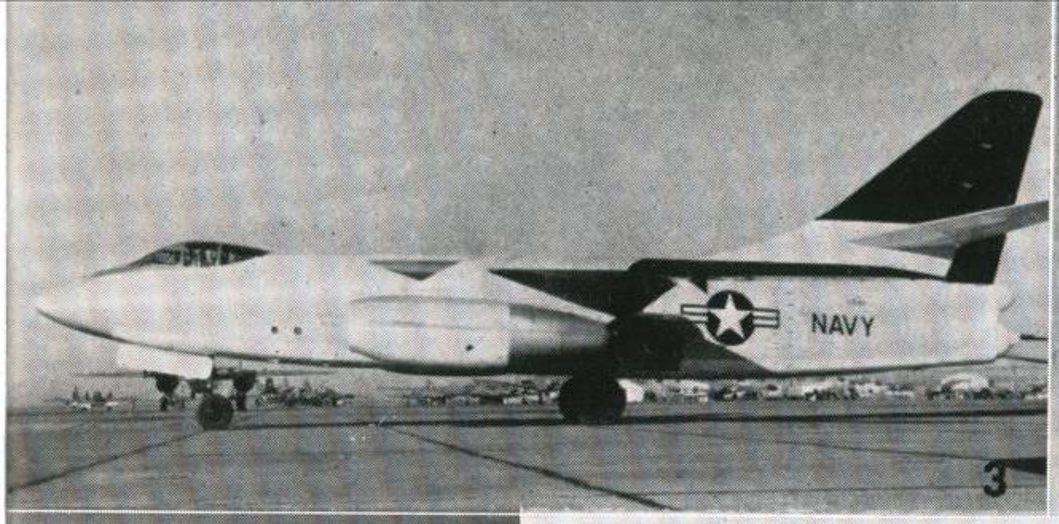

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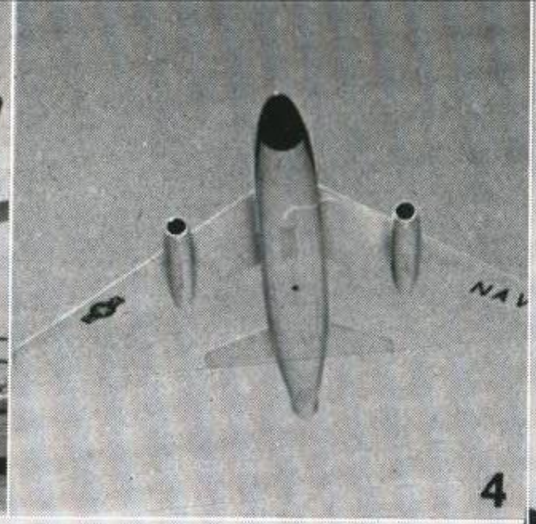
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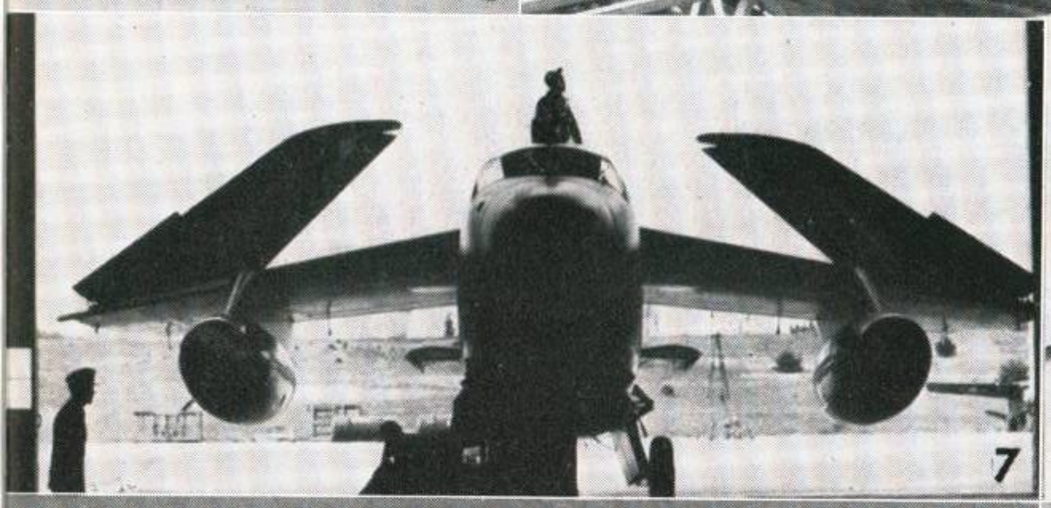
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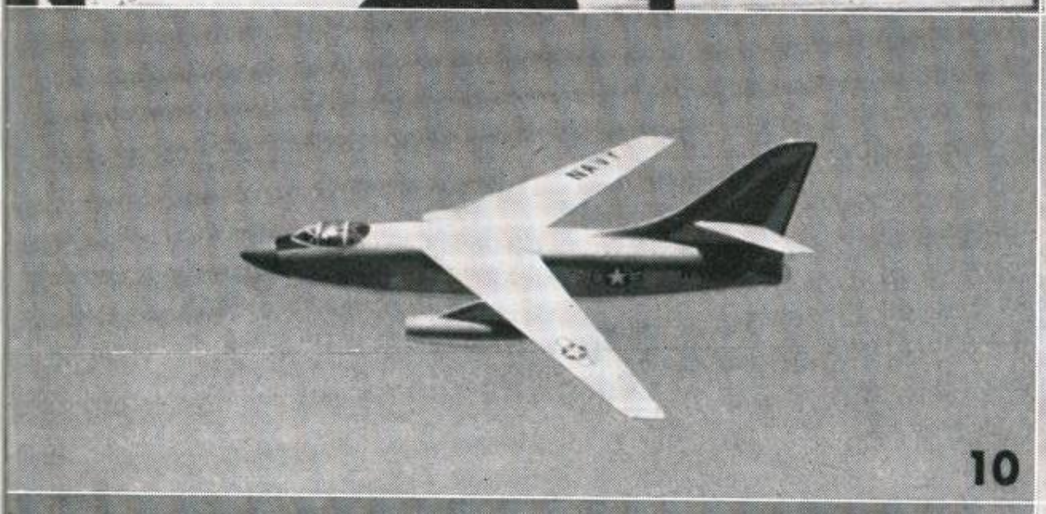
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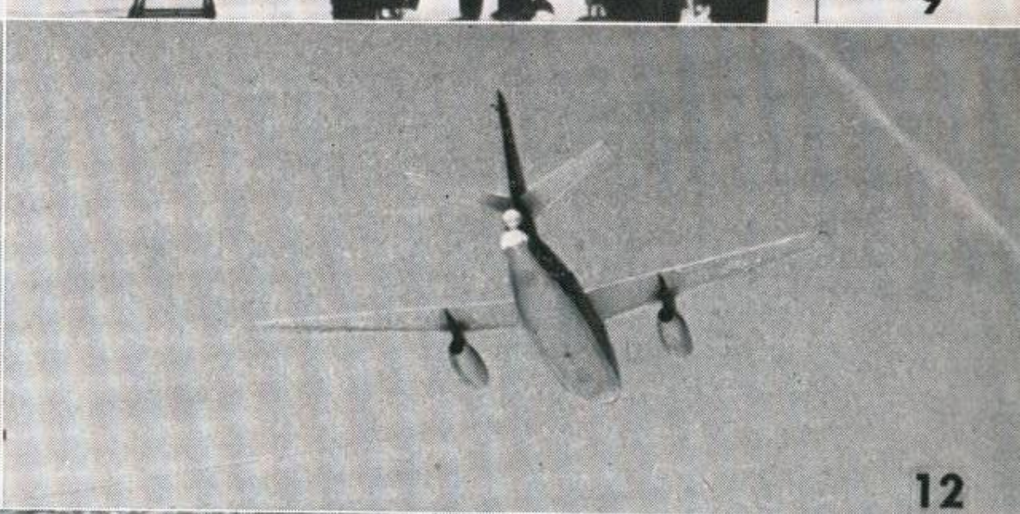
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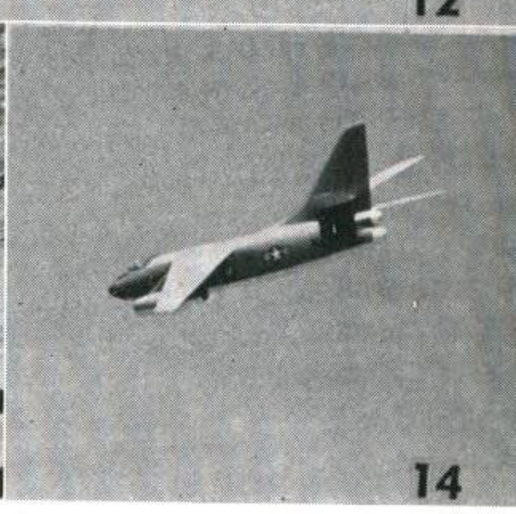
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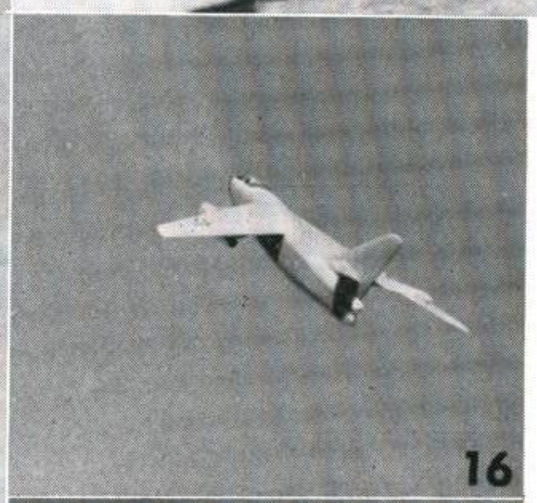
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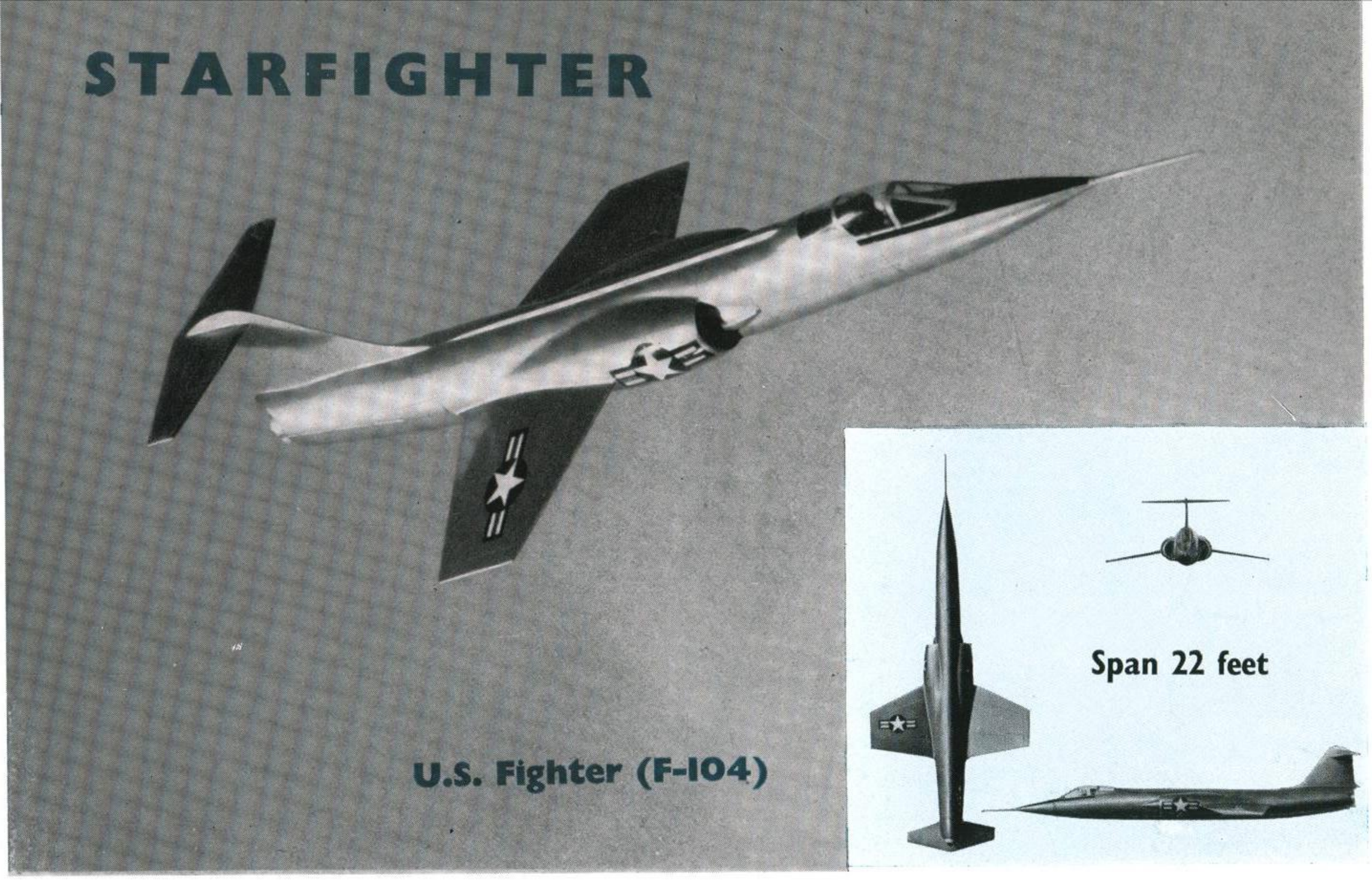
Scotching the Skywarrior

THE COLOURED 3-VIEW and photo facing are your key information, the numbered photographs are the targets, and the principle of the lesson is to use the first to solve the identities of the second. Write out a list of the target numbers first, then select a target (any one) and from comparison with the key illustrations decide whether it is a Skywarrior or not. If it is, say so on your sheet of paper. If it is not, it will be a very similar aeroplane, a B-66 Destroyer (also built by Douglas); and in this case write down *why* you can tell that it isn't a Skywarrior. Now take another target and do the same again; then another, and another, and so on until you have decided what each view is, and written each of your answers down. Finally, check your results with those on the rear cover.



A NEEDLE MATCH

The expert in aircraft identification will have little difficulty in scoring high marks for this lesson. But what about the not-so-expert? Yes, *you*: how will you fare? Perhaps the first thing to strike you from looking at the key illustrations will be that the Voodoo has swept-back wings while the Starfighter's are straight; and you might be tempted to regard that as enough to see you through the lesson. All right then, let's put it to the test: what about No. 12? They might be swept wings, mightn't they? And No. 17—are those wings straight or not? No, this won't do. You must find something more; in fact several things more if you want to be absolutely certain. You will find them all in the key pictures, and by checking

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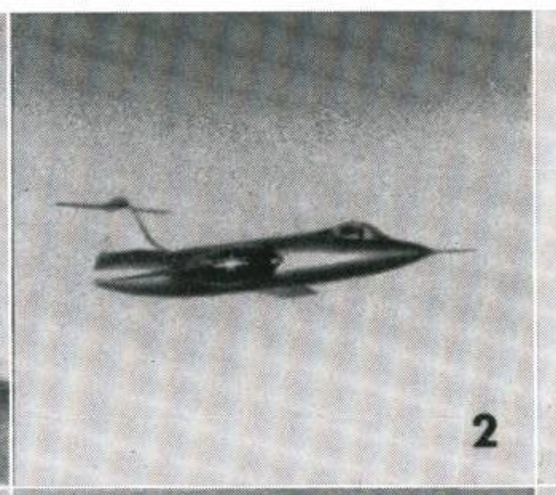
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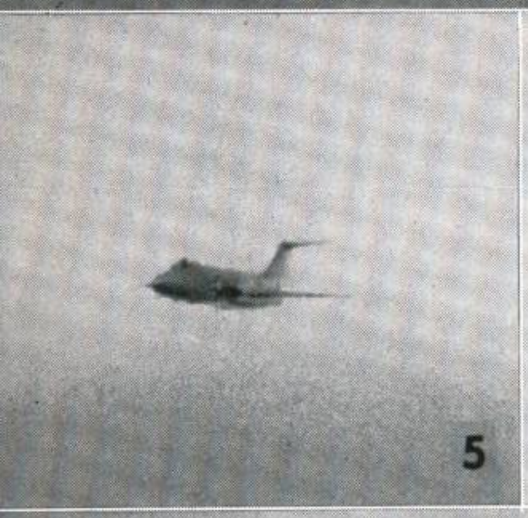
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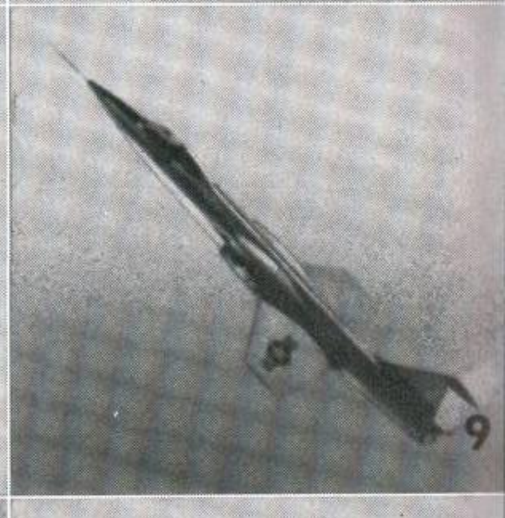
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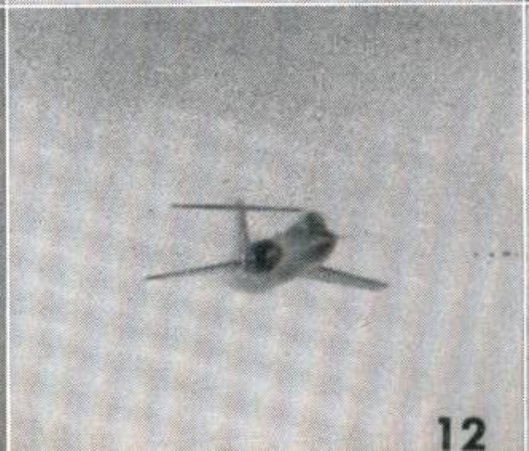
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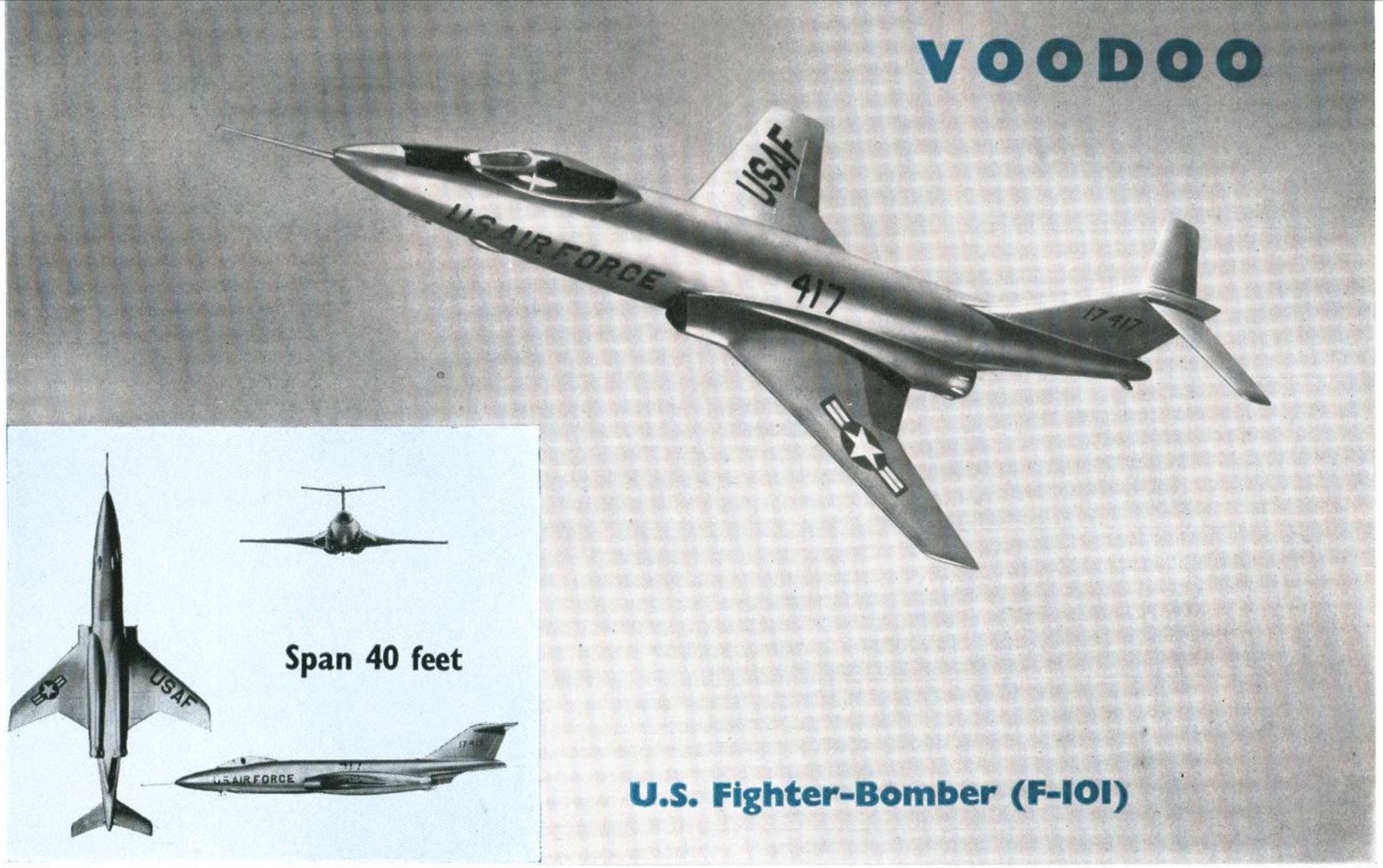
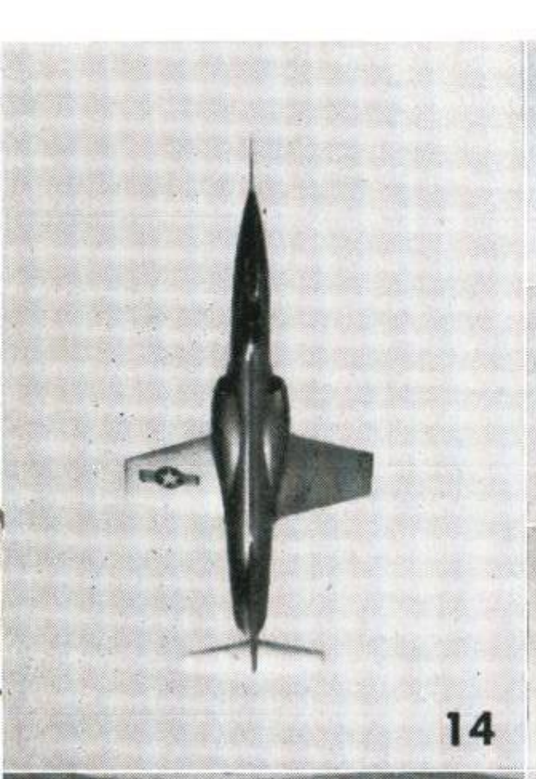


each target view point by point with each set of keys you can score just as many marks as the expert. It will take you a little longer at first, but that isn't important at this stage. What is important is to write down your answer as you go along.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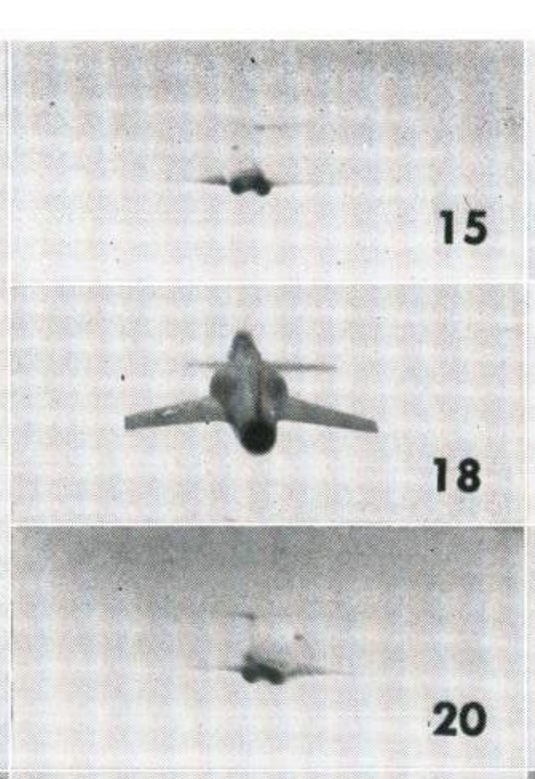
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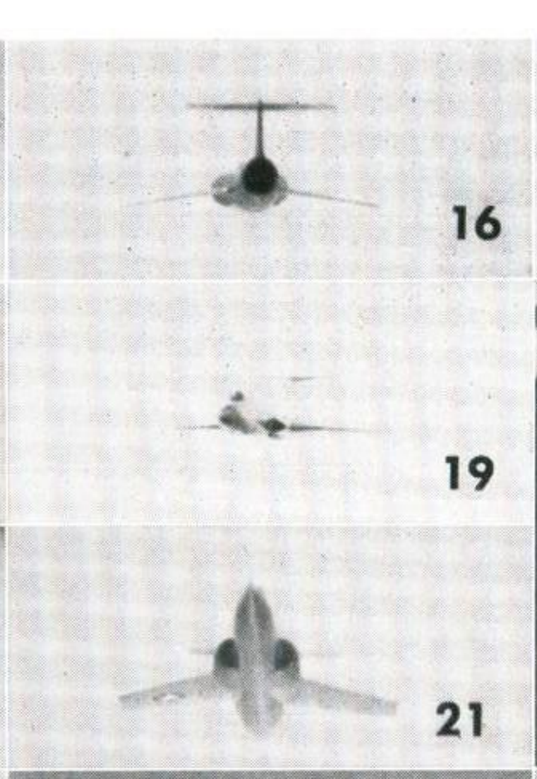
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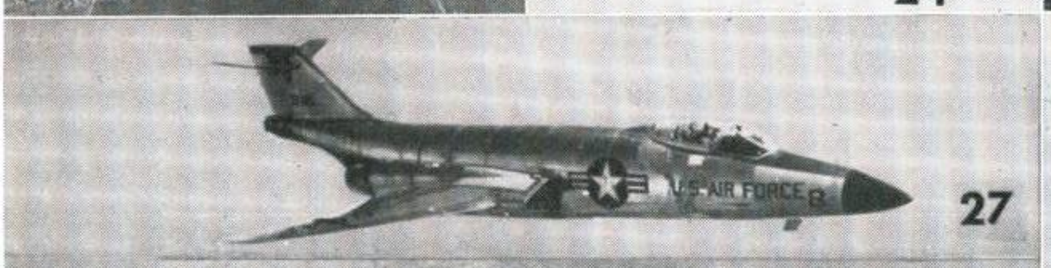
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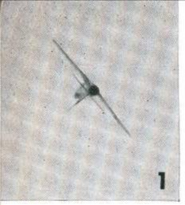
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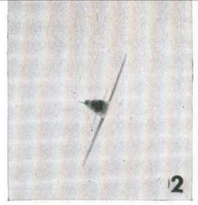
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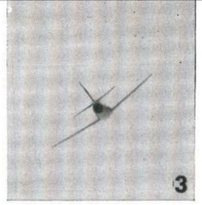
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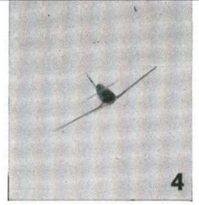
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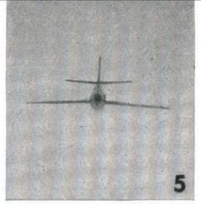
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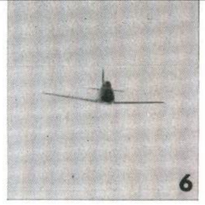
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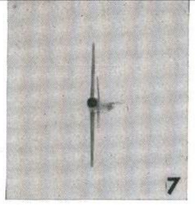
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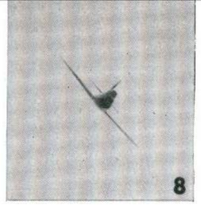
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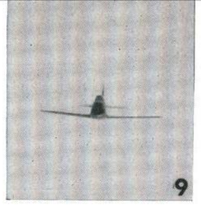
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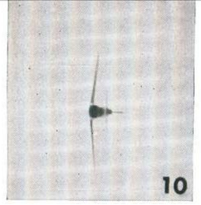
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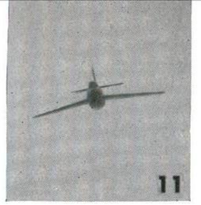
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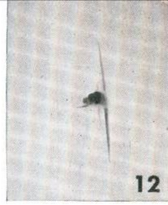
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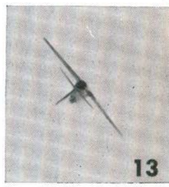
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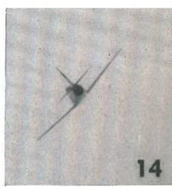
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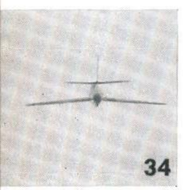
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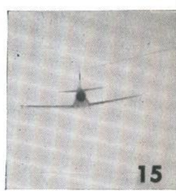
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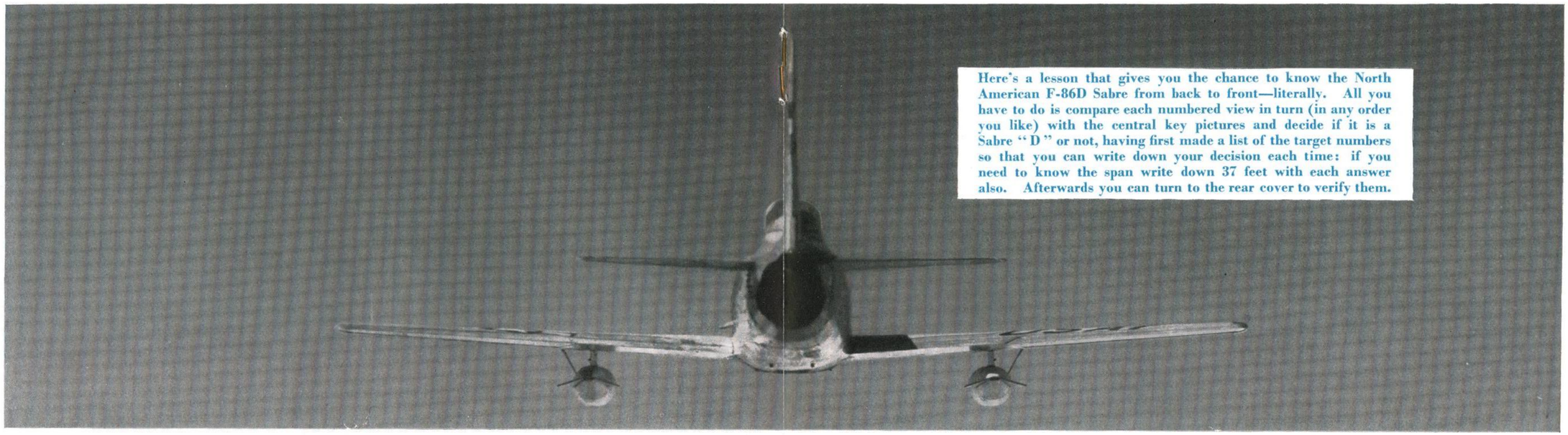

Here's a lesson that gives you the chance to know the North American F-86D Sabre from back to front—literally. All you have to do is compare each numbered view in turn (in any order you like) with the central key pictures and decide if it is a Sabre "D" or not, having first made a list of the target numbers so that you can write down your decision each time: if you need to know the span write down 37 feet with each answer also. Afterwards you can turn to the rear cover to verify them.


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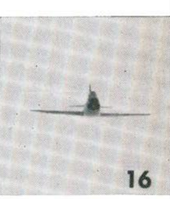
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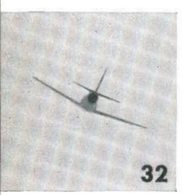
SABRE "D"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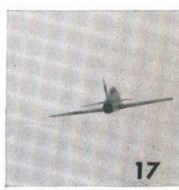
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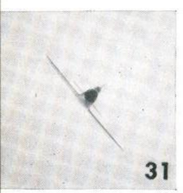
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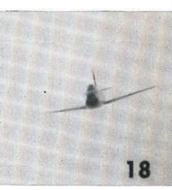
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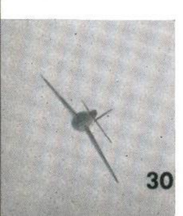
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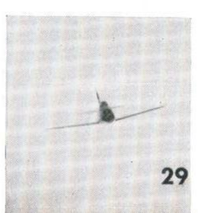
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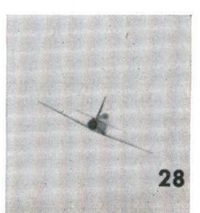
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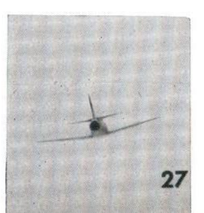
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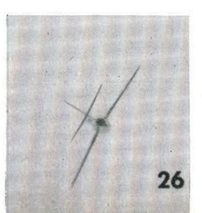
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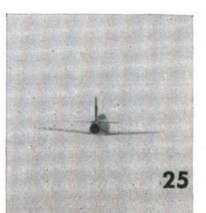
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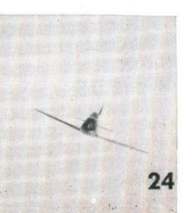
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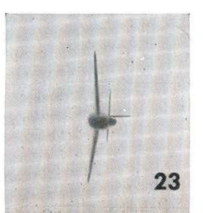
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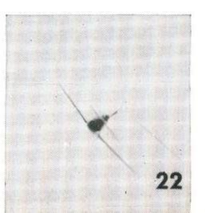
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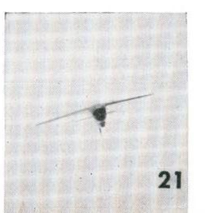
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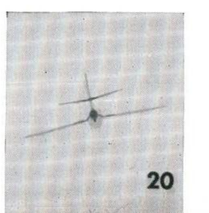
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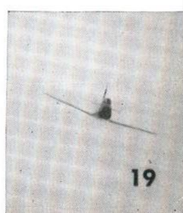
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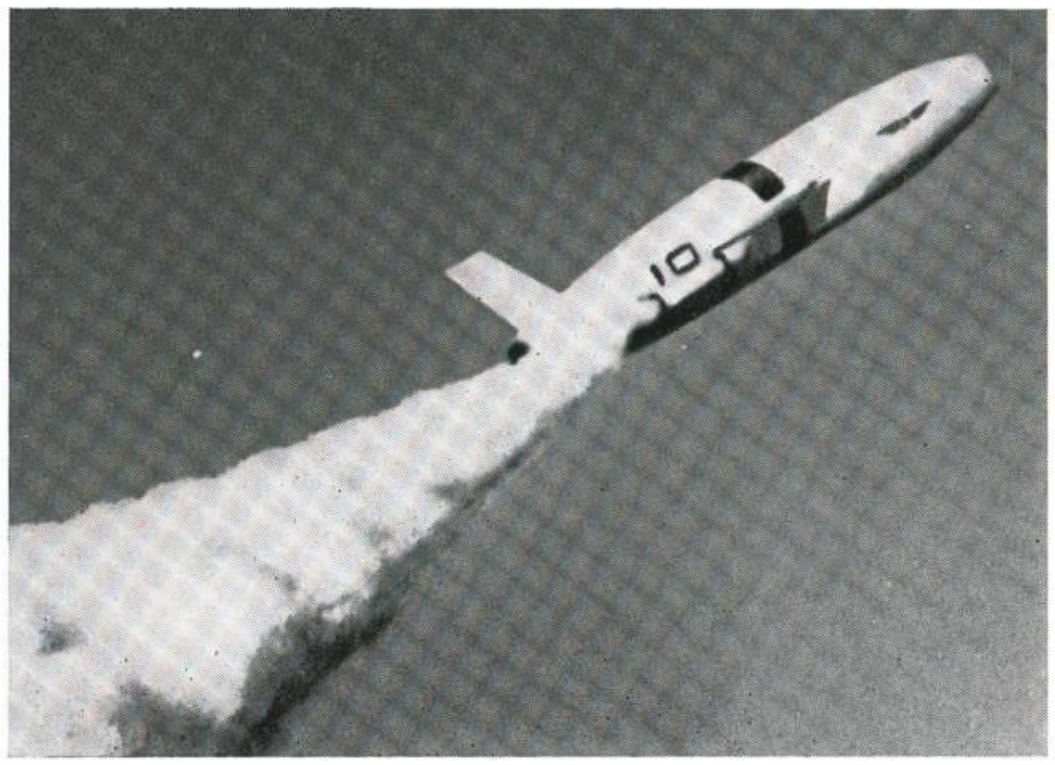
Briefs

A collection of items of news and interest which may help your recognition.

Post Haste

Postal history was made in the U.S.A. on June 8th, when three thousand letters were delivered from a submarine at sea—the U.S.S. *Barbero*—to the Florida mainland, contained in a Regulus guided missile. The Regulus was fired from 110 miles out, and the whole operation, including launching preparations, took only 22 minutes.



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Fighter's Fate

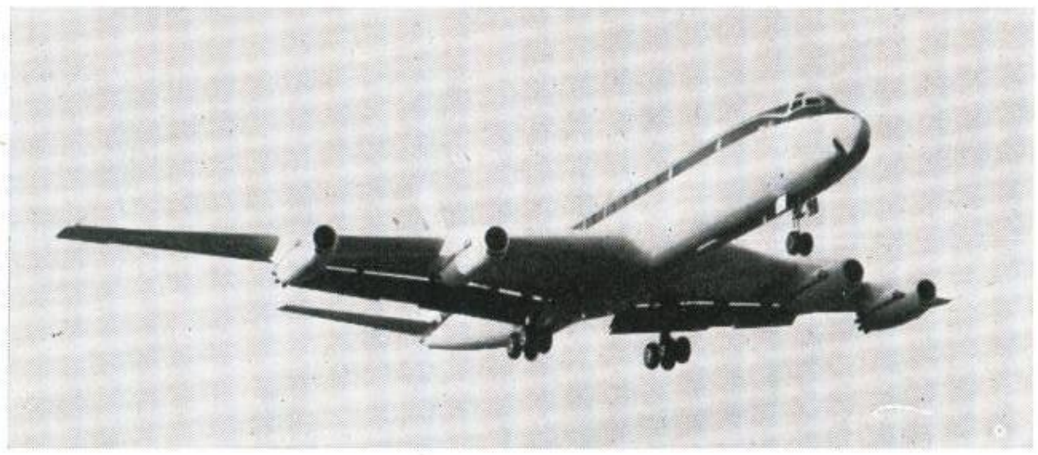
Although the F8U-3 Crusader was not selected for U.S. Navy service, the prototypes that were completed will be put to a very good use: they have been handed over to the N.A.S.A. (National Aeronautics and Space Administration) for research into problems connected with supersonic airliners.

"Freedom Fighter"

This is the title under which the Northrop Corporation are proclaiming their new N.156F multi-purpose fighter, seen here at its official unveiling earlier in the year which was attended by representatives of more than 40 countries. The N.156F is designed to meet the needs of America's allies rather than those of the U.S. herself, and is built to a "high-performance, low-cost" concept. Early availability is assured by its similarity to the T-38 Talon trainer now in production for the U.S. Air Force, but the N.156F is meant to be built in the countries which will use it, thus reducing the burden of U.S. military aid to foreign governments.

Sky Giants—1

The Chairman of Douglas Aircraft handed over in June the first operational example of his company's DC-8 jet airliner. It went to United Airlines, who are to begin operation of the type this month. They have a fleet of 40 DC-8s on order for U.S. domestic and Honolulu routes.



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Sky Giants—2

The Belgian airline Sabena is getting ready to receive its first Boeing 707-320 Intercontinental jet airliner. It is due in December and is one of five on order by this airline. The Boeing 707 is already a familiar sight (and sound!) in and around London Airport, where it can be seen in the livery of Pan American, and B.O.A.C. also are soon to introduce it on some of their routes.

* * *

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R.N. £.s.d. for D.H.

The de Havilland Sea Vixen is now in full-scale production for the Royal Navy, and the first front-line squadron commissioned at Yeovilton in July. A further substantial order has been placed for this all-weather intercepter, which the manufacturers say should keep them busy for the next two years at least.

* * *

With Bill Brewer, Jan Stewer . . .?

The American *Aviation Week* reports that the Soviet Union is preparing to put the Yak-24 helicopter "Horse" into commercial service as a 30-seat passenger transport.

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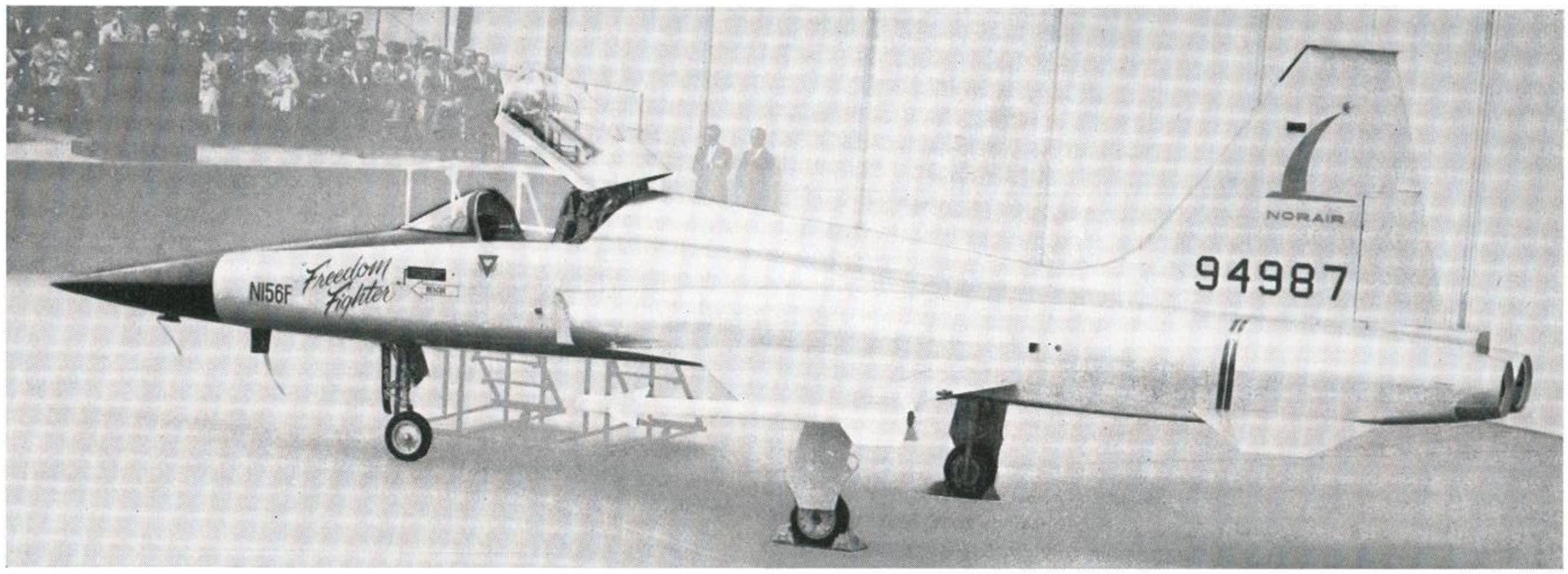
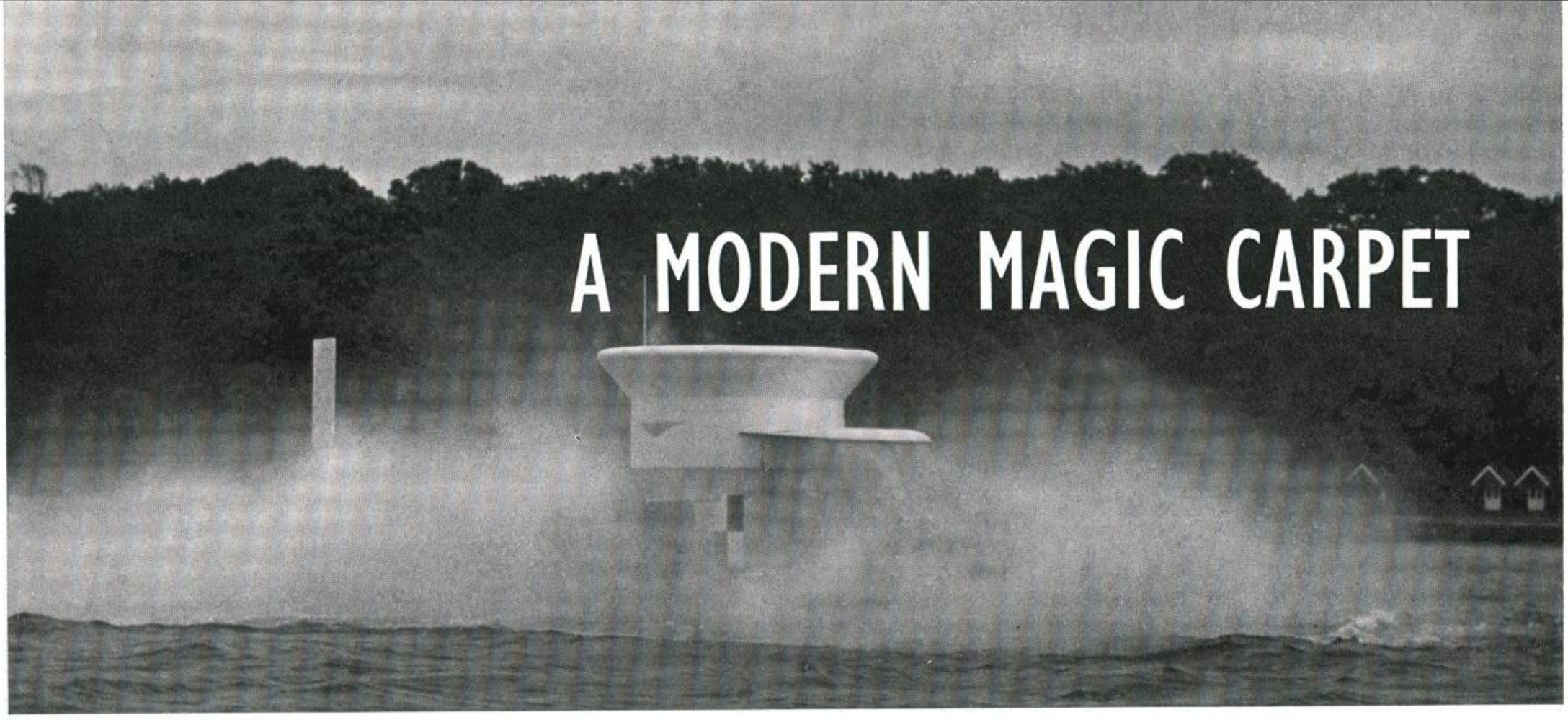




A MODERN MAGIC CARPET

THIS is a photograph of an entirely new form of transport. It has no wheels yet it can travel over land; it neither floats (except at rest) nor flies, but skims through the air just clear of the surface. It could perhaps be described as an air ship (not airship). Saunders-Roe, its builders, call it a Hovercraft, though various other names have been suggested such as skimmer, skitterbug, scudbug and others. Well, skitterbug, scudbug or skimmer, the Hovercraft SR-N.1 has arrived and it is a product of the genius of Mr. C. S. Cockerell, a boat builder.

Looking for ways to overcome friction between boat hulls and water, he hit upon the idea of interposing an air cushion. He built a model and took it to the Ministry of Supply. The National Research Development Corporation were persuaded to put up some money and Saunders-Roe arranged to build the first experimental designs. That is, at any rate, a nutshell story of a far from nutshell struggle to get the machine onto its feet—or rather its cushion.

What is it precisely that Mr. Cockerell has devised? It is in fact an entirely new system of suspension which supports a vessel on a cushion of air enabling it to be propelled with frictionless ease over any reasonably flat surface, liquid or solid. The SR-N.1 is the first full-scale, man-lifting version of any vehicle ever to be built employing this principle.

The air cushion is generated by means of an engine-driven fan in a duct (that large "funnel" seen in the middle on the craft). Air is sucked down the "funnel" and driven out underneath the vessel through ducts which form a curtain of air all round the outside and build a cushion of air within the curtain. The cushion lifts the vessel and holds it steady and clear of the operating surface. Since it moves with the vessel, air is continually spilled, but this is made good by air from the curtain.

The vehicle is inherently stable. It cannot suddenly take into its head to misbehave and fly up into the air out of control, nor turn turtle. Any attempt to rise above operating height is met by an immediate loss of cushion pressure, so it is almost true to say that the Hovercraft is back where it started before it begins to rise. If the air supply fails, it sits down smack on its bottom.

The operational height of such air-lift vessels varies with their size—in fact it is a case of the larger the higher.

The SR-N.1 rises some 15 inches above the surface and so can cope with a rougher surface than the small model. In turn, larger machines will cope with even greater irregularities of surface.

The engine of the SR-N.1 is an Alvis Leonides of 435 horse-power. This drives a four-bladed axial fan which supplies the air curtains, the cushion and propulsive and controlling power. The propulsive and controlling air is led to four jets, two facing forward and two aft. These enable the pilot of the craft to propel backwards or forwards or to spin round. The auxiliary fin surfaces in the jet effluxes aid pitch control and two high-aspect ratio rudders give some directional control.

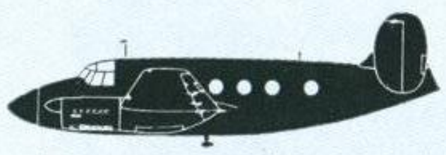
With her propulsive jets at full power the SR-N.1 can skim along a flattish surface at 25 knots. She weighs, incidentally, $4\frac{1}{2}$ tons, but when in the hovering condition can be pushed around by hand. She normally has a crew of two but is capable of lifting twenty, as she ably demonstrated at the S.B.A.C. Display at Farnborough.

Since her initial trials off Cowes, SR-N.1 has extended her areas of operation. Her latest exploit is to cross the English Channel from Calais to Dover in two hours or so.

Mr. R. Stanton-Jones (Chief Designer of Saunders-Roe) and Mr. Cockerell are confident of being able to produce much larger craft later on, up to 10,000 tons in fact, and the Chief Designer has thoughts on a 100,000-ton craft which would be over a mile long! This would be able to cope with the heaviest of seas.

From the point of view of operating efficiency too, the bigger the craft the better; by doubling the size (and thrust) the total area of the machine is quadrupled; so is the weight she will lift. But this cannot go on indefinitely and both inventor and designer consider the next step to be something in the nature of a cross-channel ferry of some kind which will do the trip from England to the Continent in a matter of 10 to 15 minutes. Such a vehicle would weigh about 100 tons and would cruise at 90 knots and carry about 300 passengers and baggage. To her first flight, lift, move, rise, hoist, heave, glide, skim, blow, blast or whatever it can be called, we look forward with the keenest interest.

Up she rises!



The Dassault FLAMANT

MULTI-PURPOSE AIRCRAFT

SOMEWHAT PORTLY for a machine bearing the name "flamingo," the Dassault Flamant was built in fairly large numbers for the French Air Force, whom it serves as a liaison or communications aircraft, passenger transport, or bombing and navigational trainer. Externally, these models are all much the same to look at, although their noses may vary between transparent and "solid." Work this lesson in the usual way, writing out your answers each time and keeping a lookout for "jokers." Solutions are on the rear cover.

KEY PHOTO

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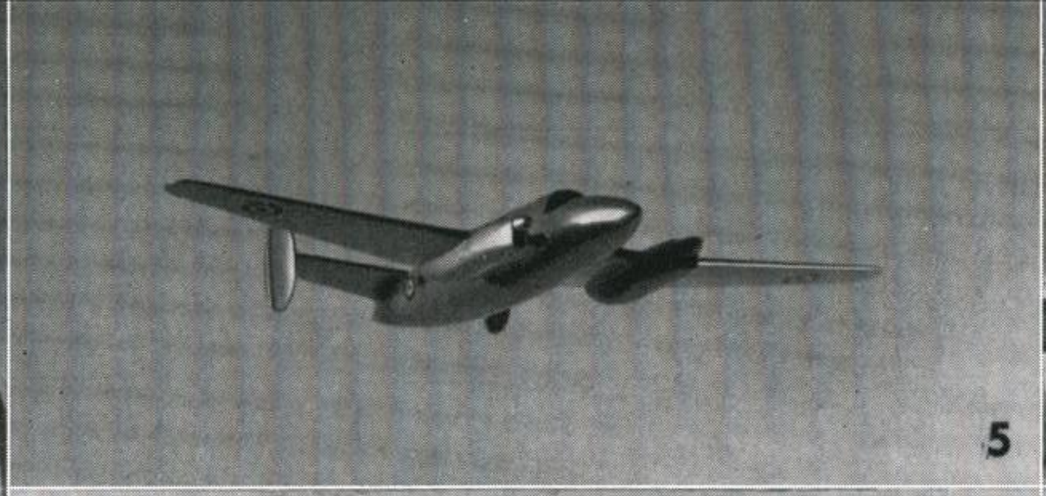
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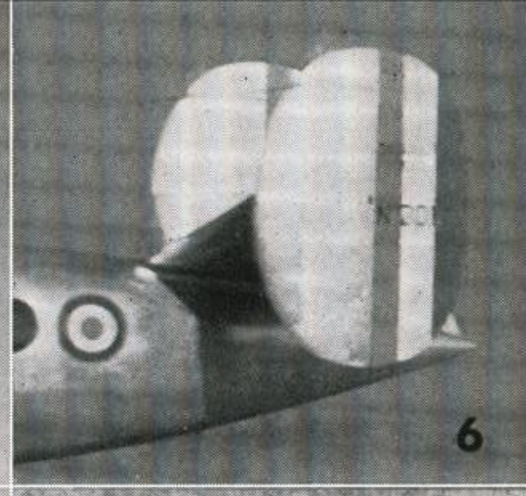
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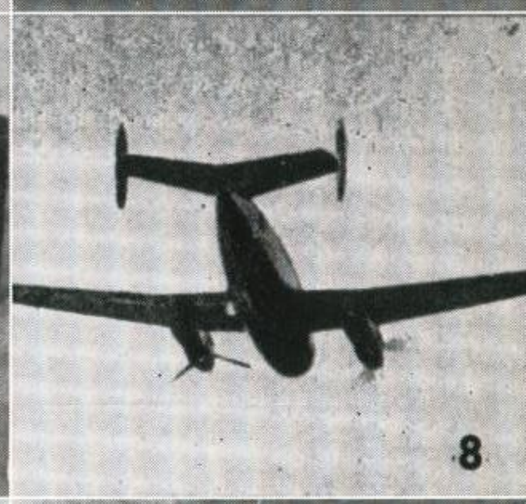
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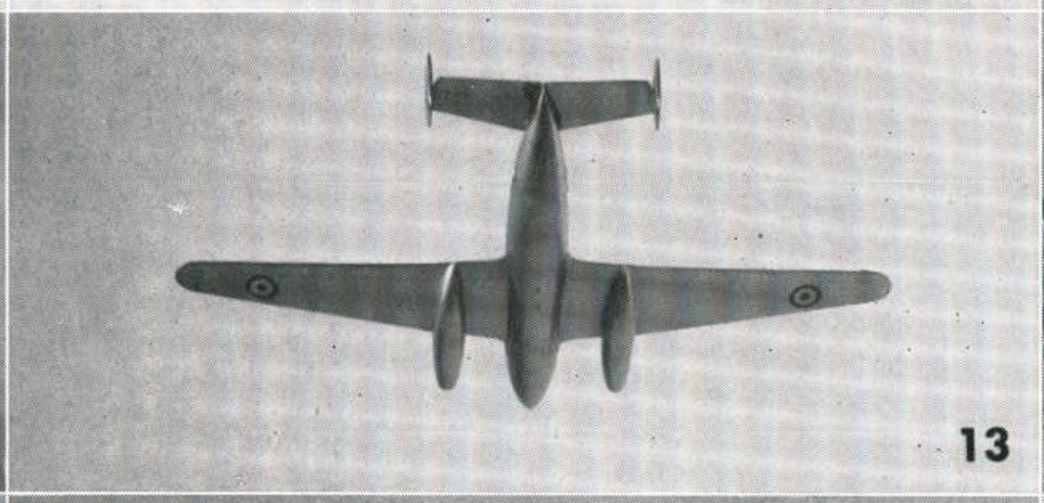
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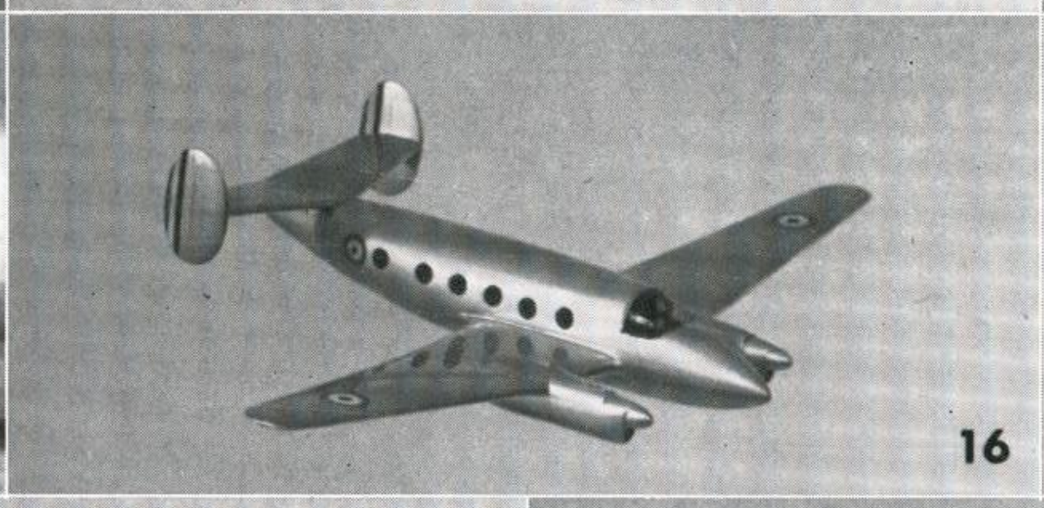
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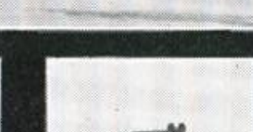
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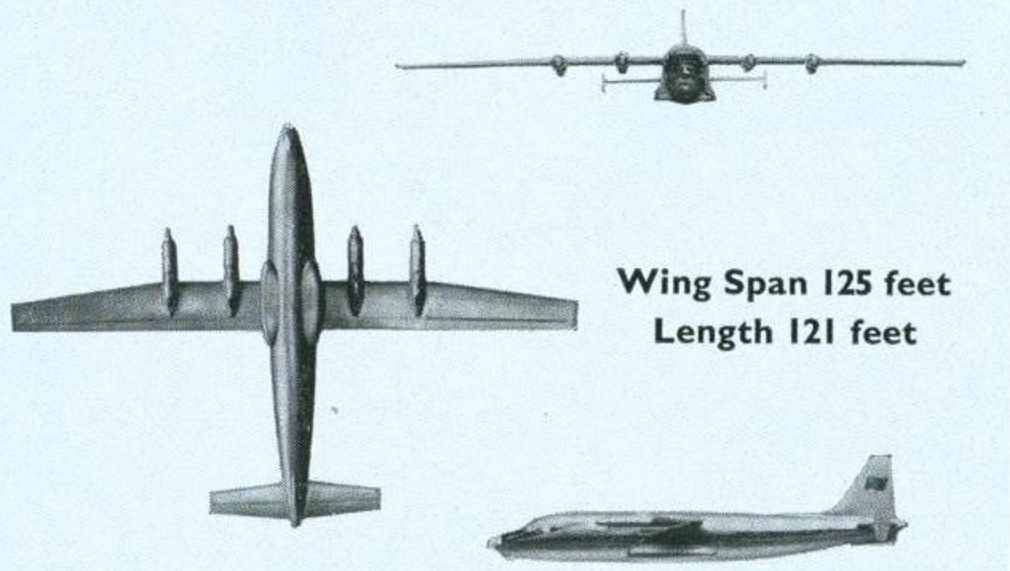
Soviet Circus—9

The AN-10 Passenger/Freight

TRANSPORT

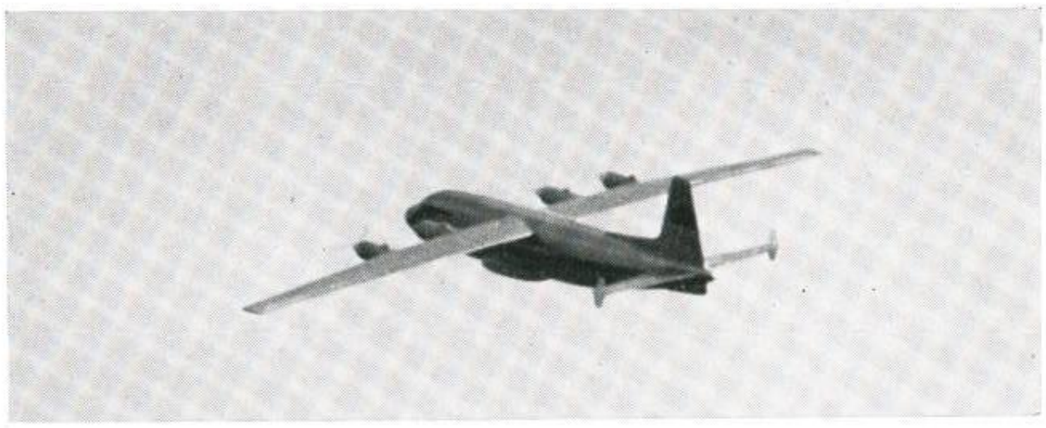
UKRAINA

(NATO: "Cat")



"I AM SITTING IN A PRODUCT OF ENGINEERING SKILL THAT IS A REVELATION." This was how the *Daily Express* air correspondent summarised his opinion of the AN-10 Ukraina transport aeroplane after he and other aviation writers had flown to Moscow on one of the first B.E.A. flights into that city after the introduction of reciprocal London–Moscow services by the British airline and Aeroflot. There they found not only a reception committee of Russian airline officials, but a highly impressive parade of the latest Soviet airliners. Numerically the TU-104s and IL-18s were predominant, but two examples were also on view of the Antonov Ukraina, and correspondents were encouraged to walk round, enter, photograph and ask questions about them all.

The particular Ukraina which provoked such glowing comment was fitted out as a 100-seat luxury passenger carrier, with two-tone décor in pastel colours, plush velvet seating and push-buttons on the arm rests which provided the traveller with waitress service, radio and reading lamp. However, it was generally felt that at the current state of Ukraina production this was probably the exception rather than the rule—though it is an indication of what may be expected when the Ukraina does go into regular passenger operation.



It is also a sharp contrast to the rugged and rather utilitarian exterior of the Ukraina, which suggests far more the "hack" freighter built for use on rough and ready airfields and grass strips in the Russian outback. All Russian transport aircraft, with the possible exception of the sophisticated IL-18 Moscow, are deliberately designed as a compromise between military and commercial usage, and this is hardly surprising —apart from the obvious economic advantage—since Aeroflot, for all its commercial activities, is indivisible from the picture of Soviet air power as a whole. It was the opinion of another reporter that "virtually only a screwdriver" would be needed to convert the Ukraina from military to civil operation, but converted military aircraft or no, the Ukraina is still a very valuable civil airliner.

The only question Russian officials evaded was "How many?"—for obvious reasons already mentioned—but they had previously admitted to over 40 Ukrainas being built, and on this basis the current estimate of about 50 appears quite justifiable, perhaps even a little conservative. The division of these between the Soviet Air Force and Aeroflot was not revealed, but their relative scarcity at the Vnukovo line-up in May suggests its own conclusions. One small recognition change which has emerged is that production Ukrainas (known as the AN-10A) are apparently being fitted with two hexagonal auxiliary fins at the tailplane extremities.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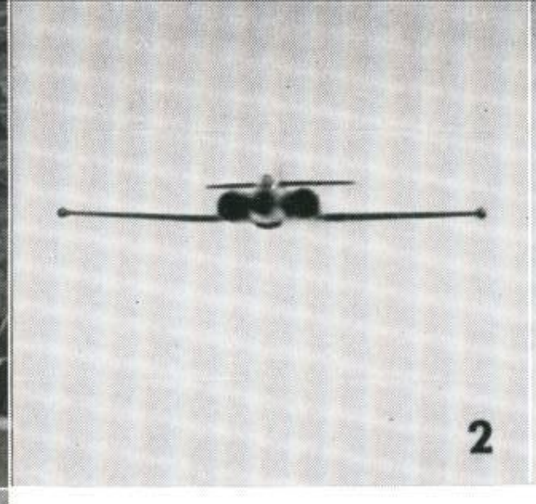
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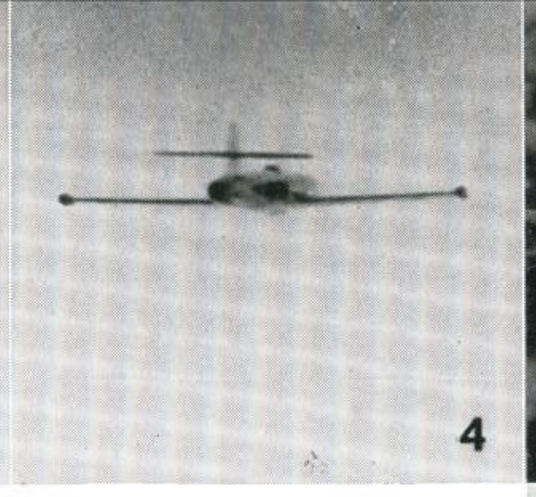
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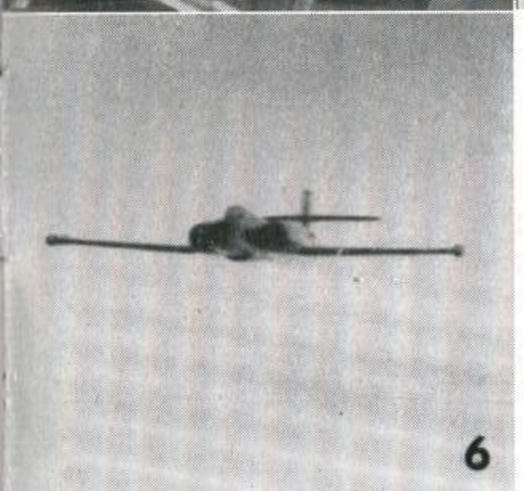
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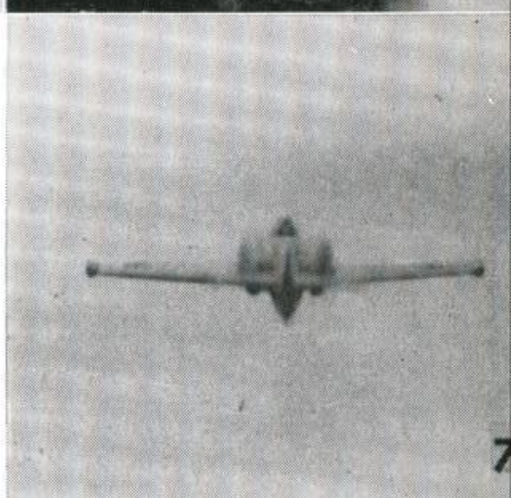
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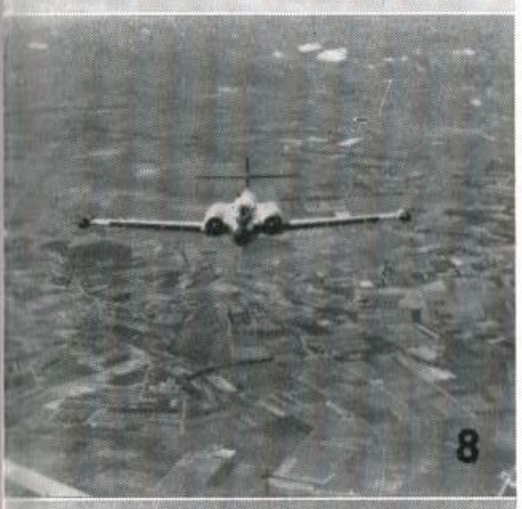
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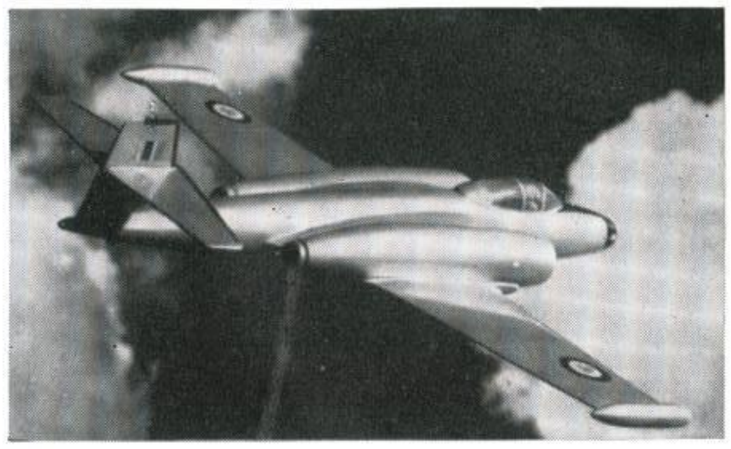

The Avro (Canada) **CF-100** Mk. 4

Currently arming R.C.A.F. squadrons in Canada and Europe, the CF-100 is a hefty twin-engined all-weather fighter on which *Journal* lessons were published in March and May 1956. Curiously, although head-on and tail-on aspects are generally the most difficult in recognition, these are probably among the easiest to identify where the CF-100 is concerned because of the unique engine/fuselage relationship. Thus encouraged (we hope), have a shot at this lesson, not forgetting to write down your answers each time. Ours are on the rear cover.


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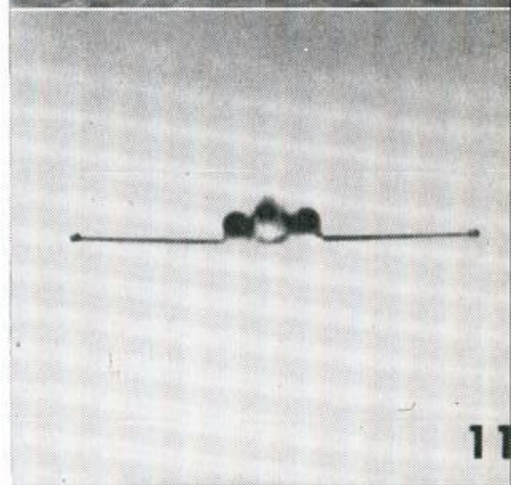
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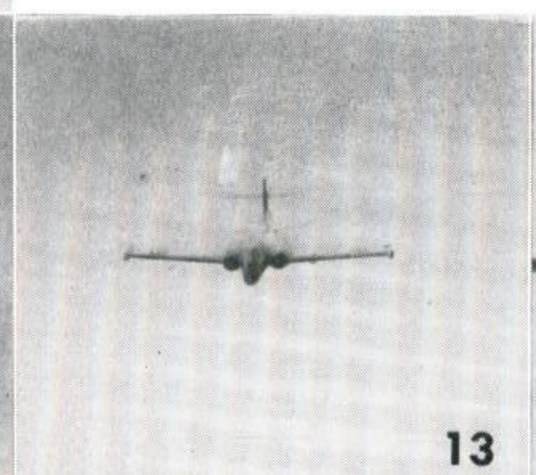
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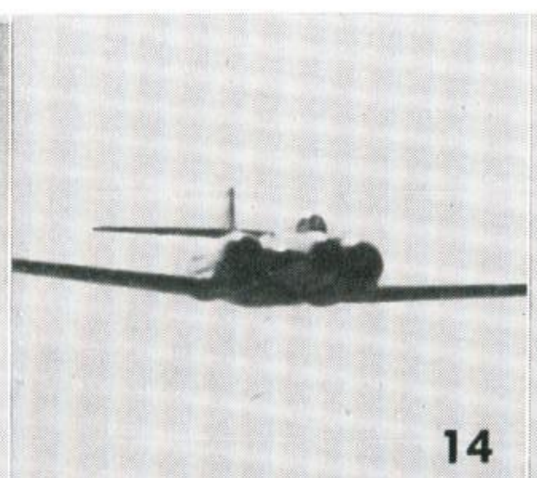
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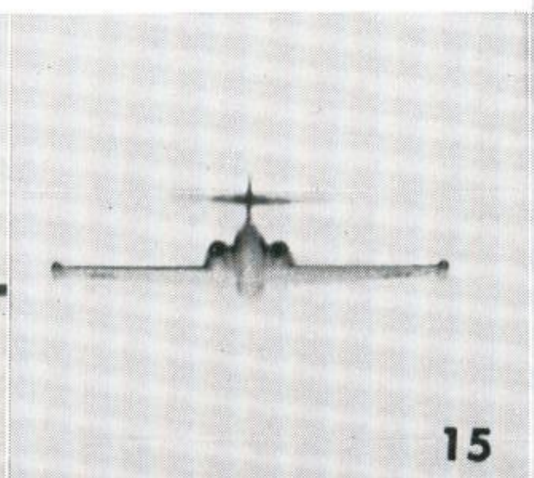
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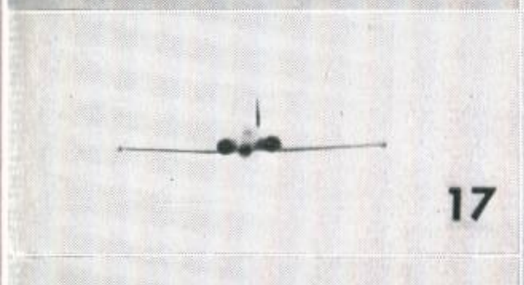
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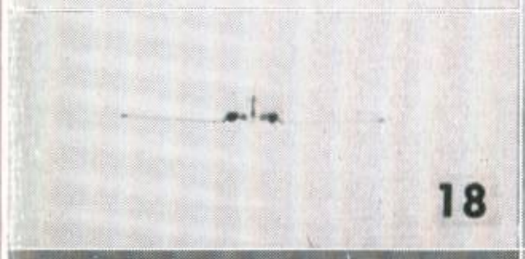
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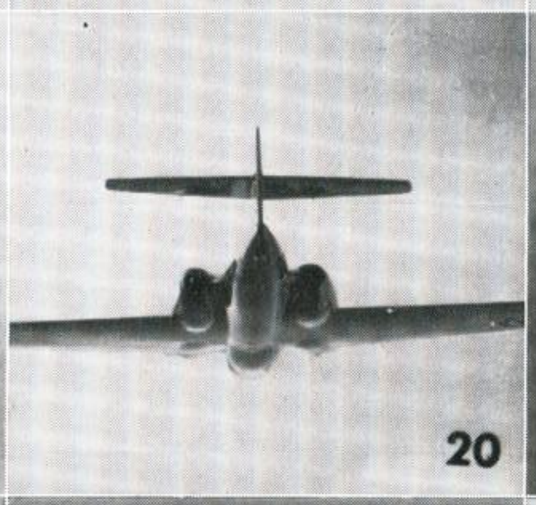
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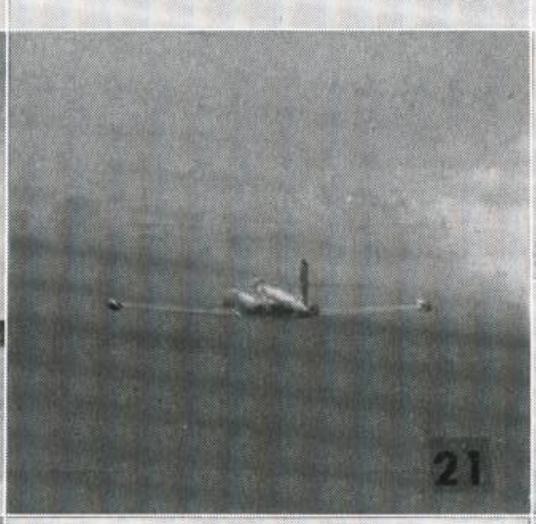
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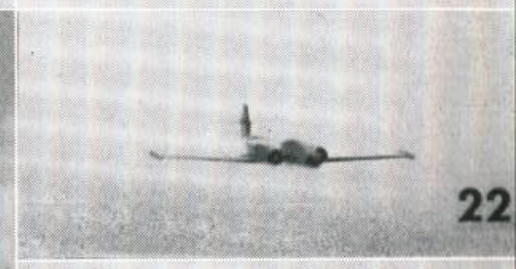
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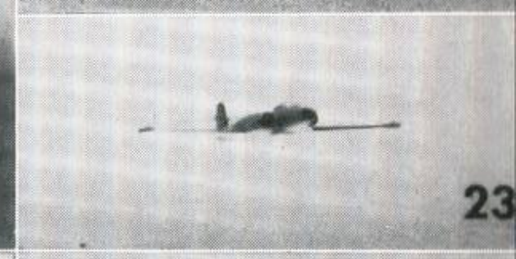
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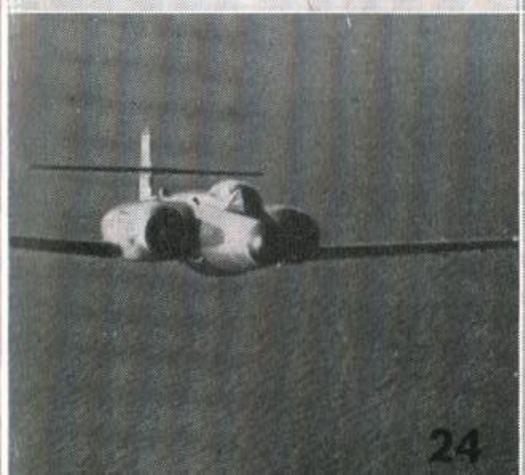
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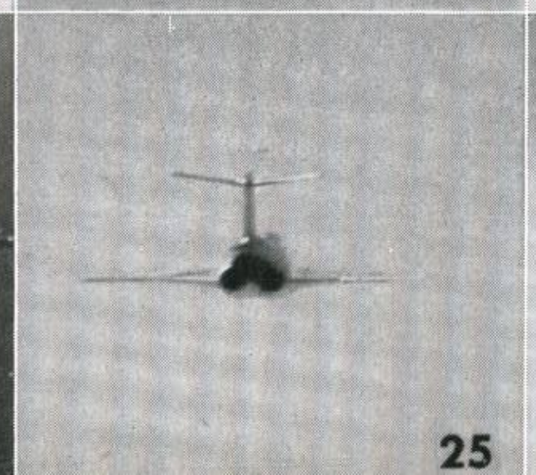
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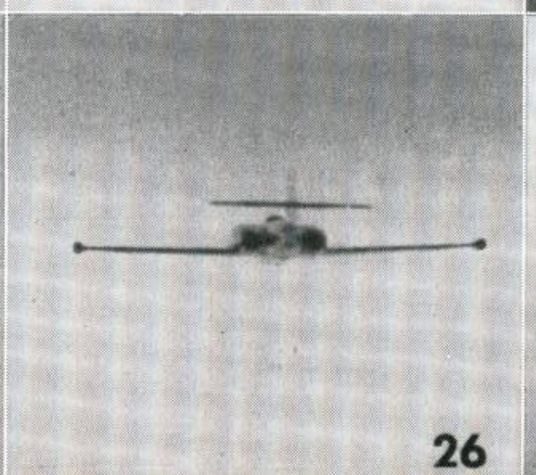
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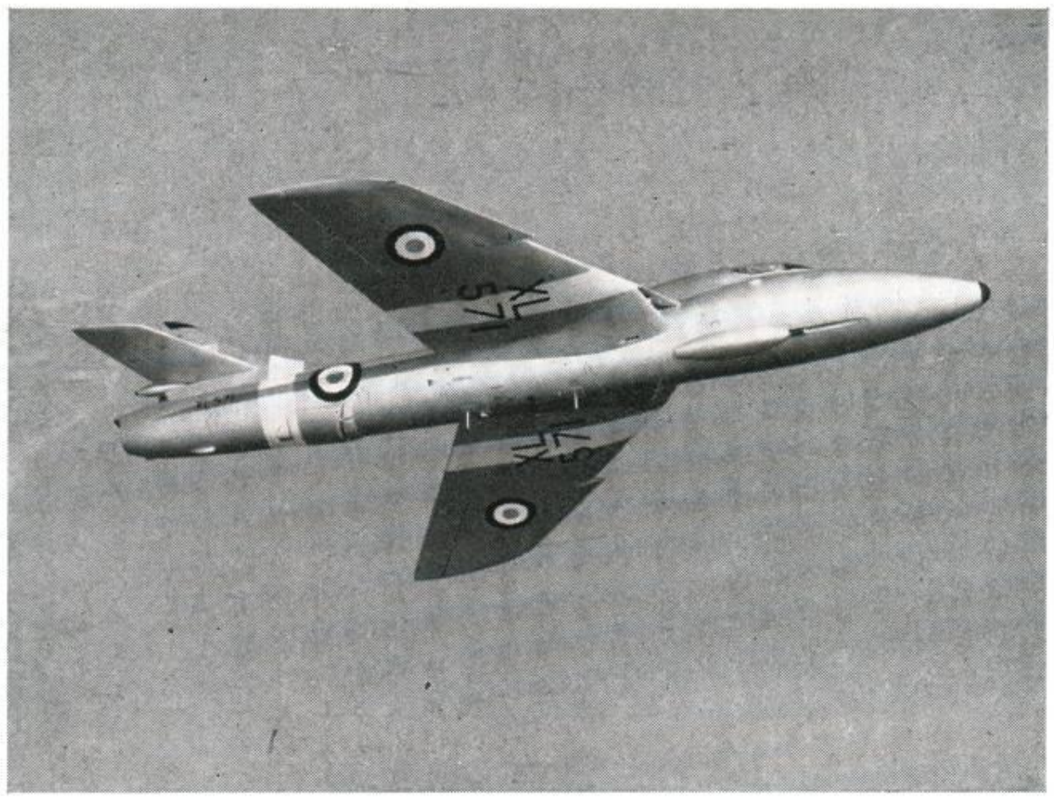


Cover Photo: The two-seater Hunter T Mk. 7 from an interesting angle showing many features clearly, including its single offset cannon and the saw tooth leading edges. This operational/advanced trainer was flown at supersonic speed by King Hussein of Jordan during his visit to Hawkers Test Airfield in April, 1959.

SABRE "D"

All the targets are **F-86D Sabres** except Nos. 5, 11, 20, 23, 26, 30 and 34, and these are **Thunderstreaks.**

CF-100

No. 25 is a **Voodoo.** All the other target views are **CF-100s.**

FLAMANT

No. 11 is a **Bretagne.** All other target views are **Flamants.**

SOLUTIONS TO TESTS AND LESSONS

NICE WORK

		Span in feet
1.	**Vautour**	50
2.	**Mystère** 4a	36
3.	**Sabre** (F-86E)	37
4.	**Hunter** F Mk. 6	34
5.	**Magister**	40
6.	**Aquilon** (*Sea Venom* 21)	43
7.	**Super Sabre** (F-100C)	38
8.	**Scimitar** F Mk. 1	37
9.	(*left*) **Sabre** (F-86E)	37
	(*right*) **CF-100** Mk. 4	52
10.	**Bison**	171
11.	**Vautour**	50
12.	**Thunderflash** (RF-84F)	34
13.	**Seahawk** FGA Mk. 6	39
14.	**Flashlight-A**	41
15.	**Martin B-57A** (*Canberra*)	64
16.	**Badger**	112
17.	**Super Sabre** (F-100C)	38
18.	**Canberra** B Mk. 6	64

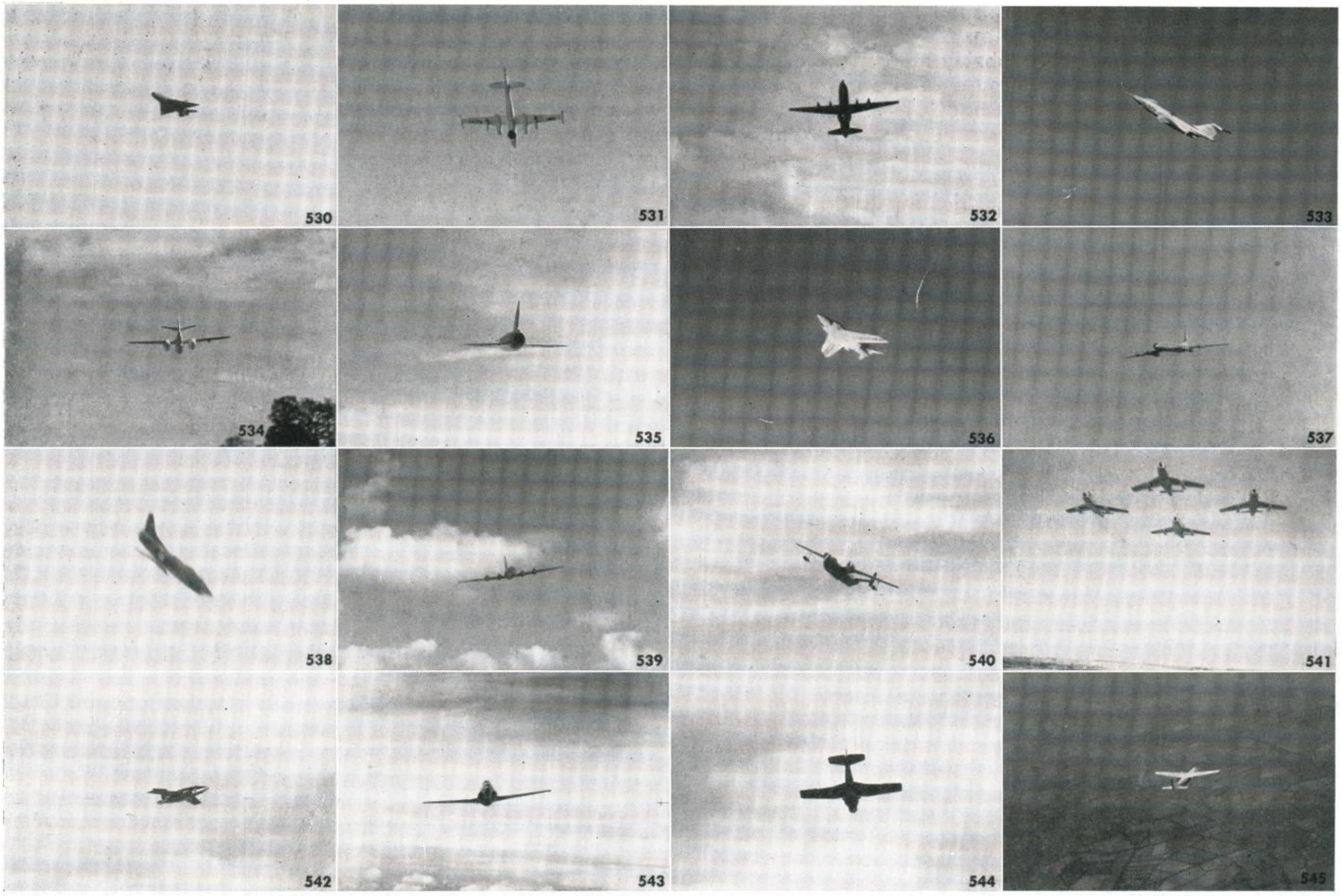
NEEDLE MATCH

1.	**Starfighter**	14.	**Starfighter**	27.	**Voodoo**
2.	**Starfighter**	15.	**Voodoo**	28.	**Starfighter**
3.	**Starfighter**	16.	**Starfighter**	29.	**Starfighter**
4.	**Voodoo**	17.	**Voodoo**	30.	**Voodoo**
5.	**Voodoo**	18.	**Starfighter**	31.	**Starfighter**
6.	**Starfighter**	19.	**Voodoo**	32.	**Voodoo**
7.	**Voodoo**	20.	**Voodoo**	33.	**Starfighter**
8.	**Voodoo**	21.	**Starfighter**	34.	**Starfighter**
9.	**Starfighter**	22.	**Starfighter**	35.	**Voodoo**
10.	**Voodoo**	23.	**Voodoo**	36.	**Voodoo**
11.	**Voodoo**	24.	**Starfighter**	37.	**Starfighter**
12.	**Starfighter**	25.	**Voodoo**		
13.	**Starfighter**	26.	**Voodoo**		

SKYWARRIOR

They are all **Skywarriors** except Nos. 11 and 17, which are **B-66 Destroyers.** The latter can be picked out by the broader wing centre section (giving a broken line to the trailing edge) and by a different cockpit enclosure.

AIRBORNE HEADACHES — No. 65



Submission dates for answers to Airborne Headaches No. 65 will be notified by Group Headquarters.

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