

THE ROYAL



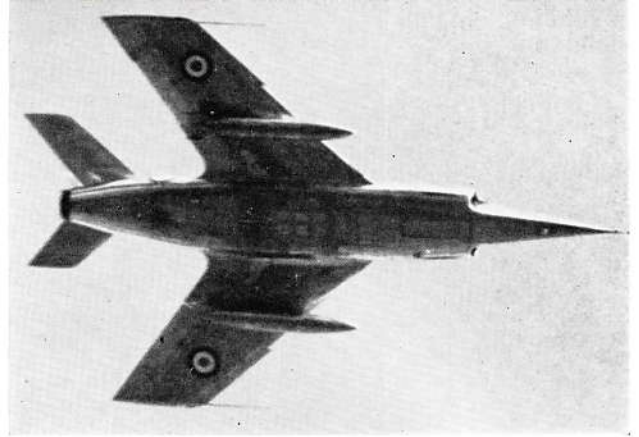
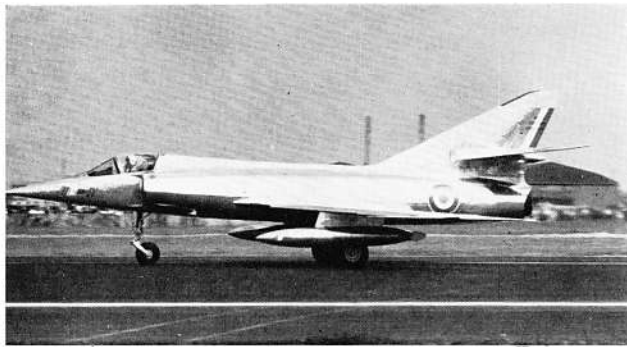
OBSERVER CORPS

RECOGNITION

Journal
and R.O.C. GAZETTE



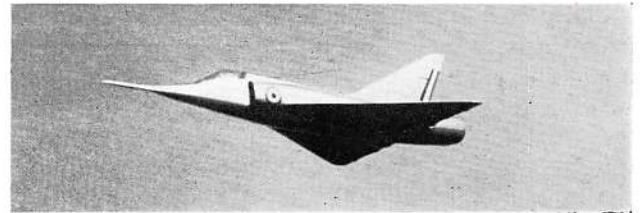
Vol. I JULY 1959 No. 7



Dassault ÉTENDARD IVM

Showing its paces at Le Bourget was one of Dassault's latest products, the Étendard IVM lightweight carrier-based fighter. Ordered for the French Navy, this Atar-powered single-seater is to be equipped with a "blown" wing which will make it operable from even the smallest carriers.

Aircraft in the News



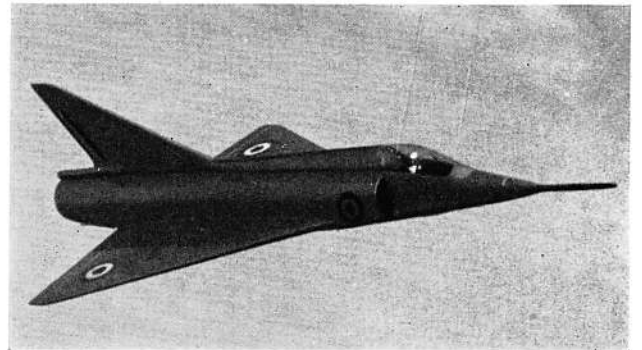
Dassault MIRAGE III

The Mirage III (above and below), subject of an article elsewhere in this edition, was an outstanding performer at the Paris Salon.

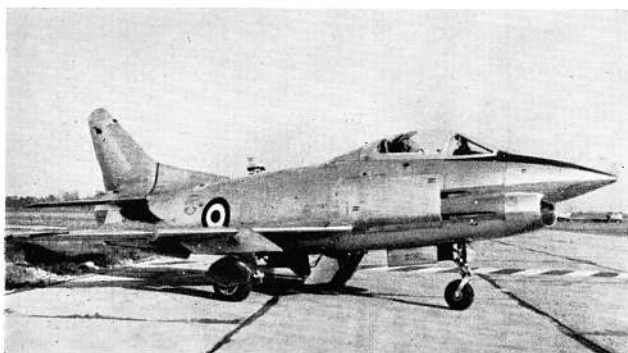


Sud-Aviation ALOUETTE II

One of France's most successful post-war money-spinners, the Alouette has already been produced by the hundred and later and larger developments are in hand.



It is an all-weather fighter which is expected to enter French Air Force service next year. The recently-flown Mirage IVA is a nuclear bomber development with twin engines.



Fiat G.91

Adopted as a standard lightweight fighter for NATO, the Italian Fiat G.91 is now in full-scale production and has attracted the interest of many other countries, including Switzerland. The Federal German Republic has purchased fifty of the G.91R reconnaissance version and obtained the licence to build a further number.



THE ROYAL



OBSERVER CORPS

RECOGNITION JOURNAL

AND R.O.C. GAZETTE

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THE THIN END OF THE WEDGE?

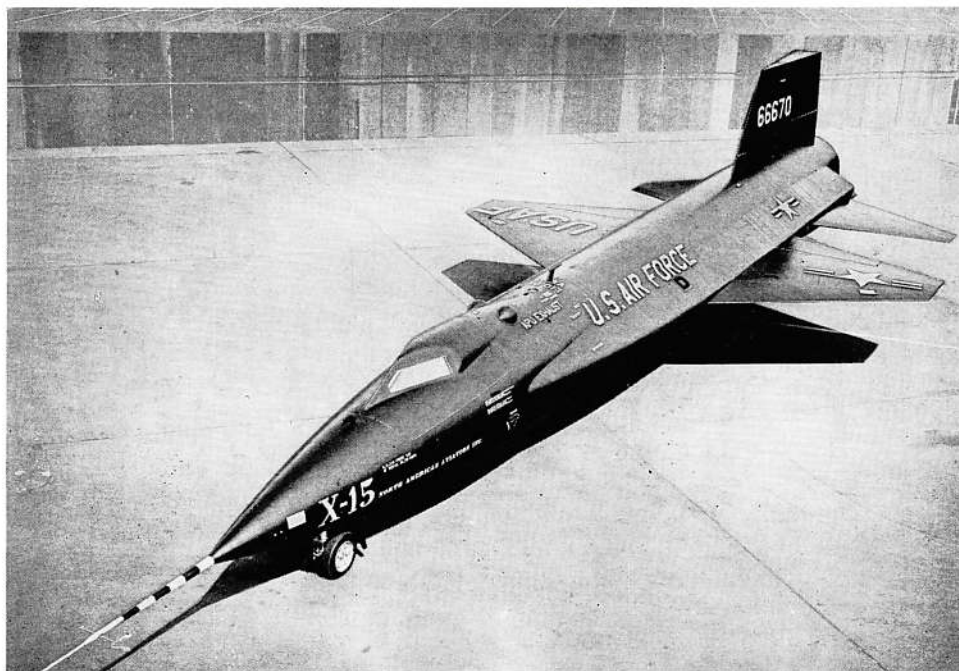
ON 10th March 1959 in the United States of America a new aeroplane went aloft on its first flight. This fact in itself is not remarkable—somewhere in the world a new aeroplane flies for the first time almost every day—but the subject of this particular flight is one which could prove to be as significant to the second half of the twentieth century as was that of Wilbur and Orville Wright in the first.

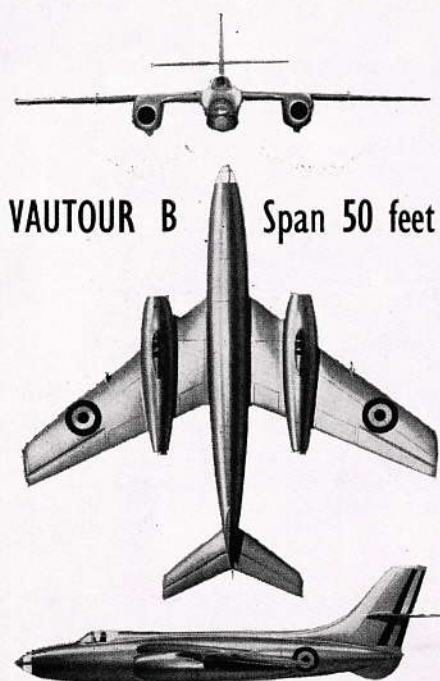
Whether from a standpoint of engineering, performance, mission or appearance, the North American X-15 is a remarkable craft by any standard, and has inevitably attracted much attention and discussion. The Wright brothers proved to a half-unbelieving world that man could fly about in the atmosphere surrounding his own planet; the flights of the X-15 will help to prove the practicability of flying out of that atmosphere into the regions beyond. Naturally this will take time: first the X-15 has to prove itself as an aerodynamic vehicle within the confines of the Earth's atmosphere, and in fact, on the first "flight" referred to above, it remained firmly attached to its B-52 "mother ship". It has thoroughly to test its construction and its performance, not to mention the physiological effects on the human pilot it will carry, and all this will occupy many months before the first step is taken to pilot it out into space.

Externally at least the X-15 presents a conventional enough outline (insofar as any high-speed aircraft nowadays can be described as conventional) and is, literally, "a missile with a man in it". It has a cylindrical body, razor-thin stub wings (spanning 22 feet), a tail-

plane and a fin and rudder assembly. Flanking the body are long wedge-shaped bulges which, in addition to fulfilling an aerodynamic function, enclose control lines, fuel pipes and other gear. The power unit is a pair of 4-barrelled liquid oxygen and ammonia rocket engines, and special metals, including stainless steel and titanium, are used to help the aircraft withstand temperatures of more than a thousand degrees Fahrenheit. There are two wedge-shaped fins, one above and one below the tail of the machine: the whole top of the upper fin constitutes the rudder, while the lower portion of the bottom one jettisons to allow clearance for the twin tail-skids on landing.

It has not been the custom to name the "X" series of research aircraft, so the X-15 will presumably continue to answer to its designation alone. But we suggest that, as a nickname, "Flying Wedge" would symbolise both its appearance and its purpose—of driving in the wedge that forces open the doorway to manned space flight.





Biréacteur d'Attaque : the Sud-Aviation

VAUTOUR

THE TWIN-JET VAUTOUR is something of a Jack-of-all-trades and is pretty masterly at each of them, giving the lie to the well-known adage; its three primary missions are tactical support (the Vautour A), bombing (Vautour B), and all-weather fighting (Vautour N). Spotting-wise, this leads to three slight variations in its appearance: these are illustrated by the key photographs and, as can be seen, occur in the forward part of its fuselage. Apart from the French Air Force, who now have well over a hundred Vautours of all kinds in service, six are due to be supplied to the Israeli Air Force. Detailed instructions for this lesson appear below, the answers are on the rear cover of this edition.



VAUTOUR A : short cockpit, solid nose

VAUTOUR B : short cockpit, glazed nose



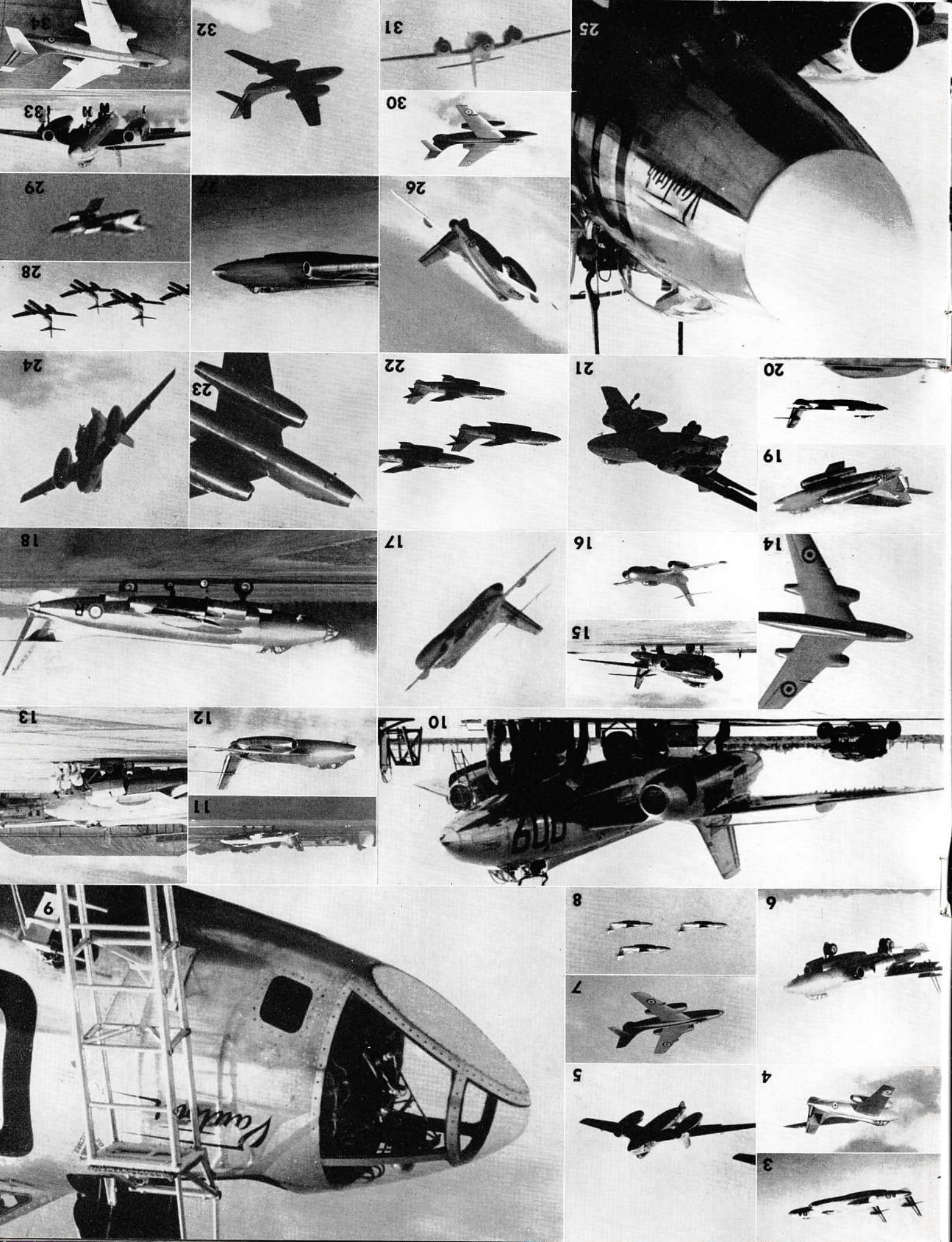
VAUTOUR N : long cockpit, solid nose



HOW IT'S DONE

The views above and left are keys to the three Vautour variants, and will provide the means of identifying the numbered target views which commence on the right. First make a list of the target numbers, then select any straightforward view and decide from comparison with the keys whether it is a Vautour or not, and if so, which kind. When you are sure, write the name against that number on your list. Now pick another and do the same again; then another, and another, and go on in this way until you have answers to all the target views. You may find some jokers, but you need not identify these. Finally, check your answers against those on the rear cover.





Briefs

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



Anyone for Russia?

The long-awaited agreement between British European Airways and the Russian commercial airline, *Aeroflot*, has at last been signed, and mutual services between London and Moscow began in May. The B.E.A. service is initially using the Viscount 806, and will later bring in the Comet 4B when these are available. *Aeroflot* is operating the TU-104 now that its noise level has been brought within the standards required by British regulations.

* * *

Deltas on Duty

It is understood that the Convair F-106 Delta Dart (picture below) is due to enter U.S. Air Force squadron service some time this summer.



* * *

American Orders

It has been reported that purchases of the Grumman Mohawk observation aircraft and the de Havilland (Canada) Caribou transport (see below) will be made by the United States Army during the 1960 financial year.

Bravo Saro!

The Royal Navy has placed an order with Saunders-Roe for a number (the exact quantity is not known) of their new P.531 helicopters. The P.531 made its public debut in September 1958, at the S.B.A.C. Display, where the accompanying photograph was taken.

* * *

Valkyrie Wings

Boeing's Seattle division will be contractors for the wing assemblies of the U.S. Air Force's B-70 Valkyrie bomber designed by North American Aviation. According to a Boeing announcement, the Valkyrie will have the largest delta wings ever built—though the exact size is not mentioned.

* * *

Luftwaffe Lockheeds

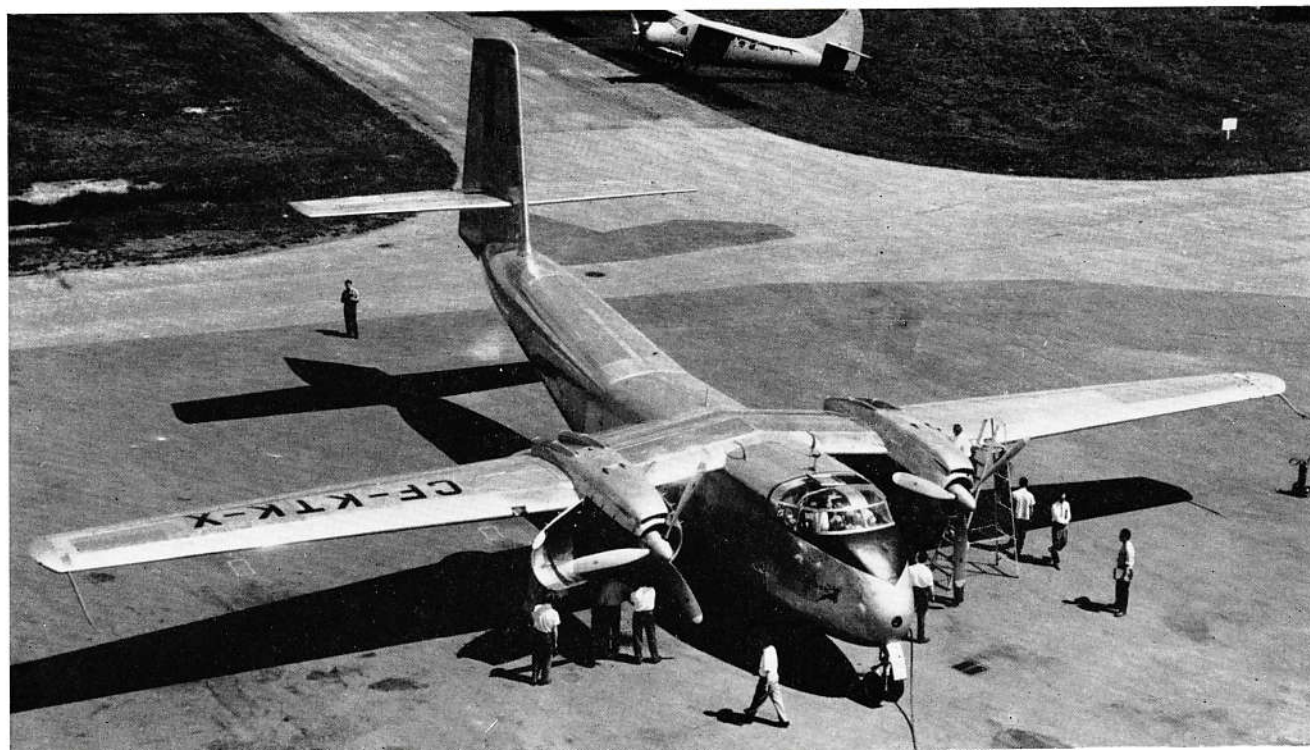
The Federal German Defence Ministry has signed contracts for the purchase of 96 Lockheed F-104 Starfighter interceptors (including 30 F-104D two-seat trainer versions), and for the license manufacture of a further 200 of these aircraft by a group including the Dornier, Heinkel and Messerschmitt concerns.

* * *

BEA-uty on the Wing

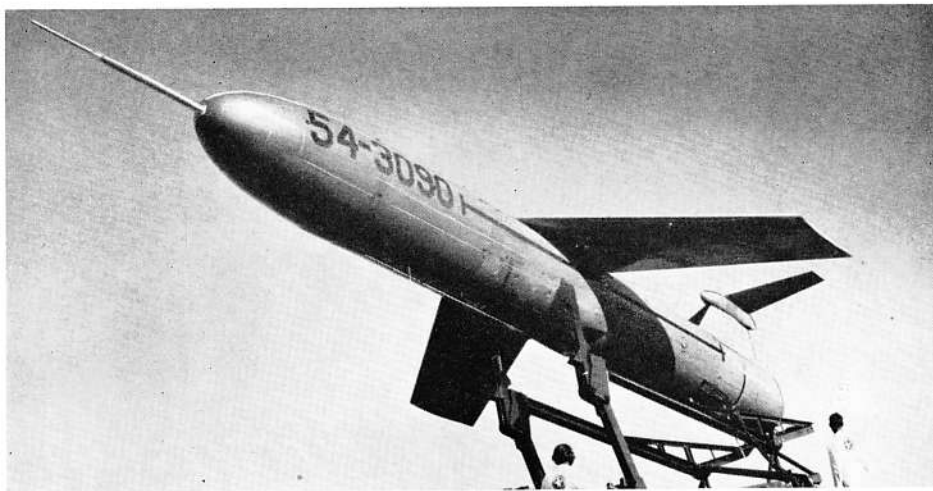
British European Airways are to initiate a new Corporation colour scheme for their aircraft with the introduction of the Vanguard and Comet 4B. The new livery will consist of bright red wings (both upper and lower surfaces), white along the fuselage top and on the tail assembly, and a broad black trim-line down the centre of the body.

* * *



THE MARTIN MATADOR and MACE

The Martin TM-76 MACE (see key photo at right) is a developed version of the TM-61 MATADOR (view 9) and can be told by its longer and more rounded nose and its shorter wing span. Both these machines—missiles, flying bombs, pilotless aircraft, call them what you will—are in service with the U.S. Forces both in America and in Europe. Separate the Matadors from the Maces in this lesson, write down all your answers and then check with the rear cover solution list. Watch out for possible jokers.



Span 29 feet (Matador) and 23 feet (Mace)



1



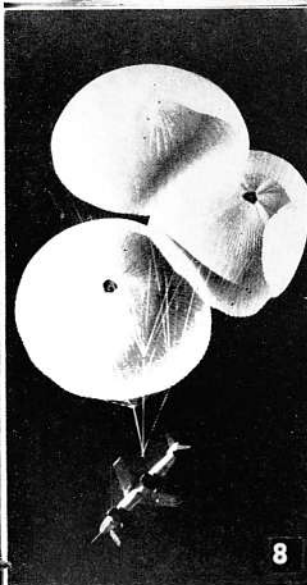
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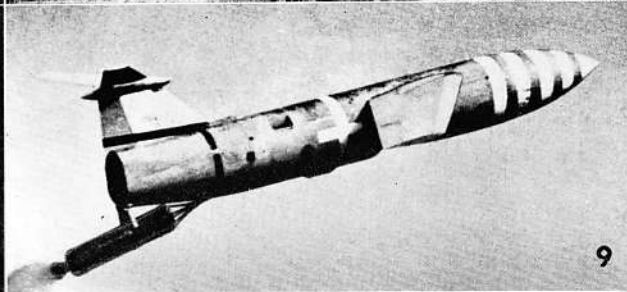
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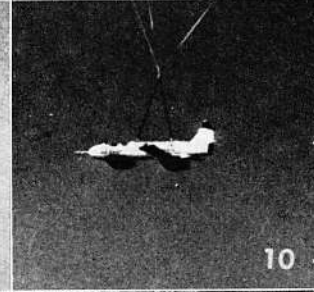
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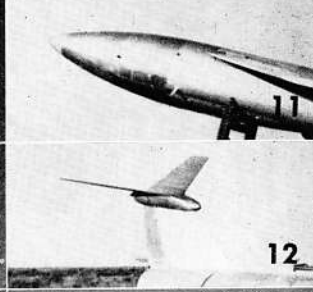
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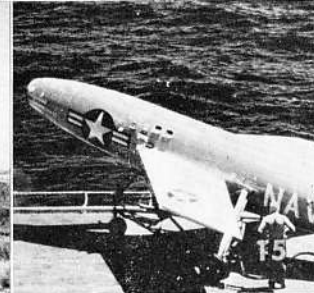
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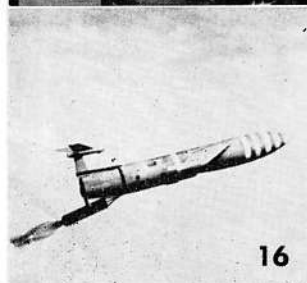
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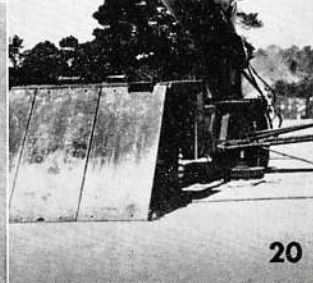
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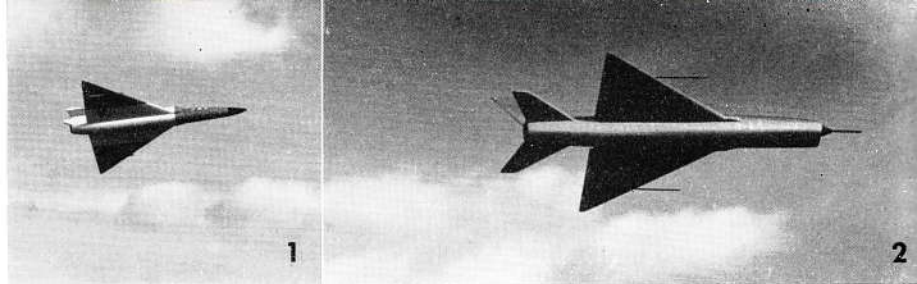
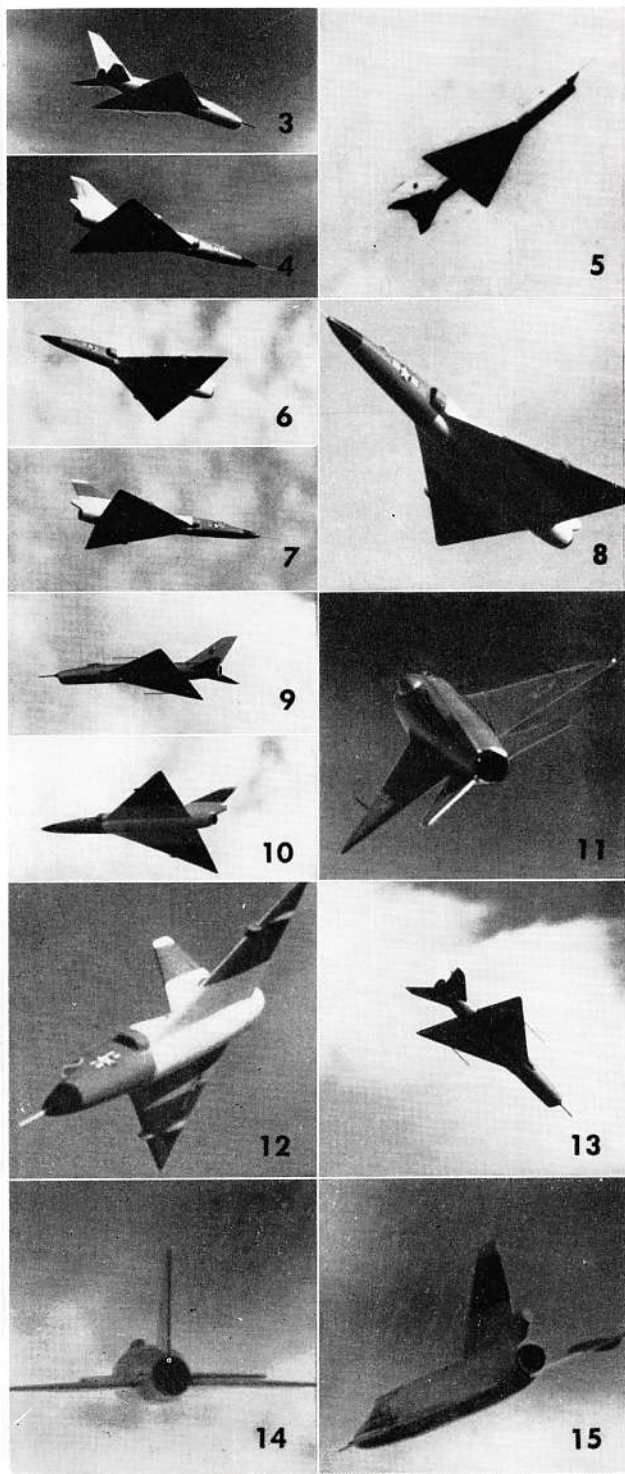
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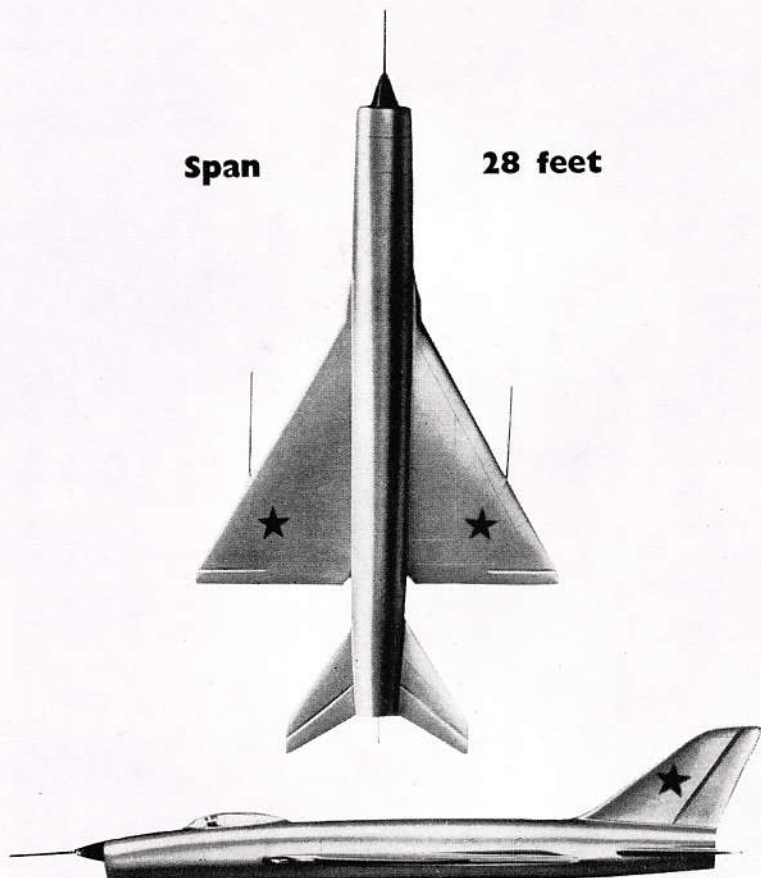
Darts and Little Fishes . . .

Do you suffer from Fishpots before the eyes? Do you get sudden Darting pains in the head? In short, are you liable to triangle trouble? If so, this lesson is just your medicine. Take it three times a day for a week and we guarantee you will have no further attacks of delta-itis—not where these two are concerned anyway. The prescription is the same as always, solutions are dispensed on the rear cover.



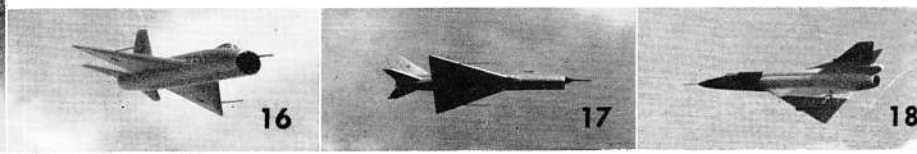
Span

28 feet



FISHPOT

THE FISHPOT is an all-weather fighter designed by Pavel Sukhoi, one of Russia's less well-known aircraft constructors. It was shown to the public in 1956, since when it is reported to have gone into squadron service. Its delta wings show more leading edge sweep than the Convair and a shorter span, and the trailing edges have been nibbled away at the roots. The Fishpot's flat oval fuselage presents a slim side view and a podgy plan, and the engine air intake is in the nose under a cone-shaped radome. Fishpot has a tailplane, of course, which the Convair has not, but this is not always in evidence and is an unreliable guide on its own.





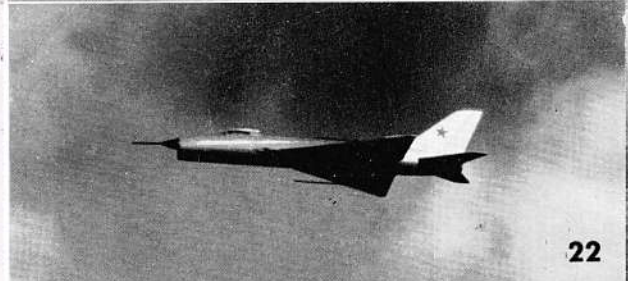
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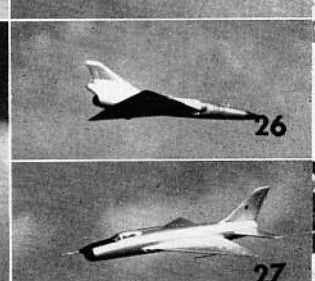
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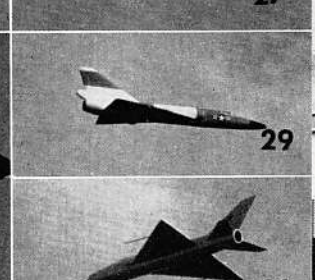
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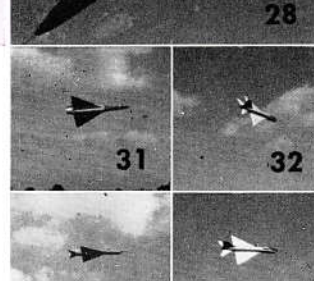
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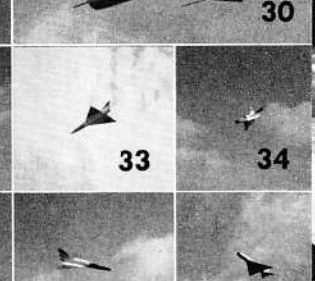
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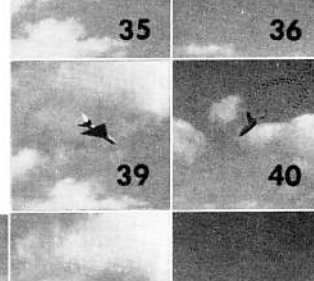
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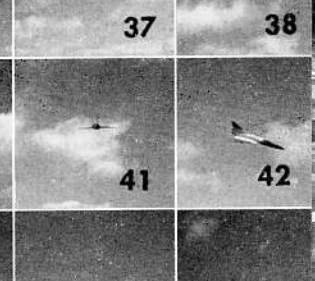
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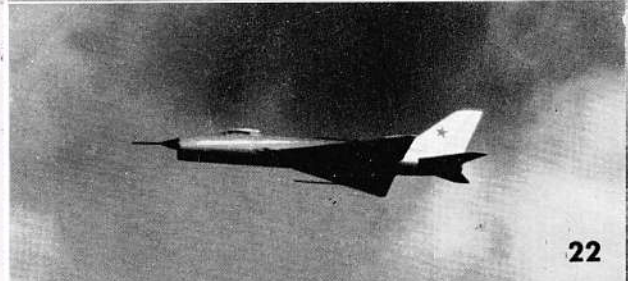
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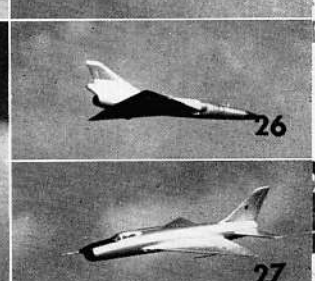
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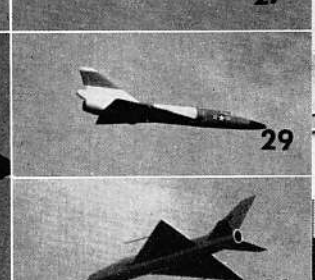
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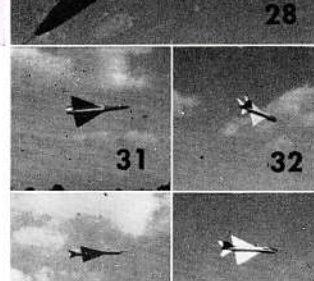
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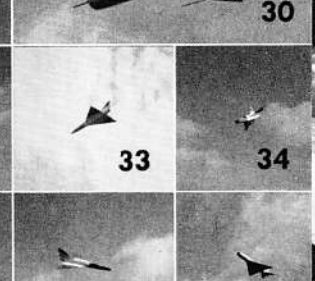
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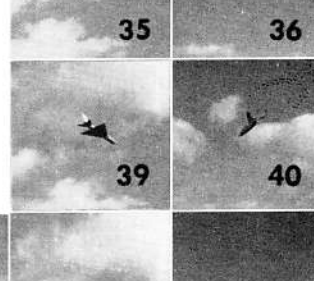
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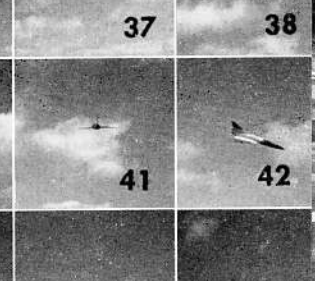
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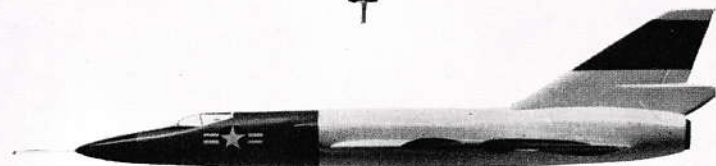


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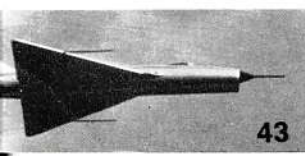
Span

38 feet

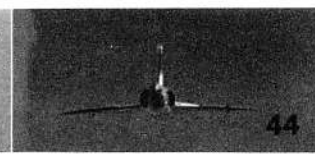


DELTA DART

CONVAIR'S F-106 DELTA DART, expected to join U.S. Air Force all-weather fighter squadrons some time this year, is developed from the supersonic F-102 Delta Dagger which has been their standard all-weather interceptor for a number of years. A long streamlined bullet of a body has a pair of typical delta wings set well back on the rearward half, leaving a long slim nose to lead the way. The engine inlets are so well blended into the general body-work outline that they are unseen in many angles of view. The broad sweeping fin is a good clue, particularly with that large "brake box" sticking out at the back.



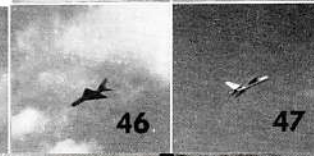
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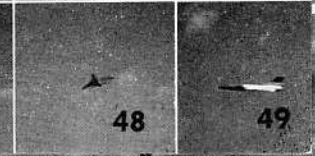
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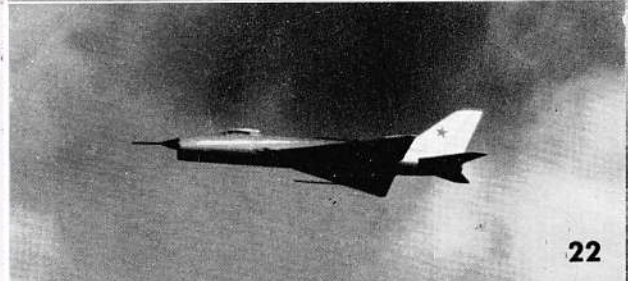
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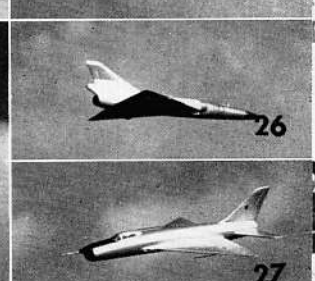
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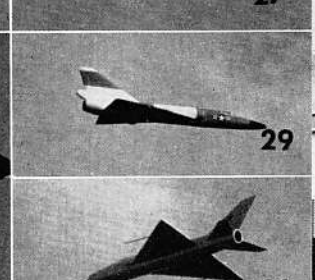
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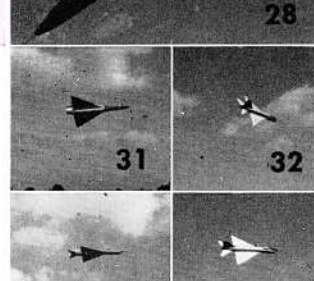
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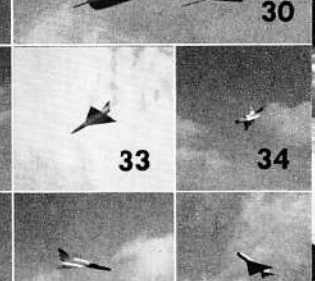
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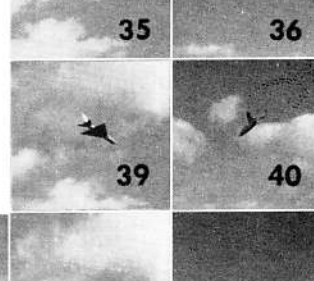
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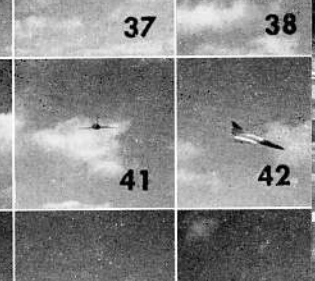
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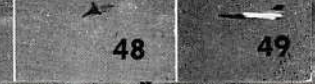
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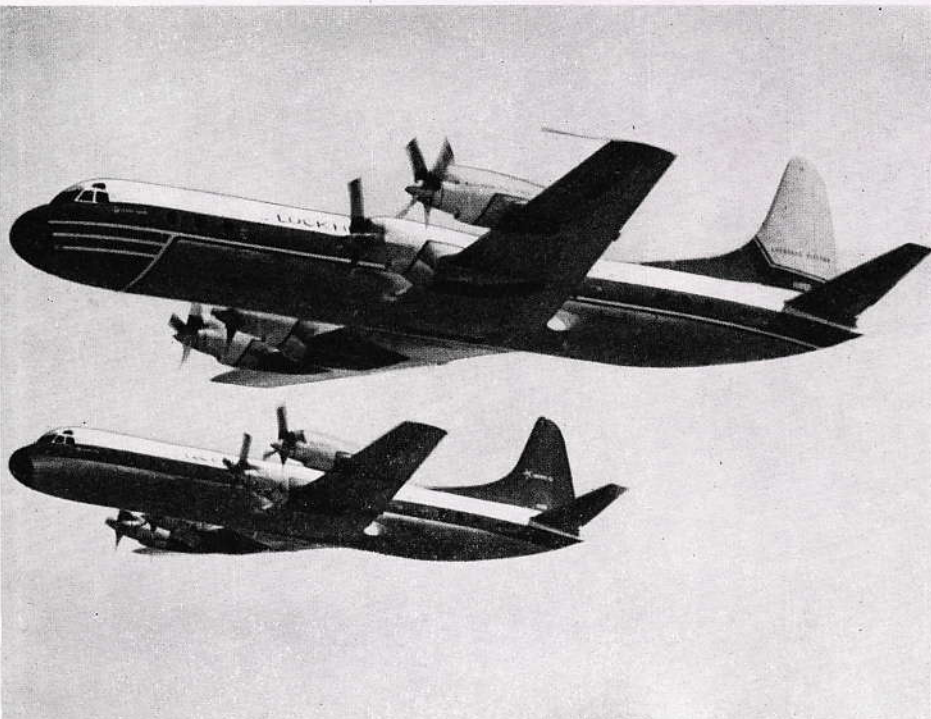
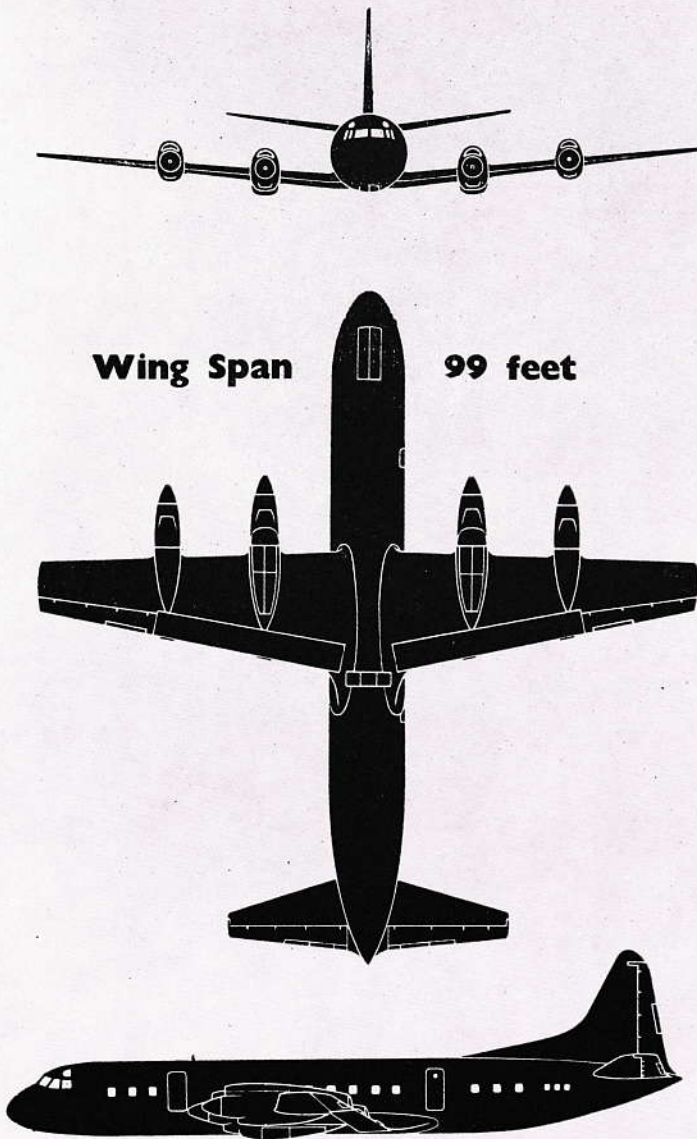
The Lockheed Airliner

ELECTRA

UP-AND-COMING in the turboprop airliner stakes is a new entrant—surprisingly, the United States' first in this lucrative commercial sphere. It is the Lockheed Electra, a handsome looking machine of roughly the size and very much the shape of the Vickers Viscount. Its engines—four Allison's of 3,750 e.h.p. each—have an in-line rather than a radial appearance like the Viscount's, and sit largely on top of rather stubby wings. (One columnist has said that the Electra is the only known aircraft with the wings buried in the engines, and looking at view 23 we think we can see what he was getting at. However, stubby or not, they have a span as wide as a Vulcan bomber.) The Electra began airline service in America in January, and it is planned by the end of this year to have Electras in service with 13 of the 15 world airlines that have ordered them. Outside of the United States these include Ansett/ANA of Australia and K.L.M. Royal Dutch Airlines. There are several visible differences from the Viscount, notably the tubbier fuselage, the "in-line" engines and the lopped-off wings. Nevertheless, the Electra will not be a spotter's gift by any means, and some practical experience will be needed. The instructions for this appear opposite.

Wing Span

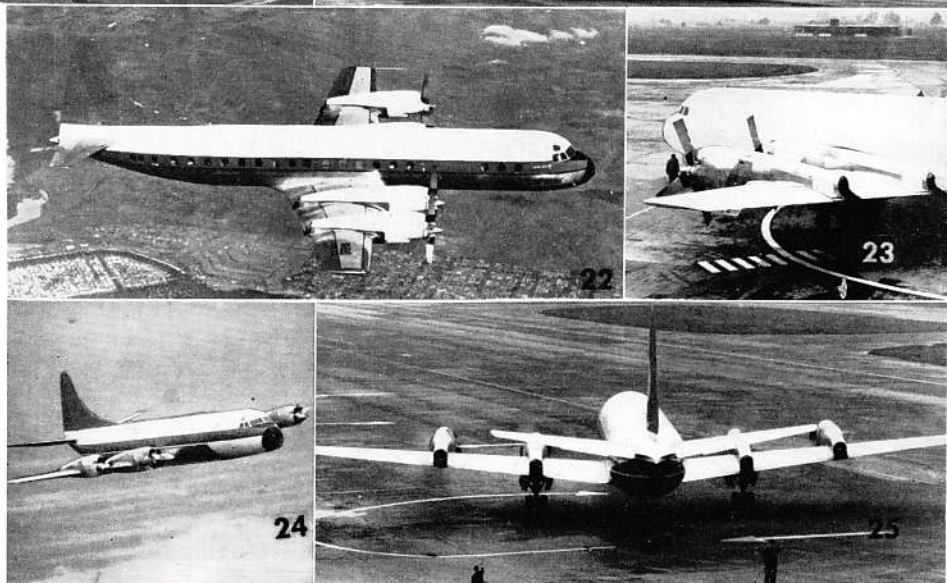
99 feet





SPOTTING THE ELECTRA

THE COLOURED VIEWS OPPOSITE ARE THE KEY INFORMATION, THE NUMBERED VIEWS ARE THE TARGETS. Make a list of the target numbers, then select a straight-forward target view (any one will do) and decide by comparing it with the keys whether or not it is an Electra. If it is, write "Electra" against its number on your list. Then pick out another and do the same again; then another, and another, and so on until you have answers to all the targets. "Jokers," if any, need not be identified except as "not Electra." Finally, check your own answers with those on the rear cover.



MARCEL'S MIRAGE

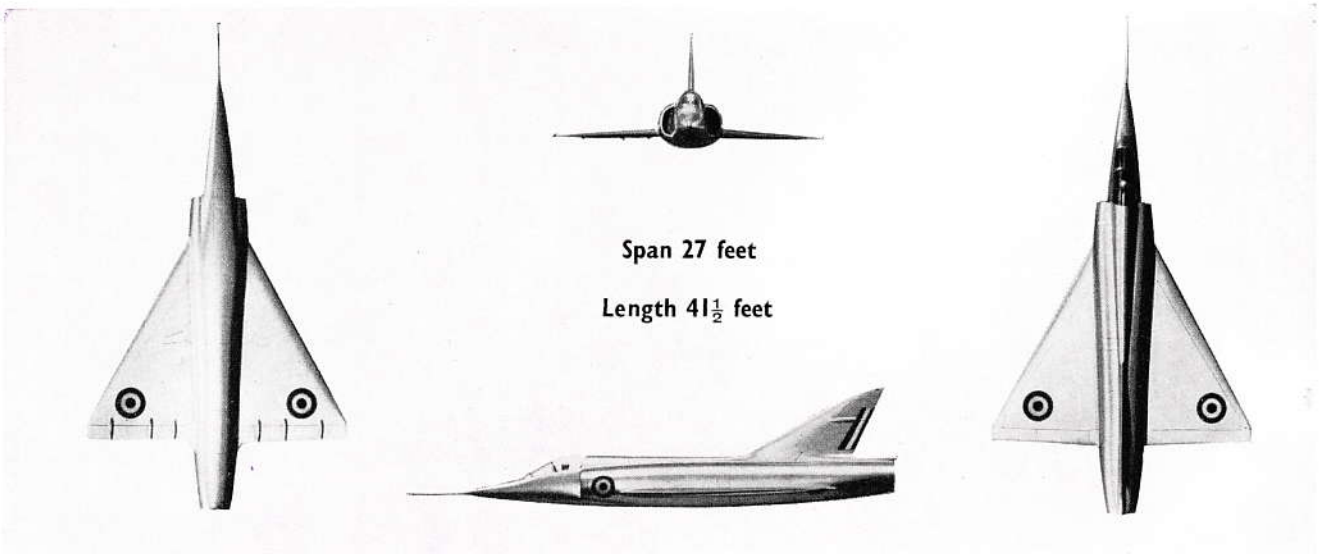
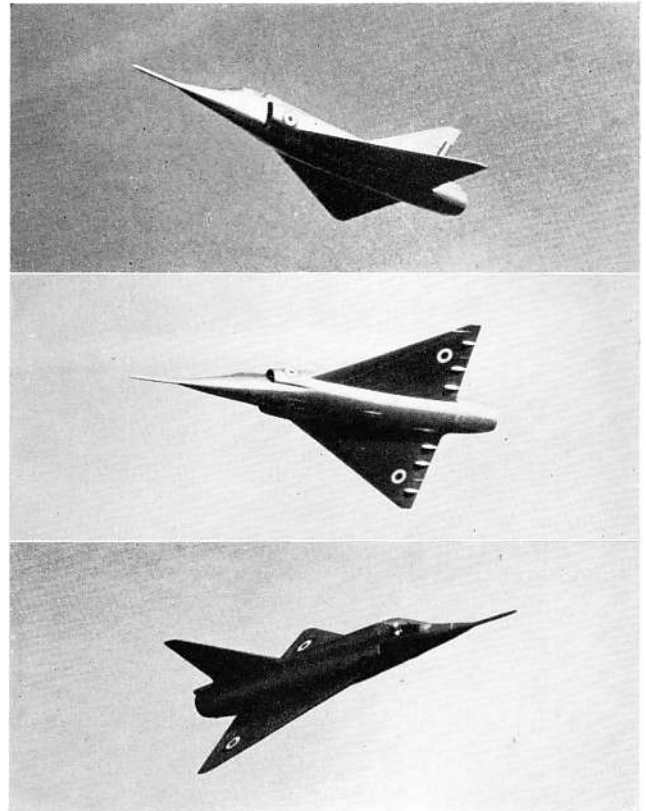
WITH the supersonic Super Mystère in service with many of its squadrons, the French Air Force is already possessed of a Mach 1 aircraft fitted for the dual rôles of all-weather high altitude interception and low-level ground attack. In another twelve months or so it can expect to receive a similarly versatile machine, of smaller size and lighter weight, with a performance in the Mach 2 range. Some time next year the M.D.550 Mirage III will follow into French service a line of successful post-war jet fighters from the Marcel Dassault company: the Ouragan, the Mystères IIC and IVA and the Super Mystère.

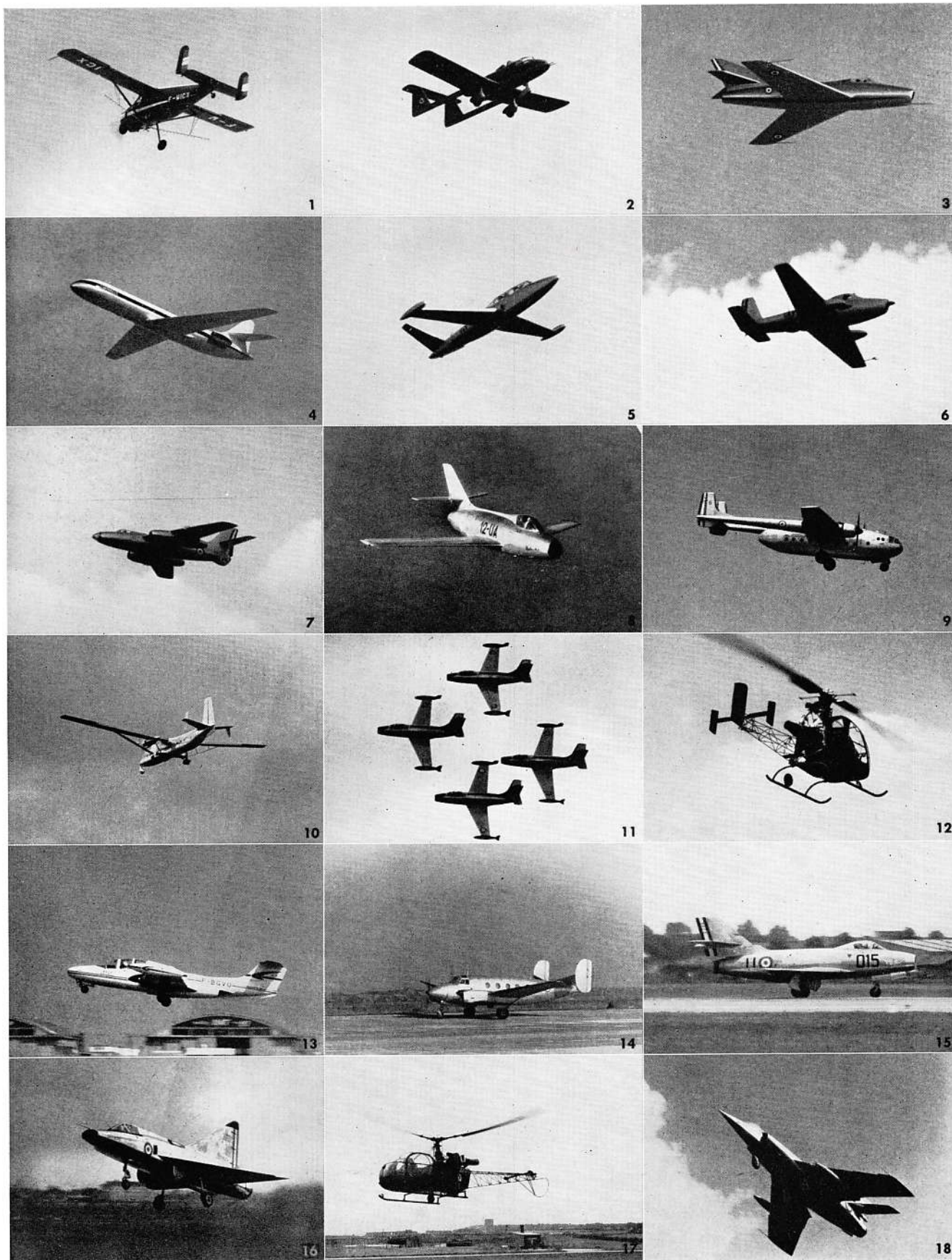
The prototype of the Mirage, the IIIA, made its first flight in November 1956, passed Mach 1.5 a couple of months later and gradually worked up its speed in tests until in October 1958 it exceeded Mach 2 in level flight. Since that date it has regularly flown at these speeds on the power of its 13,200 lbs. thrust Atar engine alone, without bringing in the additional 3,300 lbs. of thrust available from its SEPR liquid rocket motor for combat acceleration. Tests using the full powerplant began last March.

The Mirage has alternative fixed armaments of 32 air-to-air rockets in a retractable fuselage tray or a pair of 30 mm. DEFA cannon—a powerful weapon with a firing rate of between 1,200 and 1,500 rounds a minute. Externally it may be equipped with air-to-air guided missiles, a Nord 5103 self-homing missile, bombs, napalm or various other underwing loads. A Dassault-designed unit enables the Mirage pilot to locate his target and fire at it by radar.

Despite its high performance the Mirage has good airfield characteristics, taking off in about 800 yards and landing, with the aid of a tail braking parachute, in about the same distance. It is interchangeable between all-weather interception at high altitude (its designed ceiling is 82,000 feet) and low-level strike missions, and during manufacturers' tests the necessary change-over of equipment was effected in under 15 minutes. A total production quantity of 300 Mirages is planned, of which the first 100 has already been ordered. The overall total will include a number of the Mirage IIIB, a two-seat version developed as a conversion trainer. Deliveries of the production version, the Mirage IIIC, are due to begin during 1960.

The arrival of the Mirage with French squadrons will put a third delta-winged fighter into the service of the NATO air forces in Europe: the Javelin is already being employed by the R.A.F. in Germany and the United States Air Force has begun to re-equip its all-weather squadrons with the F-102A Delta Dagger. Neither must we omit from our calculations the Russian deltas Fishpot and Fishbed. Accurate recognition and identification of all of these aircraft is a must, not only because they are outwardly alike, but because aircraft that are visually similar may use far from similar operational tactics.





PARISIAN PARADE

Elementary? How many of them do you know?

The Tupolev TU-114

(NATO Code Name : Cleat)

ROSSIYA

THE TUPOLEV ROSSIYA (Russia) was developed from the Bear bomber and is the biggest transport aircraft flying. It has been under test for nearly two years, may go into airline service later this year, and can transport passengers or freight or combinations of both, in the passenger rôle having accommodation for as many as 220 people on short-range flights. The Rossiya and the Bear are at present the only swept-wing propeller-driven aircraft extant, and this is a good clue while it lasts; but if others appear in the future, you will be glad of having done this lesson now. See below for instructions.

Wing Span 177 feet

Length 155 feet



SPOTTING THE ROSSIYA

The views above and left are keys, the numbered views are targets; the one will provide the answers to the other. First make a list of the target numbers, then select a straightforward one—any one—and decide from comparison with the key whether it is a Rossiya or not. If it is, write "Rossiya" against its number on your list. Now pick out another and do the same again; then another, and another, until you have answers to them all. You may find some "jokers," but all you need put against these is "not Rossiya." Finally, check your answers with those on the rear cover.



1



2



3



4



5



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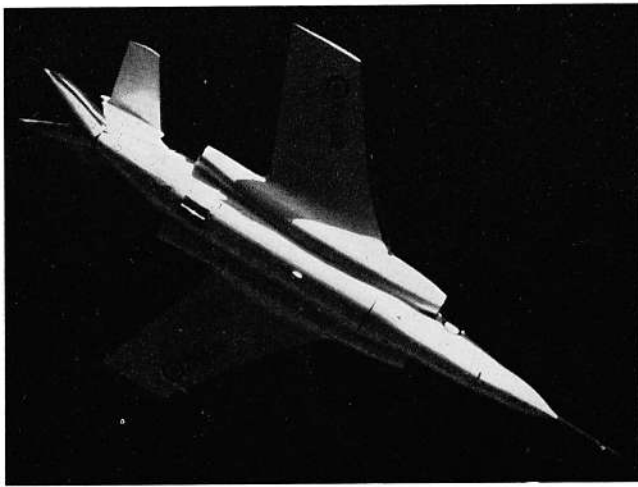


30



31

Two 3



Cover Picture: The fourth Blackburn N.A.39, one of the development batch of twenty ordered by the Ministry of Supply, is the first one to be photographed in naval grey and white finish. The tail cone air brakes are shown extended to good advantage, and other points of interest are a fairly generous bomb bay and what are apparently two camera positions beneath the nose section (reconnaissance, as well as strike missions, will be part of the duties of the N.A.39).

ROSSIYA

All the target views are **Rossiyas** except No. 8, which is a **Britannia**, and No. 31, which is a **Bear**.

ELECTRA

All the target views are **Electras** except No. 12, which is a **Moscow (Coot)**.

VAUTOUR

All the target views are **Vautours** except Nos. 16 and 29, which are **Flashlights**. Breakdown of variants is as follows:

Vautour A: Nos. 1, 5, 6, 8, 10, 13, 17, 21, 22 (upper two aircraft), 24, 26, 27, 28 and 34.
Vautour B: Nos. 2, 3, 7, 9, 14, 18, 22 (lower aircraft), 31 and 32.
Vautour N: Nos. 4, 11, 12, 15, 19, 20, 23, 25, 30 and 33.

SOLUTIONS TO TESTS AND LESSONS

FISHPOT AND DELTA DART

Fishpot: Nos. 2, 3, 5, 9, 11, 13, 14, 16, 17, 20, 22, 23, 27, 30, 32, 35, 36, 38, 39, 41, 43, 45, 46, 47 and 48.

Delta Dart: Nos. 1, 4, 6, 7, 8, 10, 12, 15, 18, 19, 21, 24, 25, 26, 28, 29, 31, 33, 34, 37, 40, 42, 44 and 49.

MATADOR AND MACE

- | | | |
|--------------------|---------------------|-----------------------|
| 1. Matador | 8. Mace | 15. Regulus I (joker) |
| 2. Mace | 9. Matador | 16. Matador |
| 3. Mace | 10. Mace | 17. Matador or Mace |
| 4. Mace | 11. Matador | 18. Mace |
| 5. Mace | 12. Mace or Matador | 19. Matador |
| 6. Matador or Mace | 13. Matador | 20. Matador |
| 7. Matador | 14. Mace | |

(N.B.—Despite the legend on the nose, view No. 3 is a Mace; this missile was originally known as the TM-61B Matador before re-designation.)

AIRBORNE HEADACHES No. 63

The following are the solutions to the above test which was published in the *R.O.C. Recognition Journal and Gazette* of May, 1959:

- | | |
|---------------------------|----------------------|
| 498. CF-100 Mk. 4 | 506. Sabre (F-86D) |
| 499. Scimitar F Mk. I | 507. Hare (Mi-1) |
| 500. Viscount | 508. Gannet AS Mk. I |
| 501. Vautour 'B' | 509. Friendship |
| 502. Whirlwind | 510. Super Aero 45 |
| 503. Beverley C Mk. I | 511. Piaggio P-136L |
| 504. Twin Pioneer | 512. Safir |
| 505. Cargomaster (C-133A) | 513. Super Cigale |

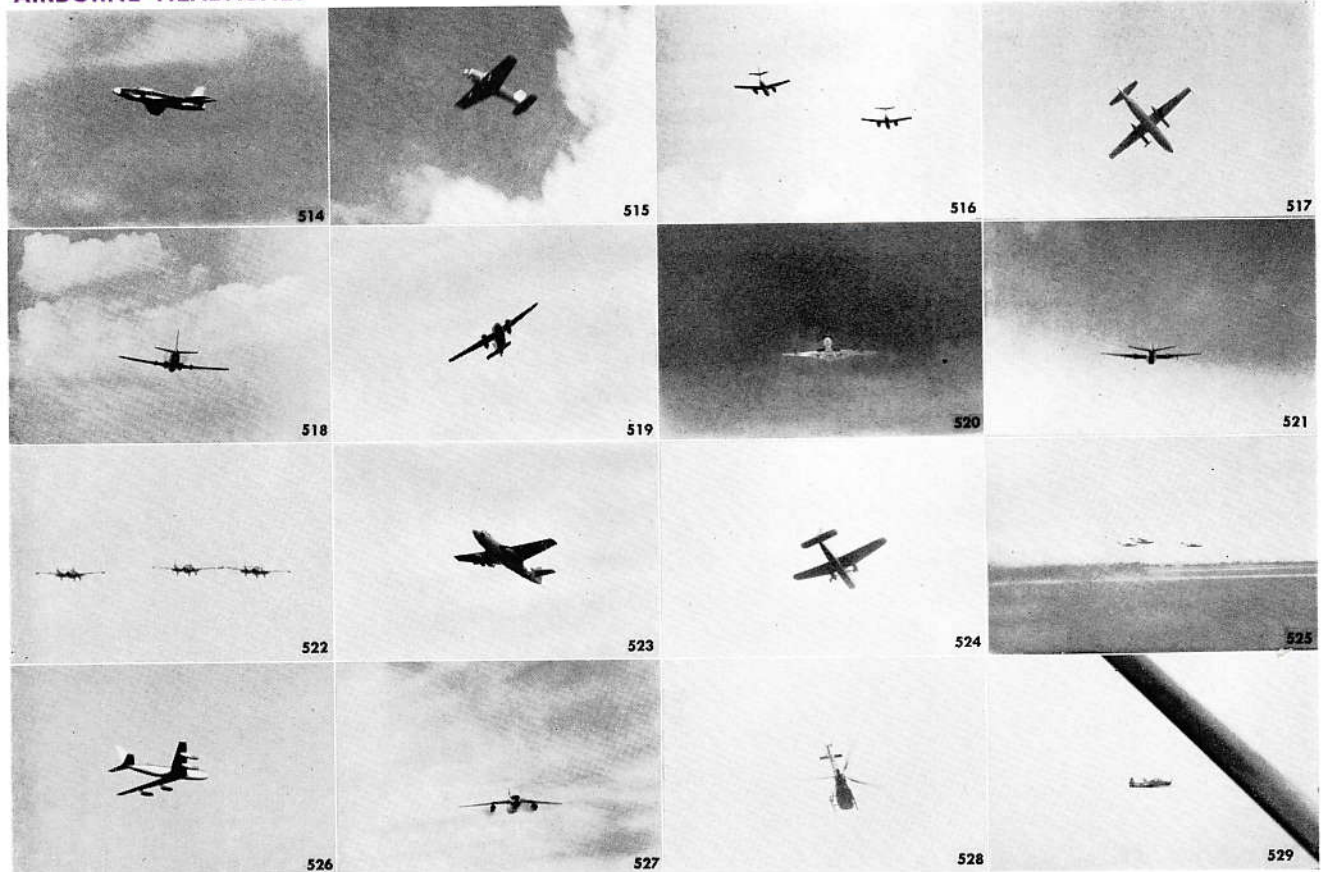
PARISIAN PARADE

	Span (feet)		Span (feet)
1. Broussard	45	10. Hurel-Dubois H.D.32	149
2. Potez 75	43	11. Ouragan	43
3. Super Mystère	34½	12. Djinn	36*
4. Caravelle	112½	13. Paris	33
5. Magister	40	14. Flamant	68
6. Alizé	50	15. Mystère IIC	38
7. Vautour B	50	16. Durandal	21
8. Mystère IVA	36	17. Alouette II	33½*
9. Noratlas	107	18. Étendard IV	31

* Rotor diameter

AIRBORNE HEADACHES

No. 64



Submission dates for answers to Airborne Headaches No. 64 will be notified by Group Headquarters.