

400
Syn

JOINT



SERVICES

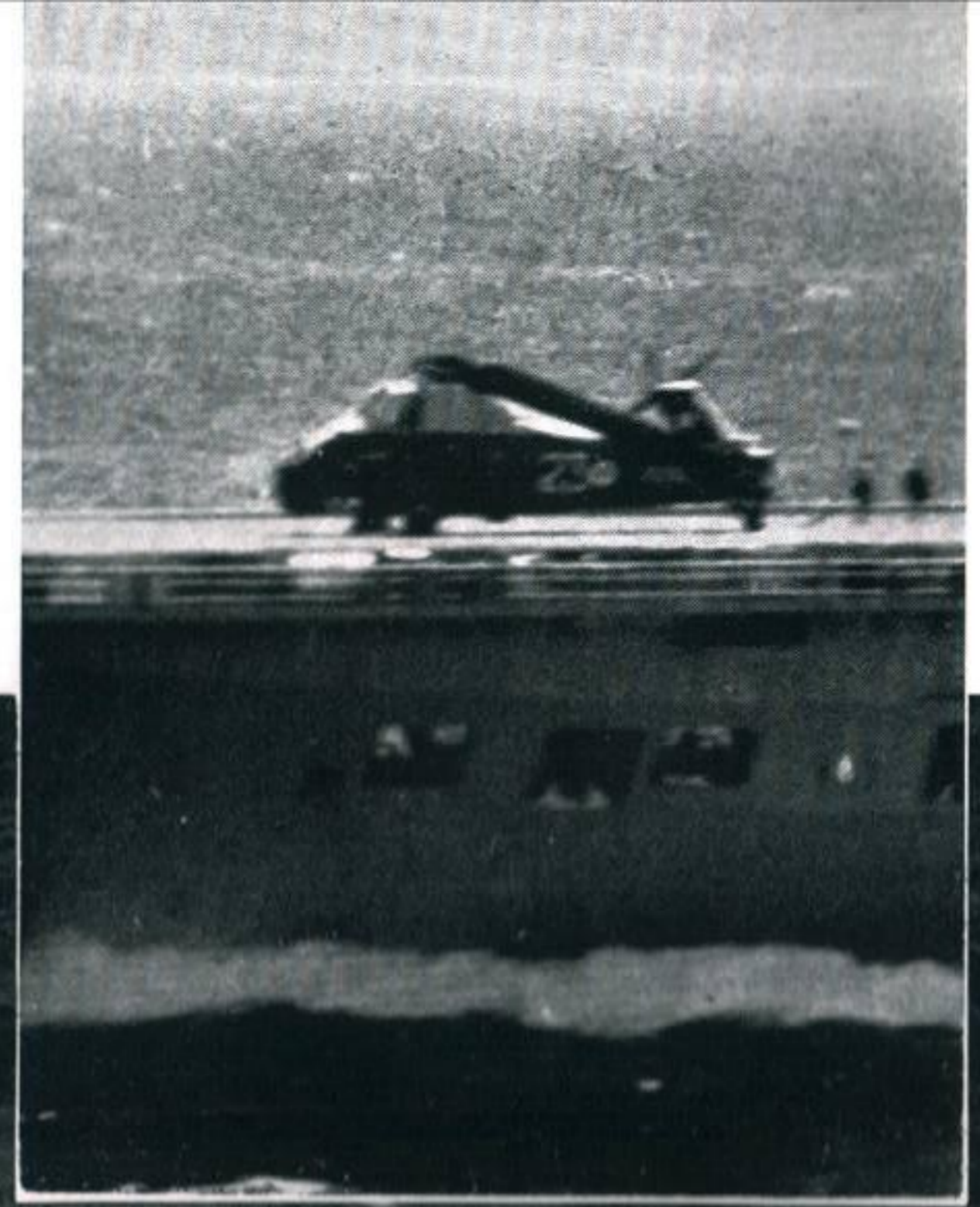
RECOGNITION

Journal



Vol. 19 MARCH 1964 No. 3

H M S VICTORIOUS. A view of H.M.S. Victorious which provides an interesting spotting test of some of the major operational aircraft types of the Fleet. The helicopter forward, apparently ready for stowage, appears so unfamiliar from above that, to help the less practised, a view from alongside is also given. Solutions on the cover.





JOINT SERVICES

RECOGNITION JOURNAL

The *Joint Services Recognition Journal* is a monthly publication produced by the Directorate of Flying Training, Air Ministry, and prepared in collaboration with the Admiralty, the War Office and the Ministry of Aviation (Air Technical Publications). Applications for copies can only be accepted from the Services or other official bodies, and must be submitted through the normal official publications supply channels—not to the Editorial Office or direct to the Air Ministry.

The Journal is produced solely for official use and can not be sold to members of the public. Contributions and correspondence should be addressed to the Editor, *Joint Services Recognition Journal*, Air Ministry, Whitehall, London, S.W.1.

Feature	Page
M48 Patton Tanks (cover)	57
H.M.S. <i>Victorious</i>	58
Functional Finishes (editorial)	59
* Fitter	60
* Magister	62
* Jet Provost	64
* Zlin Z-326 Trener Master	66
Representative Aircraft Types of the Danish Forces	68
* Orion	70
Cessna Types	74
* Merchantmen of the U S S R No. 7—Levant Class ...	76
In Passing	79
* M60 United States Main Battle Tank	80
Solutions to Tests and Exercises	84

* Identification Lessons

FUNCTIONAL FINISHES

CAMOUFLAGE was generally adopted for British Service aircraft in 1918 when khaki-green and later khaki-brown became usual for upper-surfaces. It lapsed after the war when a standard pigmented aluminium dope, ADP—the so-called “silver finish”, became general. With the deteriorating international situation in 1937 camouflage was again introduced, but this time a disruptive pattern of green and brown, that is still the basis of present-day finishing schemes in form, if not in precise shades.

Towards the end of the Second World War, the pros and cons of camouflage of natural finish was being discussed. The Americans could increase the payload of their B-17 Flying Fortresses by leaving off the not inconsiderable weight of olive green paint, and increase their speed by eliminating the drag engendered by the matt finish. The R.A.F., in combating the V.1 Flying Bomb menace, stripped some Spitfires and Mustangs of paint completely, in an effort to extract the vital few more m.p.h. needed to effectively combat the “Doodle-bugs”. From the deep sky blue of photographic reconnaissance aircraft, there was an increasing tendency to use natural finishes.

In the immediate post-war years there was a general reversion to natural finish, particularly in America. Once again this was generally, and not inappropriately by effect, called a silver finish. However, function is the essence of service, and military aircraft finishes must be conditioned by functional considerations. The war ended with the introduction of the nuclear and the electronic age, and the effects inter alia of radiation had to be considered. The finish of the British deterrent force, the V Bombers, became an overall anti-flash white.

The news came in February this year that certain of the V Bomber squadrons will now have their aircraft camouflaged indicative of their new low-level role additional to their high-level operation.

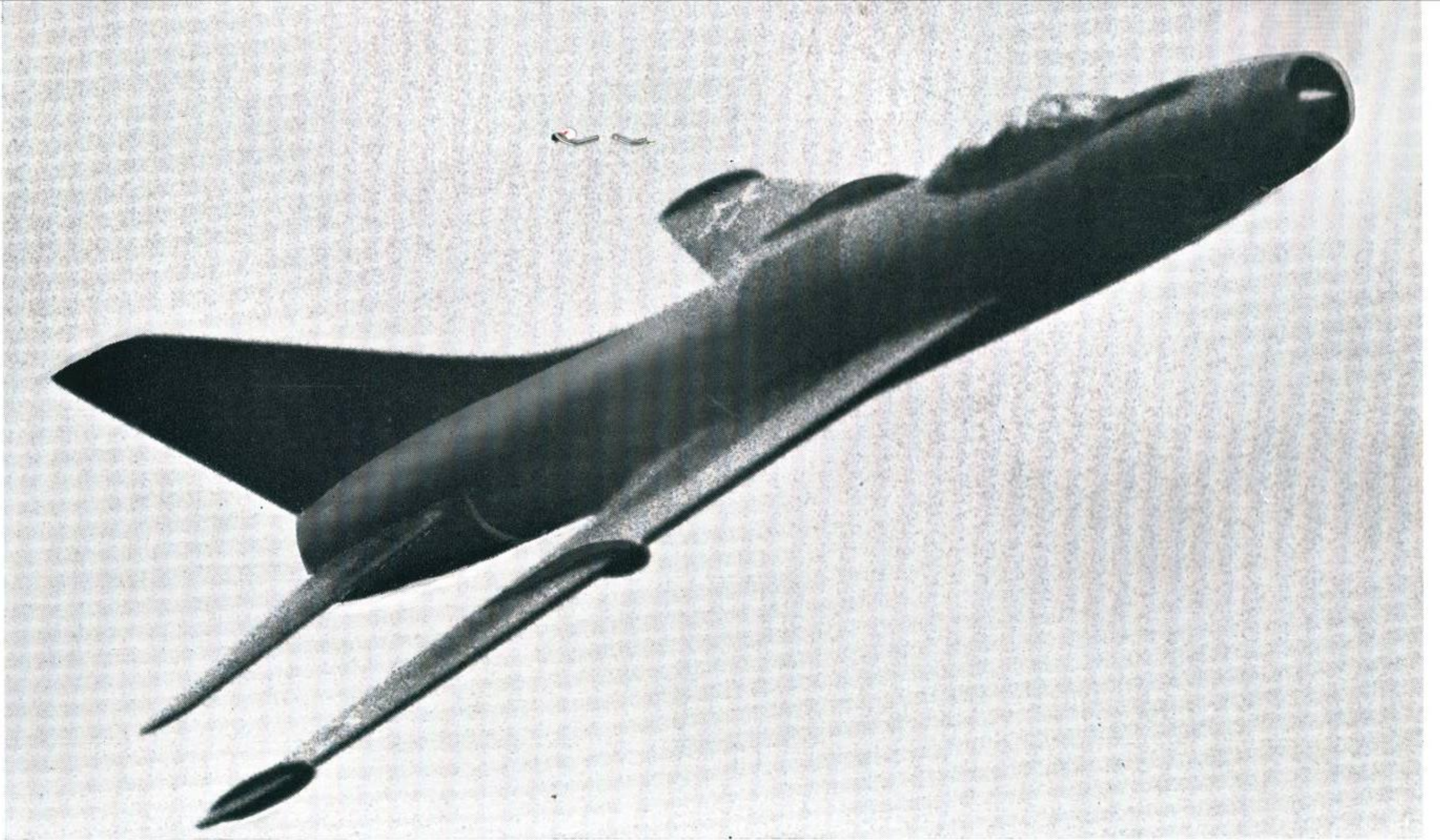
The finish of aircraft is not a prime consideration in identification training. Operationally it is designed, of course, to make identification more difficult. Our main concern is that the implications are realised by those whose task it is to identify aircraft in the course of duty, for here are aircraft

painted to make themselves as inconspicuous as possible and thereby testify to the importance attached to visual identification itself, which can only be effective through training. In order not to compromise camouflage too much, the roundel is being placed on the port-side upper surface wing only, thus implying that it is a token display, to accord with international convention, rather than a practical indication of national identity. The fact that this accords with our American Allies representation is welcome, but the effectiveness is rather negated by its limitation to certain of our aircraft.

The new finish may well apply to the new TSR-2 for its low level role. Army aircraft, which in general are not high-flying craft have remained in an overall camouflage scheme since the war. Of the operational British fighters only the Lightnings do not have the standard grey and green camouflaged upper surfaces. Royal Navy aircraft are camouflaged or finished according to the role. All three Services are thereby operationally concious of the vital importance of visual identification in this era of electronic detection devices.



Finish according to function is epitomised by this line-up of French Air Force Mirage IIIs where the reconnaissance versions are camouflaged. The sub-types are, from front to rear: IIIB (two-seater), IIIR, IIIC, IIIC, IIIR, IIIC.



Span 30 feet

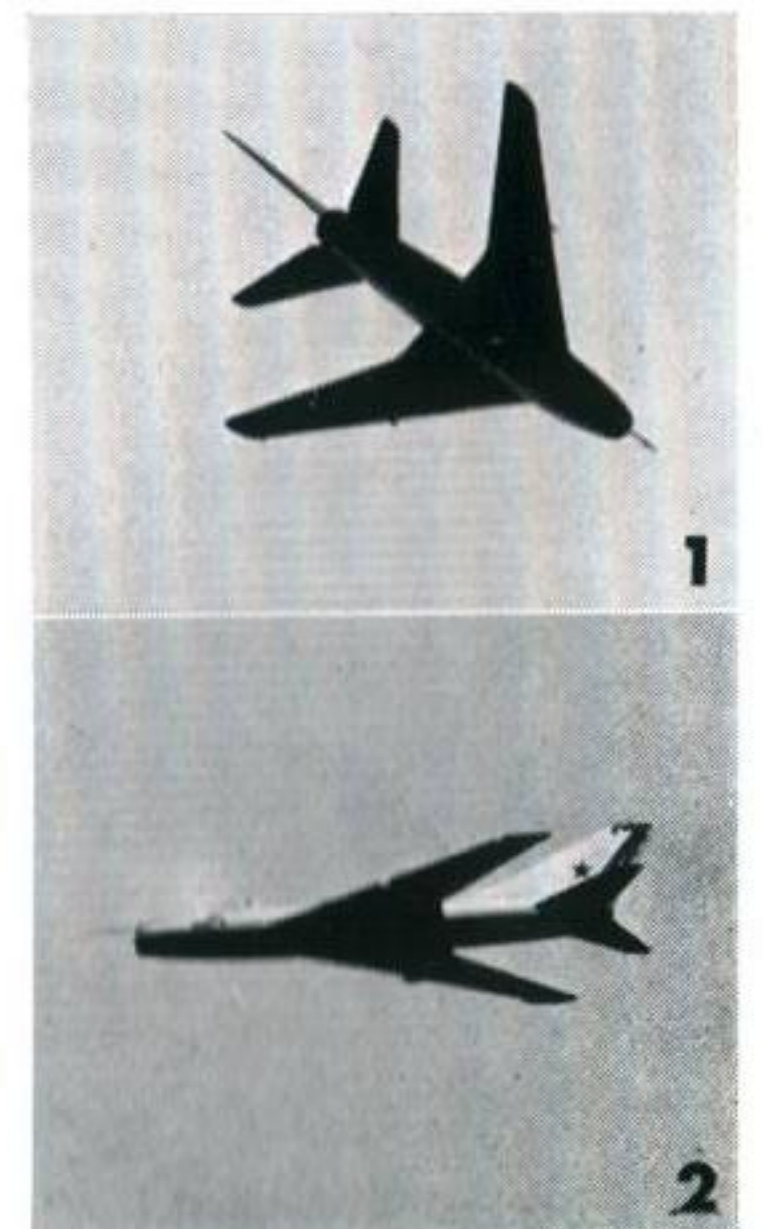
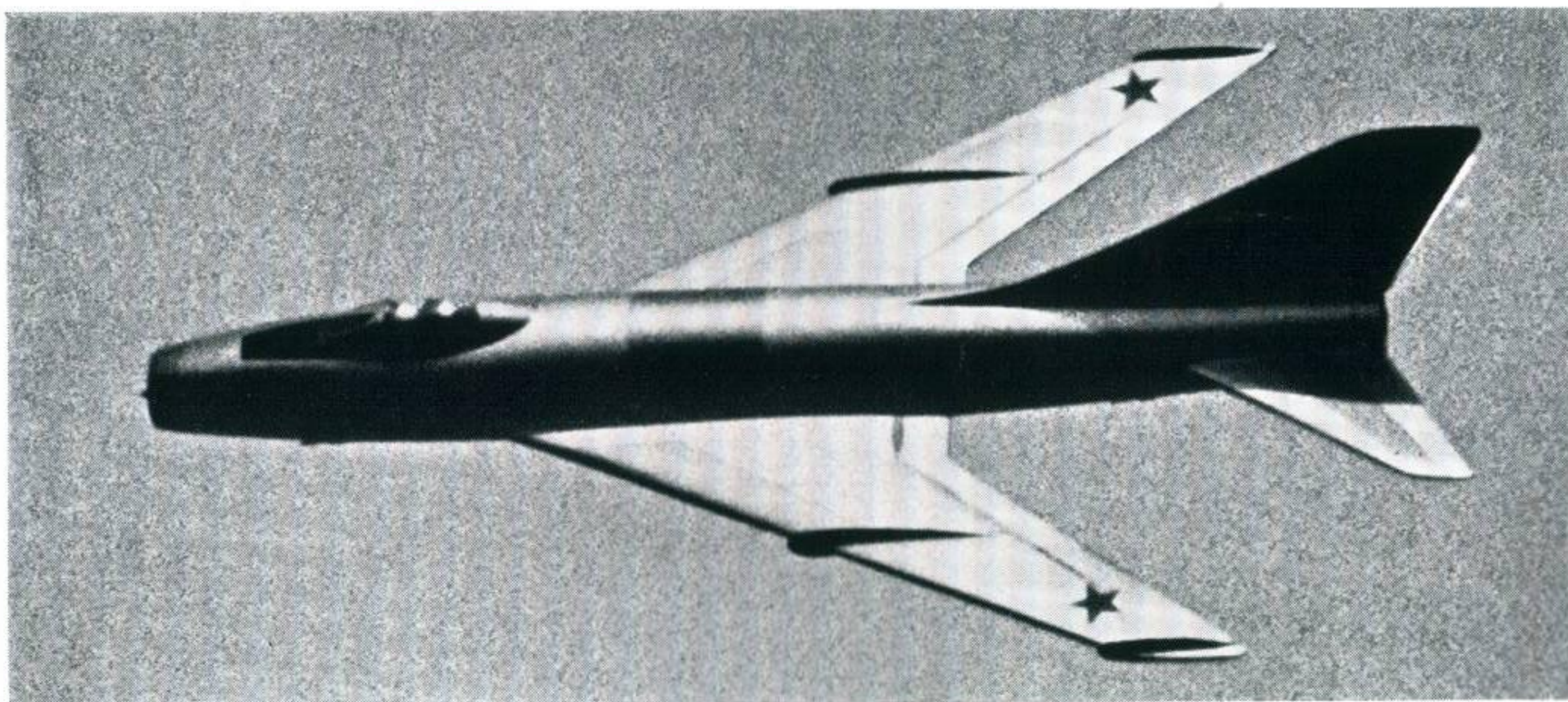


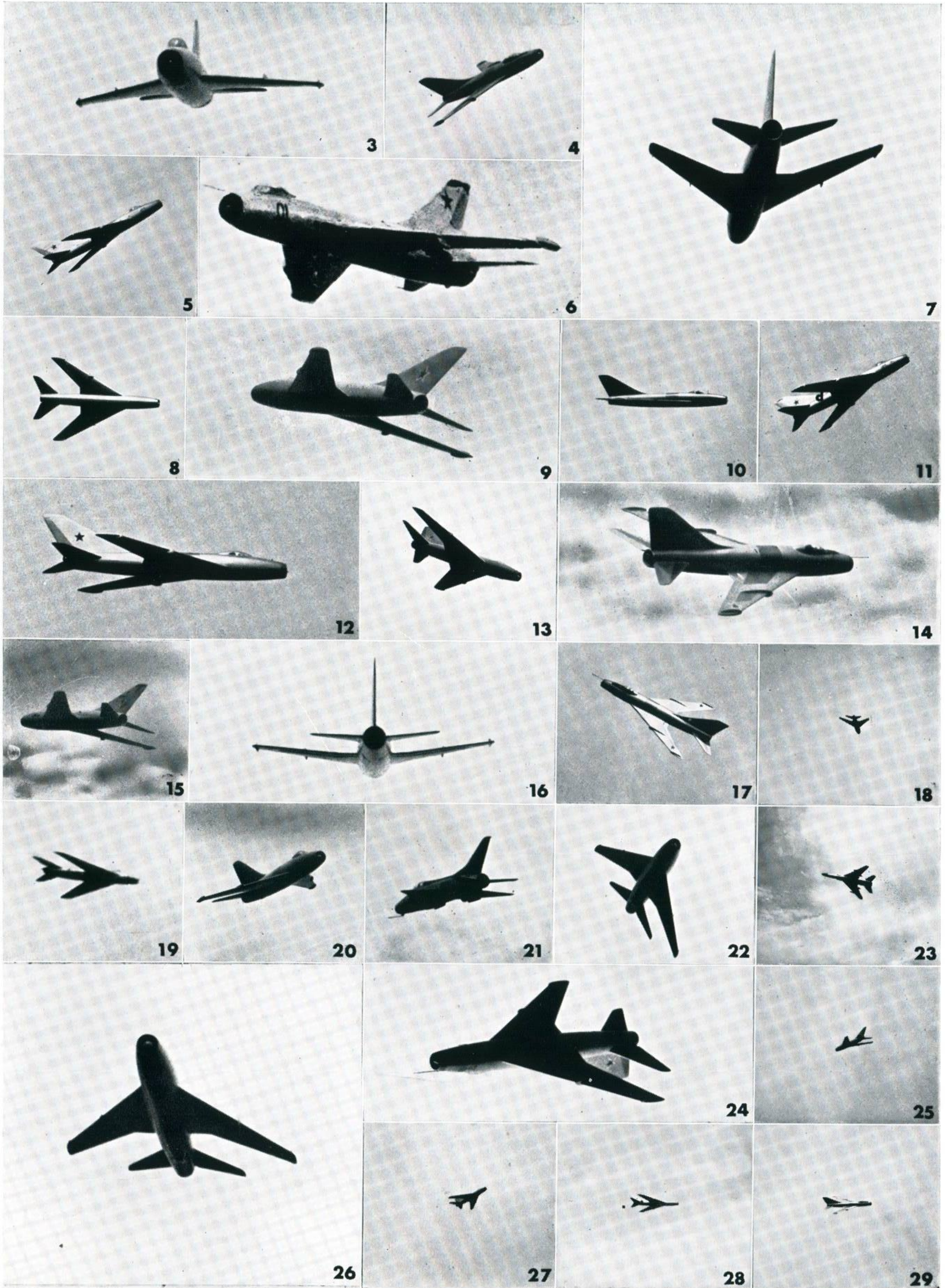
FITTER

Although Fitter was observed way back in 1956 and was evident in some numbers at the 1961 Tushino Display, it is not particularly well-known; nevertheless, it must be identified. Your ability to identify it will depend largely upon your grasping the opportunity of carrying out this lesson for which instructions appear on page 79.

Fitter has a typically Russian type of tailplane and one that appears to be similar to Fishpot. Under-wing and under-fuselage fittings, indicate that Fitter may well be seen carrying stores or tanks in these positions. Note that wing fences near the wingtips give a false impression of wingtip tanks in some positions.

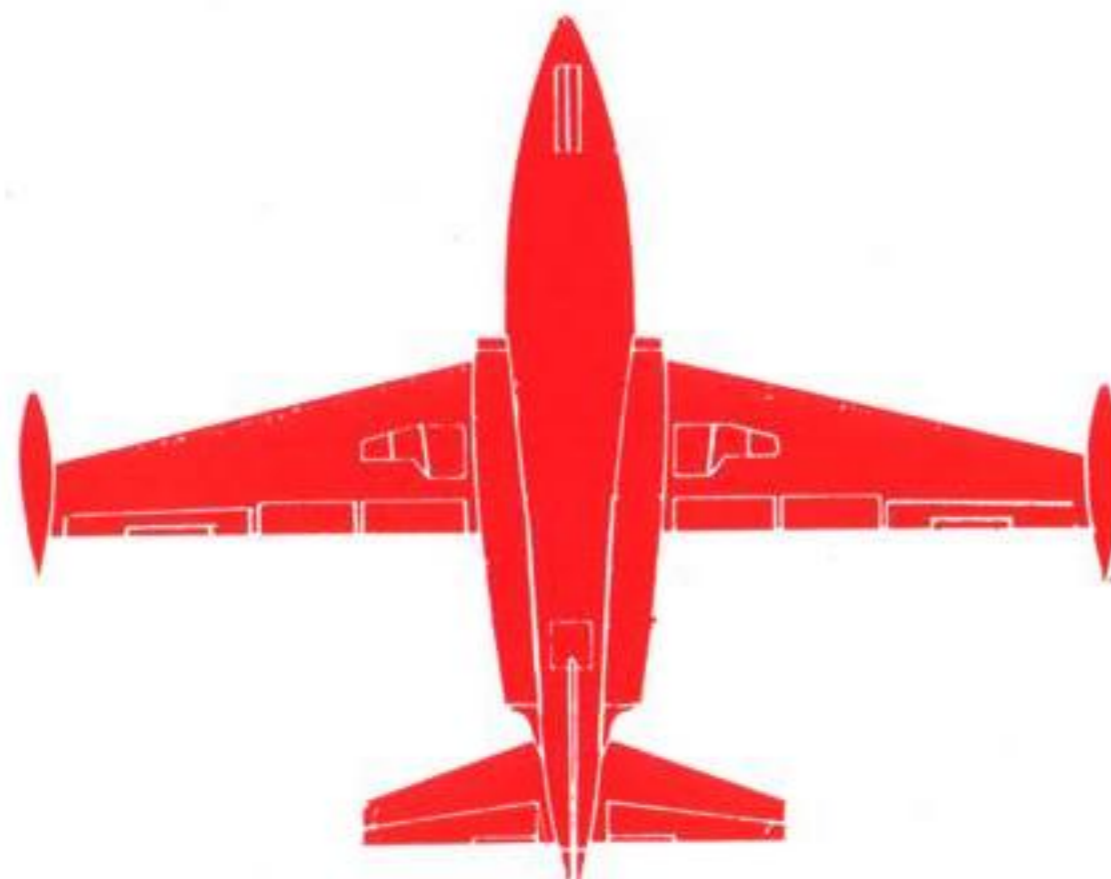
Solutions on the cover.







Span 37-42 feet according to version and the fitting of wingtip tanks.



MAGISTER

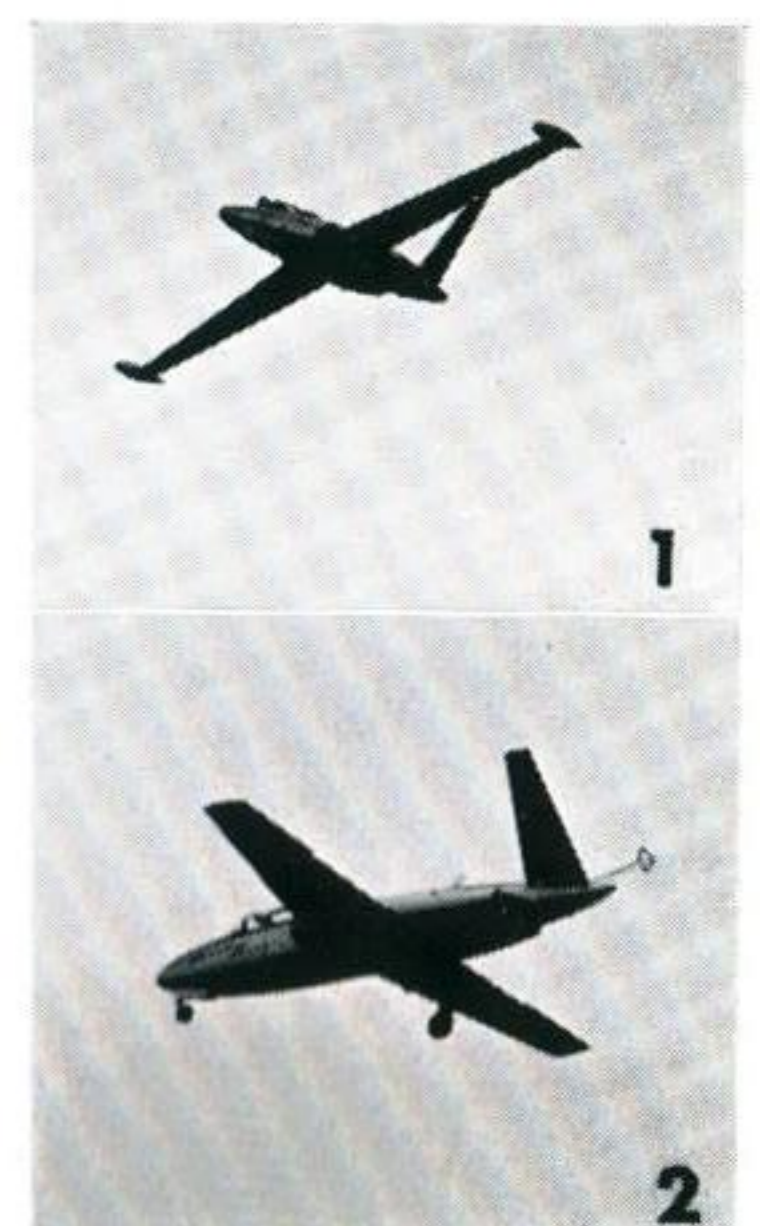
A French twin-jet, two-seat trainer, the Potez CM170 Magister has been built in France, Germany, Finland and Israel, and has been exported to several other countries. A batch of 250 were produced for the Federal German Republic.

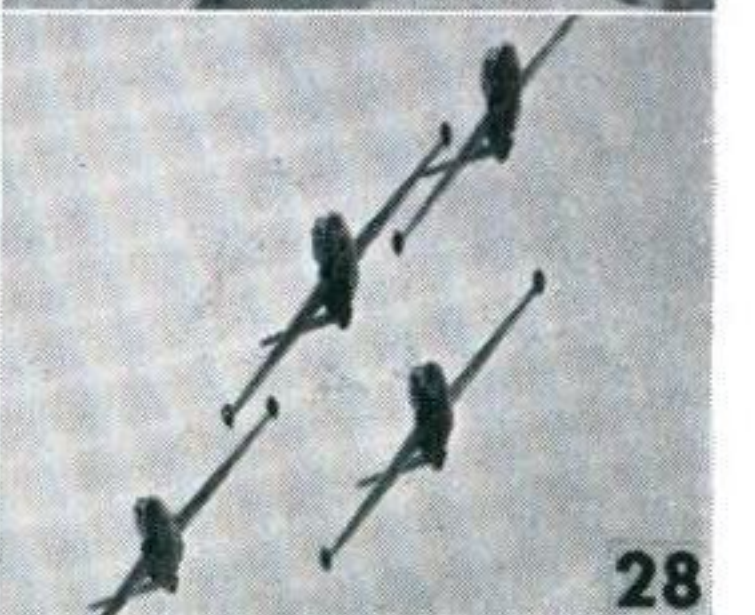
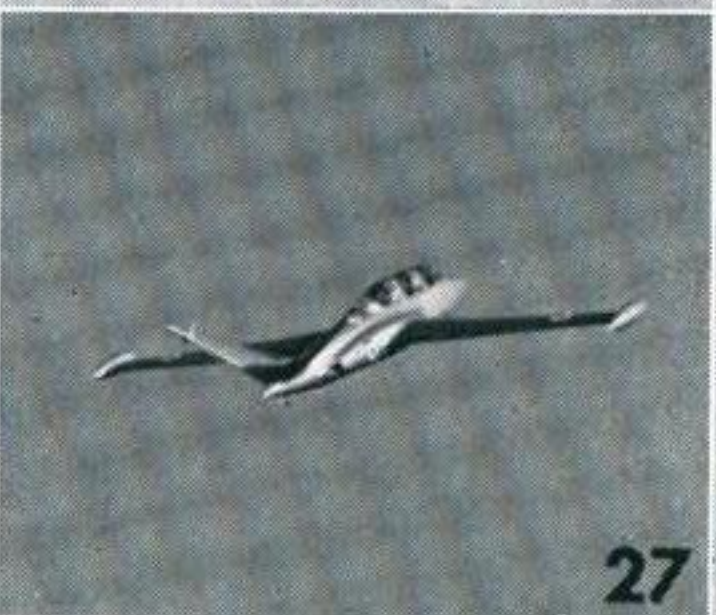
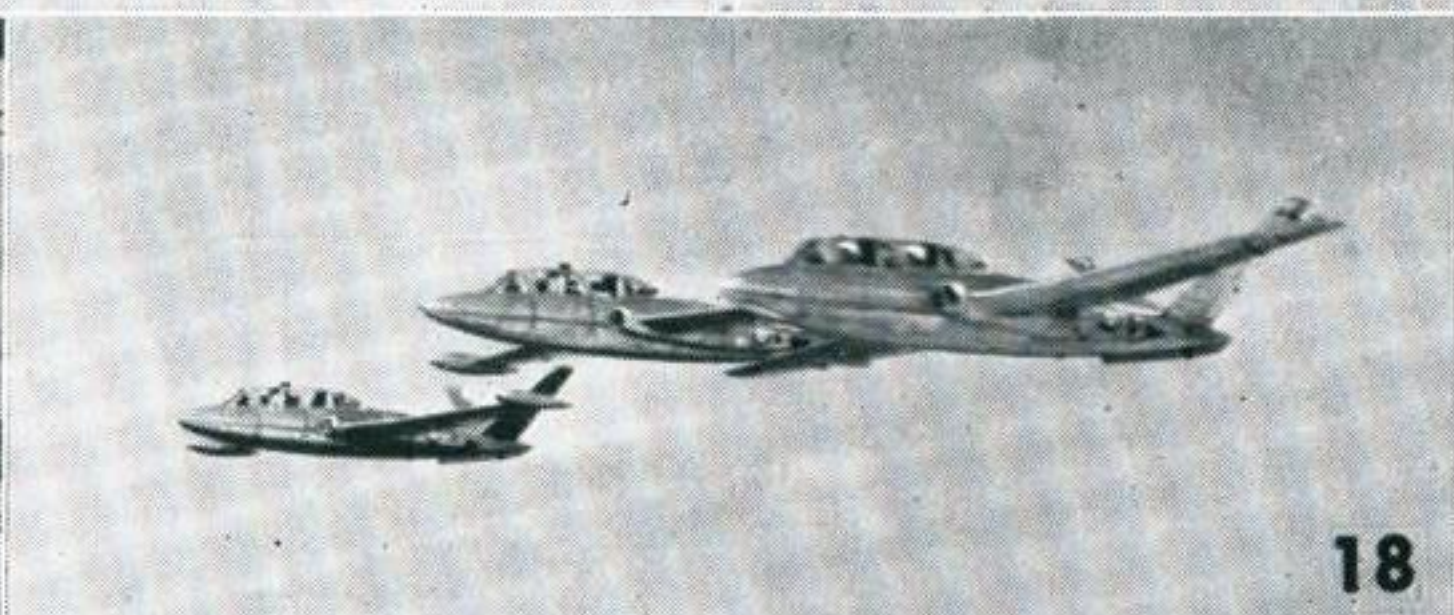
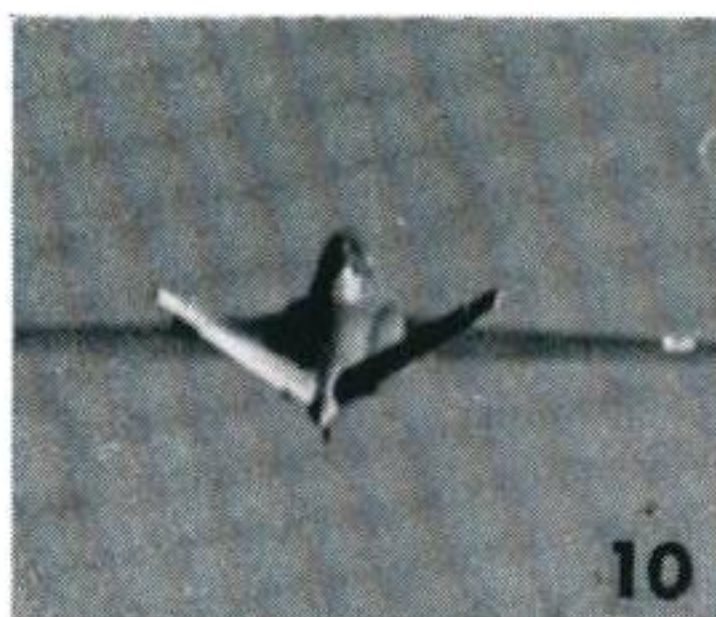
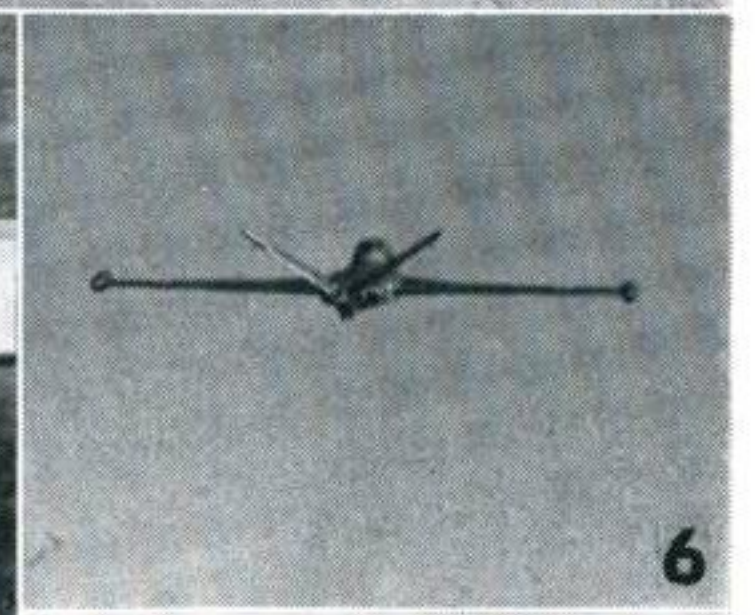
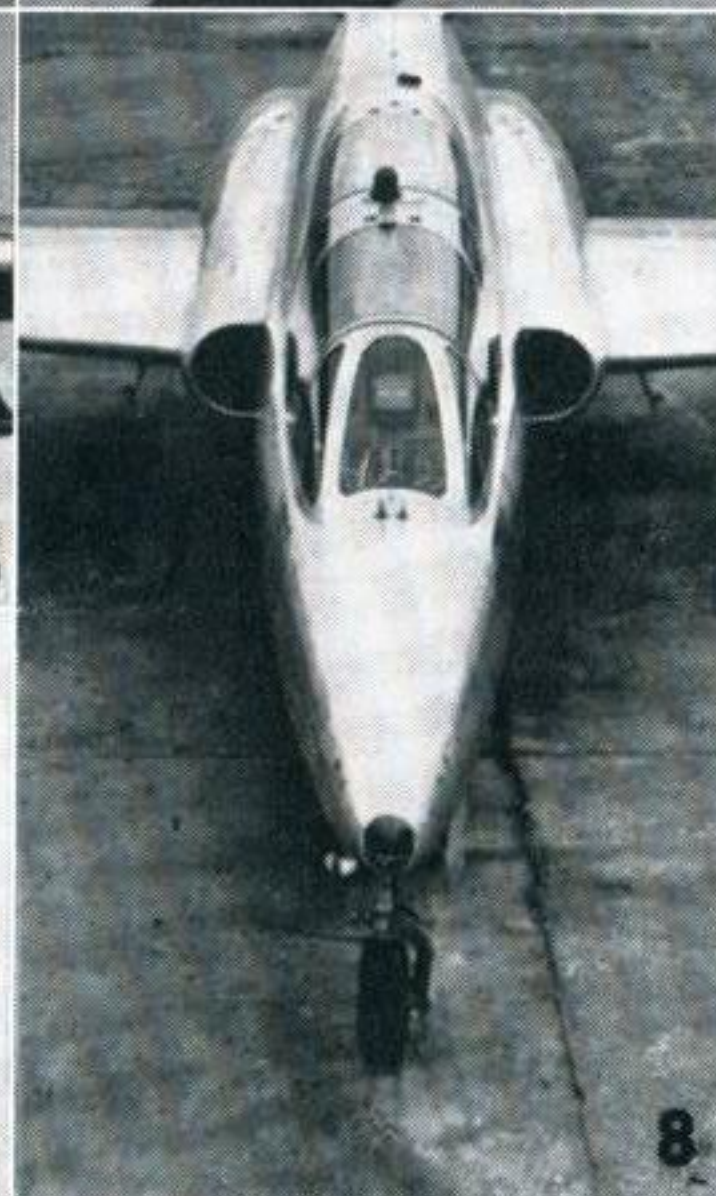
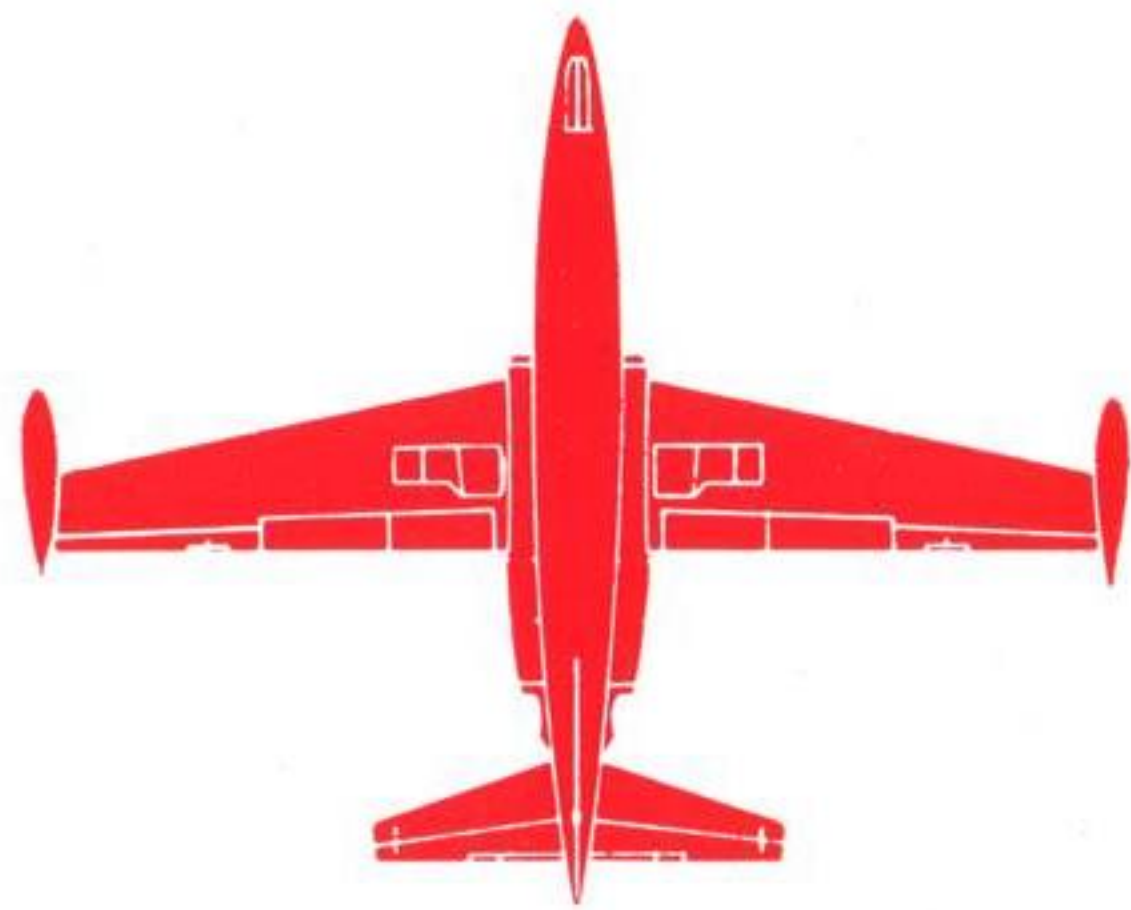
Several variations have been developed from the basic CM170 Magister. A CM173 Super Magister with more powerful turbojets is at the prototype stage; nearly 50 CM175 naval trainers (called Zephyrs) have been built for the French, and a CM191 four-seat civil or military version is being built in Germany.

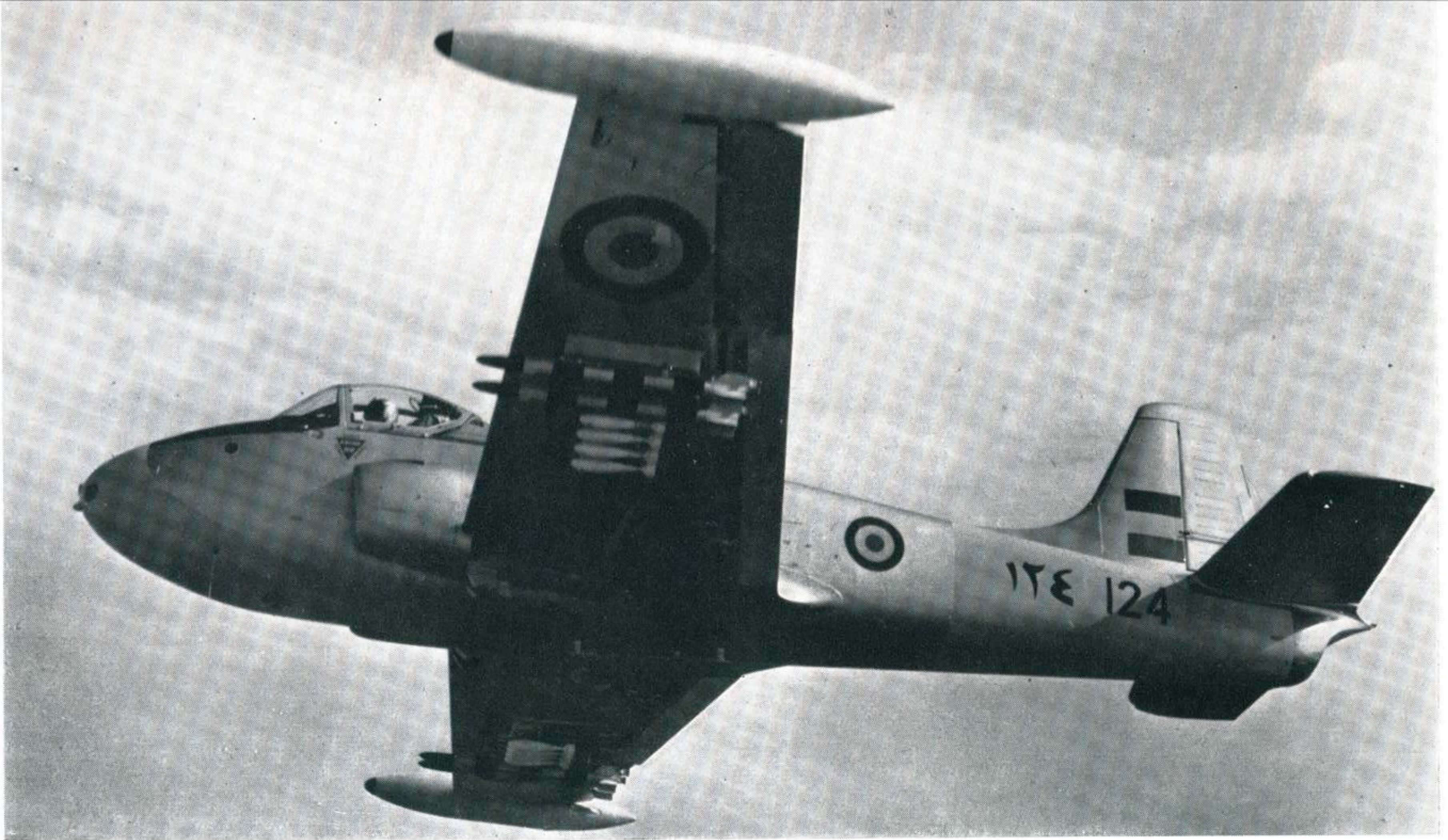
For reporting purposes Magister is sufficient for all versions, but for training purposes you should try, with the aid of the key views and information here and instructions on page 79, to classify the variants correctly.

Magister CM170 versions have fittings for underwing stores and the CM175 Zephyr has a deck landing hook. Wingtip tanks are detachable.

A full list of solutions appear on the cover.







Span 37 feet (over tanks)



JET PROVOST

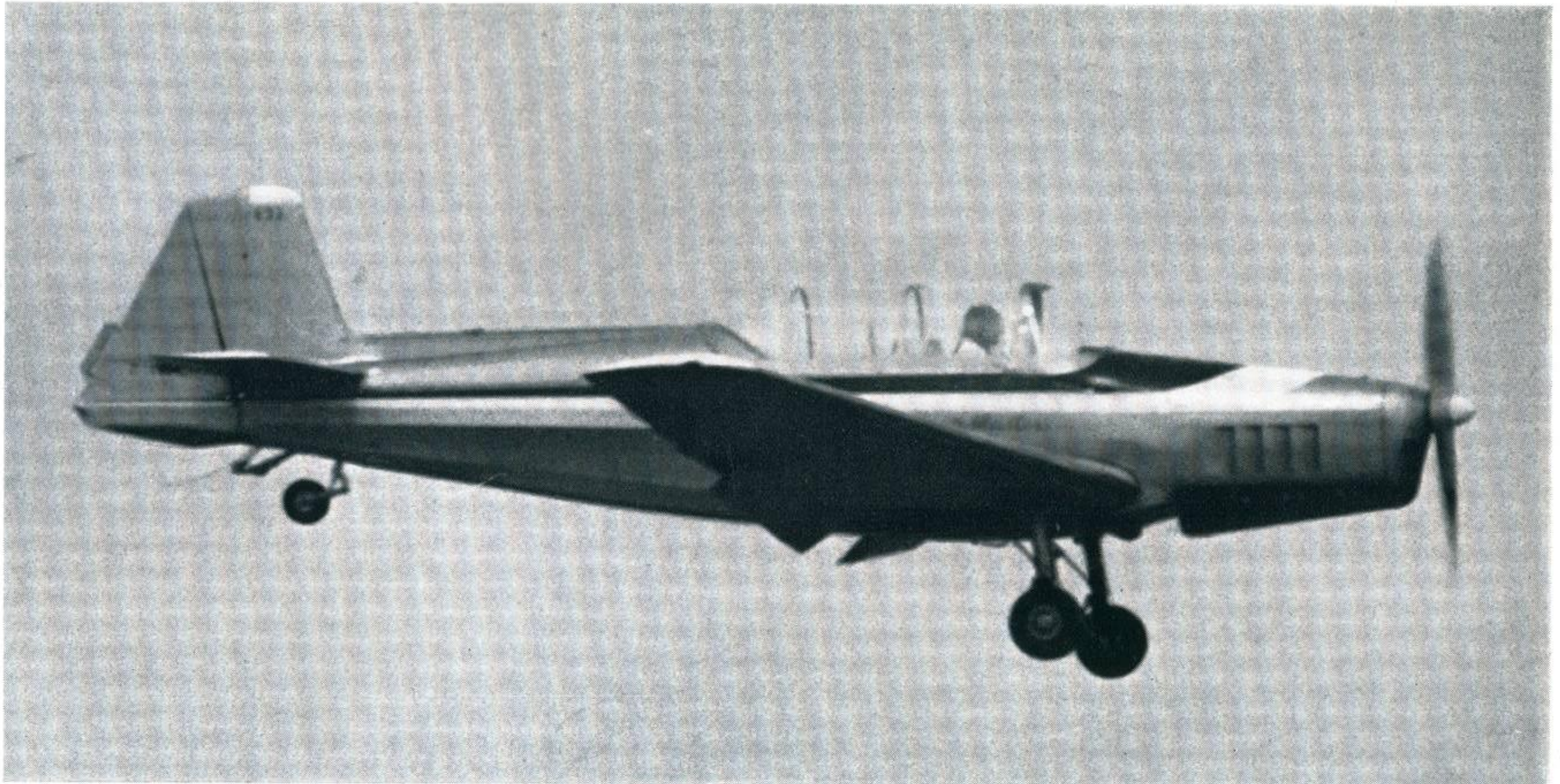
Standard trainer for all-through flying in the R.A.F. is the Hunting Jet Provost. The initial T.1 and T.2 versions were pre-production trials and demonstration aircraft; the T.3 and T.4 with minor visual differences are the standard service R.A.F. trainers. They can be fitted with a variety of underwing stores.

Jet Provosts supplied to foreign governments, to meet special armament requirements, have been designated Mk. 51 and Mk. 52 but are basically T.3 and T.4 respectively.

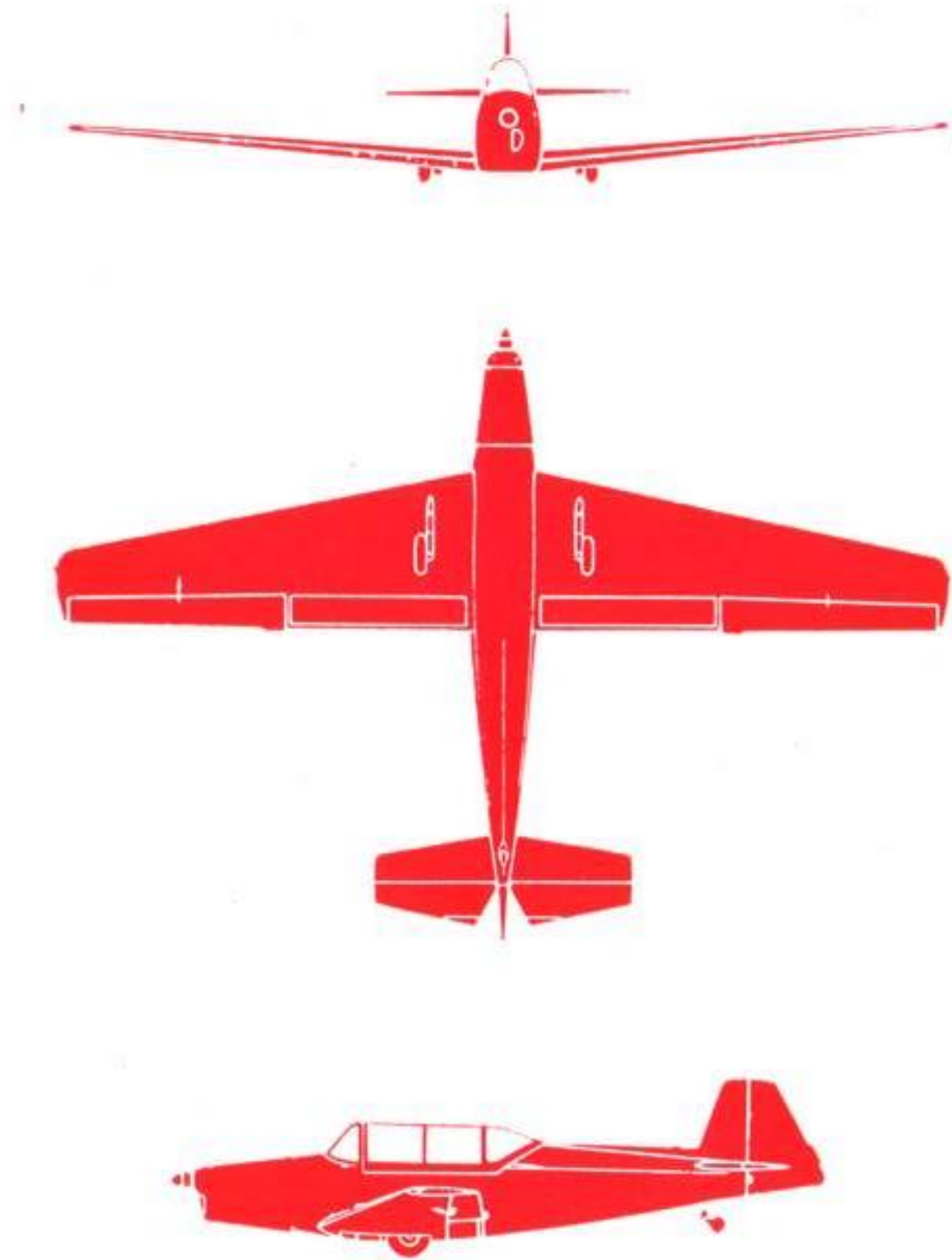
As a high performance trainer, with a sleek appearance and capable of delivering a punch, the Jet Provost should be known—and to know it enough to identify it, apply the instructions on page 79. Detailed solutions appear on the cover, but the name Jet Provost is acceptable for all except the jokers.







Span 35 feet



ZLIN Z-326

TRENER MASTER

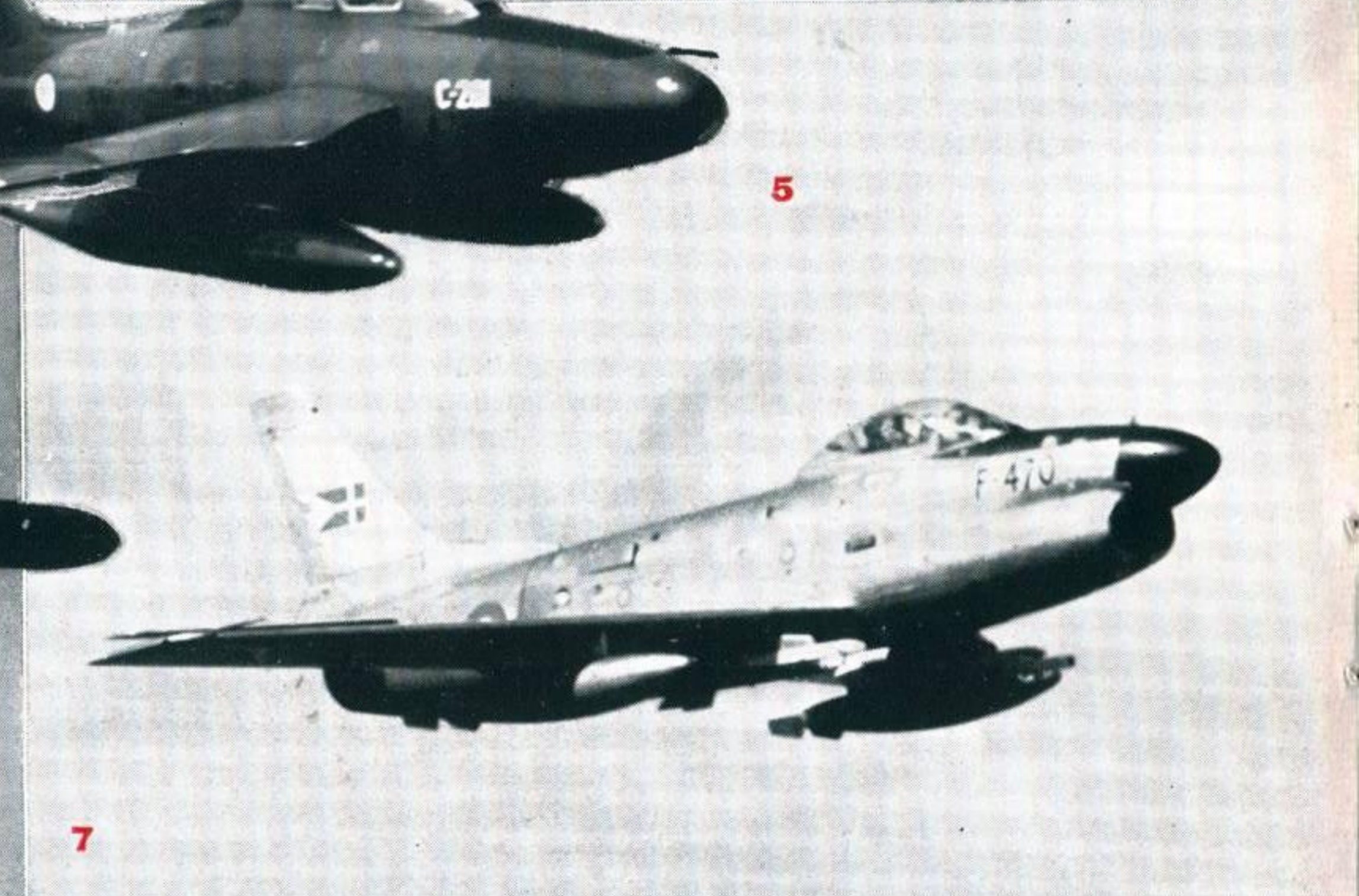
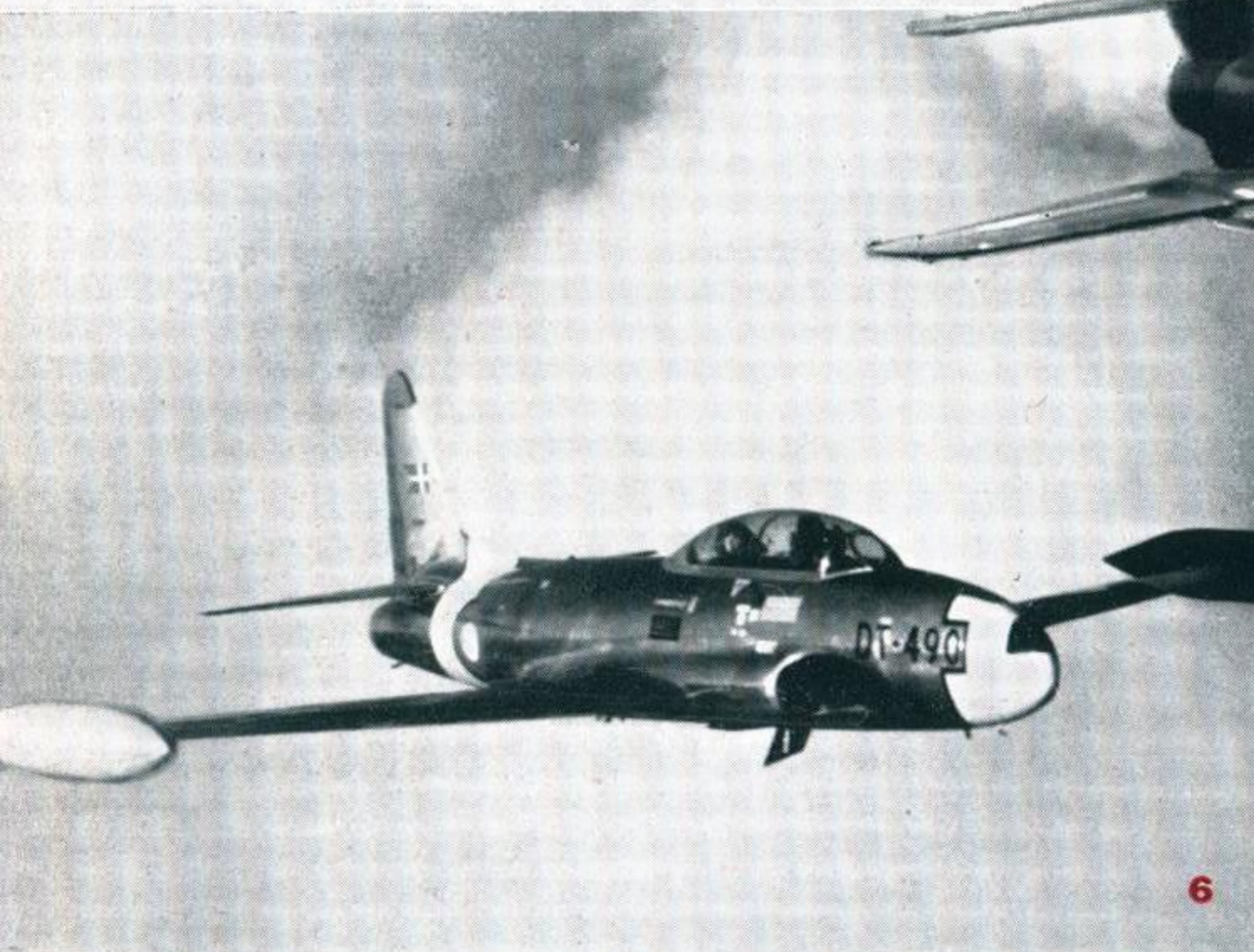
One of the most popular of the basic trainer types produced behind the Iron Curtain is the Zlin Z-26 series (Z-26, Z-126, Z-226, Z-326) of which over a thousand have been built in Czechoslovakia. They are used in some twenty different countries.

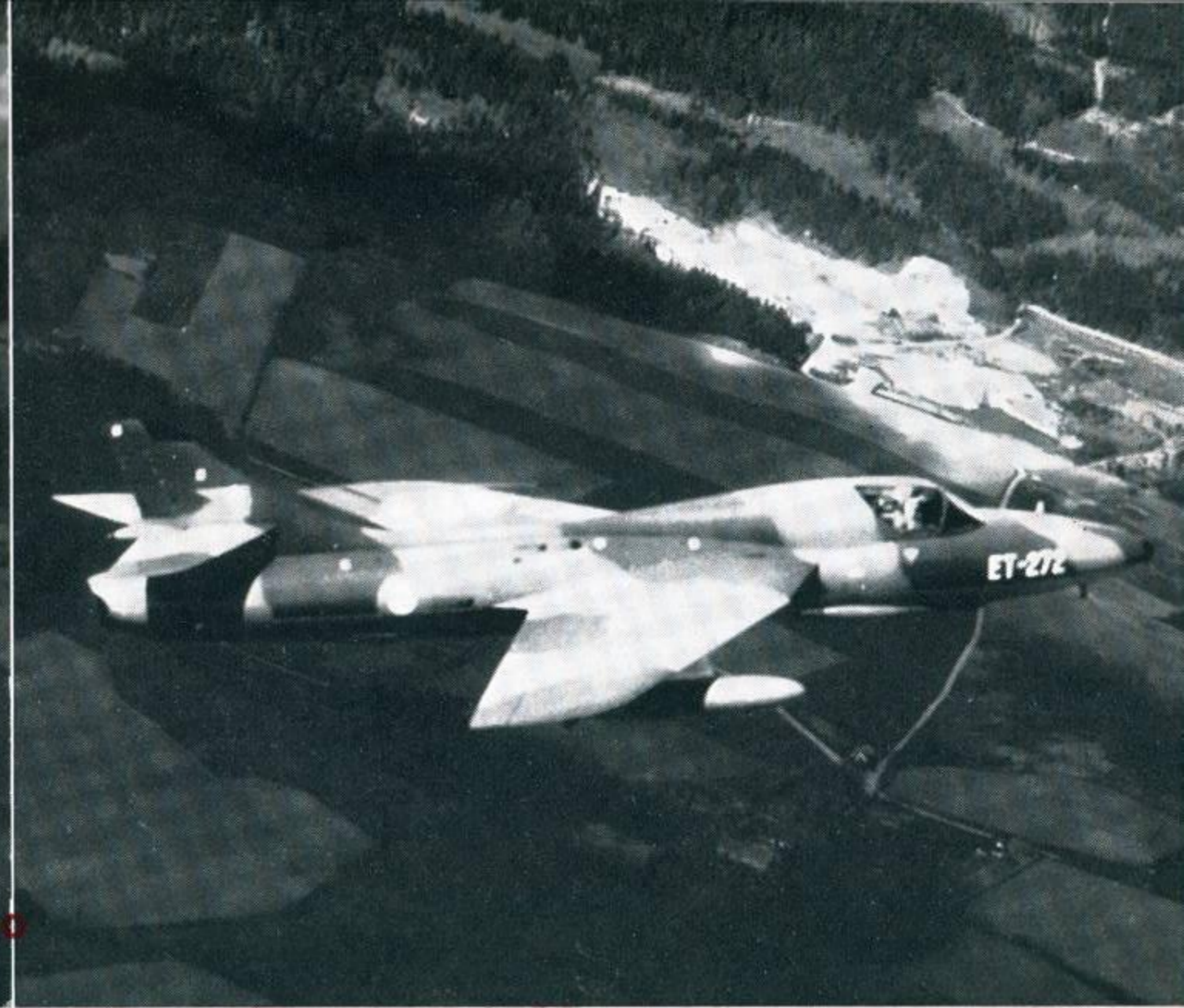
The Zlin Z-326 Trener Master is the latest of the series and introduces, among other refinements, a retractable undercarriage. Wingtip fuel tanks are an optional fitting.

Use the lesson instructions on page 79 and the adjacent silhouette and key views to learn the identification of this two-seater Czech. Solutions on the cover.









Representative Aircraft Types of the Danish Forces

1 One of two C-54D Skymaster freighters in Danish service; additionally a V.I.P. Skymaster is in use.

2 Eight C-47A Dakotas (K681-688) were acquired by the Danes for ground transport work.

3 To supplement Danish-built KZ aircraft are some sixteen Piper L-18C Piper Cubs.

4 As in South-East Asia, North and South America, so in Europe, Catalinas are still in service.

5 For fighter reconnaissance work the Danes have used RF-84F Thunderflashes since 1957.

6 For over ten years Danes have trained on Lockheed T-33A aircraft.

7 Although Super Sabres have been delivered the F-86D Sabre has not been finally discarded.

8 Sikorsky S-55C to the Danes, but Whirlwind to *Journal* readers.

9 An Alouette III with flotation gear. A small number of Agusta Bell 47J Rangers are also used.

10 F.51 (left) and T.53 (right) Hunters in Danish colours.

11 F-100F (left) and F-100D (right) Super Sabres in Danish colours.

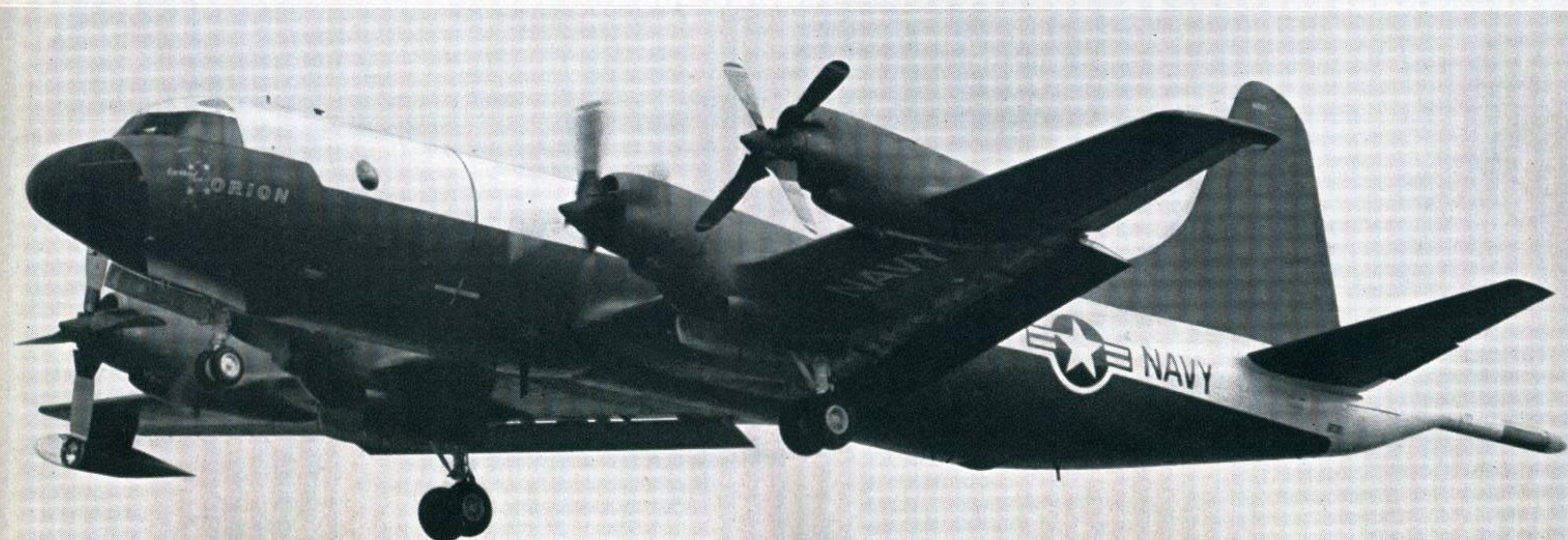
The background picture shows Alouette III helicopters.

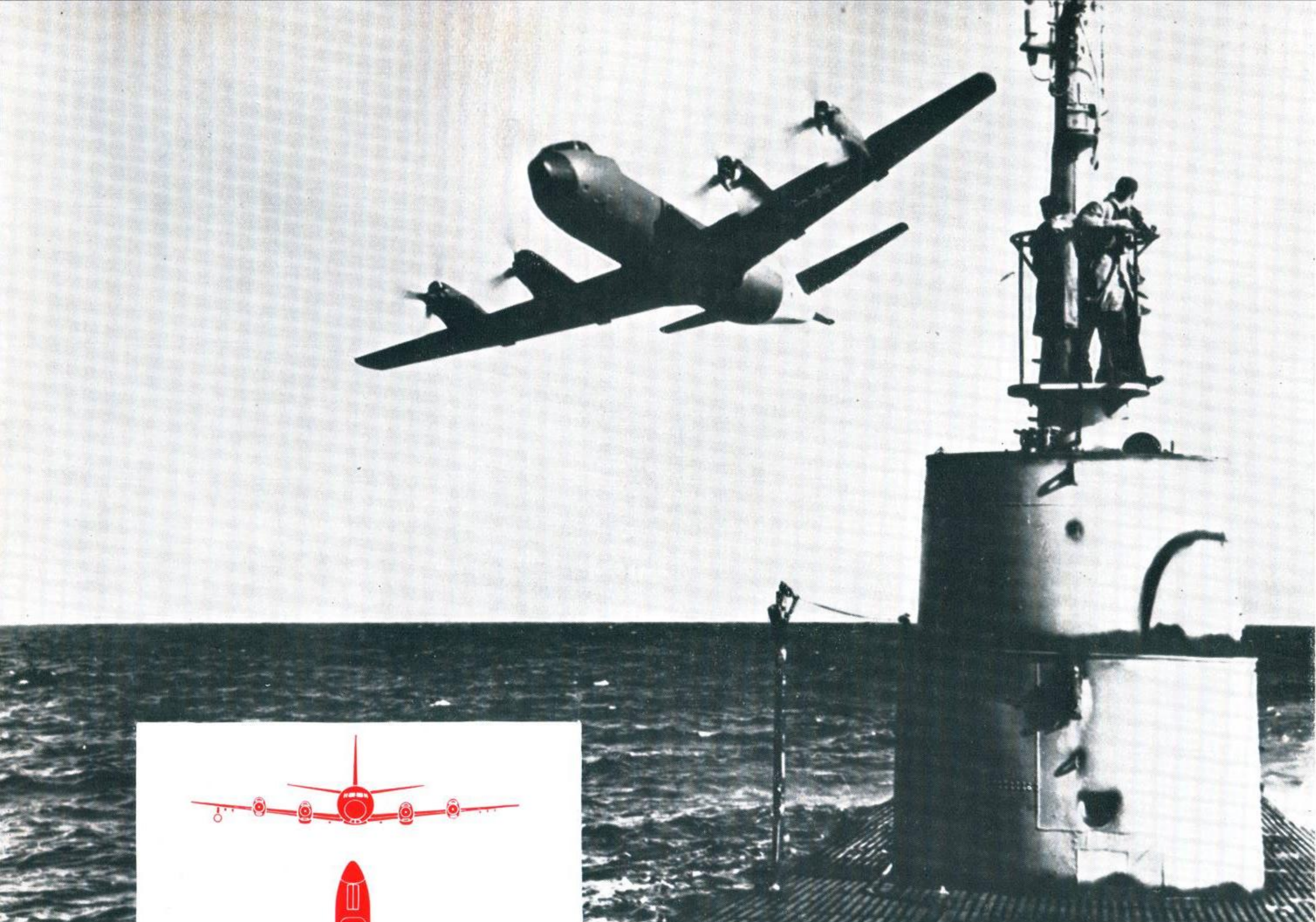




ORION

The Lockheed P-3A Orion bears the same familiar lines of the turbo-prop Electra airliner (featured in the July 1959 and June 1960 editions) from which it was evolved, but with visual evidence of its anti-submarine role by a prominent nose radome and a long MAD "tail sting". It is designed to cruise on two engines as seen here.





Span 100 feet



ORION

 continued

Apart from its primary anti-submarine role, the Orion can be converted for trooping. Some indication of its performance can be gained by an Orion flight non-stop from California to France, a distance of 6,220 miles, at an average speed of 436 m.p.h.

Using the large key views together with the multi-shots on the preceding page, and the adjacent key views and silhouette on this page, tackle this lesson in accordance with instructions on page 79.





Cessna Types

The Cessna Aircraft Company delivered last year their 50,000th aircraft. These two pages provide a pictorial reference of most of the Cessna types currently flying. For reporting purposes, names when given should be used including "Cessna" in the case of Skyknight, Skyhawk and Skymaster to avoid confusion with aircraft of the same name by other manufacturers.



CESSNA 180

Over 4,000 built. Used by the Australian Army. 180F depicted.



CESSNA 182

Several thousands built including four for Canadian Army.



CESSNA SKYLANE

De-luxe version of the Cessna 182F.



CESSNA 150

Nearly 2,000 of this version have been built.



CESSNA 210 CENTURION

High performance de-luxe aeroplane. Over 1,000 built.



CESSNA 172

Another model built in its thousands. Available on floats.



CESSNA SKYHAWK

De-luxe version of the 172D.



CESSNA 310

The U-3A of the U.S.A.F. who procured 160.



CESSNA 310

Produced in several versions including U-3B for U.S.A.F.



CESSNA 411

Latest and largest of the business aircraft in the Cessna range



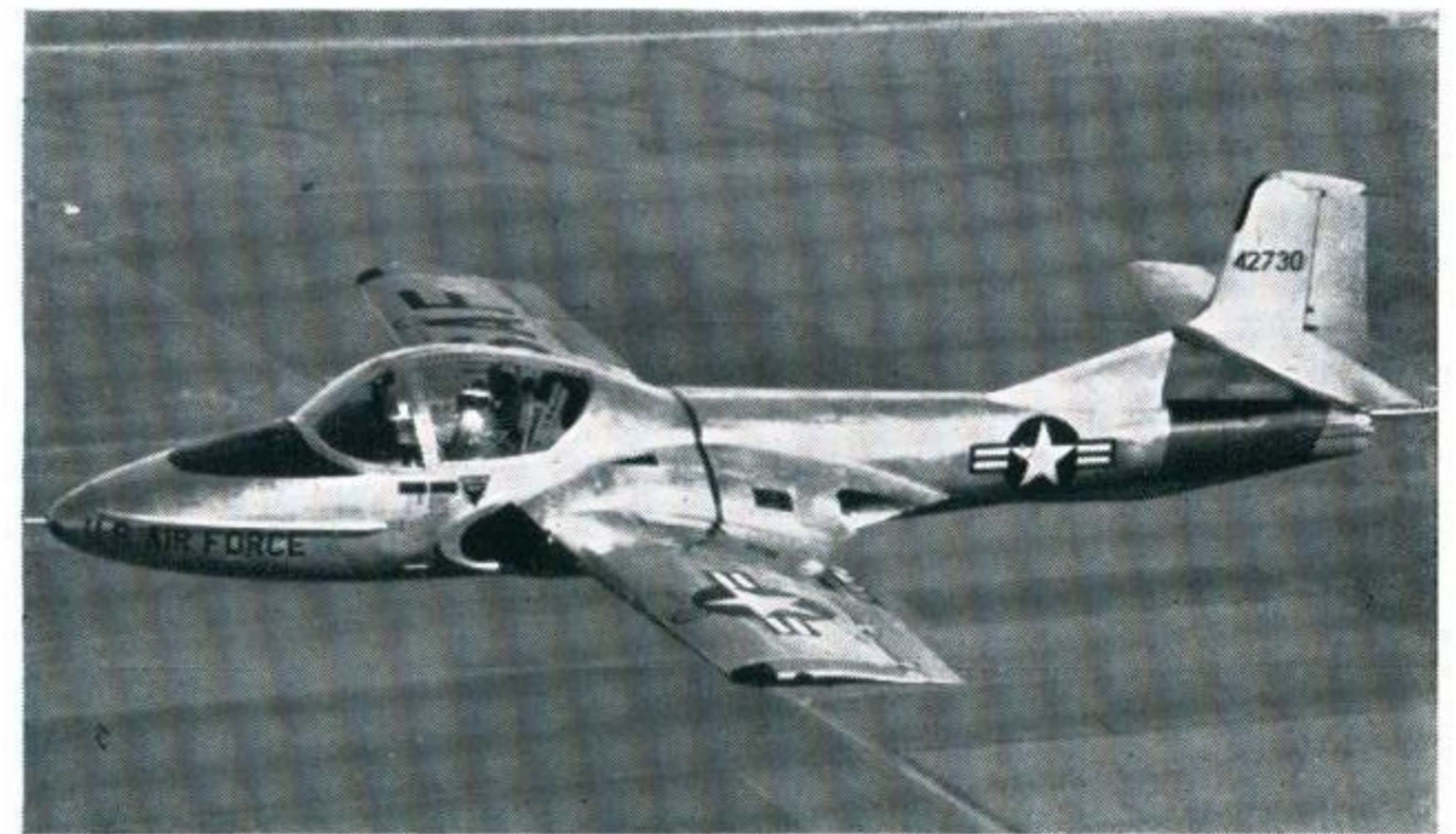
CESSNA 305 BIRD DOG

O-1 series in U.S. Forces. Used by Canadian, French, etc.



CESSNA 320 SKYKNIGHT

Similar to Cessna 310 series.



CESSNA 318

The T-37 of the U.S.A.F. Used in other Forces.



CESSNA 185 SKYWAGON Floats or skis may be fitted. Cargo pack detachable.



CESSNA 336 SKYMASTER

Tandem-engined aircraft available from 1963.

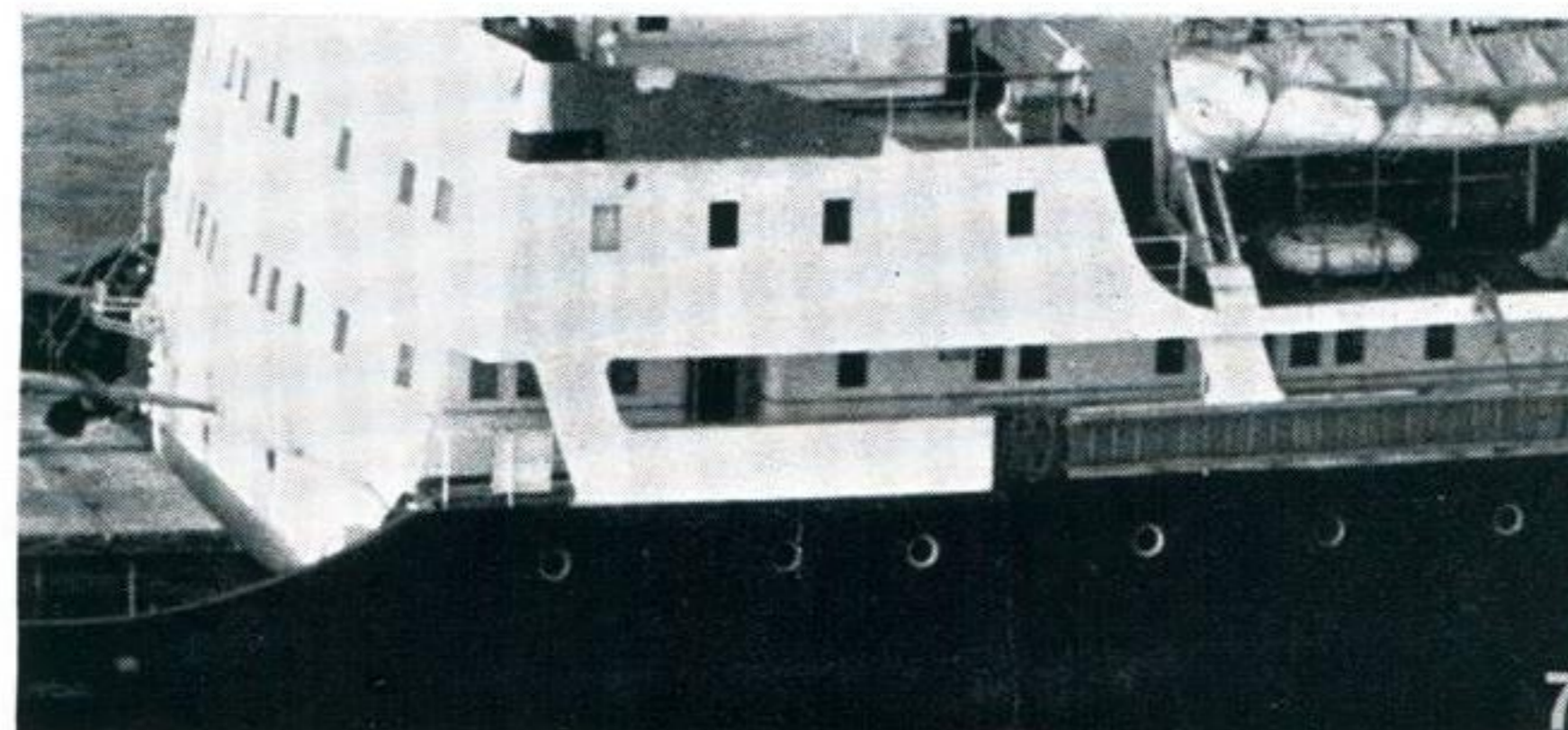
LEVANT CLASS (East German Builders Designation Type III)

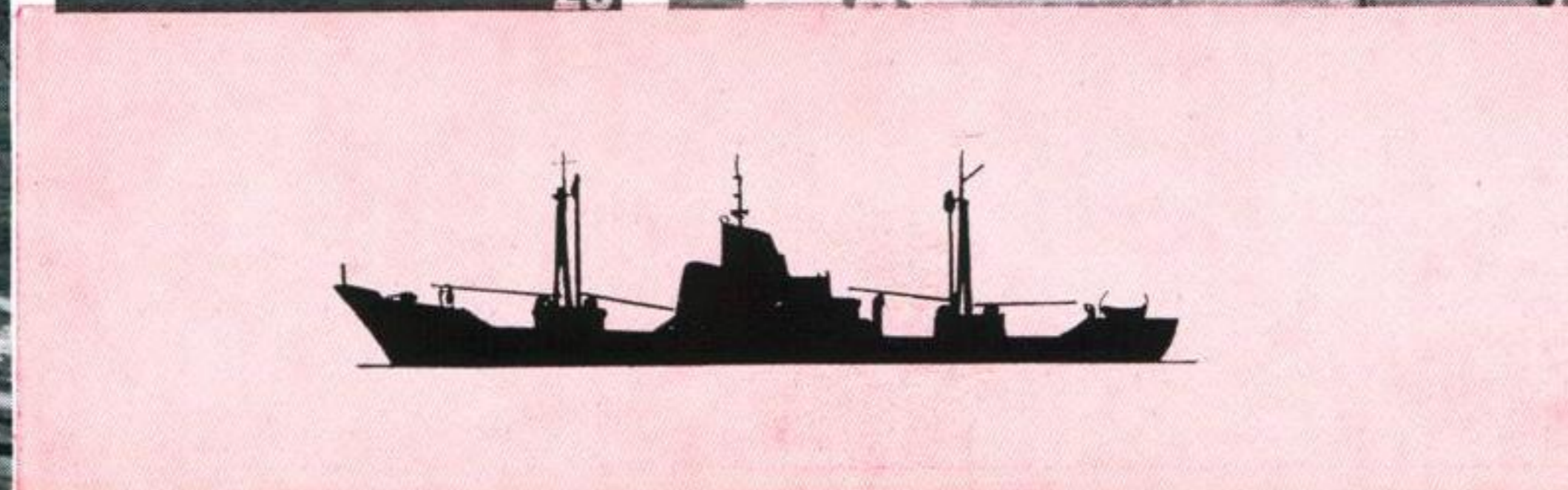
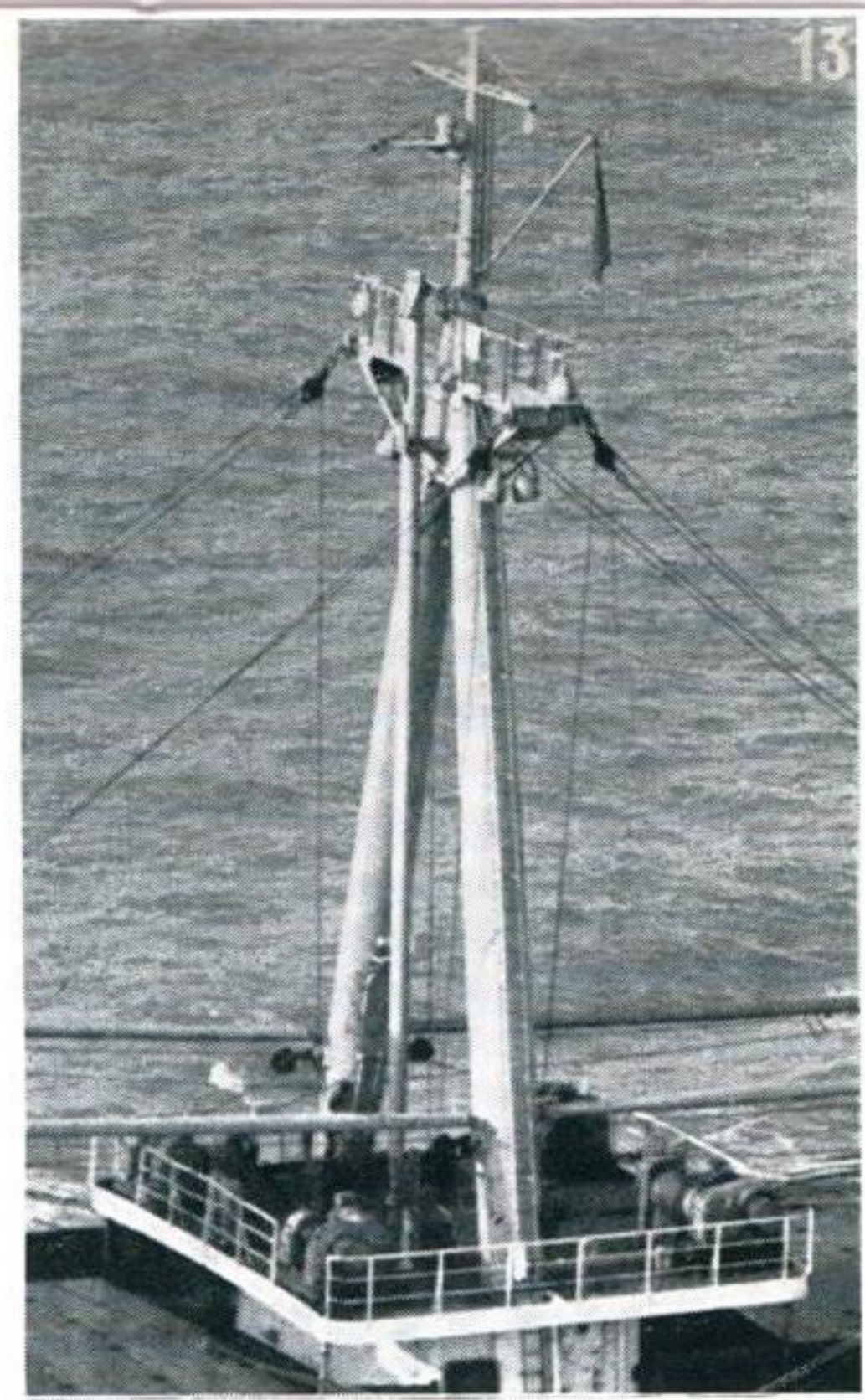
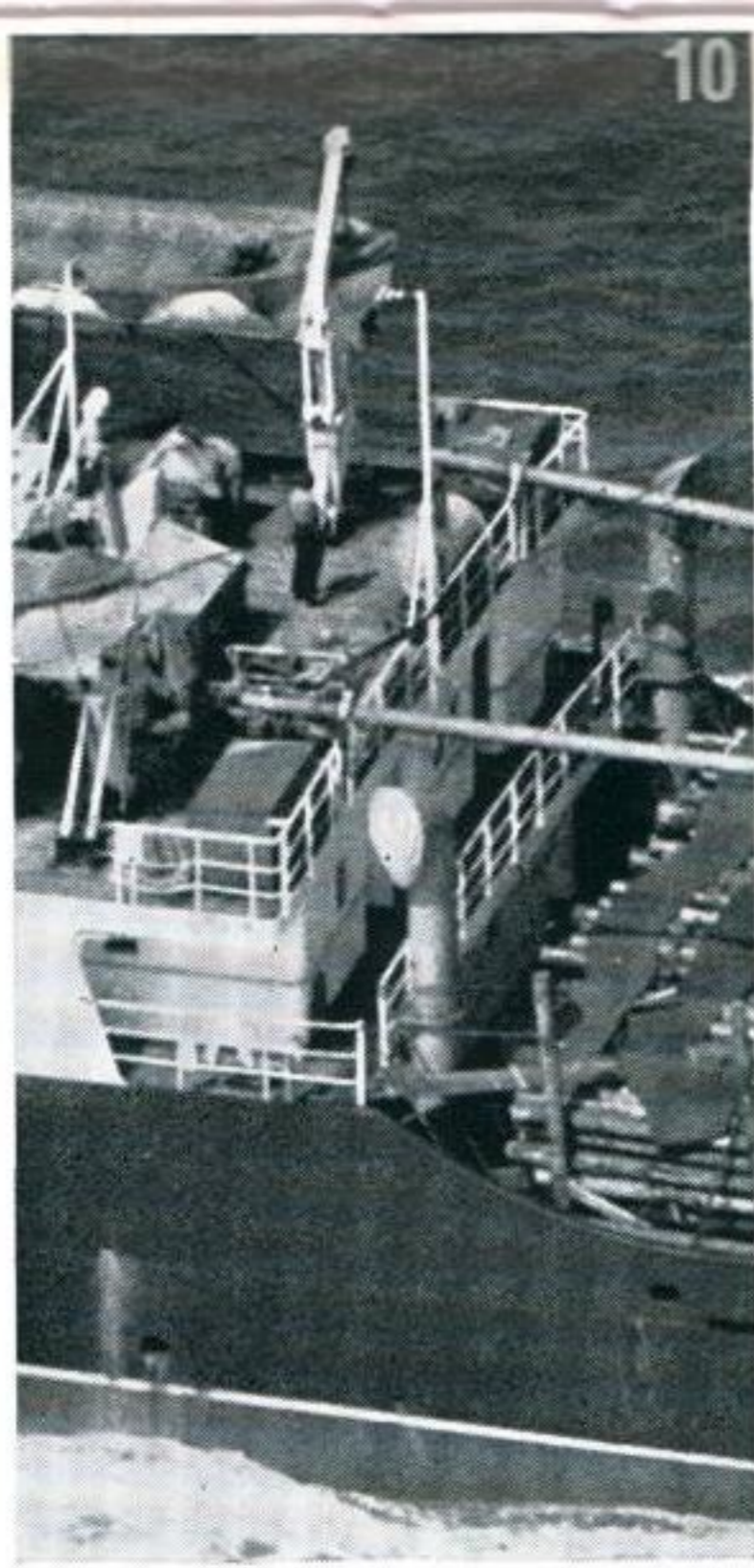
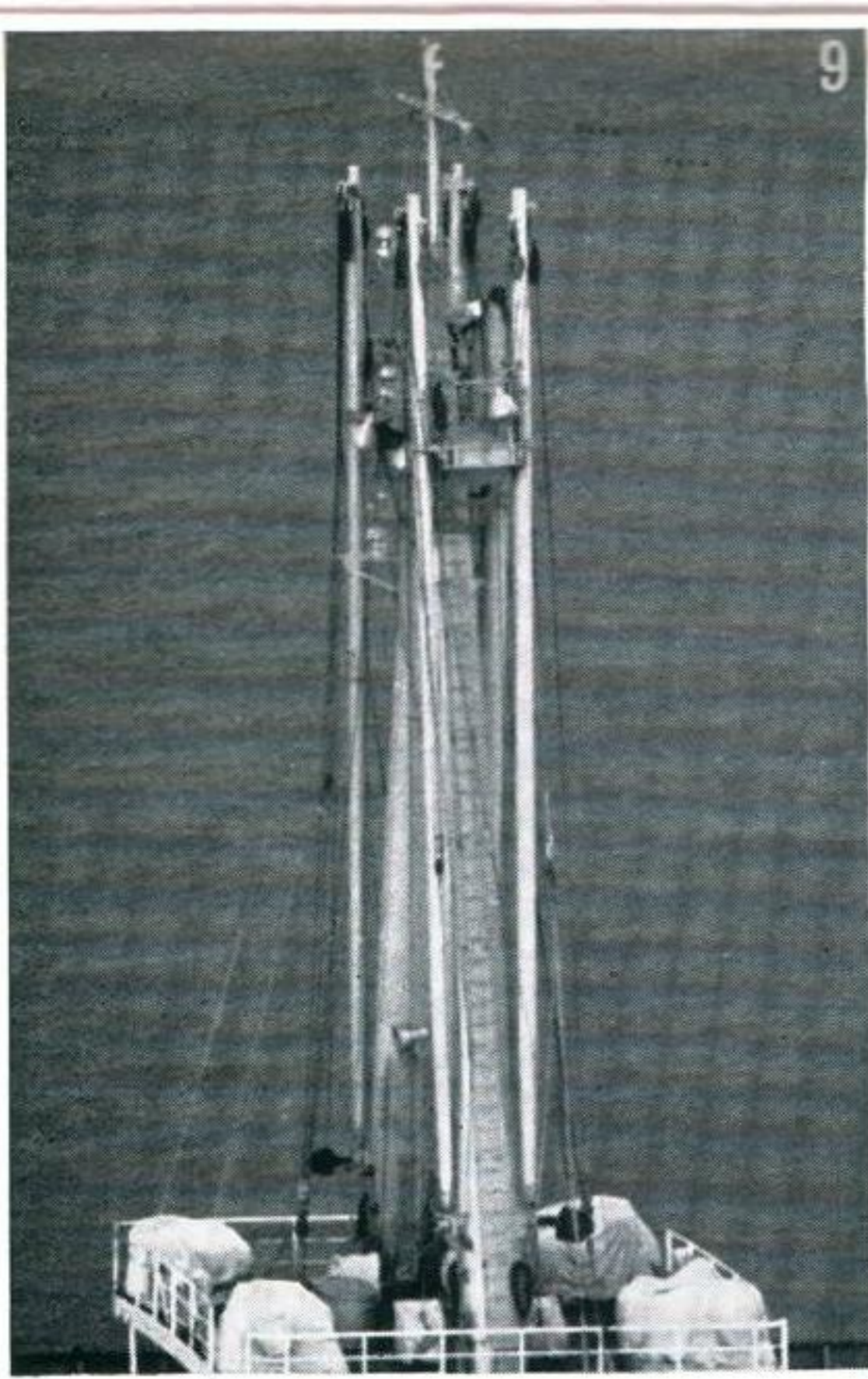
Designed in particular for service to Middle Eastern countries this class of dry-cargo vessel is appropriately named Levant. The first of the class, named *Thalman Pionier* after the German Communist leader at the time Hitler came to power in 1933, was launched in Eastern Germany in 1957. The initial programme called for 25 ships of the class, but the present number is greatly in excess of this, both in the Soviet Merchant Fleet and in other Iron Curtain countries.

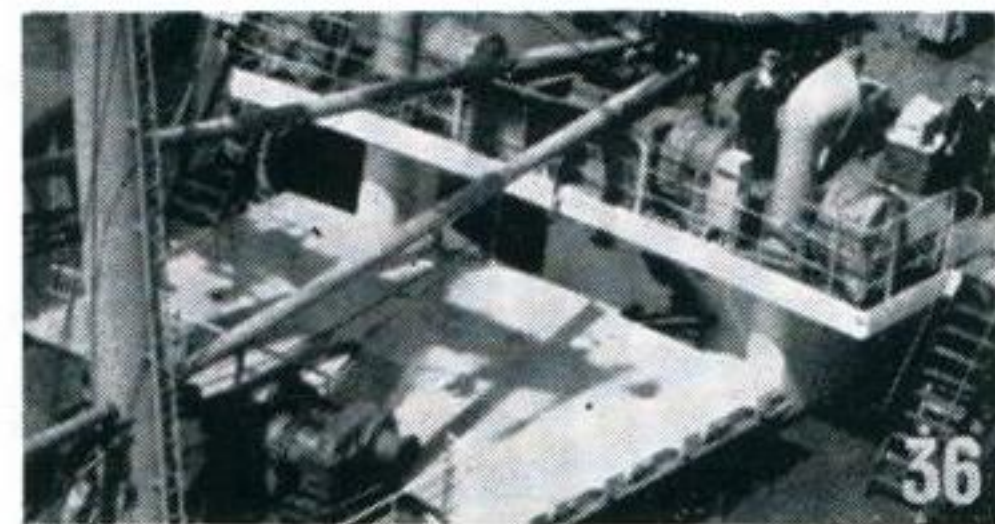
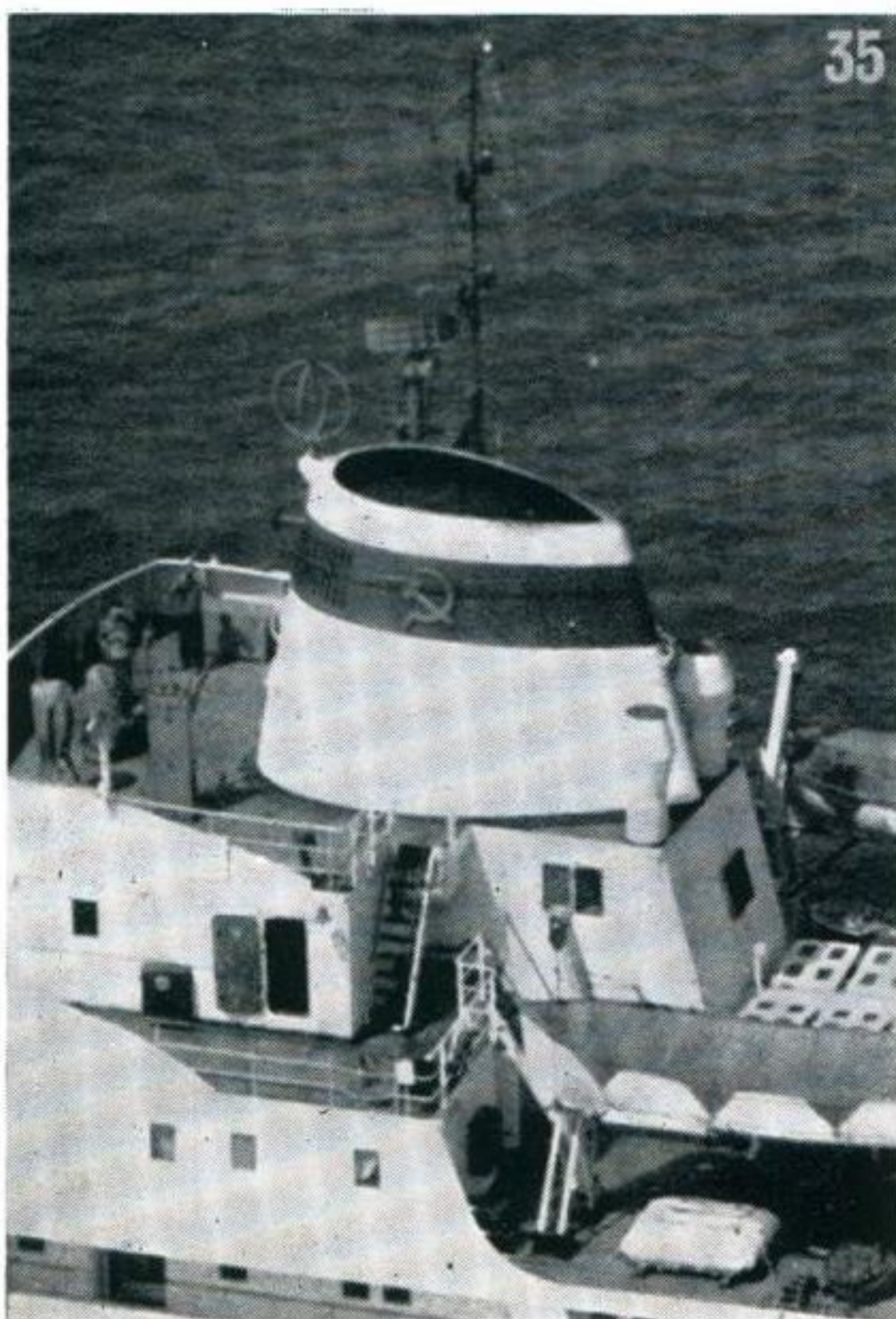
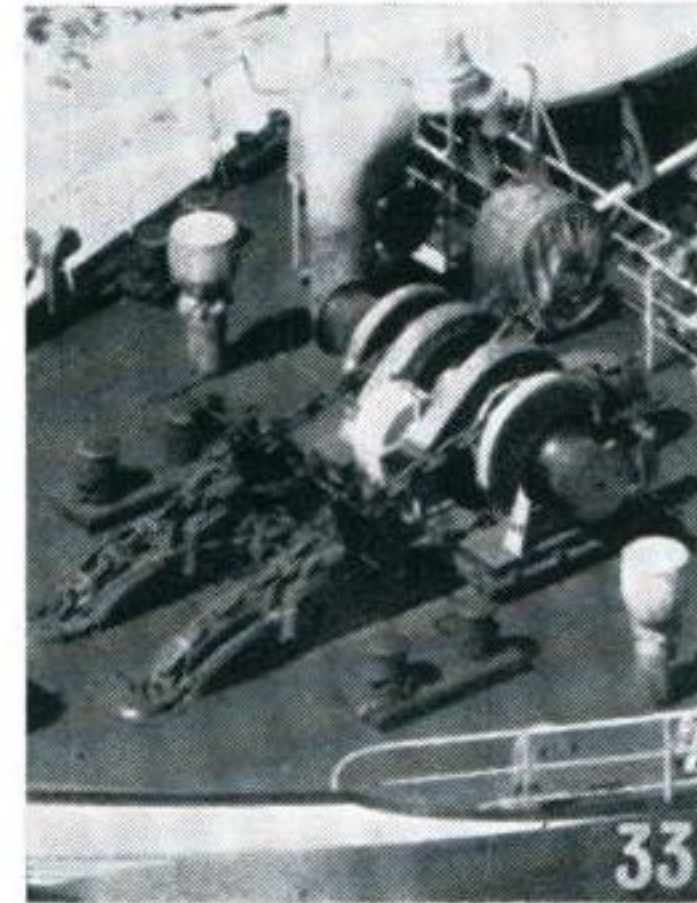
These ships average about 3,400 tons gross and have an overall length of 347 feet. They are trim, three-island ships with shortish mid-castle, heavy mast-houses and with a distinctive opening in the plating of the poop or aftercastle. The superstructure is compact with, usually, a conical-shaped funnel.

Ships of the class vary slightly in appearance, some having bipod masts. A small mast in front of the funnel rising from the bridge, off-set to starboard, varies in thickness and in height.

Solutions on the cover.







IN PASSING

BOOK REVIEW

Jane's All The World's Aircraft 1963-64. Compiled and Edited by John W. R. Taylor, F.R.Hist.S., A.R.Ae.S. Published by Sampson Low, Marston & Co. Ltd. Price 6 guineas.

I am sorry, but not surprised, to see the price of the new edition of this famous reference book has gone up to six guineas. I can say, however, at the outset that it still remains well worth the money.

The section to which most turn first is probably that devoted to Russian aircraft. Certainly I did and although there is little that is new there, it does seem to me that of all the material and all the names being bandied about in some sections of the aeronautical press regarding Russian aircraft, Jane's comes nearest to being authentic. This section does contain some new and interesting photographs and is amply provided with three view line drawings of the usual high standard expected of this publication. One of the most interesting photographs is of a Hungarian MiG 21 deploying a braking parachute and, by permission of the Editor, we have deployed this picture here together with one on the Avro Vulcan carrying a Blue Steel missile.

The book is laid out in its traditional form and despite the use of a seven point type face for body, the text is clear and easy to read. All the half-tone blocks are of a very high standard with the exception understandably of some of the Russian photographs.

An innovation this year is a pre-paid postcard invitation to readers to suggest ways in which improvements can be made. This seems like asking for trouble for, as a book of reference, handled largely by experts, it is doubtful if one could lose one's way. Nevertheless we dare to suggest a small time-saving device and that is the provision of "thumb-cuts" and the main divisions of the contents, i.e. at the commencement of "Aircraft", "Drones", "Sailplanes", "Air cushion

LESSON INSTRUCTIONS

To obtain the maximum benefit from the training devices published in this *Journal*, the following procedure should be adopted.

- 1. Read the text associated with the lesson.**
- 2. Prepare a list of target numbers so as to be able to tackle the targets in any order.**
- 3. Identify the target pictures by comparing them with the key views: start with the easy ones so as to gain experience: also use targets already identified to solve the more difficult ones.**
- 4. When certain of the identity of a target write down its name IMMEDIATELY against the appropriate number on your list. THIS IS IMPORTANT.**
- 5. Lessons should not be hurried or given a time limit. So far as beginners are concerned, it is more important to identify accurately than quickly.**
- 6. Do not attempt conscious memorising of details, shapes, or names.**



vehicles", "Missiles, etc.", "Space vehicles" and "Aero-engines". This would facilitate consultation.

Another suggestion the Editor might like to consider is that the names of foreign aircraft and vehicles should also have a phonetic pronunciation. This might prove a little bit difficult but it would indeed avoid situations in which, for example, names of Dassault aircraft receive the terrible anglicised mangling such as we have sometimes heard.

An important point voiced in the preface by the Editor, and one on which others also have feelings of concern, is the present day prospect of the big airline companies, who cannot even at the moment fill the seats of the present generation of big jet aircraft, queue up—and pay hard cash for the privilege of queuing up—to buy the new supersonic airliners of the future with their vastly more complex airspace operating and control requirements, quite apart from their enormous cost.

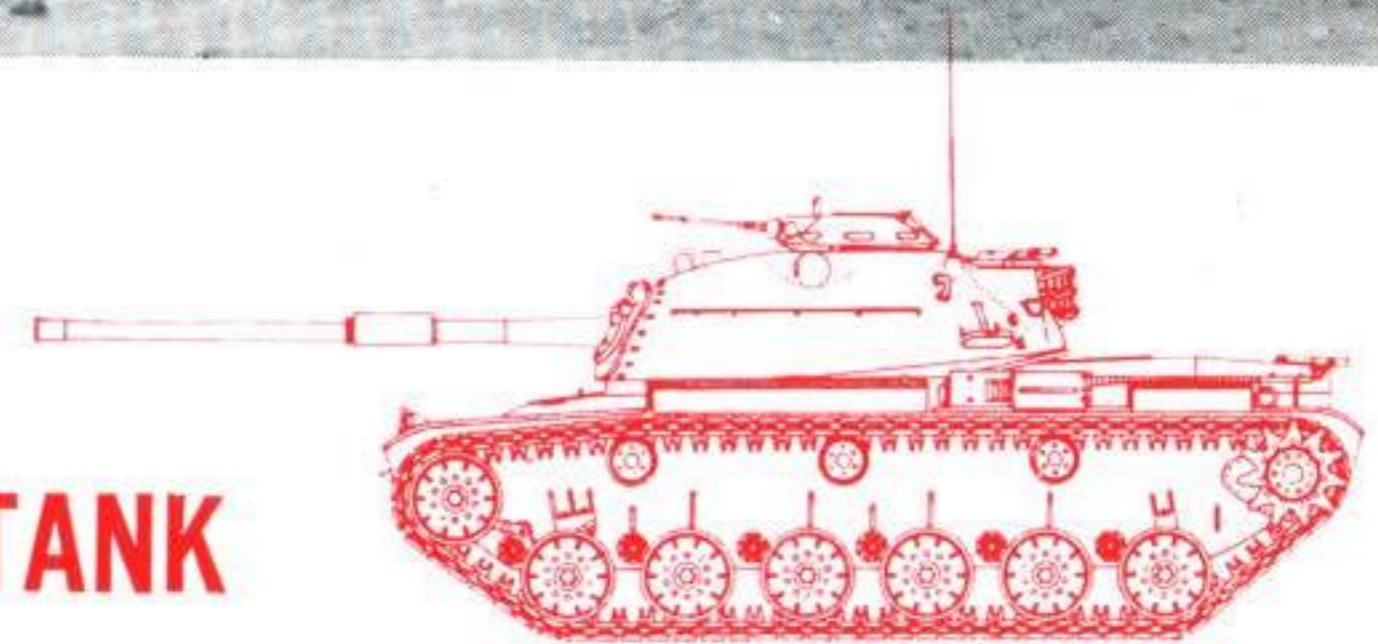
The simple question is whether it really is worthwhile being able to travel from say London to New York in a couple of hours at such fantastic capital outlay which will be needed to get them flying.

Once again the Editor is to be congratulated on the care and accuracy brought to the task of assembling so much valuable reference material, not only on the aeroplanes but on kindred matters of rockets and air cushion vehicles, etc. The book is not within the means of all who are interested in aeroplanes but it should certainly grace the shelves of every library, civilian or Service, and be available for all. C. E. S.





M60 UNITED STATES MAIN BATTLE TANK



The M60 main battle tank is a successor to the M48, which has been until recently the principal tank of the U.S. Army. It has already partly replaced the latter and in the near future it will do so completely in the U.S. armoured units stationed in Europe.

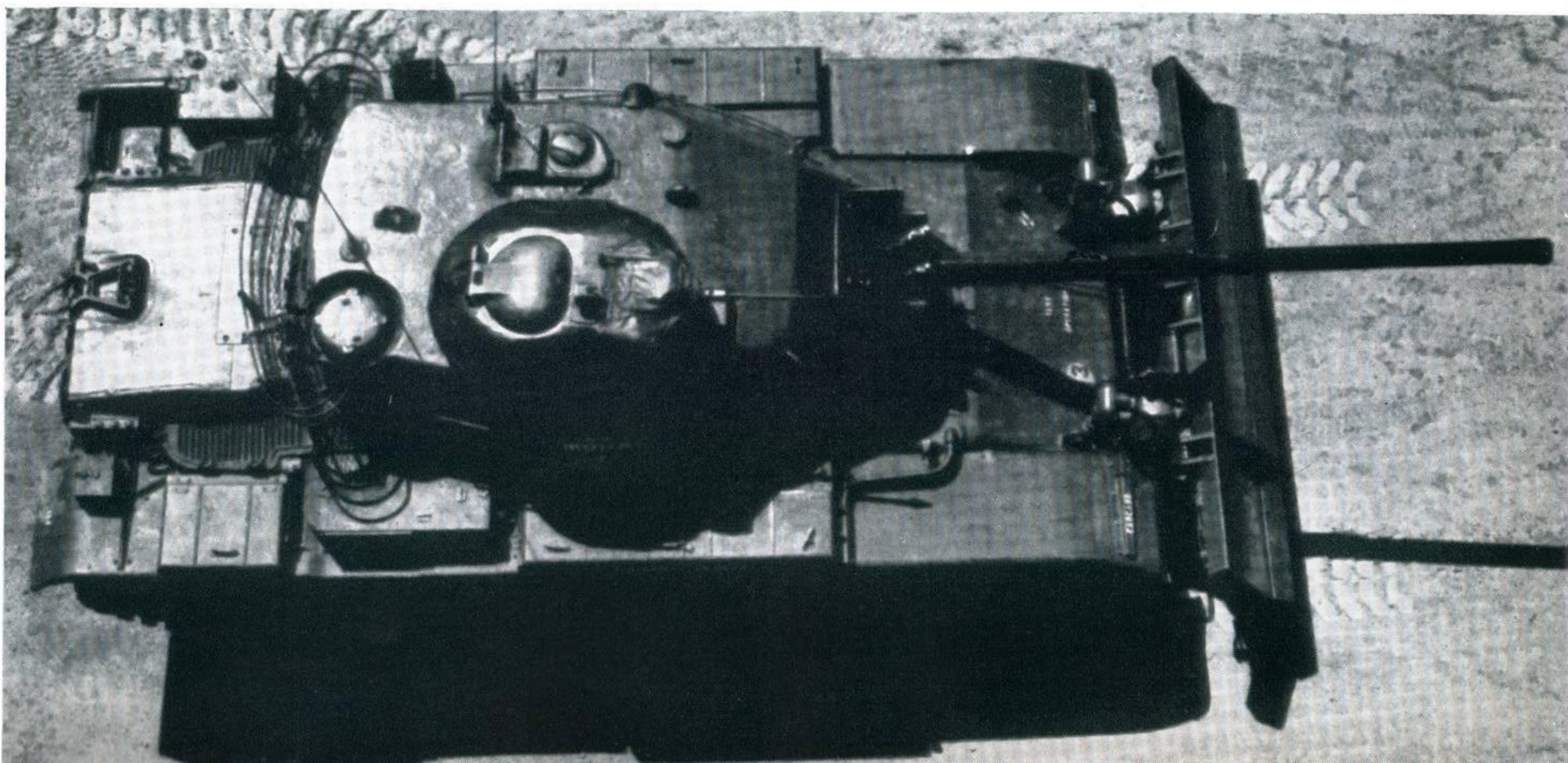
There is a strong family resemblance between the two, which is not surprising since the M60 was evolved from the M48. The M60 does, however, differ from the M48 in several respects, the most important being the main armament. Instead of the 90-mm. gun of the M48, the M60 has a much more powerful British-designed 105-mm gun—the same gun, basically, as that mounted in the latest “Centurions” and also adopted for the new German “Standardpanzer”. The gun is relatively long-barrelled and has a fume extractor, or “bore evacuator” in American nomenclature, half-way along the barrel in contrast to the M48’s gun which has it near the muzzle

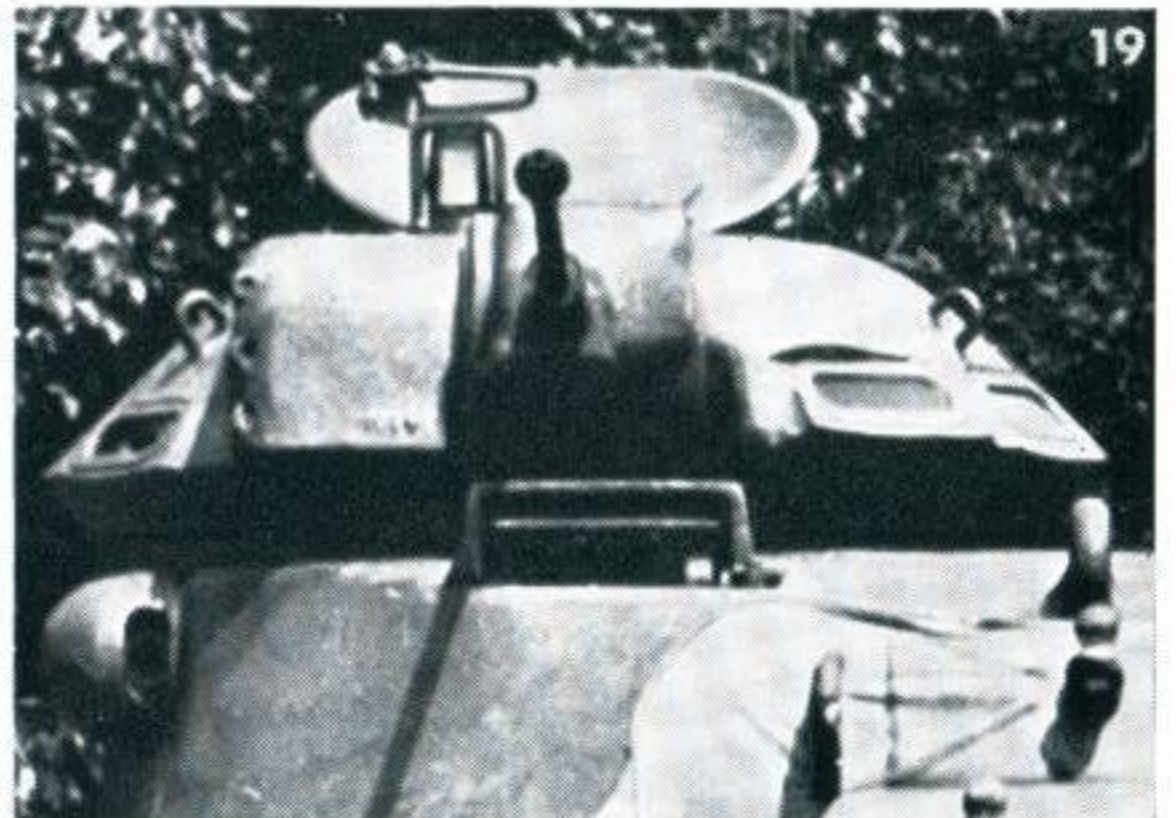
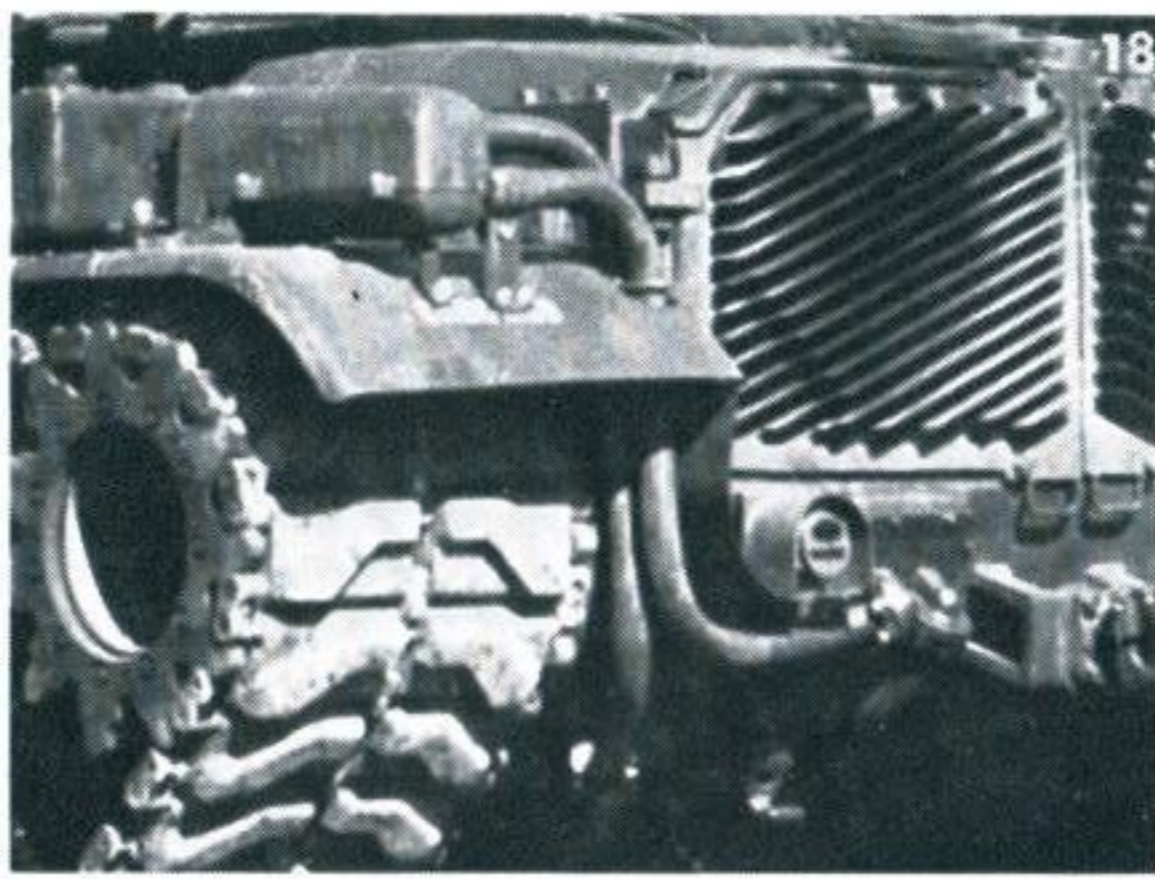
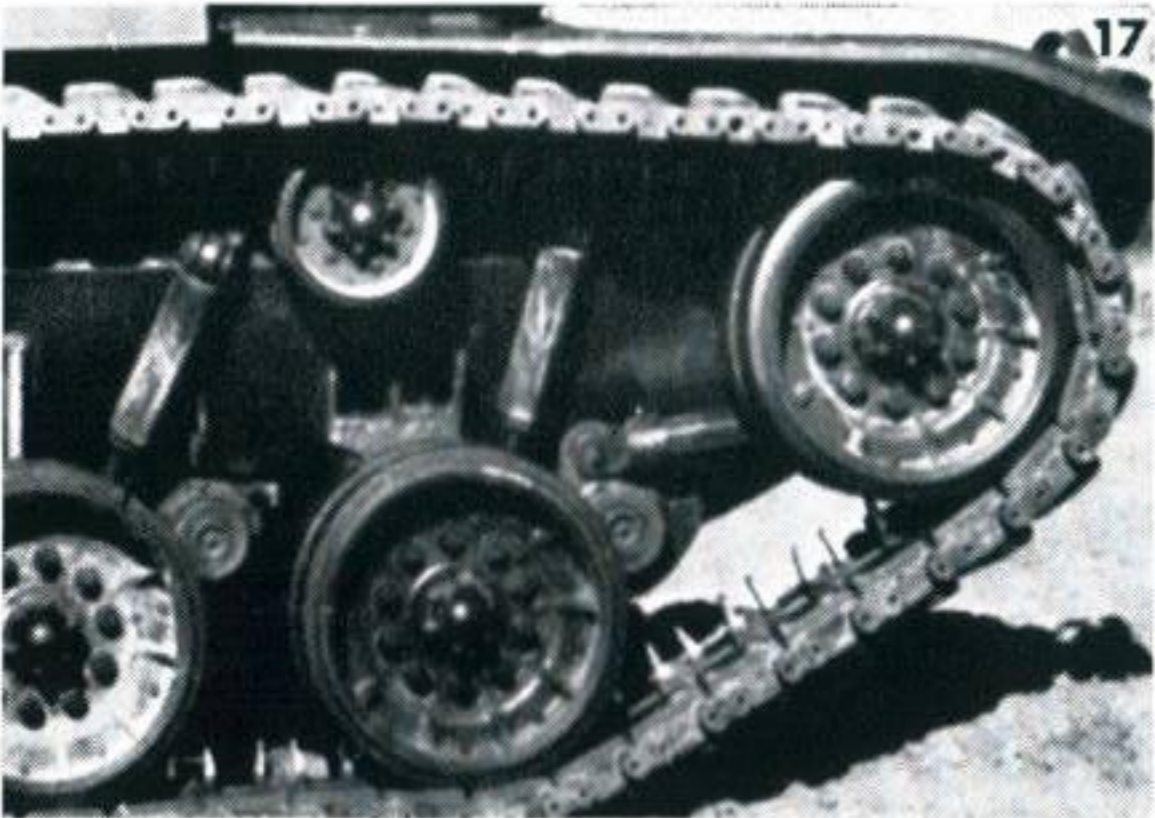
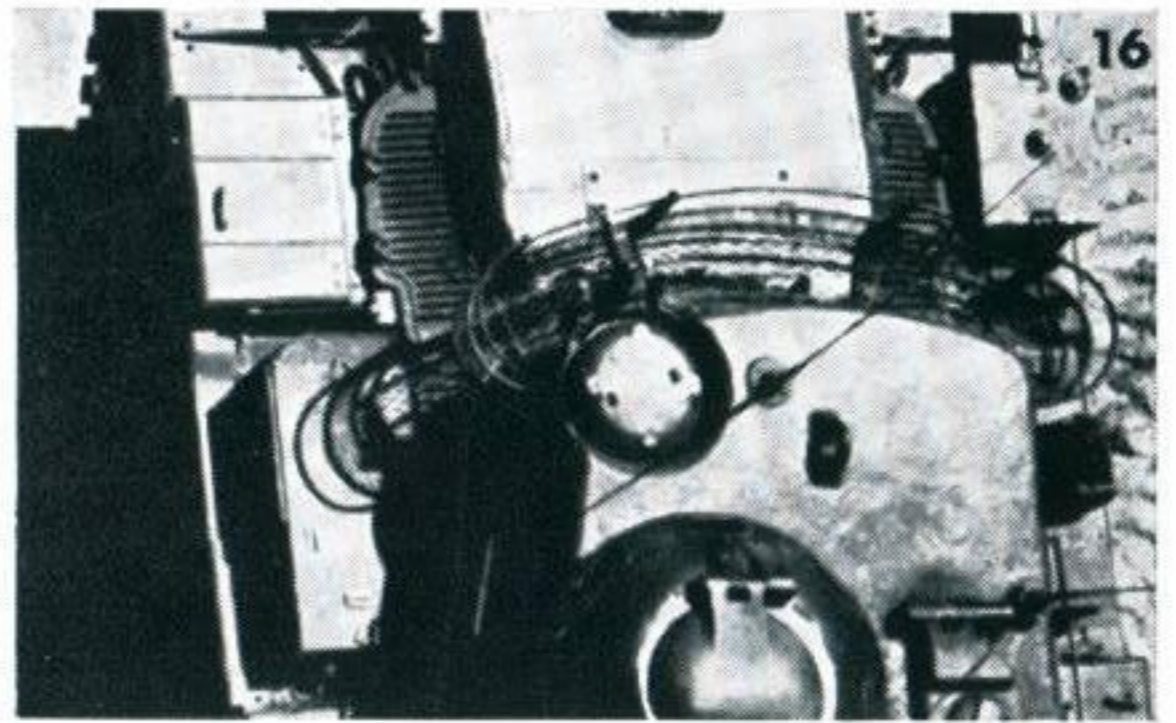
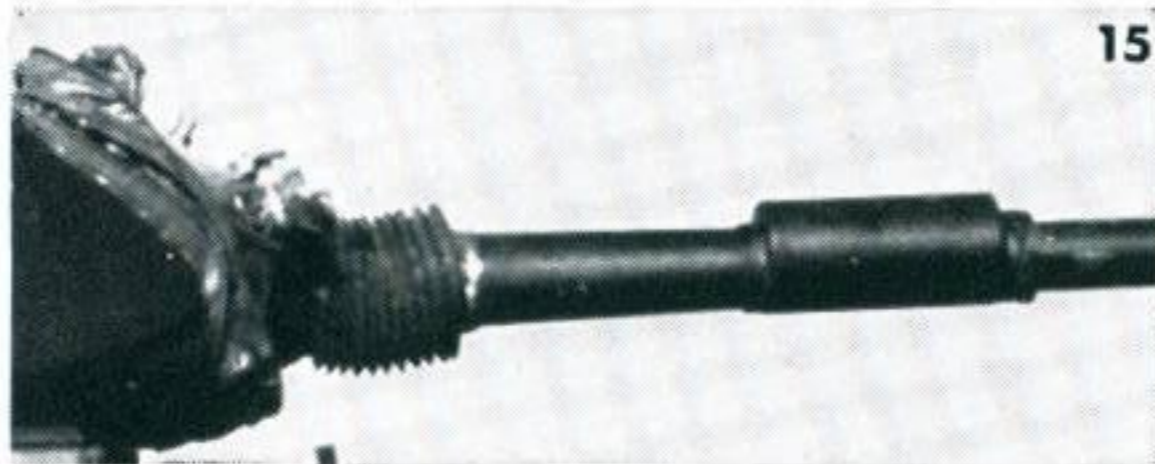
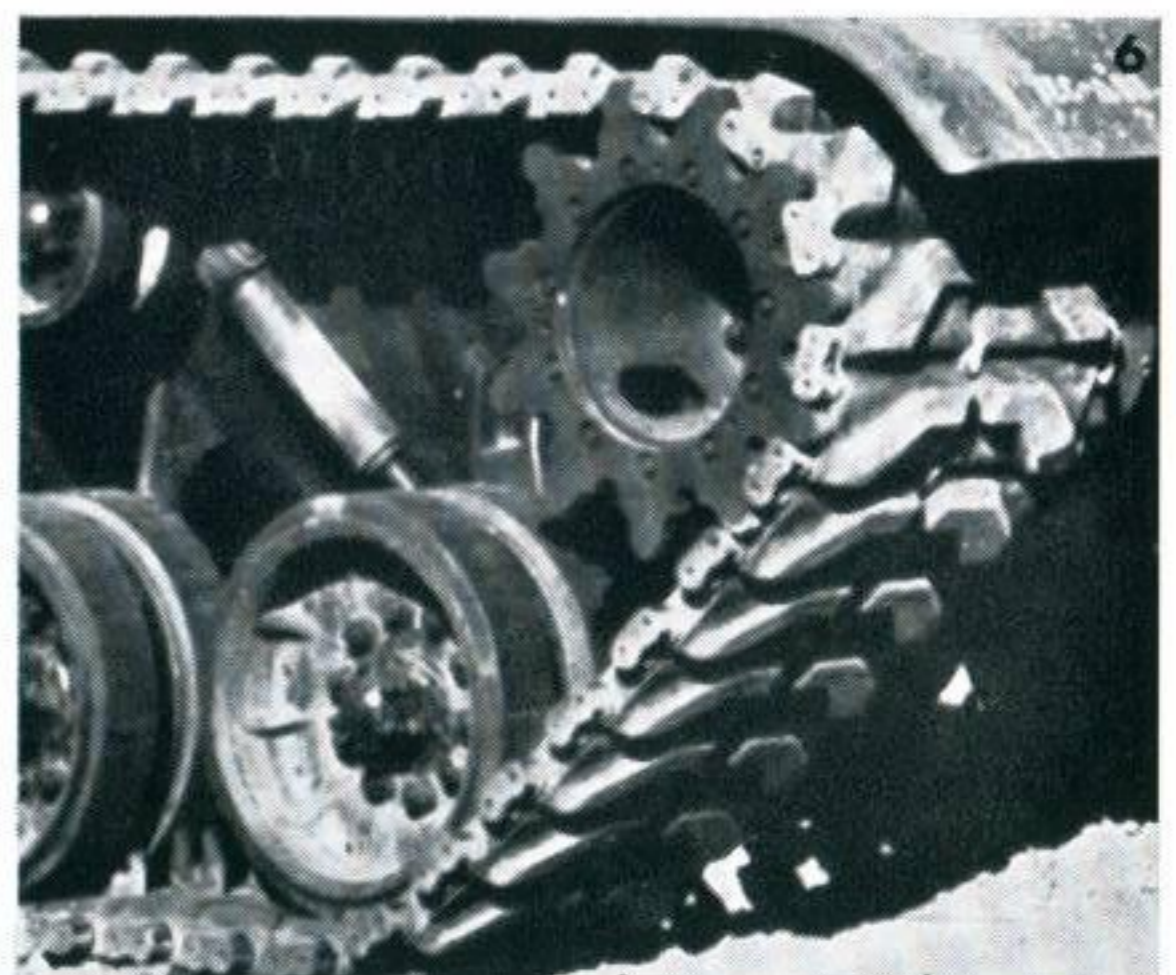
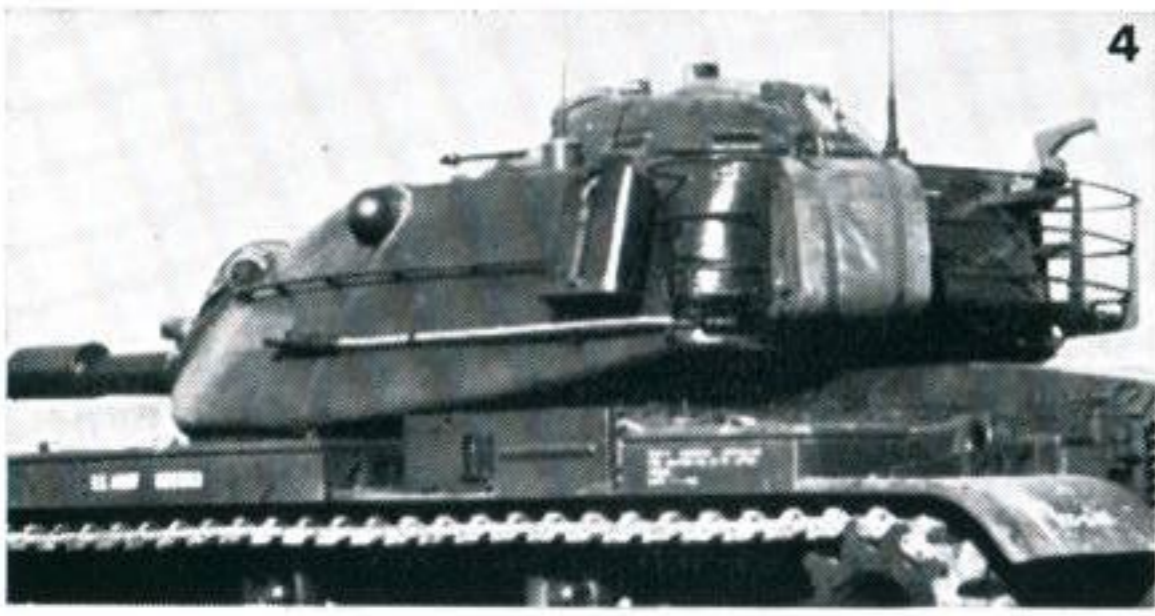
and which also has a blast deflector—absent on the M60.

Another recognition feature of the M60 is its squat, large-diameter .5 in. machine gun cupola on top of the main turret. The M60 also has a “straight-across”, instead of pointed, hull leading edge and a relatively high rear sprocket, which goes together with high track return rollers. Otherwise the track and suspension, with its six road wheels per side, are similar to those of the M48.

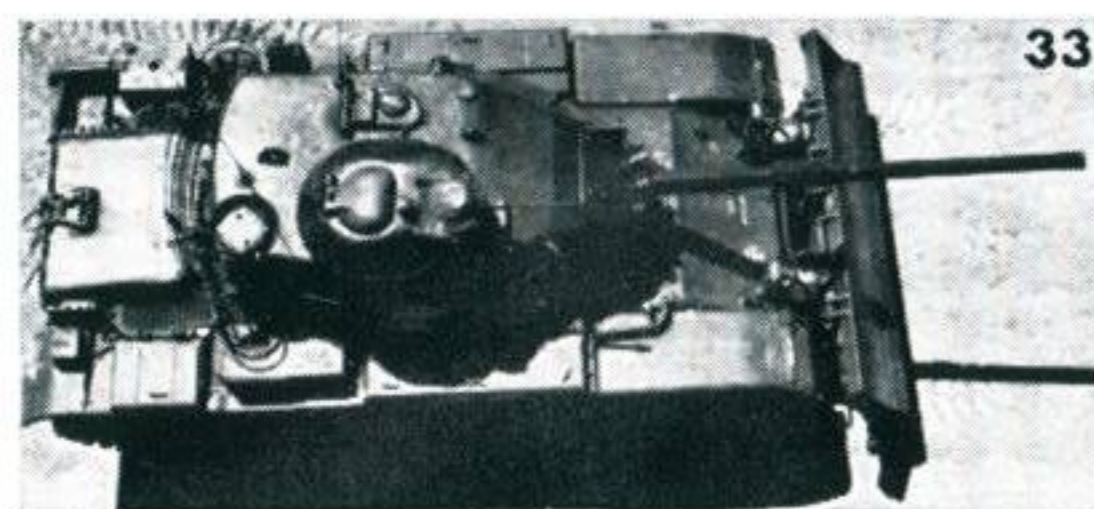
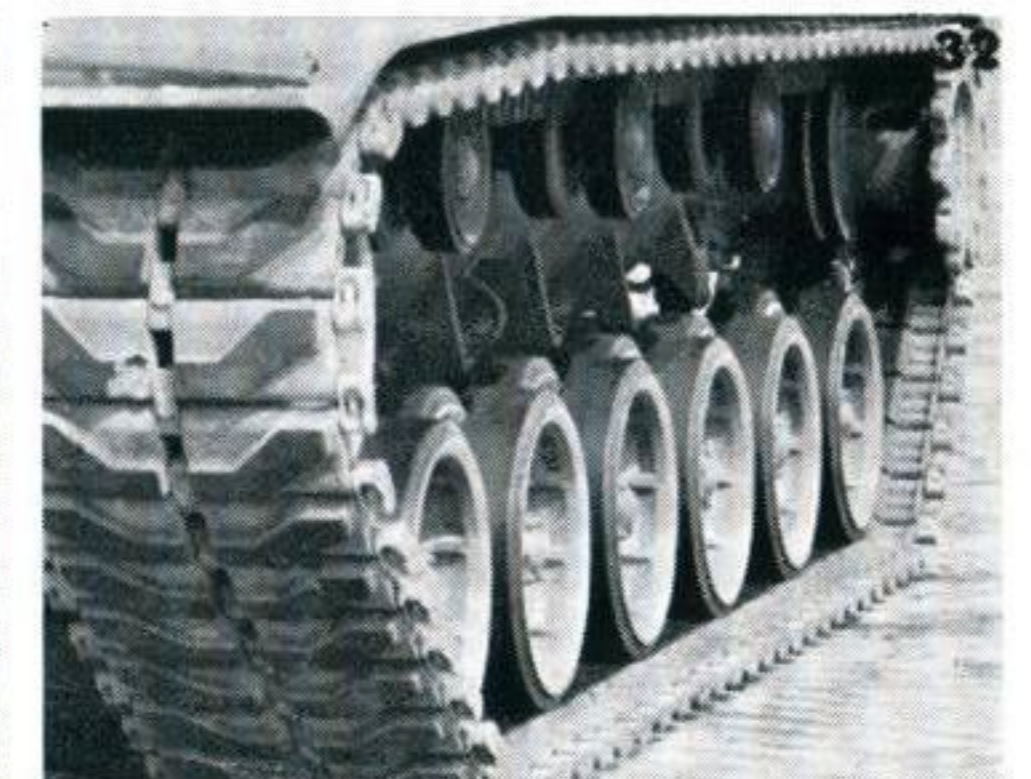
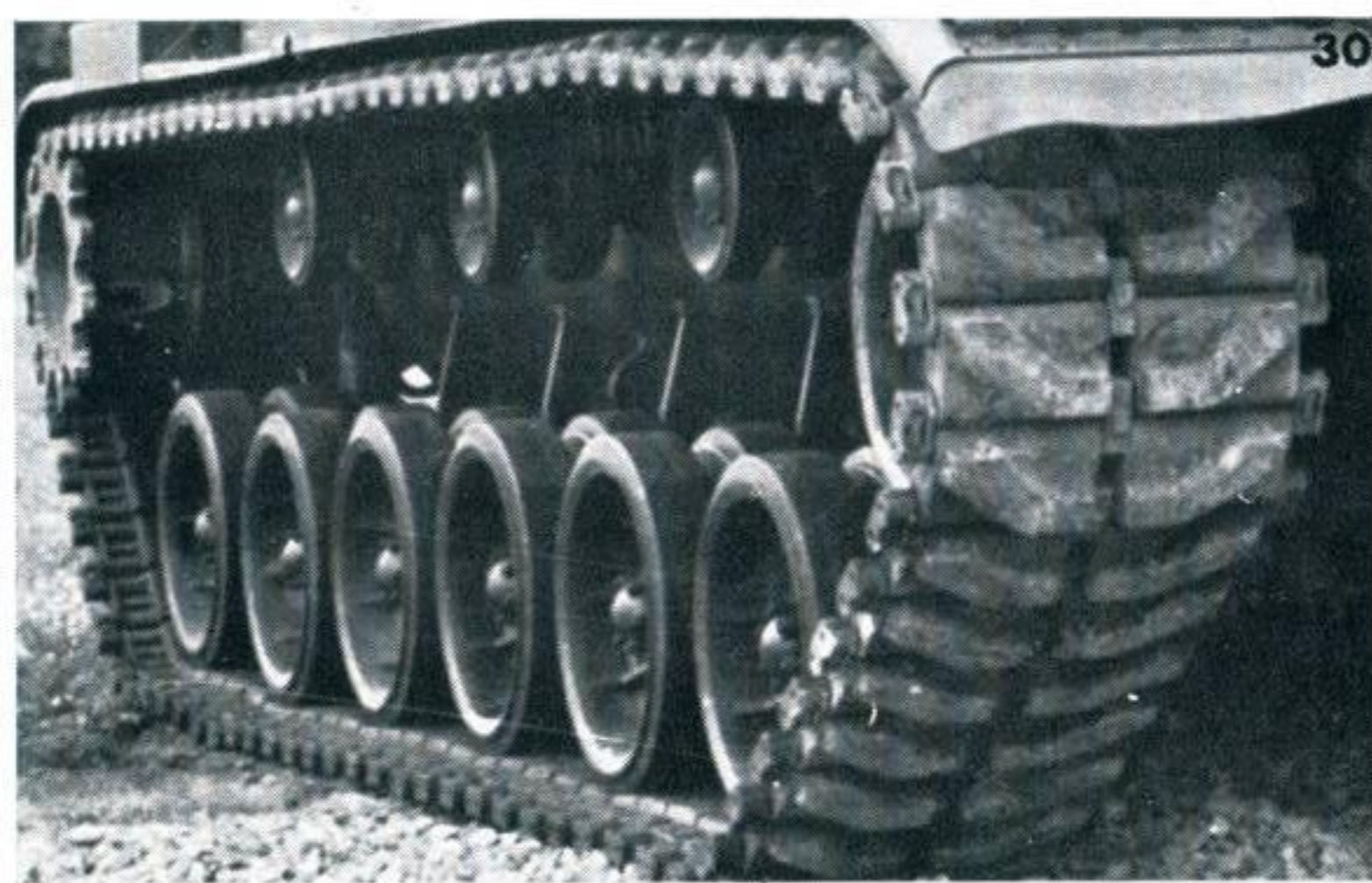
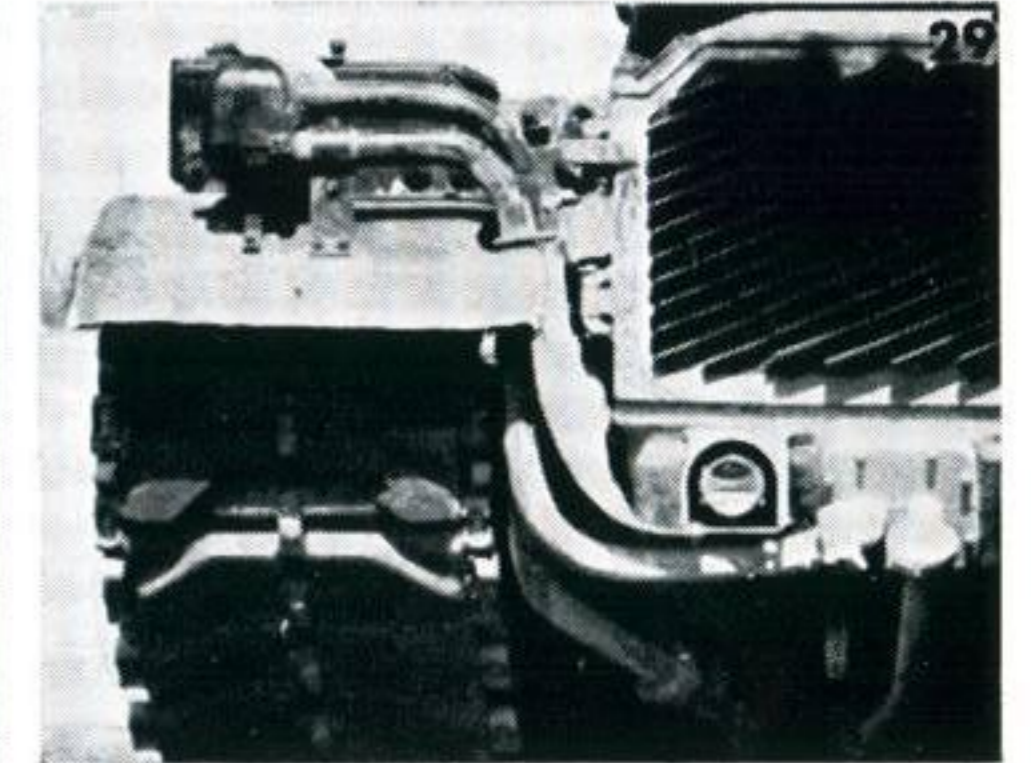
Differences between the M48 and the M60 are most marked in the case of the latest M60A1 model which is shown in the key pictures. This is due to the fact that the M60A1 has a new elongated turret with a conical gun mantlet. The new “long nose” turret provides greater protection than the earlier more rounded type with a flat gun mantlet, which resembles the turret of the M48. In other respects the two

(Continued on page 83)





M 60 U S MAIN BATTLE TANK

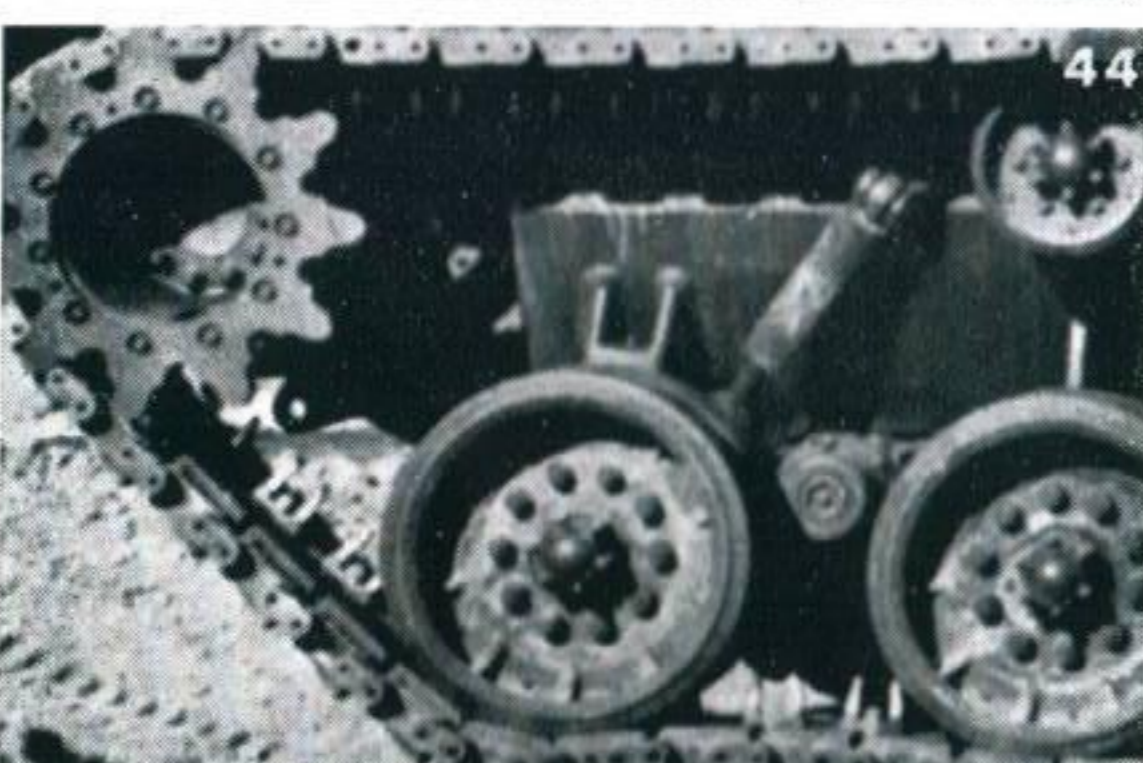




(Continued from page 80)

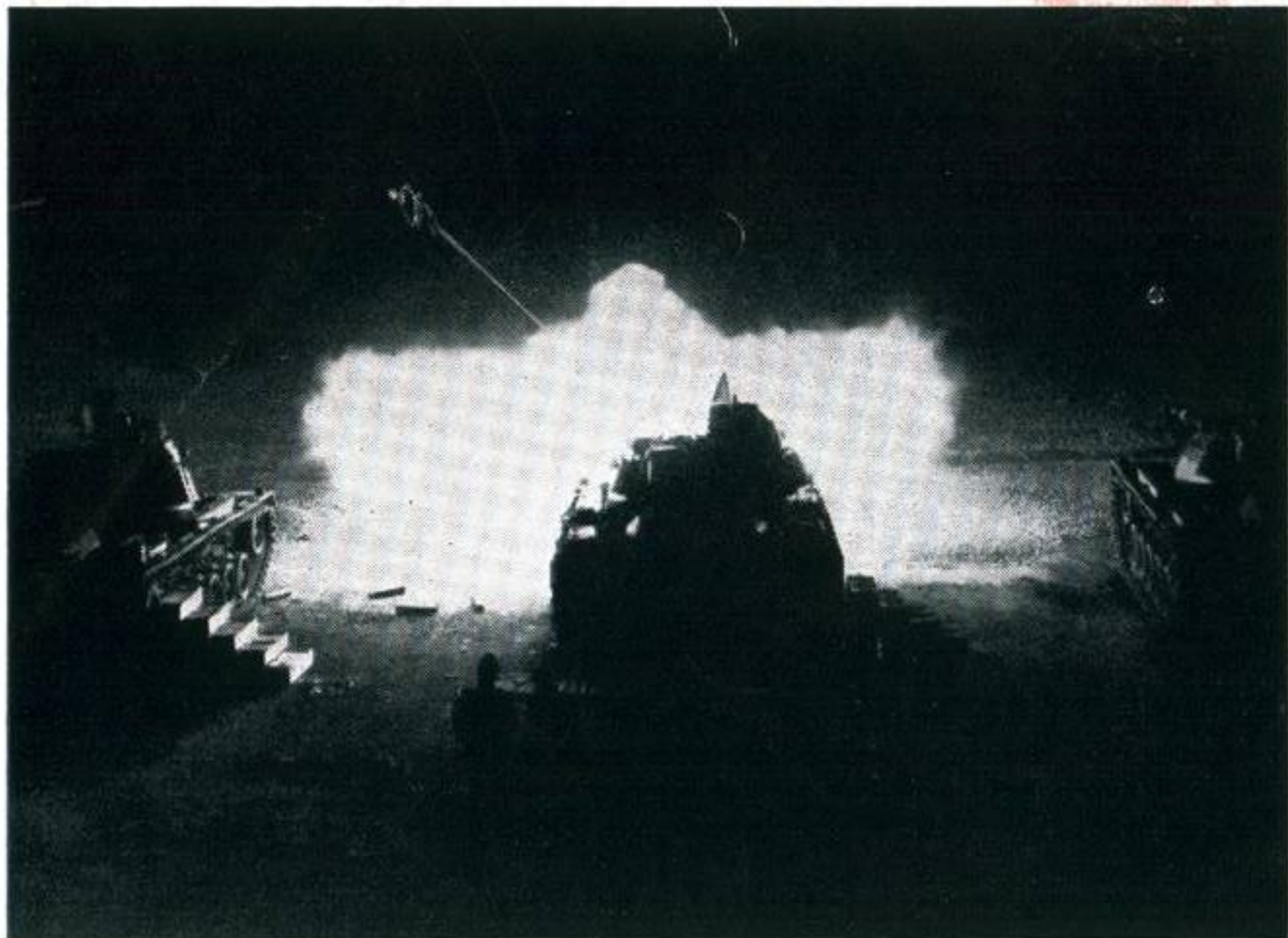
versions of the M60 are much the same. The M60 weighs 45.5 tons and is manned by a crew of four. It is powered by a Continental V-12 air-cooled 750 b.h.p. diesel which gives it a maximum speed of 30 m.p.h. Lesson Instructions on page 79.

39



Solutions on the cover.

COVER PHOTO



M48 Patton tanks engaged on night static firing practice. The United States M48 tank, which will be the subject of a forthcoming *Journal* lesson, last appeared in our March 1961 edition.

Page 58

H.M.S. VICTORIOUS

Port-side (left) from stem to stern: **Buccaneer, Buccaneer, Buccaneer, Sea Vixen, Sea Vixen, Sea Vixen, Sea Vixen.**

Forward at centre and as inset: **Wessex.**

Starboard, stem to stern: **Buccaneer** (forward of island); **Buccaneer, Buccaneer** (adjacent to island); **Gannet A.E.W.3, Gannet A.E.W.3, Buccaneer, Sea Vixen.**

Page 60

FITTER

All targets are of **Fitters** except No. 21 which is a **Fishbed** and No. 23 which is a **Fiddler**.

Page 62

MAGISTER

All targets are of **Magisters** (or **Zephyrs**) except No. 21 which is a **Fleuret**, forerunner of the **Paris**.

The correct designations are as follows:

- | | |
|----------|------------------|
| 1 CM170 | 15 CM170 |
| 2 CM191 | 16 CM170 |
| 3 CM170 | 17 CM170 |
| 4 CM170 | 18 CM170 |
| 5 CM170 | 19 CM191 |
| 6 CM170 | 20 CM175 |
| 7 CM191 | 21 MS755 (joker) |
| 8 CM170 | 22 CM170 |
| 9 CM191 | 23 CM170 |
| 10 CM170 | 24 CM175* |
| 11 CM170 | 25 CM191 |
| 12 CM170 | 26 CM170 |
| 13 CM170 | 27 CM170 |
| 14 CM191 | 28 CM170 |

* CM170 acceptable from this view.

Page 64

JET PROVOST

All targets are of **Jet Provosts** except for No. 13 which is of a **Macchi MB326**.

The full list of designations, as far as can be ascertained, is as follows:

- | | | | |
|----------------------|-----------------|----------|-----------------------|
| 1 T.2 (non-standard) | 10 T.4 | 18 T.4 | 27 T.3 |
| 2 T.4 | 11 T.4 | 19 T.4 | 28 T.3 |
| 3 Mk. 52 | 12 T.3/4 | 20 T.3 | 29 T.4 |
| 4 T.3/4 | 13 Macchi MB326 | 21 T.4 | 30 T.3/4 |
| 5 T.3/4 | (Joker) | 22 T.4 | 31 T.2 (non-standard) |
| 6 T.4 | 14 T.3/4 | 23 T.4 | 32 T.3/4 |
| 7 T.2 (non-standard) | 15 T.3/4 | 24 T.4 | |
| 8 T.4 | 16 T.3 | 25 T.3/4 | |
| 9 T.4 | 17 Mk. 51 | 26 T.3 | |

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

Page 66

ZLIN Z-326 TRENER MASTER

All targets are of **Trener Masters** except No. 12 which is an **L-40 Meta-Sokol (Czech)**, No. 21 which is a **Safir (Swedish)** and No. 24 which is an **RFB Passat (German)**.

Page 70

P-3A ORION

All targets are of **P-3A Orions** except No. 8 which is an **Electra** and No. 26 which is an **Atlantic**.

Page 76

MERCHANTMEN OF THE USSR No. 7—LEVANT CLASS

All targets are of the **Levant Class**.

Page 80

M60 UNITED STATES MAIN BATTLE TANK

All targets are of **M60s** except No. 9 which is an **M103** and No. 41 which is an **M48 A2**.

ACKNOWLEDGMENT

The drawing of the **M60 U.S. Battle Tank** on page 80 is reproduced by kind permission of Major Dr. F. M. von Senger und Etterlin.

T.S.R.2

On our January editorial page we referred to the primary role of the T.S.R.2 as deterrent which is, of course, wrong. The T.S.R.2 is primarily a tactical, strike reconnaissance aircraft of great versatility and is, in fact, the most formidable weapons system ever produced for the R.A.F. The fact that it could fulfil a strategic role is a bonus and should not be taken to imply that deterrence is its primary function.