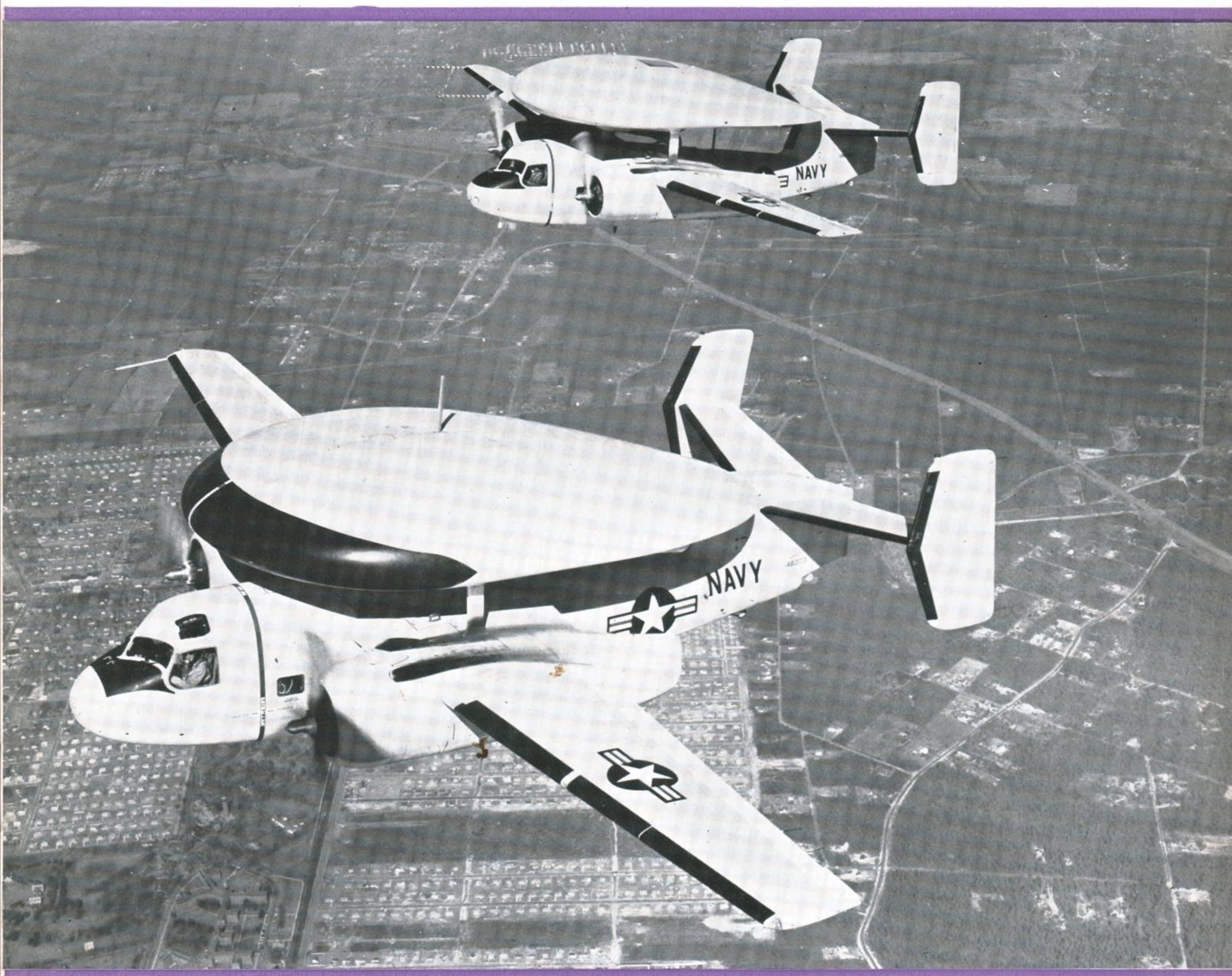
THE ROYAL OBSERVER CORPS

RECOGNITION

Journal

and R.O.C. GAZETTE



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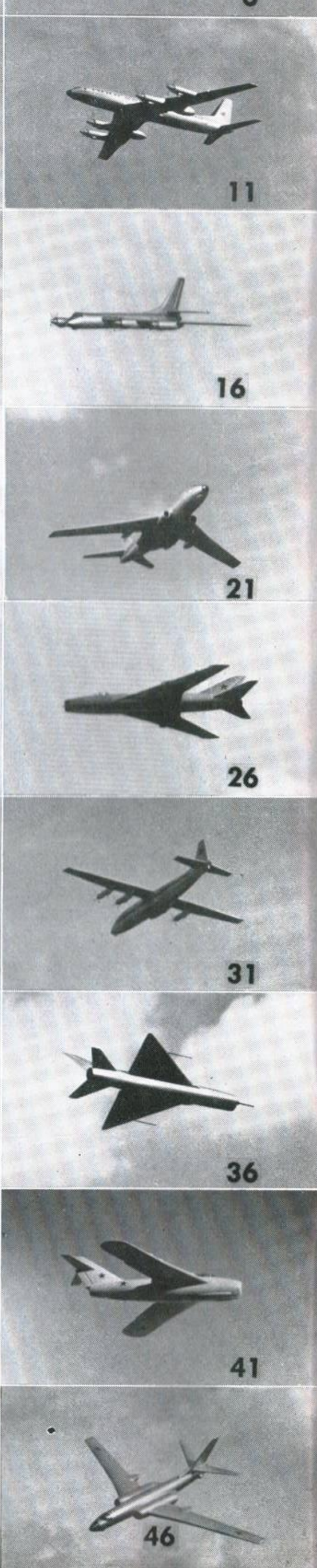
Soviet Symposium

. . . being a general spotting test covering several generations of Soviet aircraft of sundry types. Everybody is invited to this gathering although, to be fair, we admit including the odd target that we hope will flummox even the experts. If you do get stuck you will be relieved to know that *our* solutions appear on the back page.



AUGUST 1960 Vol. 2 No. 8

THE ROYAL OBSERVER CORPS

RECOGNITION JOURNAL

AND R.O.C. GAZETTE

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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CONTENTS

Aircraft in the News

Sabres Rocket to New Heights

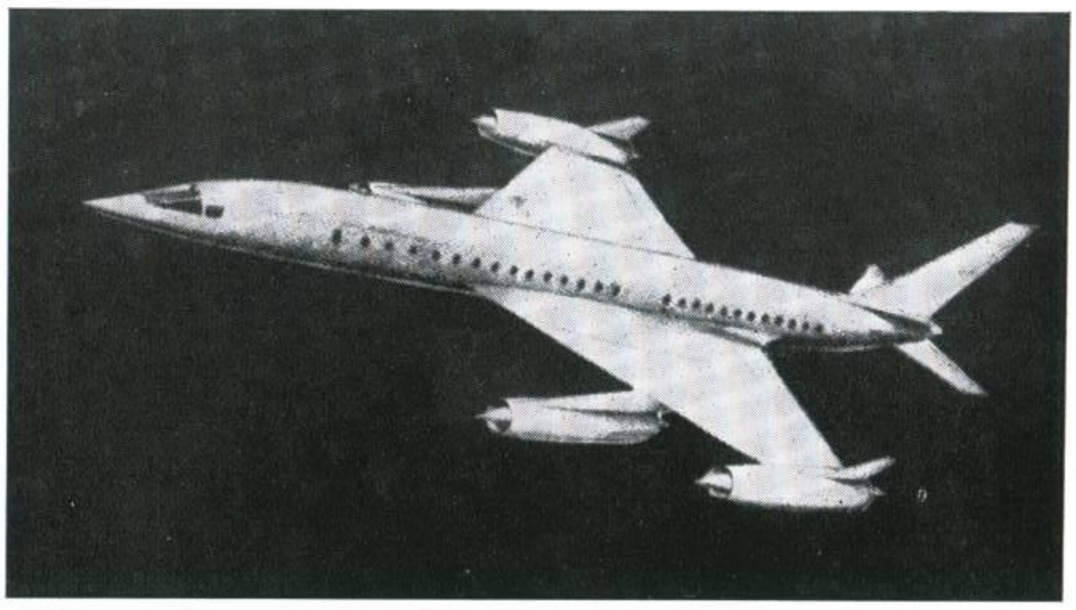
Six thousand pounds of rocket thrust added to an F-86F Sabre has boosted the speed of this Korea veteran into supersonic ranges and raised its ceiling to over 60,000 feet. The rocket in question is the Rocketdyne AR2-3 engine, which is slung beneath the fuselage in a pod half the size of the pilot's canopy.

B-58 Variants

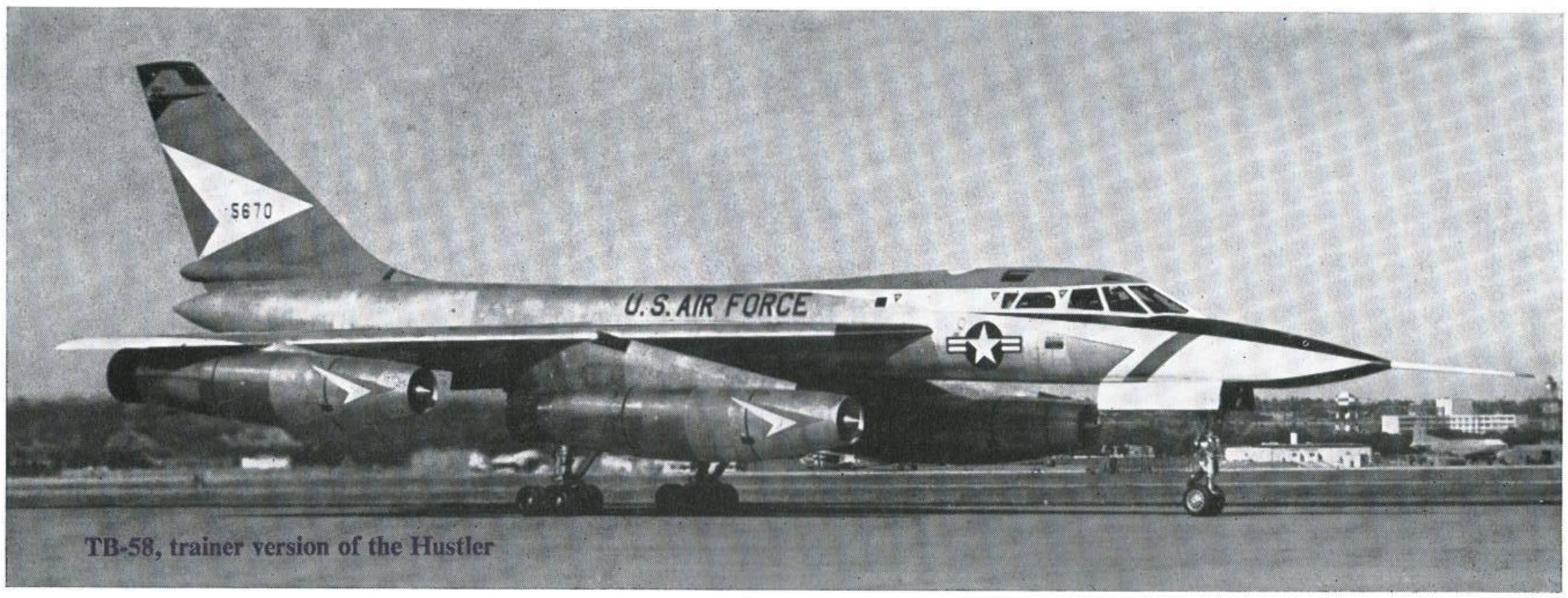
Two of the further versions of the B-58 Hustler bomber are illustrated here. One is the two-seat trainer version, which features greater window-space than its Mach 2 predecessor for both the trainee pilot (in front) and his instructor (behind). Known as the TB-58, the trainer can be flown from either station. The other version is the proposed transport variant which would cruise at Mach 2·4 and carry 52 passengers.

The Présence

This is the name given to the S.I.P.A. 270, an aircraft designed to carry either an automobile or 12–16 passengers. It will be powered by two 500-h.p. Turbomeca "Astazou" turboprops.



Proposed transport version of the B-58 (*an artist's impression*)

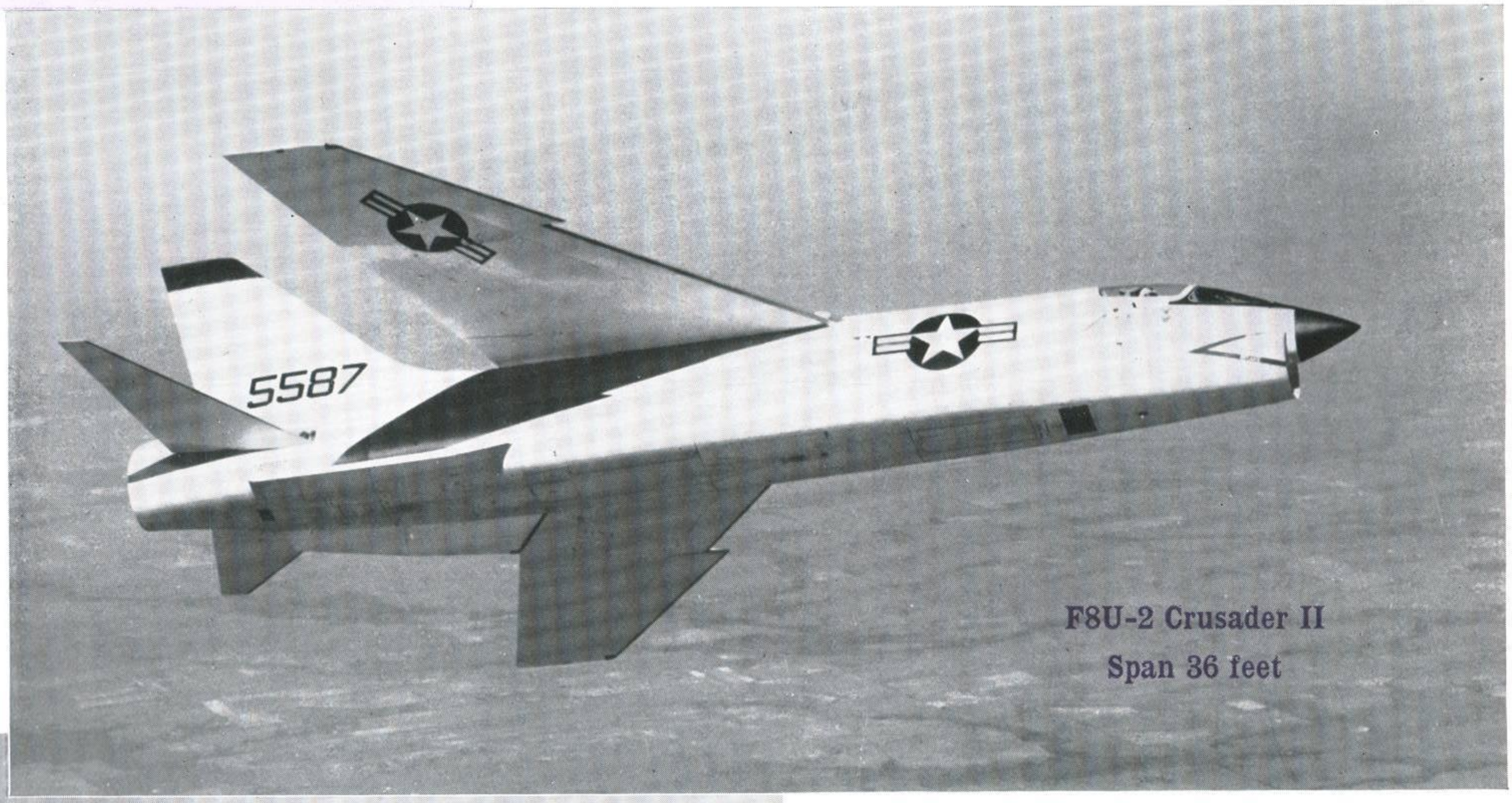


TB-58, trainer version of the Hustler

F8U-2N
Crusader II
Span 36 feet

Holy Smoke!—*Crusaders!*

THOSE intrepid Crusaders, the Knights Templar, would no doubt confess to a certain gentlemanly consternation if confronted with the latest recruit to their ranks. The F8U series may be some five or six hundred years too late for the original upsets, but they make a welcome addition to the Allied armament in these troubled times. The Crusader was the subject of our May editorial, but it won't hurt to refresh your memory: there are five production versions of this aircraft, all with the same "character," but there are differences. The F8U-1P has a camera-fairing on its flattened fuselage undersurface. The F8U-2 sports two ventral fins under the tail section and two afterburner airscoops on the tail-cone above the tailplane. The F8U-3, now abandoned though some will be seen, is larger and faster, with a two-position variable-incidence wing fitted with a boundary layer control of the "flap-blowing" type, a swept-forward engine air intake, a longer pointed nose, and a more streamlined canopy.



F8U-2 Crusader II
Span 36 feet

F8U-3 Crusader III
Span 40 feet

You are not asked to distinguish the different Crusader types in this exercise, but we do ask you to follow the lesson instructions:—

List the target numbers on a piece of paper

Make free use of the key-pictures when identifying.

Do the easy ones first.

Write your answers down before consulting our solutions on the back page.

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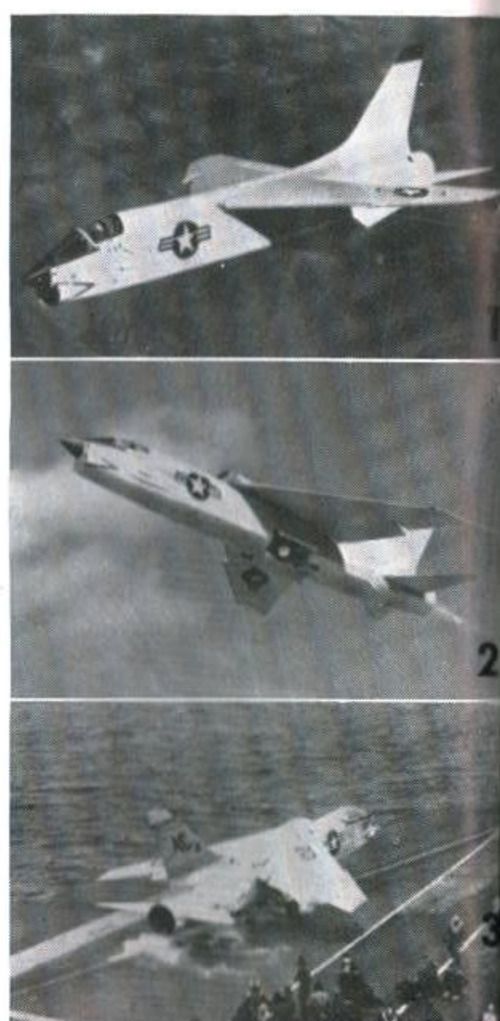

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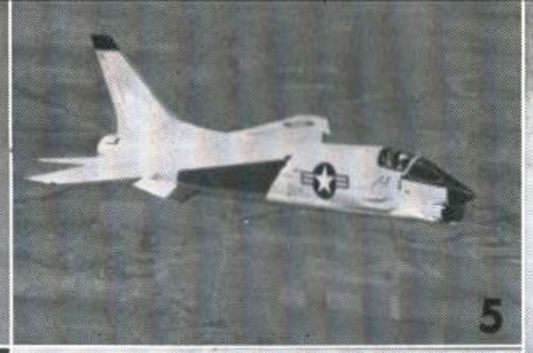

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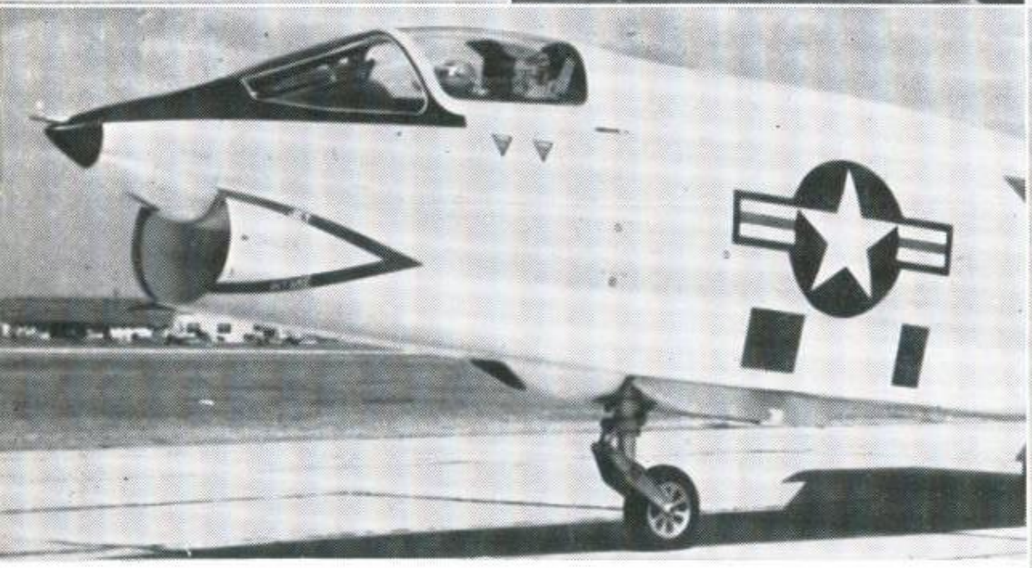

The camera fairing on the F8U-IP

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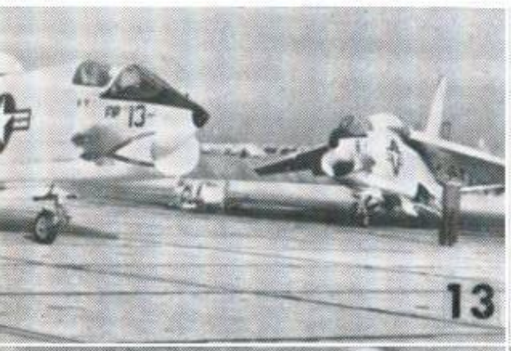

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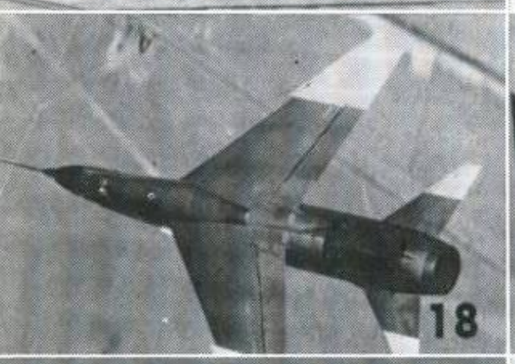

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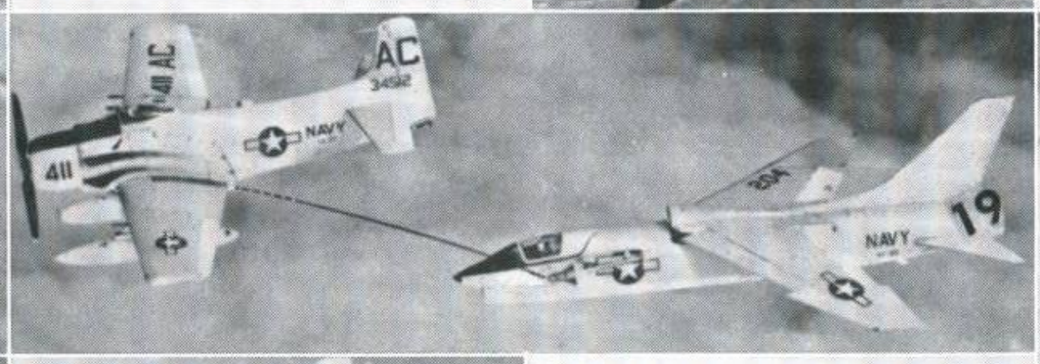

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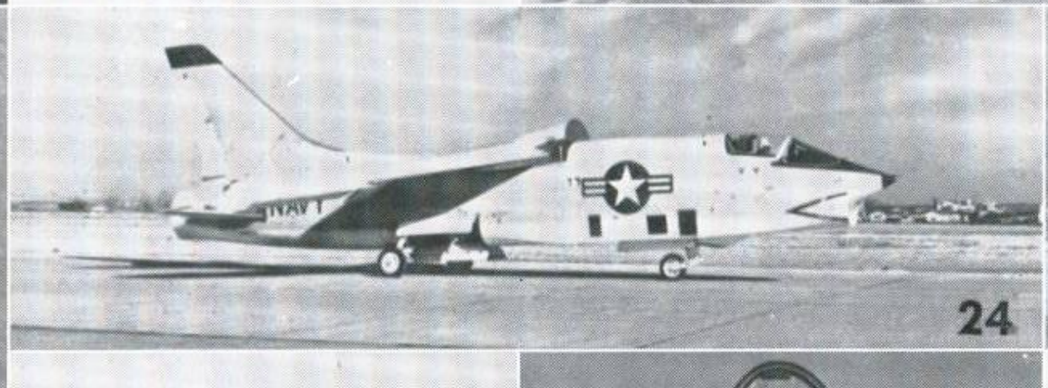

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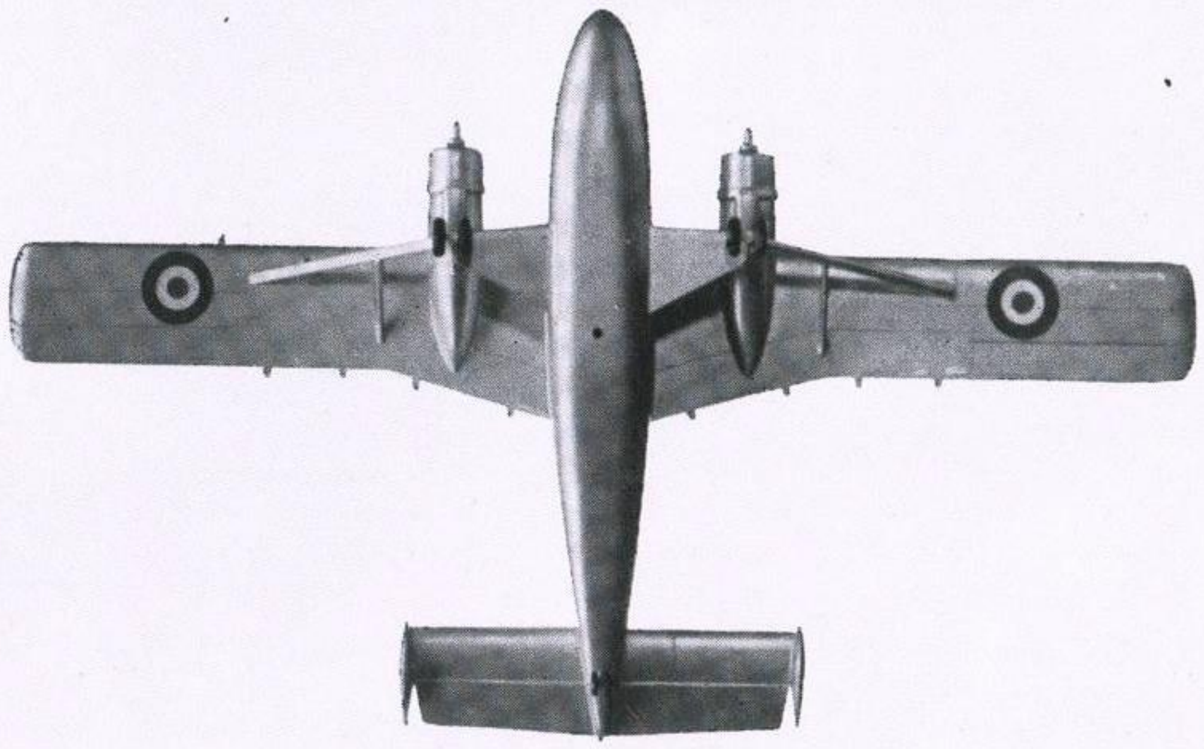
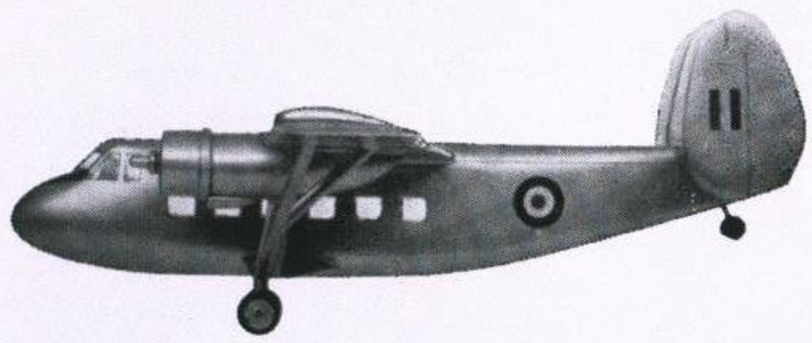
To the Far Frontier with the

Twin Pioneer

Twin Pioneer

Span 77 feet





SCOTTISH AVIATION'S TWIN PIONEER is another of the growing band of rugged aircraft designed for use in "inaccessible" terrain. You will find the Twin Pioneer flying in such out-of-the-way spots as Borneo and Dutch New Guinea, as well as places nearer home like Austria and Switzerland, to mention but a few of the countries in which this "flying frontiersman" is doing good service. Such world-wide distribution demands widespread ability readily to identify this nomad and this feature will give you some experience of doing so.

Three versions of the Twin Pioneer (Series 1–3) have been produced to date, besides the R.A.F.'s C.C. Mk. 1, which is a Series 1 variant. There are no outstanding visual differences between the three types, although different engines have been chosen for each. In its civil form the Twin Pioneer normally carries 16 passengers or equivalent freight, but it can be equipped for a variety of roles, such as executive transport or ambulance. Its stability and exceptional control suit it particularly for photographic and survey operations. The military version can be adapted to drop supplies, light bombs or other stores. In other words, it is a very versatile aircraft that can go anywhere.

Before you start on this lesson take a look at the full instructions on how to do it on rear cover.

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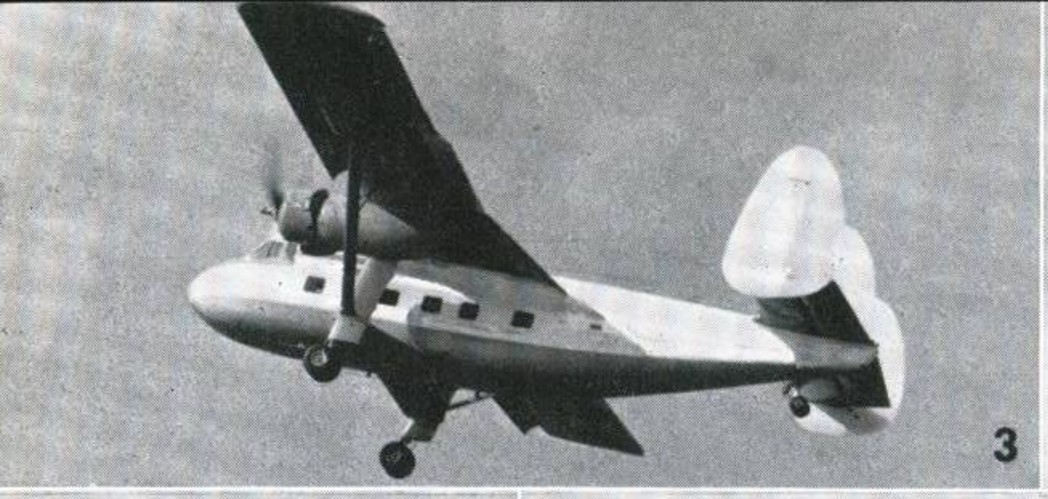
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A Twin Pioneer equipped for geophysical survey duties. The wing-tip pods contain electro-magnetic equipment.


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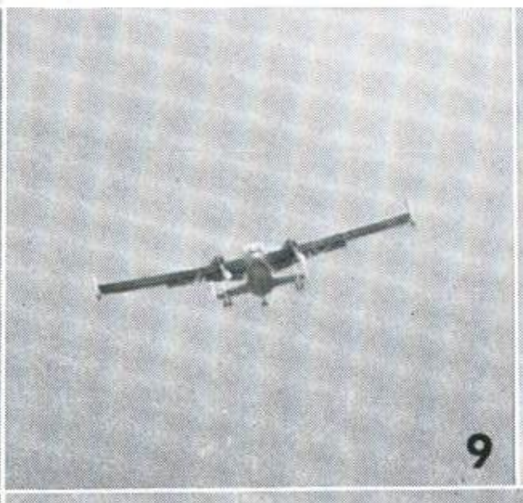
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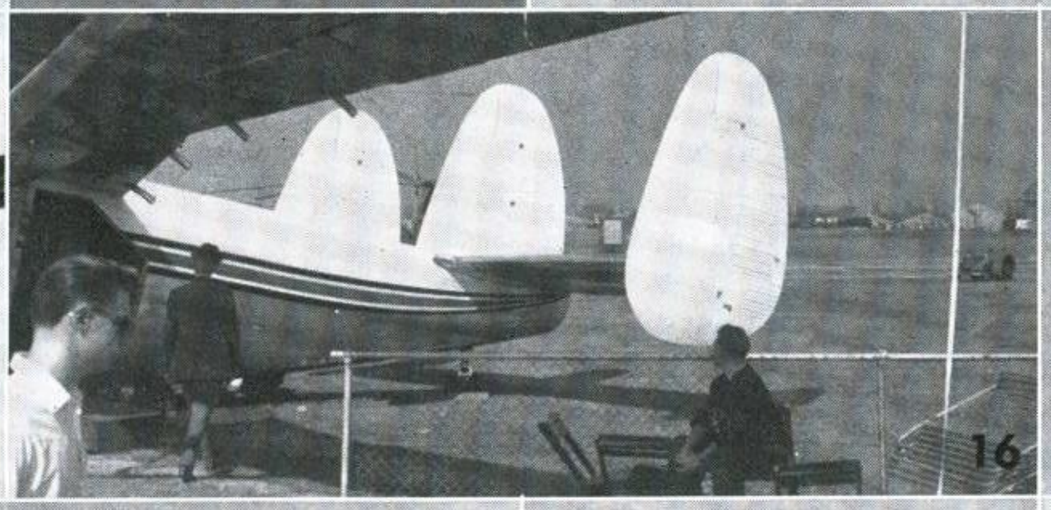
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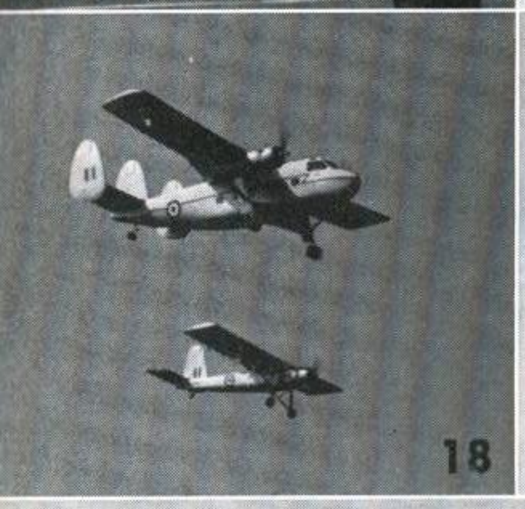
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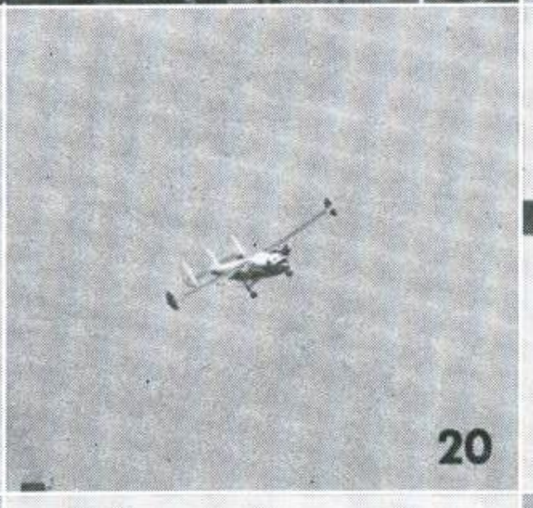
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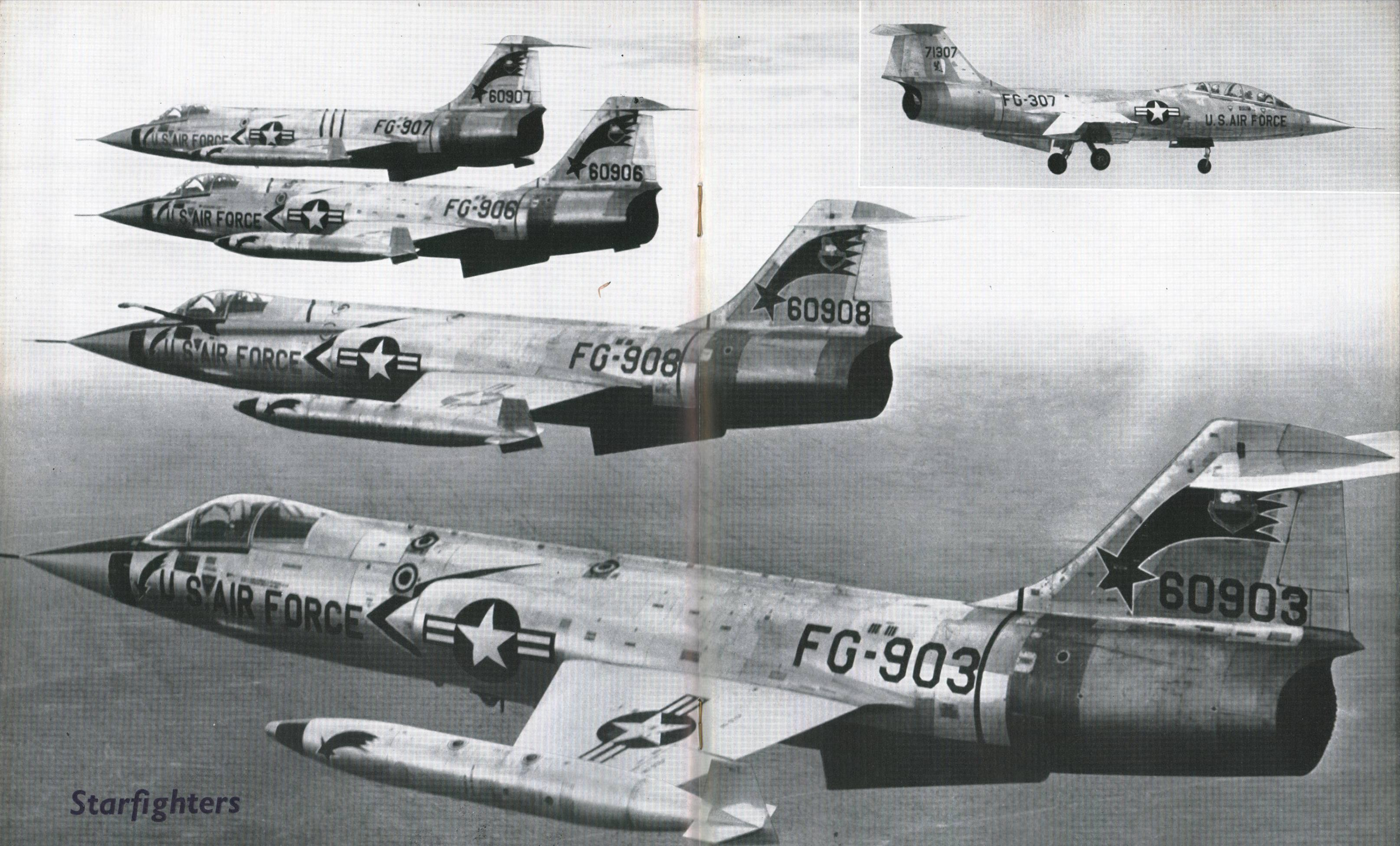
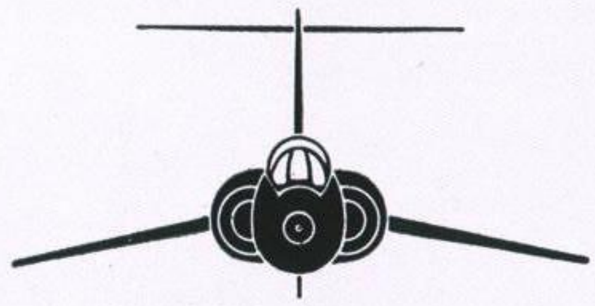
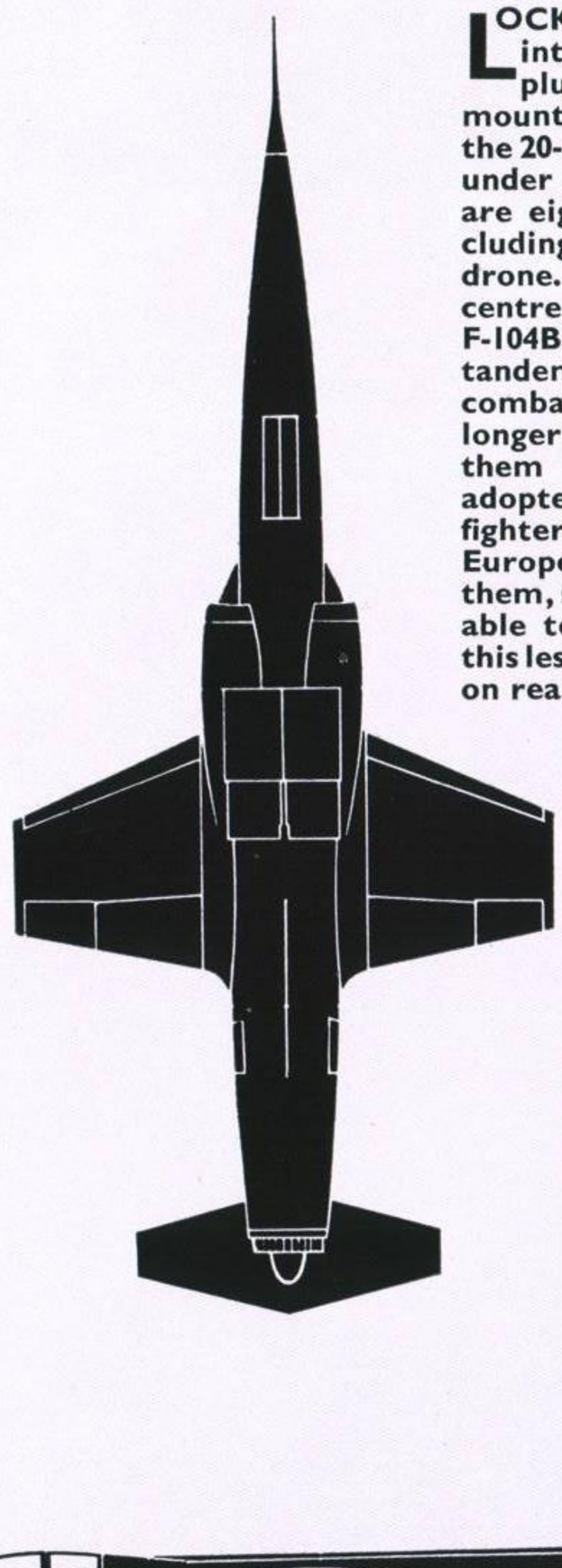
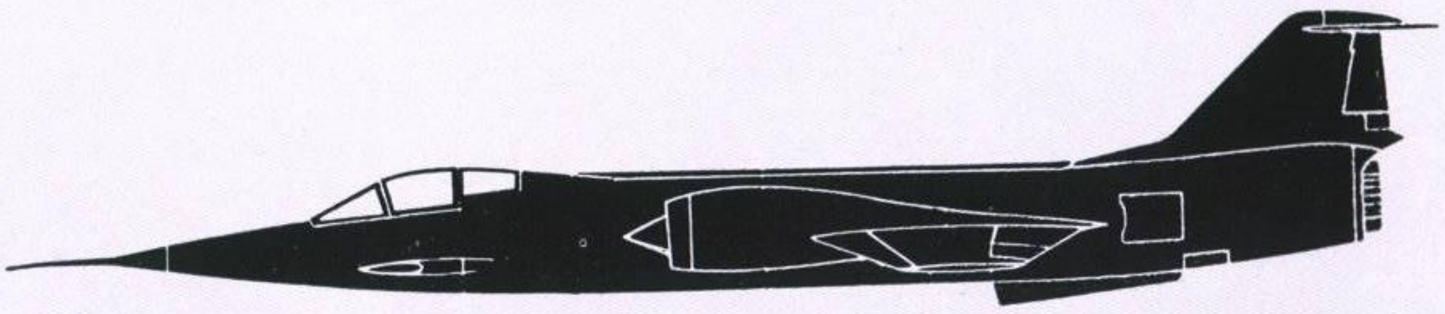


Starfighters

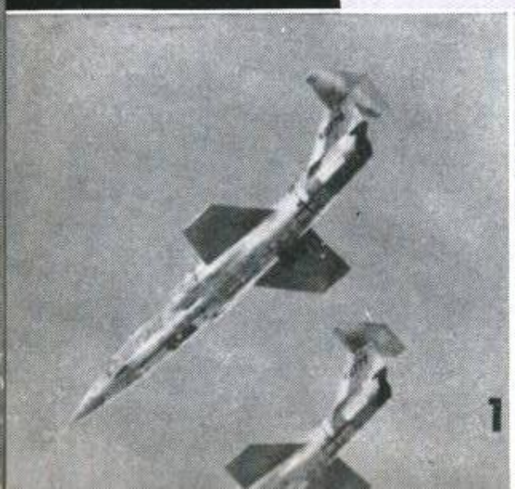




LOCKHEED'S supersonic fighter-interceptor travels at Mach 2 plus, carrying two wing-tip mounted Sidewinders in addition to the 20-mm. six-barrel cannon stowed under the nose—very lethal. There are eight Marks of Starfighter, excluding a remote-controlled target-drone. They all resemble our centrespread closely except for the F-104B and the F-104D, which are tandem two-seaters used for both combat and training, and have a longer canopy. The U.S.A.F. has them in quantity, Germany has adopted them as the standard GAF fighter, and the R.C.A.F. units in Europe are also to be equipped with them, so it's high time that you were able to recognise them. We hope this lesson will help—full instructions on rear cover.



F-104 Starfighter *Span 22 feet*



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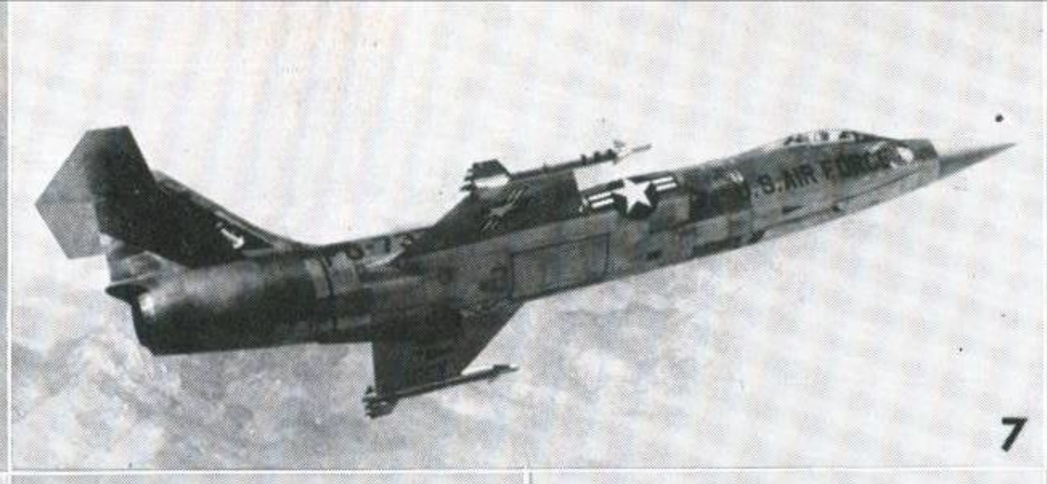

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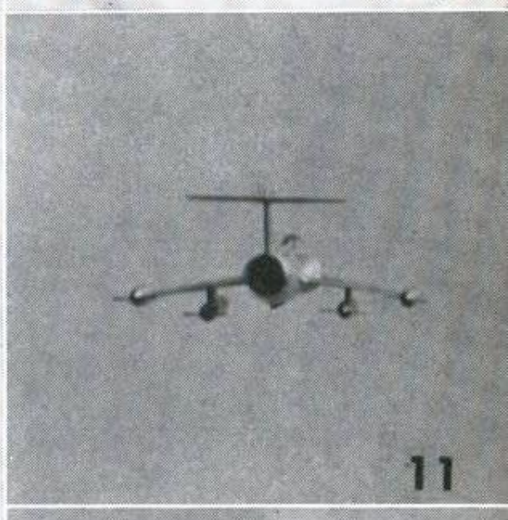
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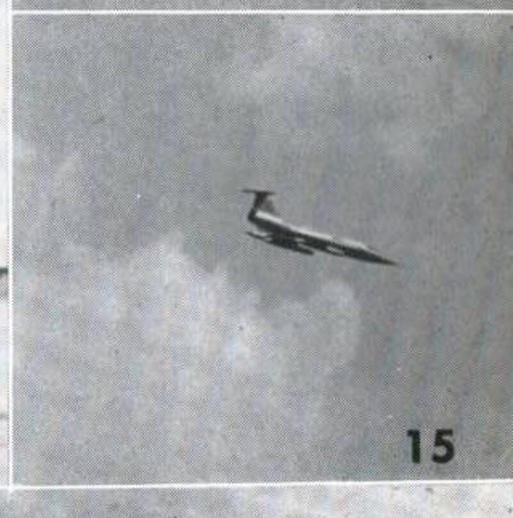
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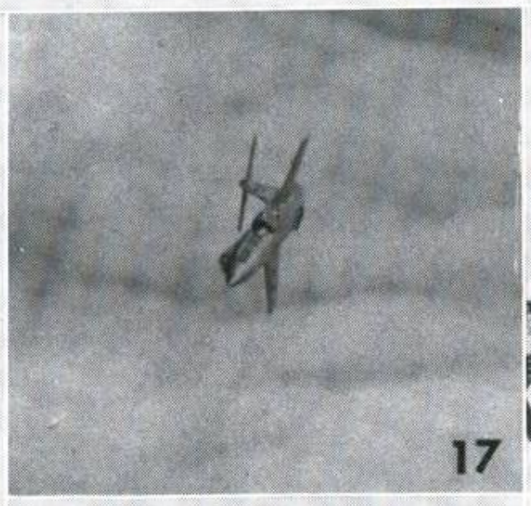
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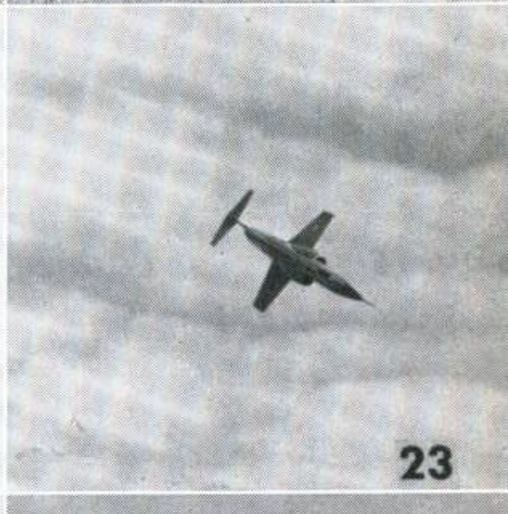
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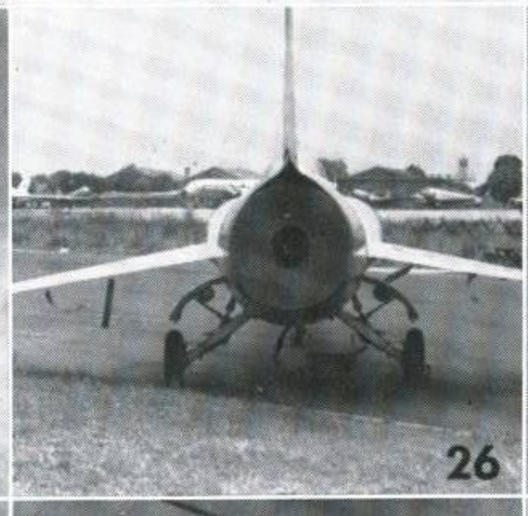
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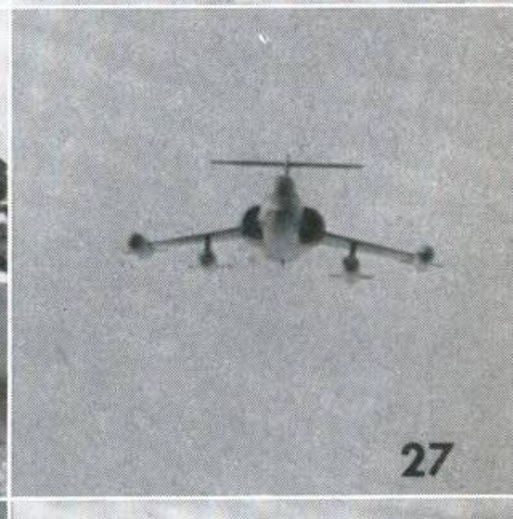
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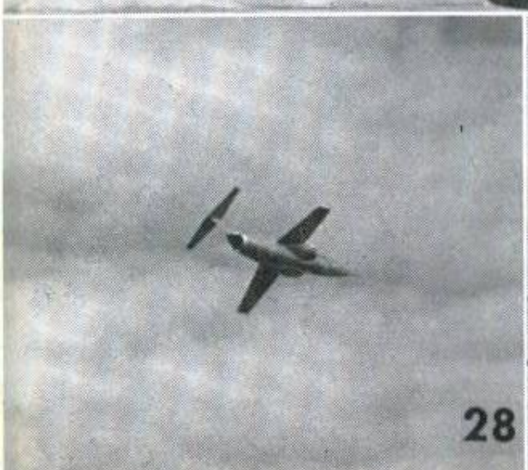
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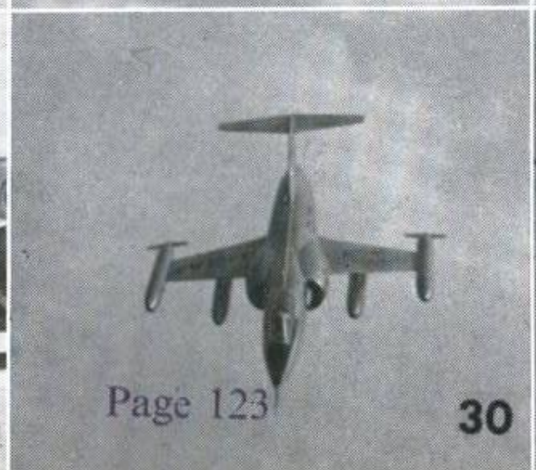
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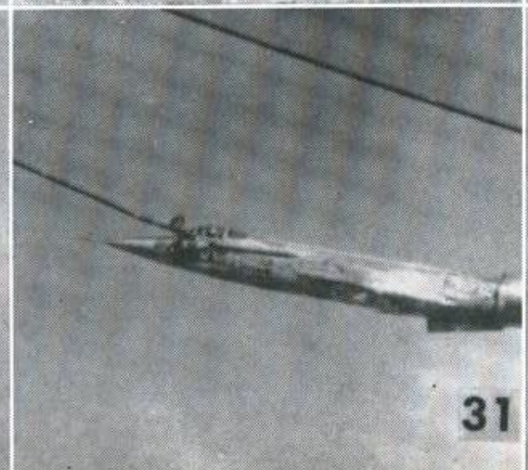
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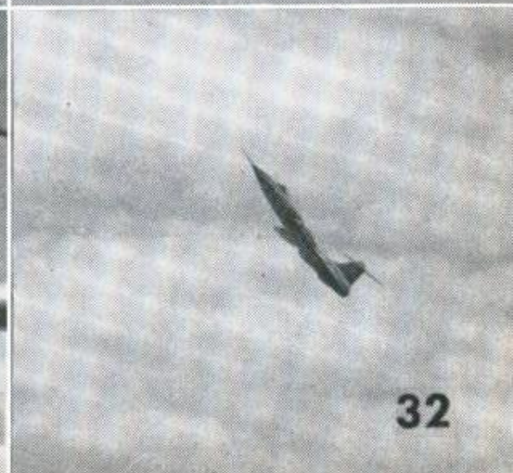
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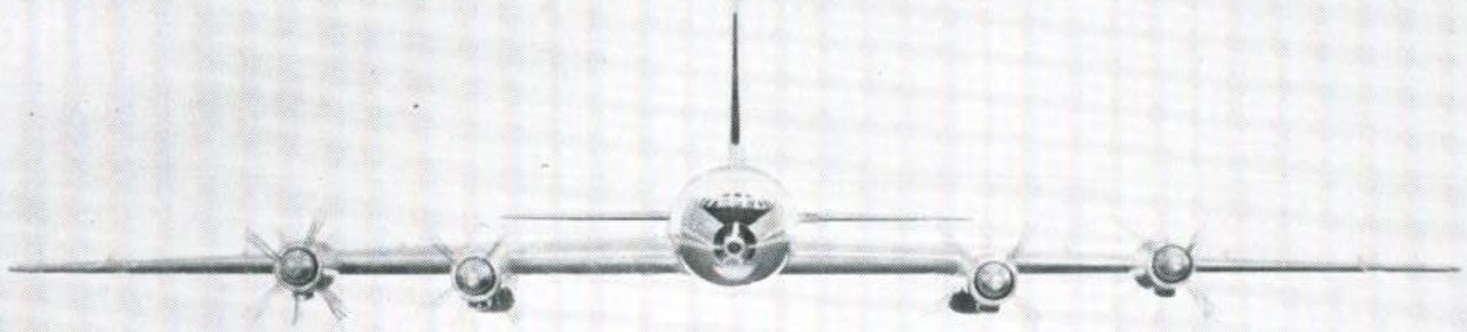
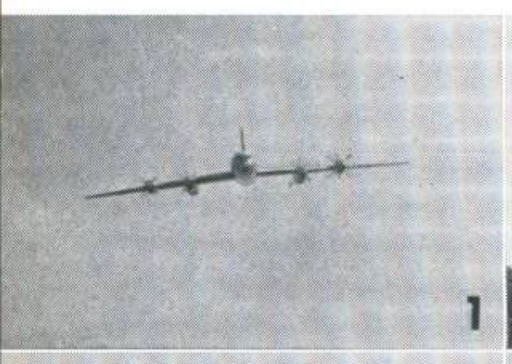
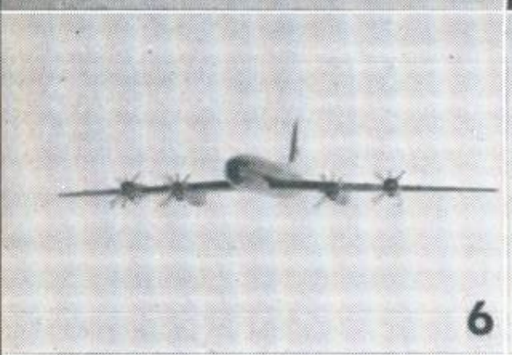
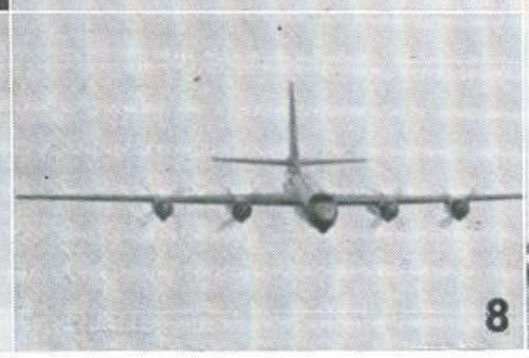


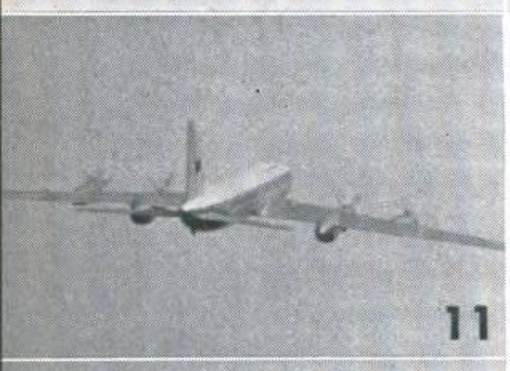
Tu-114 Cleat

Span 177 feet



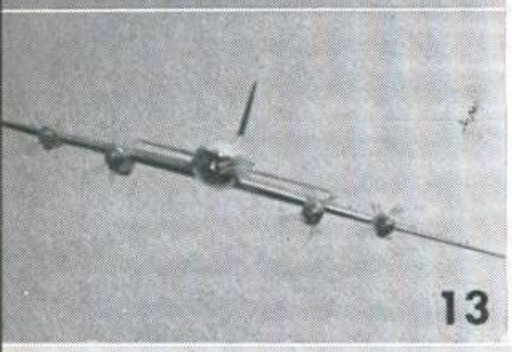


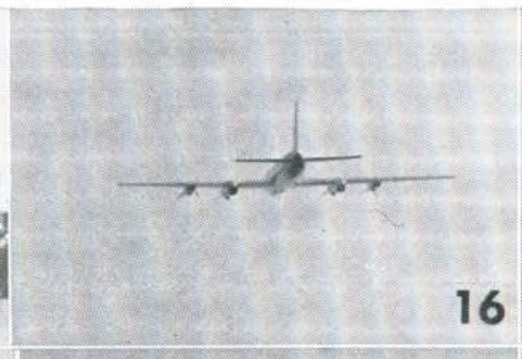


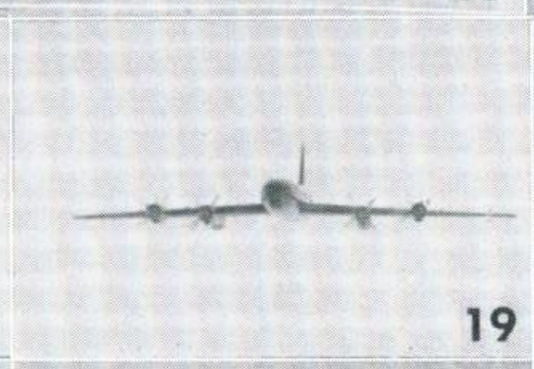


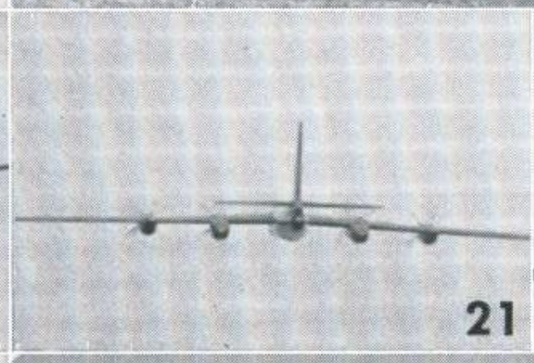
The Cleat

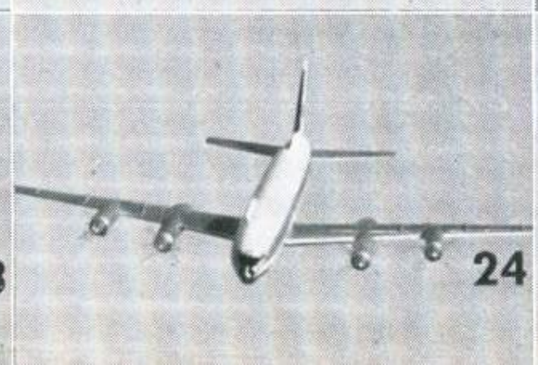
The Cleat (also known as Rossiya), the civil counterpart of the Russian Bear bomber with the same wing, tail-unit, landing-gear and turboprop engines, is the world's largest airliner. There are two versions: the Tu-114, capable of carrying 220 passengers, and the Tu-114D, intended to carry a small number of passengers, mail and urgent freight over long distances. The two types are basically similar, but the Tu-114D has a shorter, slimmer fuselage. It is claimed that the Tu-114 can carry 120 passengers with ample baggage non-stop from Moscow to New York. The prototype Tu-114D actually made a non-stop flight of 5,280 miles from Moscow to Irkutsk and back at an average speed of nearly 500 m.p.h. Lesson instructions are on page 128.

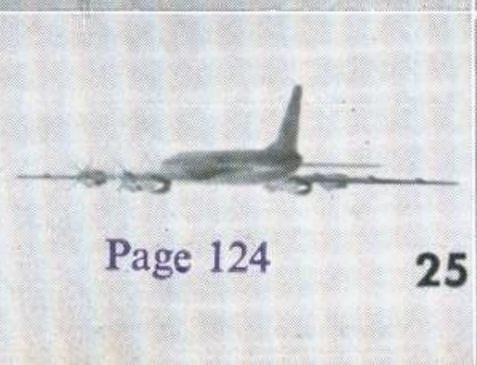


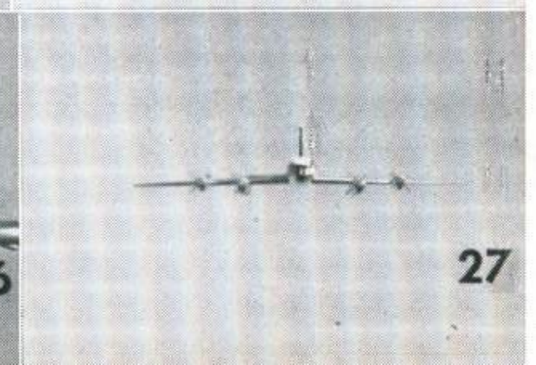












More Black Boxes

C. L. Blake, Manager of Transport Systems Development for the Convair Division of the General Dynamics Corporation, recently delivered a lecture in New York to the Society of Automotive Engineers of America. The following is a digest of what he said.

THE SUPERSONIC AIRLINER of the future will be a costly and complex machine and engineers who are designing it need electronic computers to help them. Other kinds of electronic computor will be needed to help to fly it and to service it.

Operating headaches would be prodigious if designers failed to solve many potential problems at the drawing board stage for these 2,000 miles per hour projected airliners. One such supersonic airliner will be able to do the work of twelve conventional airliners or four jet transports, and if a supersonic transport is delayed, say, for two hours because of radio trouble, the effect of this delay on an airline's operations would be similar to what happens now if say twelve piston-engine transports are made unserviceable all at once or get "weathered in" at one station.

Mr. Blake said that a computing machine programme can be set up to simulate the complete aeroplane at the outset from the point of view of reliability factors. Such a programme had in fact been under development in the B-59 supersonic bomber programme.

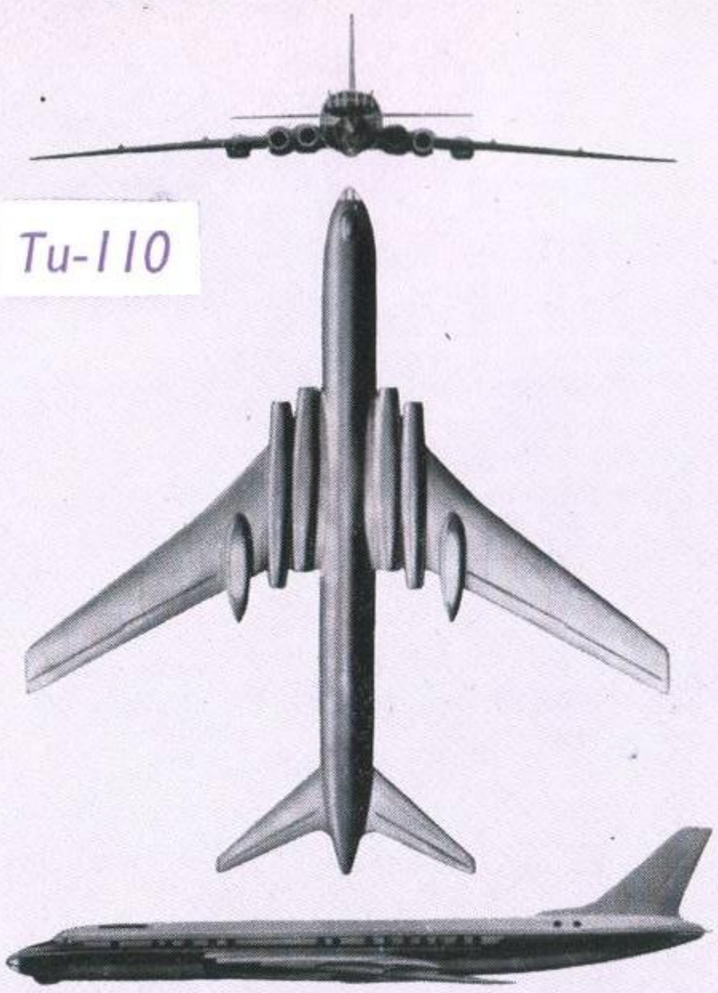
It works in this way. Characteristics of all components and systems of the supersonic airliner are fed into the computor so that the details can be fully worked out. After experimental results have been achieved, revisions can be fed into the machine as they become available and so the design can be modified until finally, the electronic "reliability model" is tested to simulate prolonged service in operation.

The lecturer went on to say that in this way we may eventually know more facts about a new aeroplane before it flies or indeed before it is built than we know about many aeroplanes after they have been in service for years.

Another use of the electronic computor would be to conduct rapid automatic checks of aircraft systems, a scheme already in use for some military aircraft. Full pre-flight checking of the F-106 interceptor, for example, takes 97 seconds compared with a normal eight man-hours. A complete 50-hour check requires only 18 minutes.

Yet another use of such a computor would be to keep the pilot of an airliner fully informed about engine performance, fuel consumption and air data and so enable him to judge the best way to fly the aircraft. It would be rather like having an extra man on board who has memorised all the performance charts in the pilot's handbook. Such a system could of course be used to indicate whether all the different ancillary services and systems within the aircraft were staying within their prescribed tolerances or if any of them were heading for failure. Thus steps could be taken to give special servicing to any "delinquent" system by way of preventive maintenance long before any possible danger ensued.

By using a computor, pre-flight checking for this F-106 Delta Dart now takes 97 seconds instead of the normal eight man-hours.



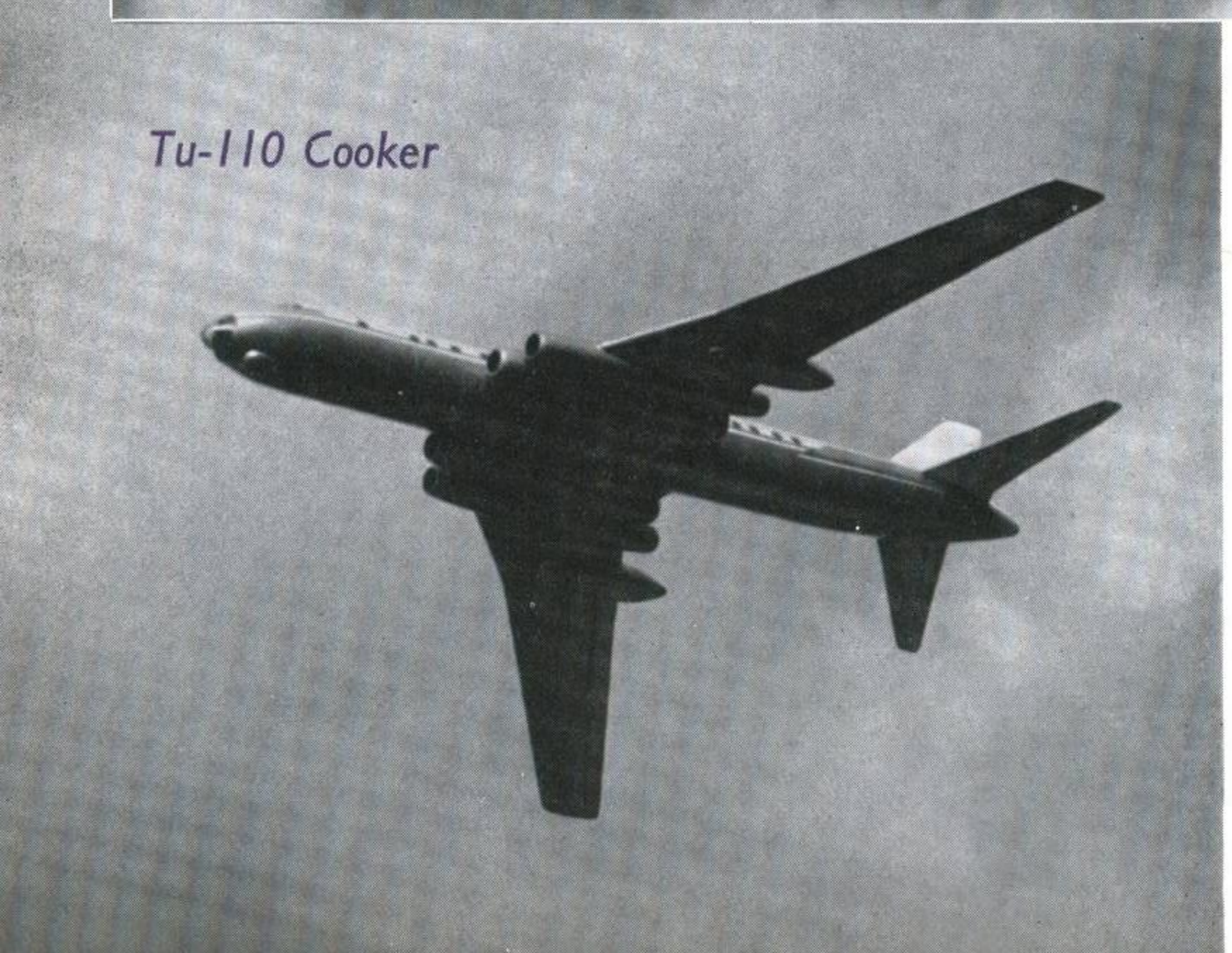
Tu-110

What's Cookin'?

A pretty kettle of fish so far as the chef, Mr. Tupolev, is concerned, one of which is the Tu-110 (Cooker in the NATO book). This four-engined civil airliner is really a "souped-up" version of the twin-engined Tu-104, itself produced from the Tu-16 Badger recipe.

The Cooker can carry 100 people in five-abreast rows—one might call it a sort of pressure-Cooker by comparison with other versions which carry 78 first-class passengers, or 50 in absolute Soviet-style luxury. Four turbojets mounted in the wing roots, looking rather like pairs of saveloys with the ends chopped off, are believed to develop 11,455 pounds of static thrust pushing the Cooker through the air at 559 m.p.h. Cooker has a top speed of 620 m.p.h.

Wing Span 123 feet



Tu-110 Cooker

We want to stress the importance of following the lesson instructions: make full use of the key pictures, do the easy targets first and write your solutions down. The list of solutions is on the cover.

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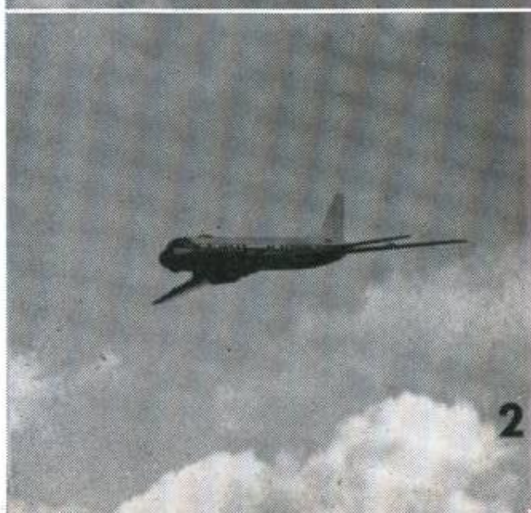

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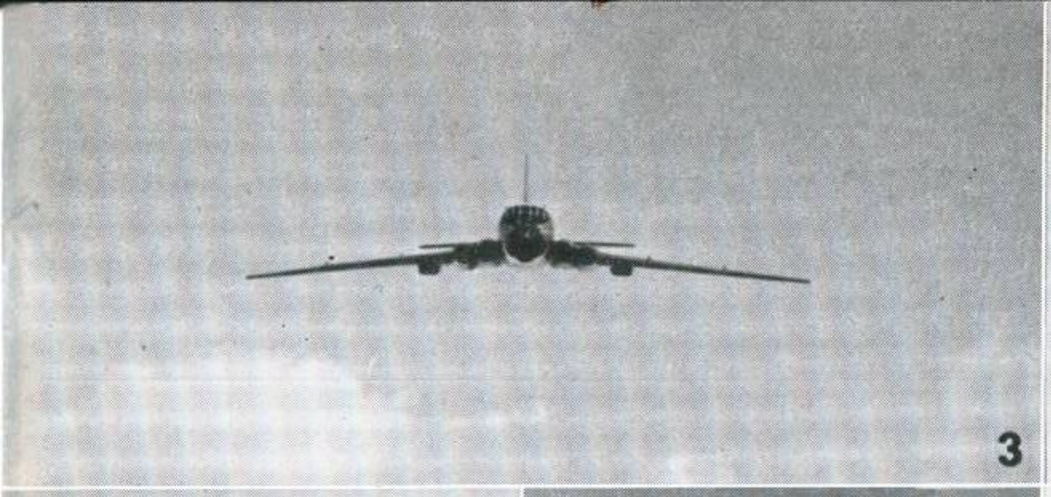
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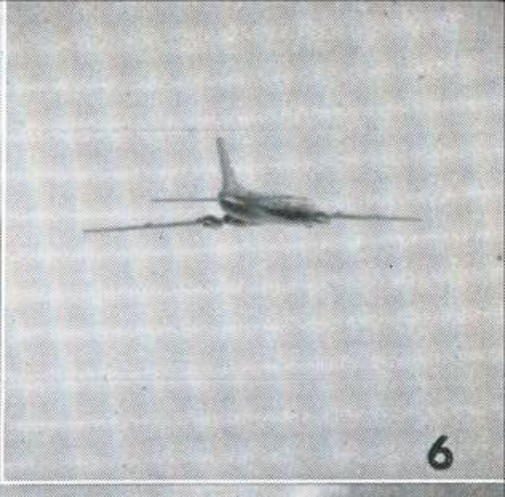
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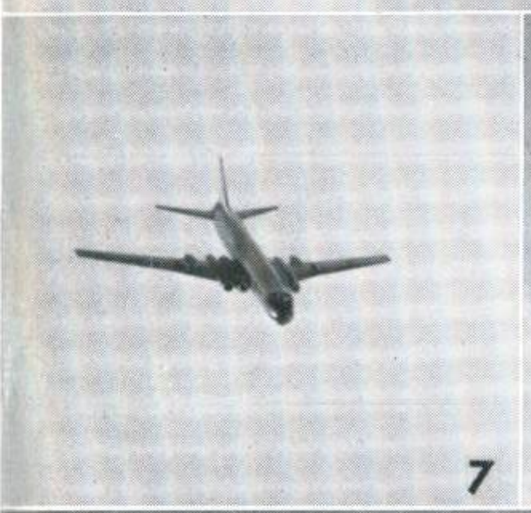
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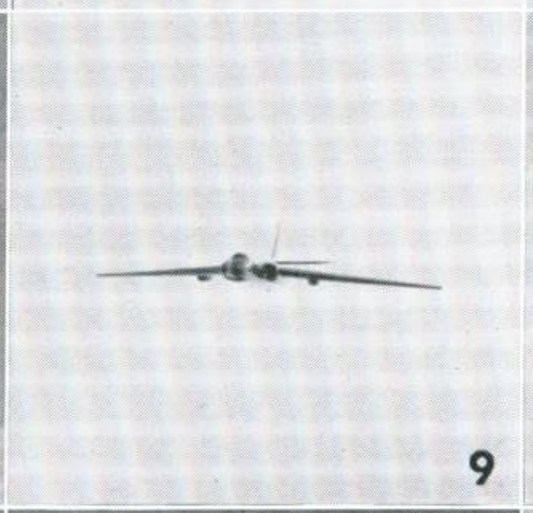
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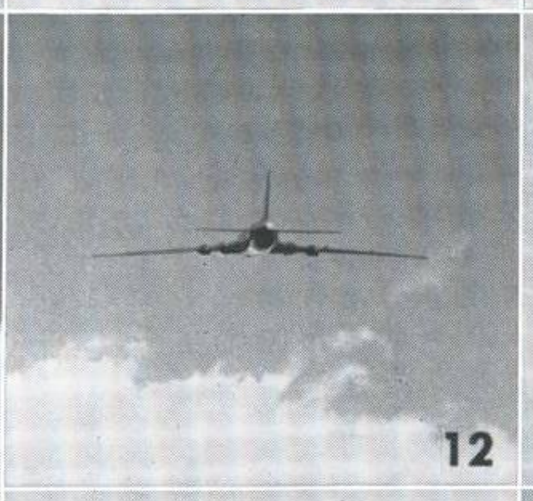
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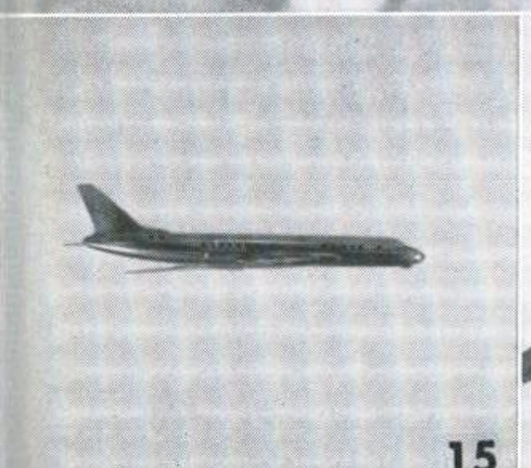
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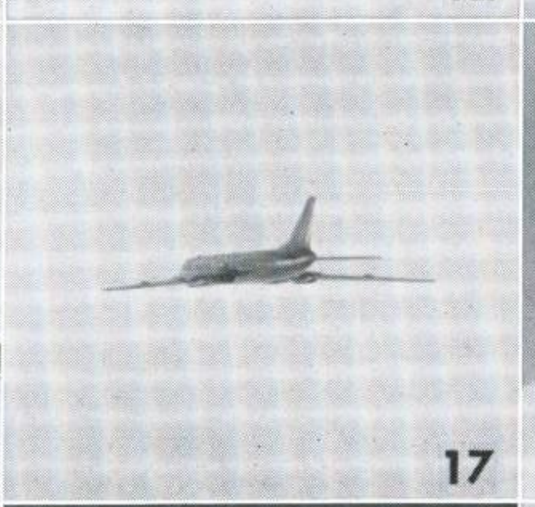
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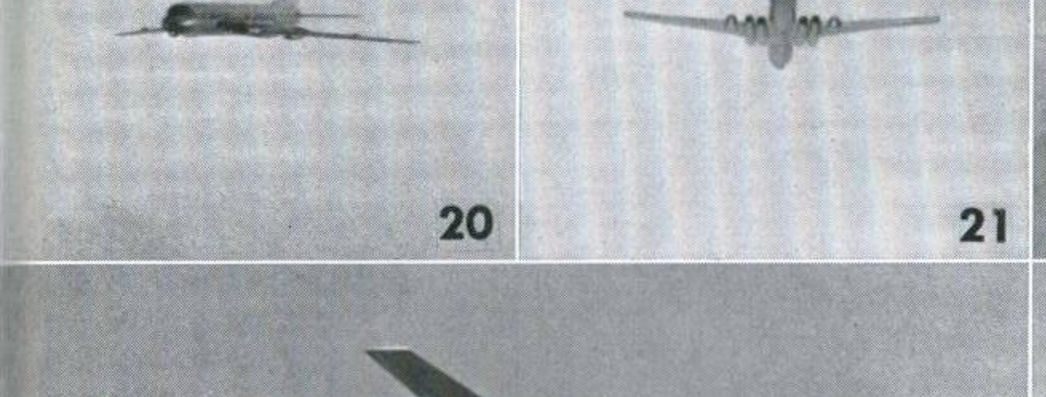
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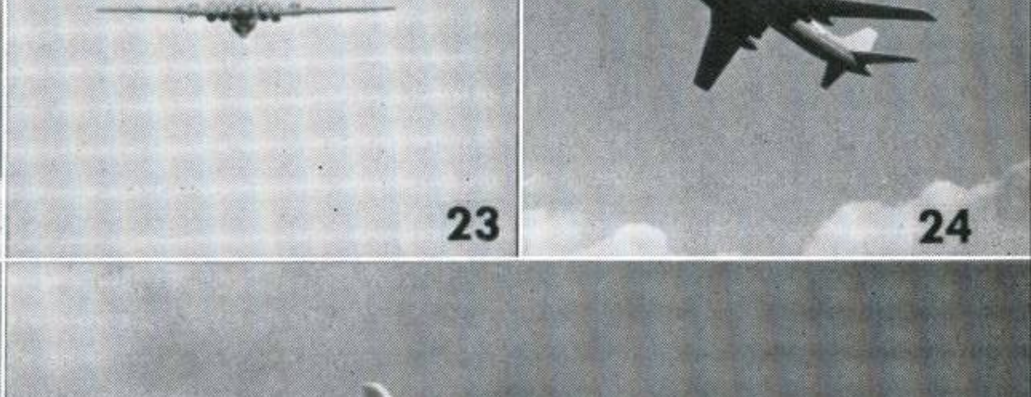
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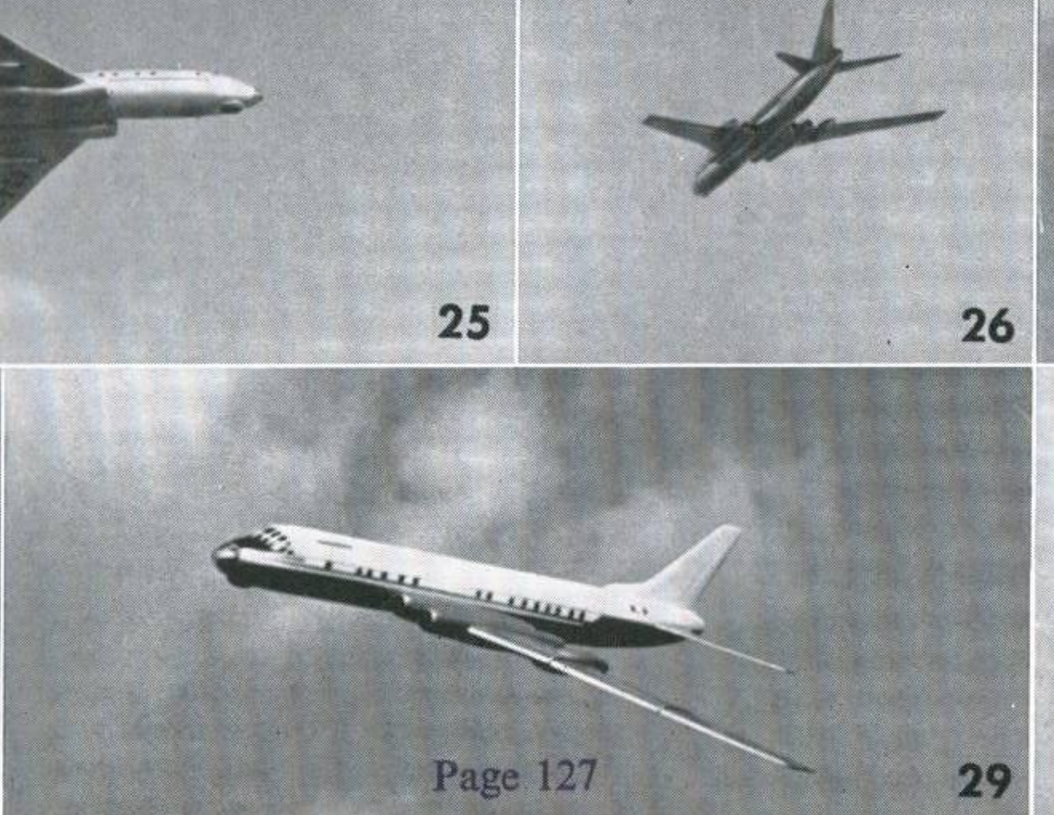
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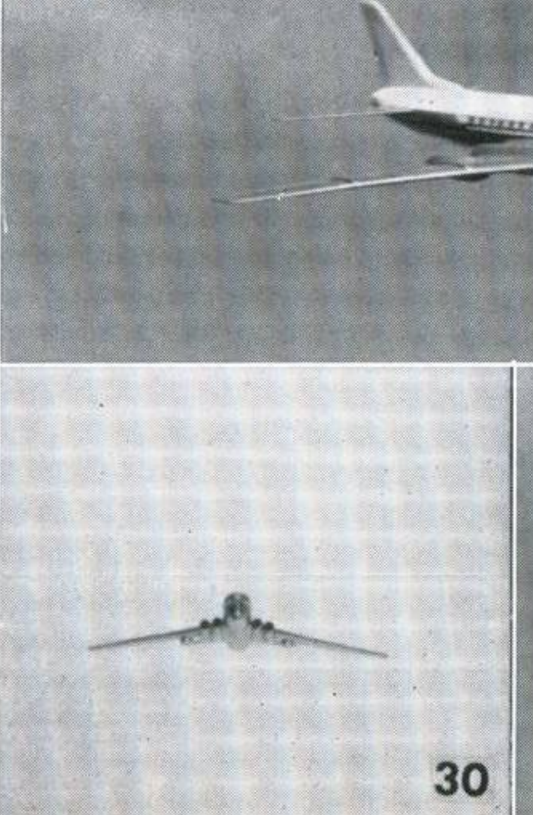
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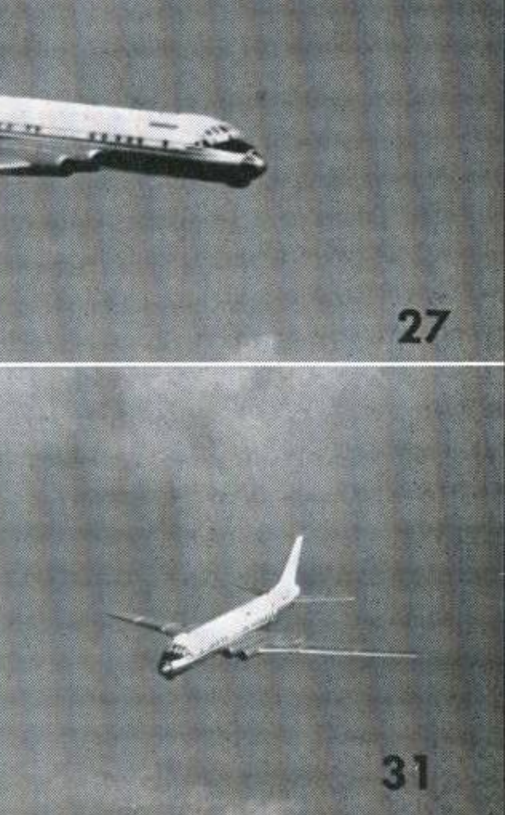
31

Cover Picture: ***Mushrooms, my hat!*** A pair of Grumman WF-2 U.S. Navy Tracers, for Airborne Early Warning and Fighter Direction Duties, display their "sunhats." So large a fungoid feature suggests easy recognition, but that does not necessarily imply swift identification. Tracer, incidentally, is a development of the Trader and half-brother to the Tracker (see December 1959 *Journal*) but is twin finned to obviate radome airflow interference with tail unit airflow.

★

SOLUTIONS TO TESTS AND EXERCISES IN THIS EDITION

★

Page 114 **SPOTTING TEST**

1. Cleat
2. Cooker
3. Madge
4. Cat
5. Bosun
6. Faceplate
7. Camp
8. Fishbed
9. Colt
10. Flashlight "C"
11. Cleat
12. Cooker
13. Cleat
14. Faceplate
15. Cooker
16. Bear
17. Backfin
18. Bear
19. Fresco
20. Bison
21. Camel
22. Bison
23. Bosun
24. Flashlight "B"
25. Fishbed
26. Fitter
27. Farmer
28. Crate
29. Colt
30. Bear
31. Cat
32. Clod
33. Badger
34. Beagle
35. Fitter
36. Fishpot
37. Crate
38. Backfin
39. Coot
40. Flashlight "A"
41. Fresco
42. Li-2 (Russian-built DC-3)
43. Cooker
44. Beagle
45. Badger
46. Badger

★

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.

Page 116 **F8U CRUSADER**

All targets are **F8U Crusader** except number 25, which is a **F-100 Super Sabre** and the left-hand image in target 19.

★

Page 118 **TWIN PIONEER**

All targets are **Twin Pioneer** except number 15, which is a **Broussard.** Note: the smaller aircraft appearing in targets 18 and 25 are both **Pioneers.**

★

Page 122 **F-104 STARFIGHTER**

All targets are **F-104 Starfighter** except No. 10, which is a **F-101 Voodoo.** (Note: targets 13, 19 and 29 are **F-104B,** two-seat version.)

★

Page 124 **TU-114 CLEAT**

All targets are **Tu-114 Cleat** except Nos. 8 and 21, which are both **Tu-20 Bear.**

★

Page 126 **TU-110 COOKER**

All targets are **Cooker** except numbers 9 and 25 which are **Badger** and **Camel** respectively

★

High Ice Hunt

On a search for heavy icing conditions in the upper atmosphere, a new Convair 880 recently ranged as far north as Alaska during test flights from California. Our picture shows the Eight-Eighty during a stop at Anchorage.

★

ERRATA

We regret that an error appeared in our April edition: solutions to targets numbers 10 and 16 in the Cessna U-3A lesson on page 62 should in both cases have been M.222 Flamingos and not Cessna Model 310C's as stated.

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