JOINT SERVICES

# RECOGNITION *Journal*




Vol. 20 NOVEMBER 1965 No. 11

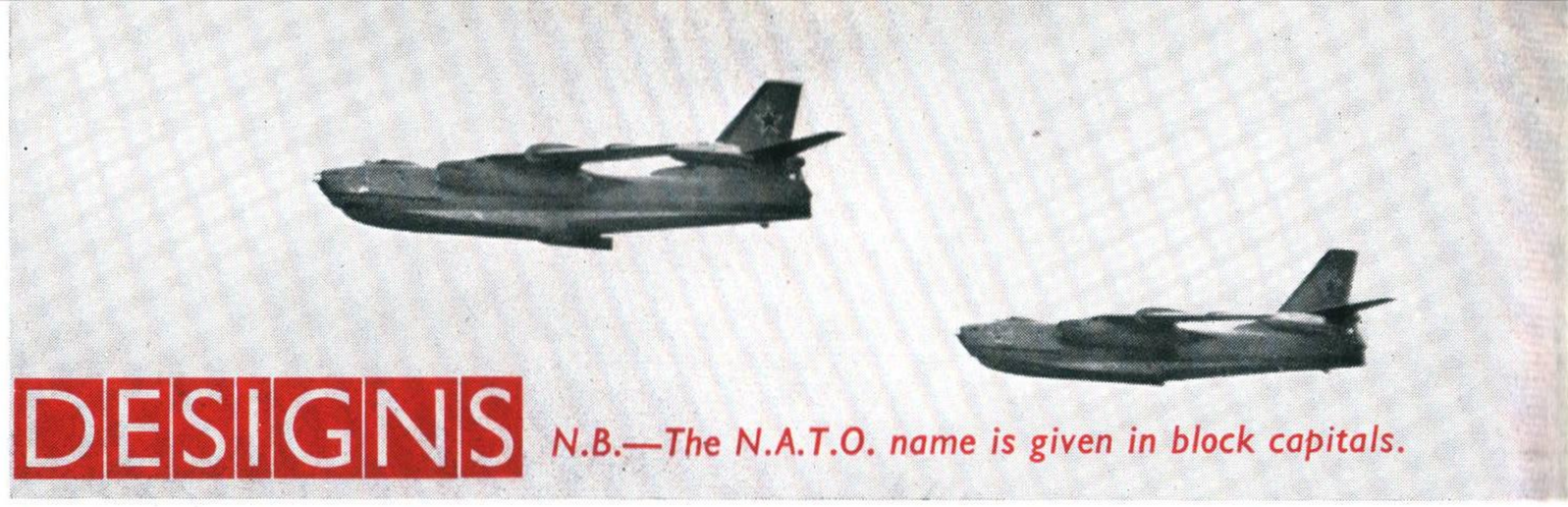
## SOVIET AIRCRAFT EDITION

# RUSSIAN DESIGNS

*N.B.—The N.A.T.O. name is given in block capitals.*



Kamov, Russia's rotary wing expert designed the Ka-22 Vintokryl (**HOOP**).



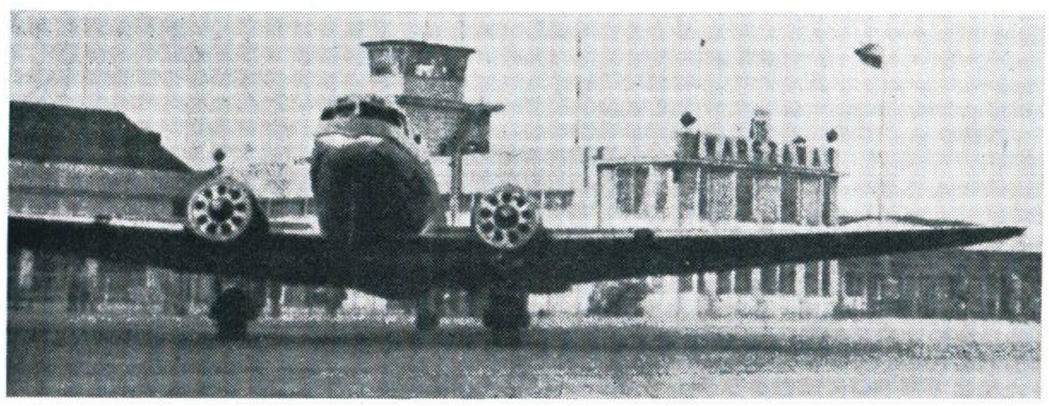
The designer of **MALLOW** is evidently V. M. Myasishchev from its M-10 Russian designation.



Antonov has concentrated on transports, his first, the An-2 (**COLT**), is one of the few biplanes still widely used. Later versions have a more angular tail-fin.



Ilyushin has designed both military and civil types; this illustration is of his Il-28 (**BEAGLE**).



Boris Lisunov was the Russian engineer sent to Douglas Aircraft in connection with DC-3 (Dakota) manufacturing rights, hence the Russian designation Li-2 (**CAB**).



Yakovlev, perhaps the most versatile of Russian designers, is credited with the design of the Yak-24 (**HORSE**).



M. L. Mil's association with rotary-winged aircraft dates back to the early 'thirties. One of his widely used designs is the Mi-4 (**HOUND**) used for both military and civil purposes.



Tupolev's masterpiece, the Tu-104 (**CAMEL**), may be seen at many European airports including London.



Mikoyan and Gurevich have collaborated on designs for over fifteen years. Their first big success was the MiG-15 (**FAGOT**) which, as this picture implies, was built in quantity.

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JOINT SERVICES

RECOGNITION JOURNAL

The *Joint Services Recognition Journal* is a monthly publication produced by the Directorate of Flying Training (R.A.F.), Ministry of Defence, and prepared in collaboration with the Admiralty Board, the Army Department 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 Ministry of Defence.

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* *Identification Lessons*

# Russian Designations and Designers

FOR practical reporting purposes, NATO names are used in identification training of Russian aircraft, but the national press use a transliteration of the proper Russian name and this is usually quoted in *Journal* lessons together with the NATO name.

The Russian nomenclature is unique as the only national system of naming aircraft types to give credit to the designer —not that a modern military aircraft is designed by one man, but any design team must receive direction from a chief designer or head of design team.

This Russian system dates from 1941. Hitherto their aircraft were designated by letters indicative of their role, followed by a hyphenated series number, not unlike the American system. At about the time of the German attack on Russia this was changed to the present system of naming the aircraft after the person most intimately concerned with their origin. Their U-2 which is still used then became Po-2, now known to us by the NATO name Mule. The "Po" was for Polikarpov, the designer who died in 1944.

Badger, Camel, Cleat and Cookpot which are respectively the Tu-16, Tu-104, Tu-114 and Tu-124 indicate that they originated from Andreas N. Tupolev who designed the famous Russian polar flight ANT-25 monoplane of the 'twenties, and the Tu-2 light bomber of the last war for which he received the 1943 Stalin Prize.

Coot the Il-18 and Beagle the Il-28 are aircraft in the series by Sergei Ilyushin, who at the age of sixteen in 1910 found work on an aerodrome at Moscow and therefore has had some fifty years' association with aircraft. The famous Russian Stormovik of the war was his design as its designation Il-2 reveals. His latest design to be revealed is the Il-62 Classic, the Russian equivalent to the British VC-10.

The influence of Oleg Antonov, well known as a designer of sailplanes, on Russian transport aircraft is evident from the designations An-10 for Cat, An-14 for Clod, An-22 for Cock and An-24 for Coke.

The Russian designations are limited to the first two letters of the designer's name, but for Horse we give the designation as Yak-24; the reason for this is that the true Russian designation is ЯК-24, and "Я" transliterated is "Ya". Alexander S. Yakovlev is perhaps the most versatile of Russian designers having been responsible for fighters, transports and helicopters.

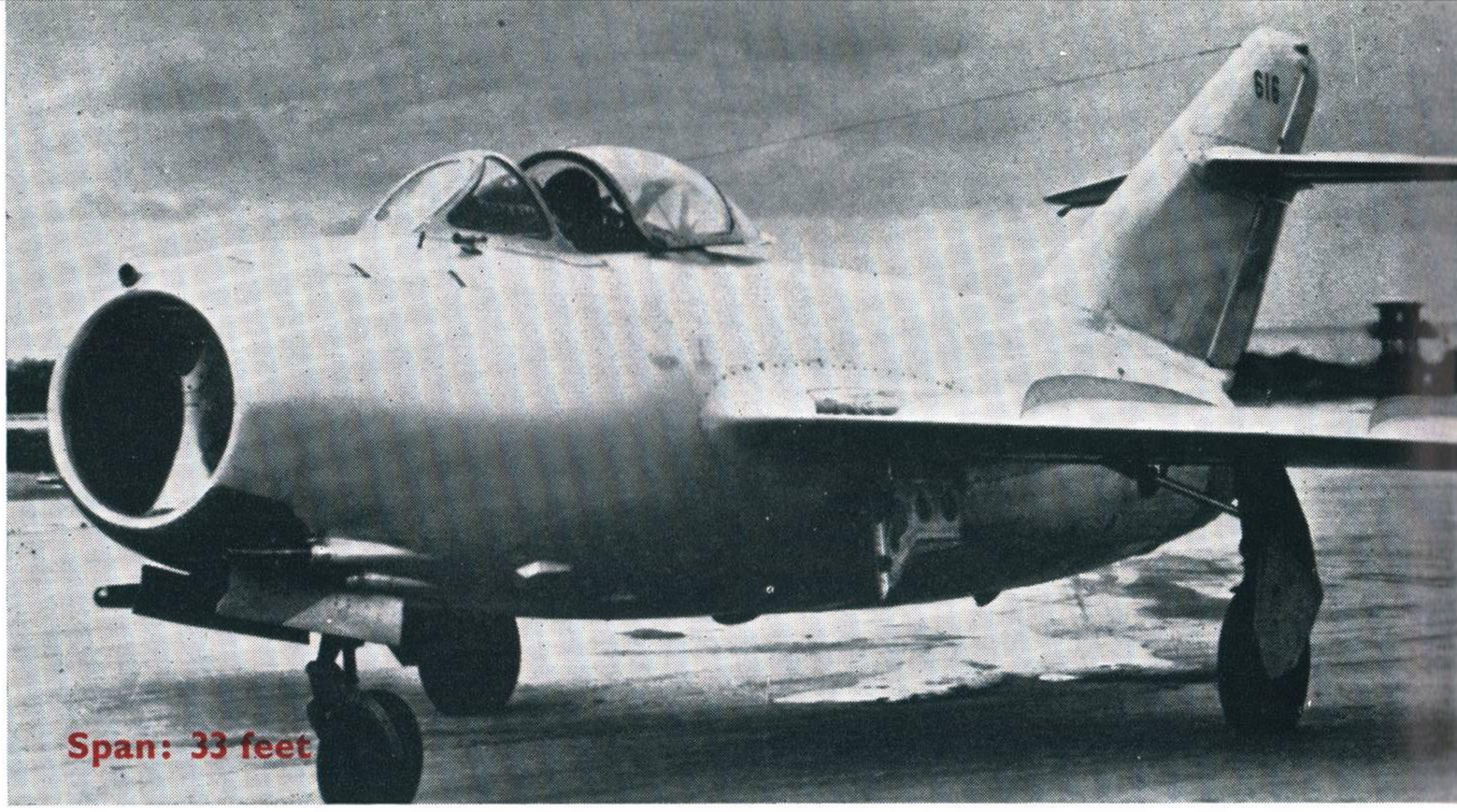
MiGs are the exception in that the designation stands for two collaborators in fighter design, Artem Mikoyan and Mikhail Gurevich. Their designs currently in service are the subject of the *Journal* lessons in this edition.

From a general review of the system it is evident that odd numbers have been used mainly for fighter designs and even numbers for most other types, with the exception of Mikhail L. Mil's helicopters which appear to be in a straightforward numerical series from No. 1 and Nikolai Kamov's helicopters which have both odd and even design numbers.

Since no indication of the designation of the new Soviet rear-jet bomber shown at Tushino was given, the use of NATO names which gives this as Blinder is obviously the best system for our purposes. It also obviates the mistakes of guessing, such as labelling the Faceplate the MiG-21 when it is in fact Fishbed that is the MiG-21.

# Fifteen Years of Fagots

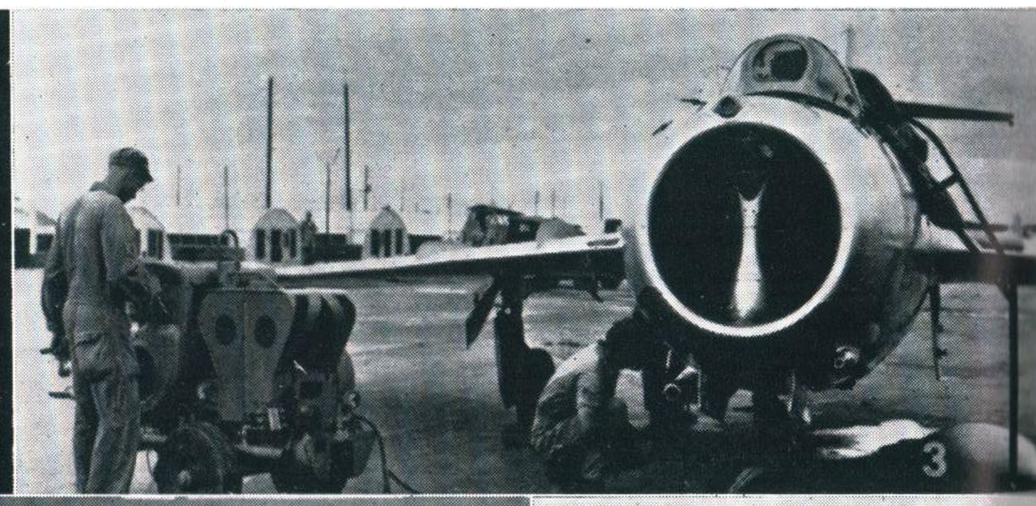
The lesson instructions on page 295 should be very carefully read. When you have done this use the key views on the opposite page and the one on the right, and with their aid identify all the Fagots you can find in this group of 17 targets. Then turn over the page for an advanced lesson on another aspect of this Soviet fighter.

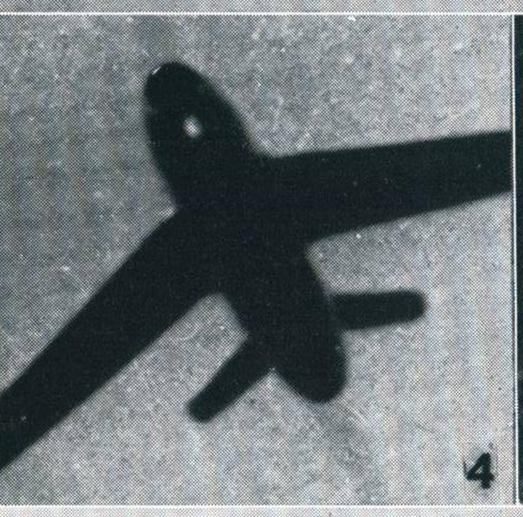




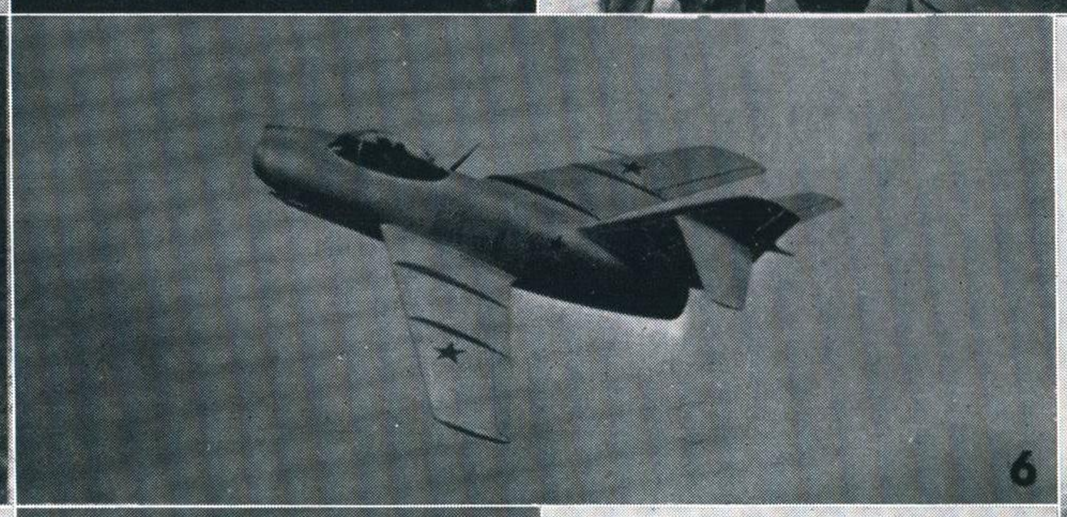
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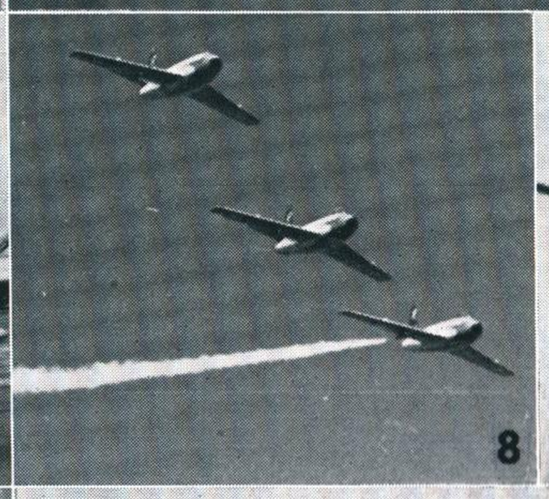

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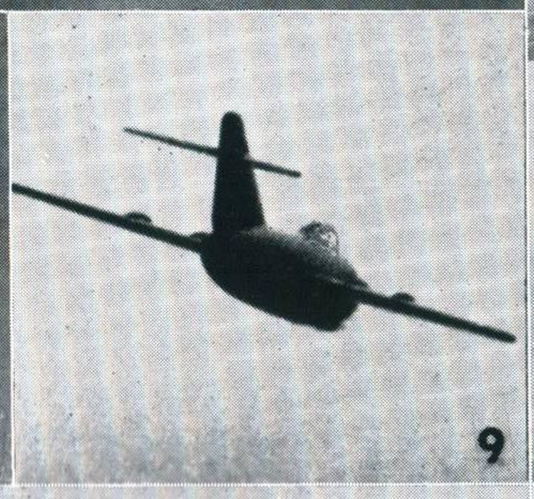

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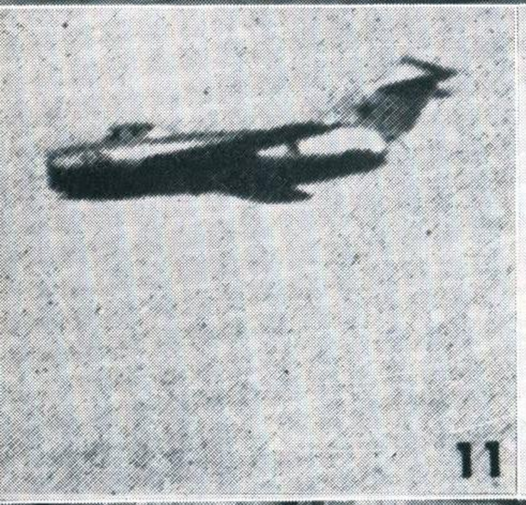

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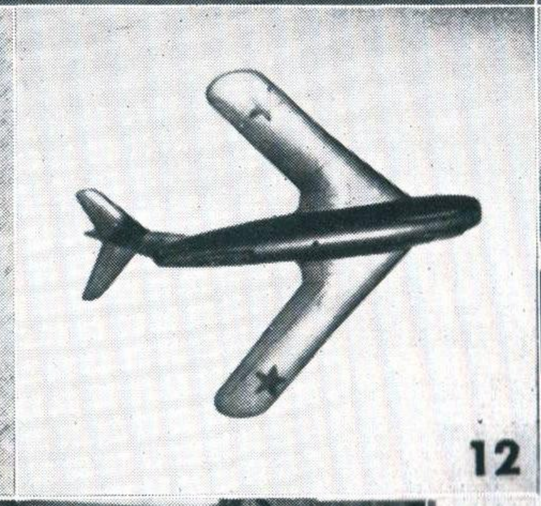

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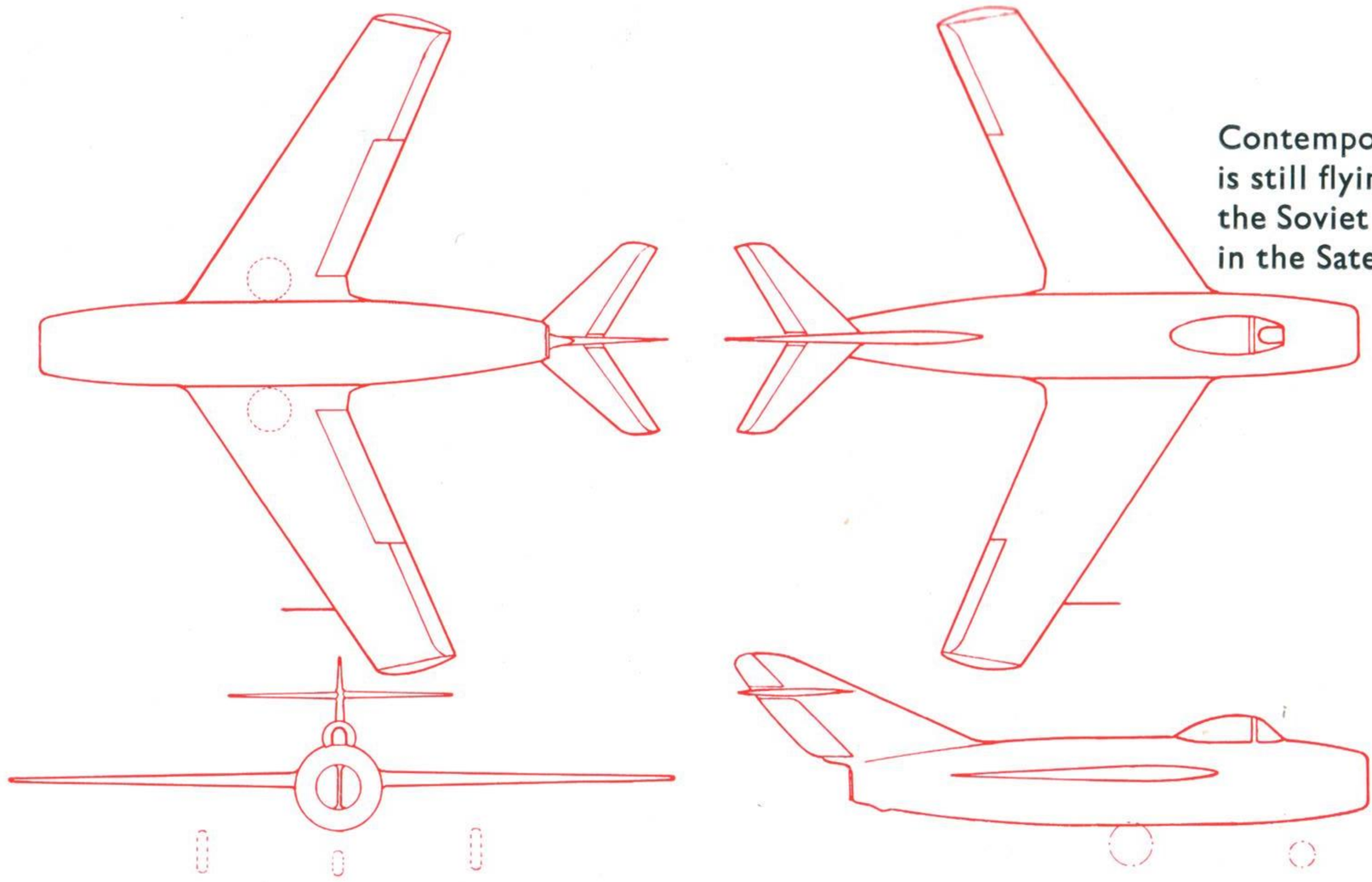

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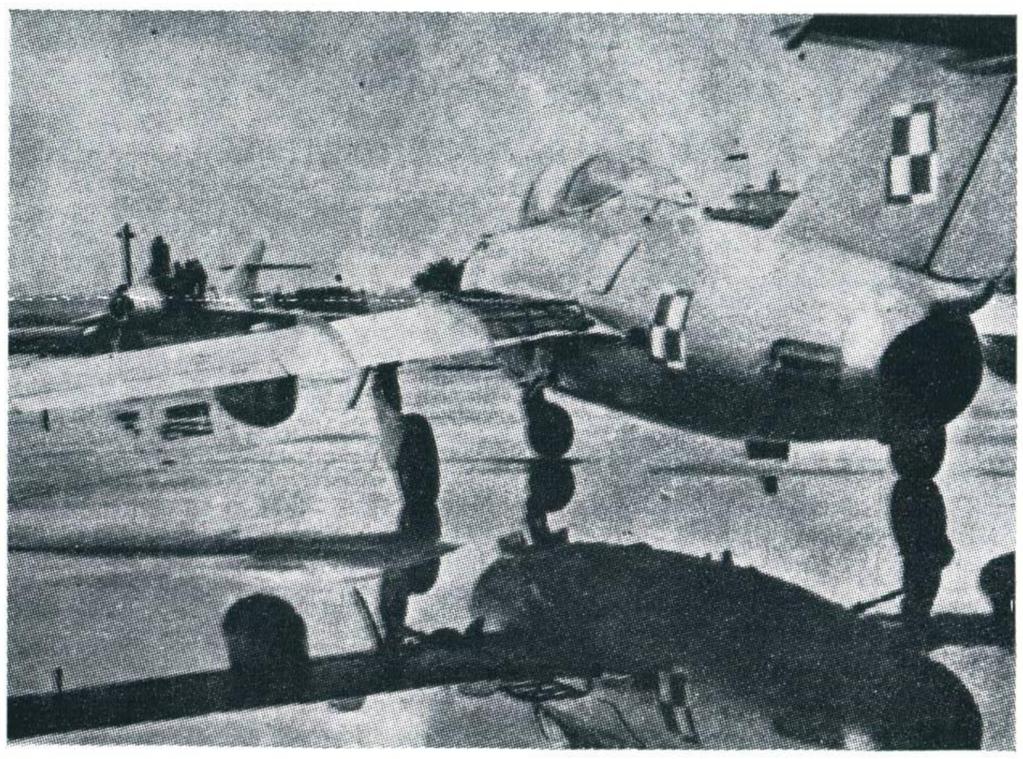

16

*Solutions on the cover*


17



Contemporary of the Meteor, the MiG-15 is still flying. Once a front-line fighter in the Soviet Air Force, the majority are now in the Satellite air forces. Despite its age it could give a very good account of itself in a ground attack role. From the various views shown here details of its asymmetrically mounted armament are clearly seen. This is normally two 12·7-mm. machine-guns or 23-mm. cannon on the port side, and a single 37-mm. cannon on the starboard side. The views on this page are of Polish Air Force Fagots except for the bottom right picture which is of Chinese Fagots.



### *Fagot Features*

*Fat fuselage*
*Swept fin and high tail*
*Four wing fences*

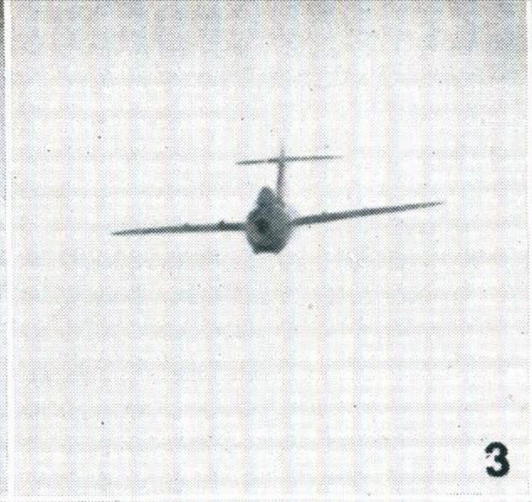


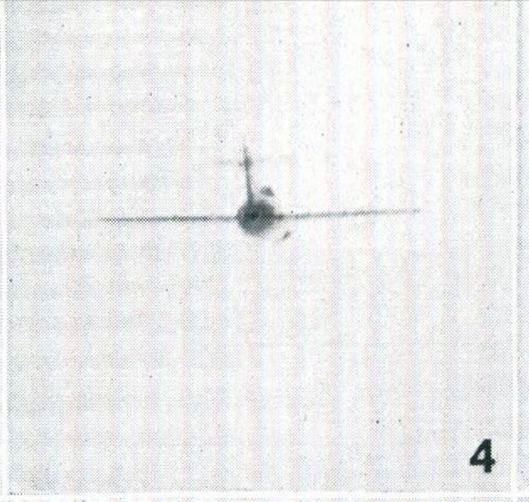


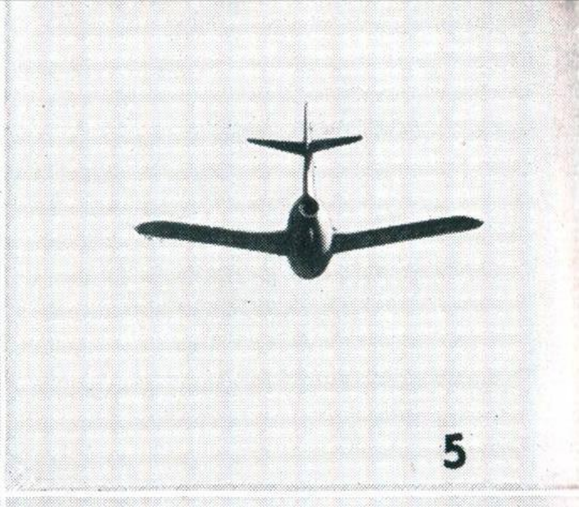


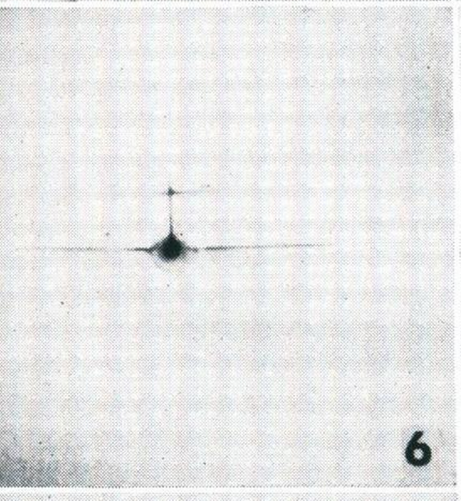
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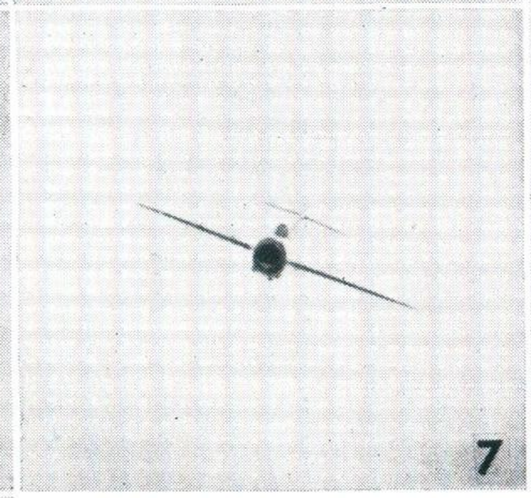

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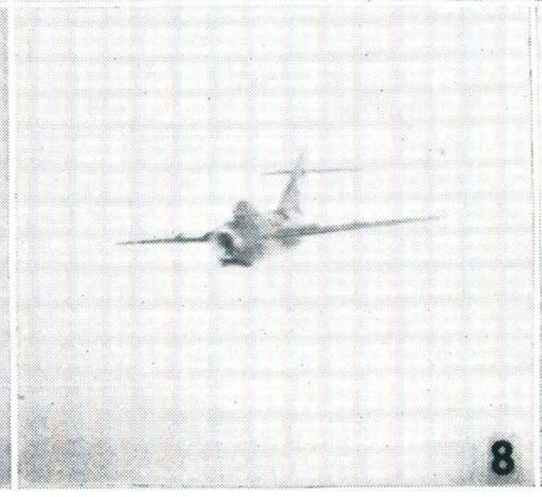

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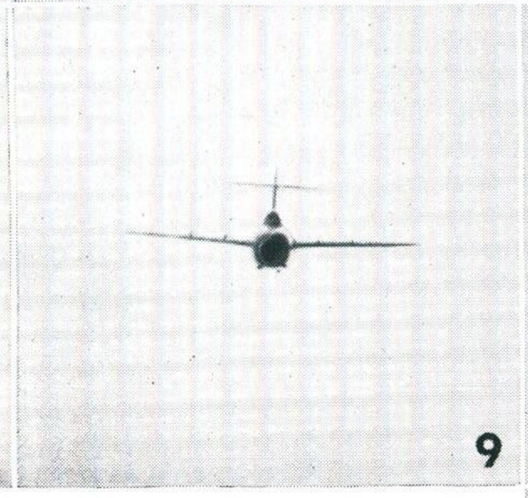

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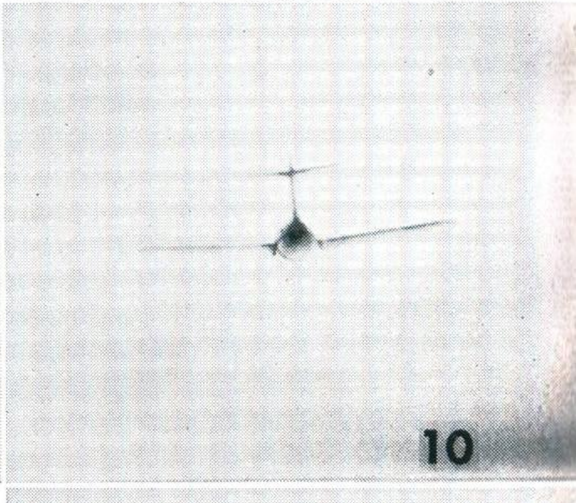

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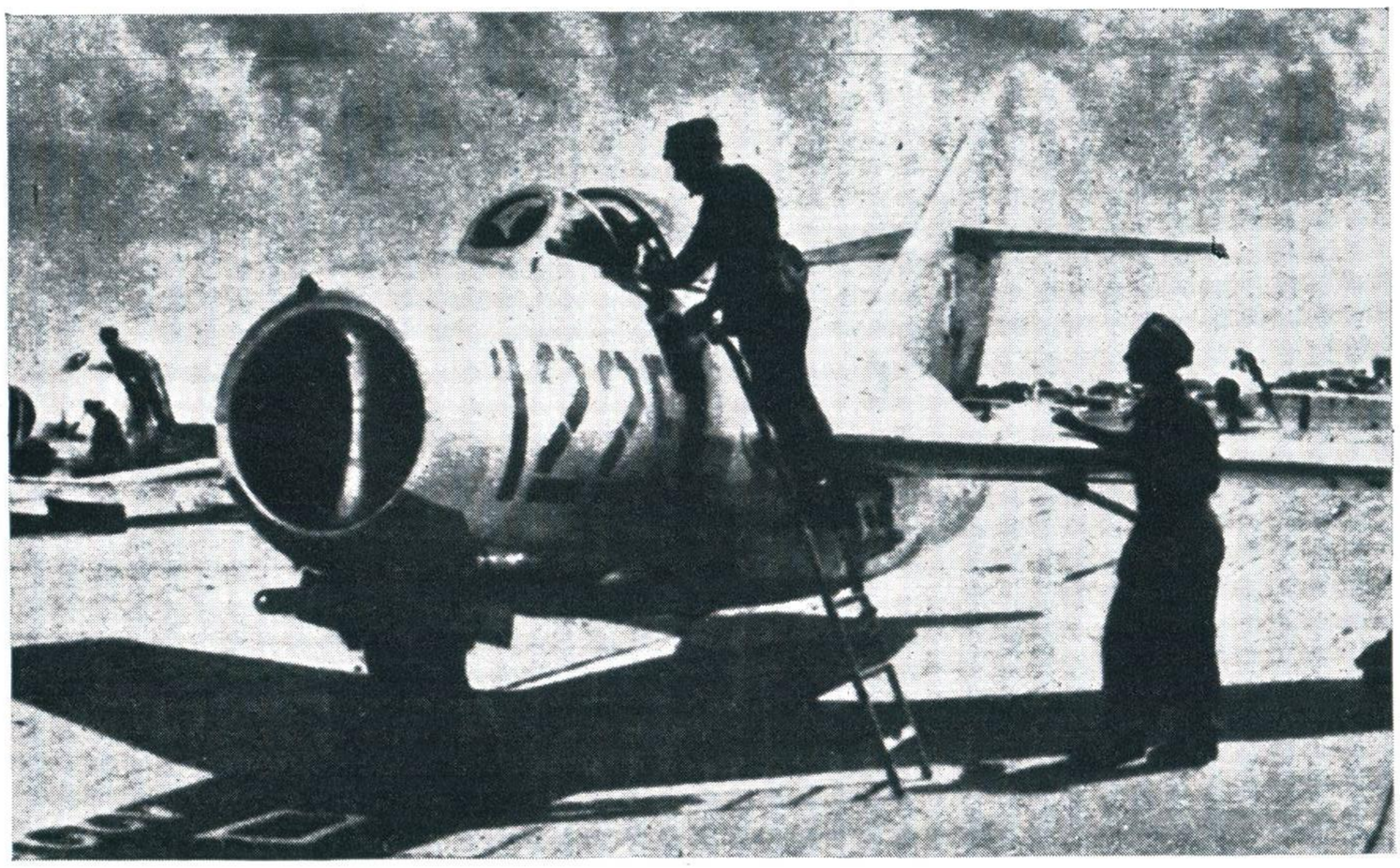

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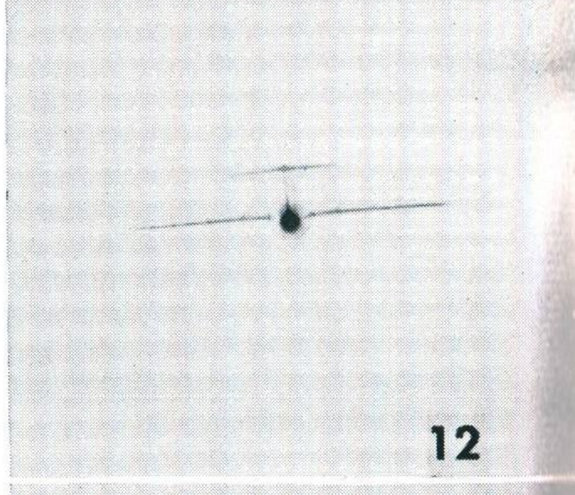

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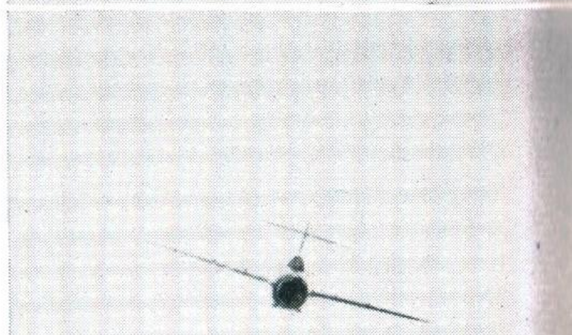

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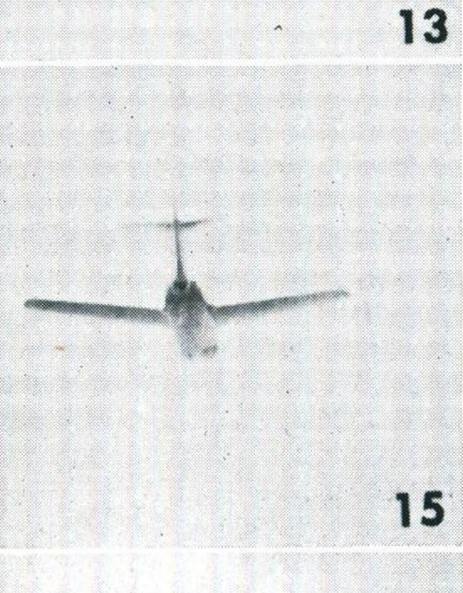

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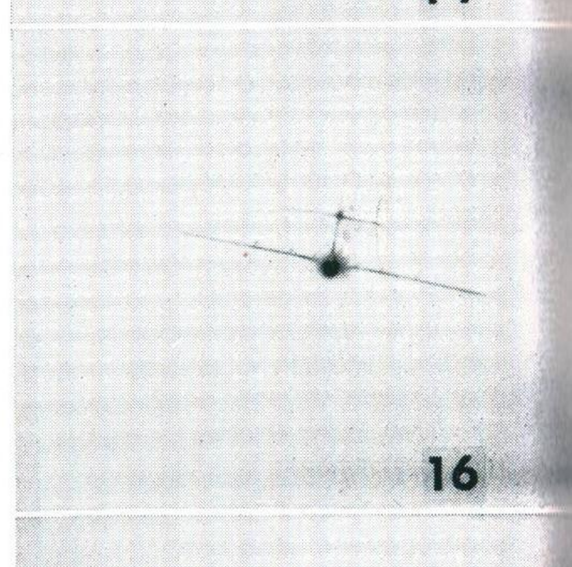
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Key view (front)



Key view (rear)


16

# FAGOT END-ON

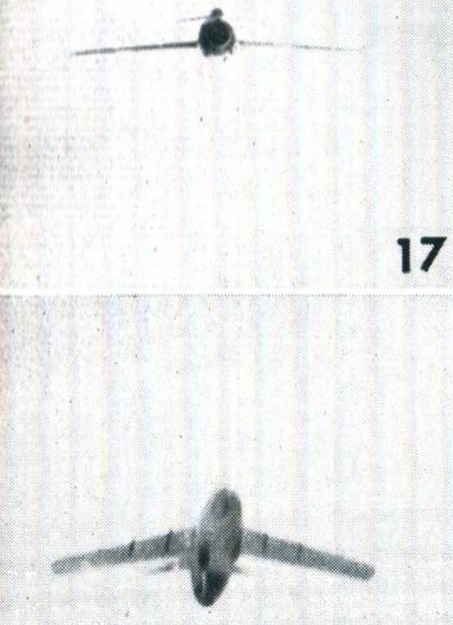
End-on identity training requires special treatment. Gone is the character seen in other views: replaced by one with far less variation but similar to a great many other aircraft unless known. The lesson should be carried out as for the previous one, in accordance with the instructions on page 295.

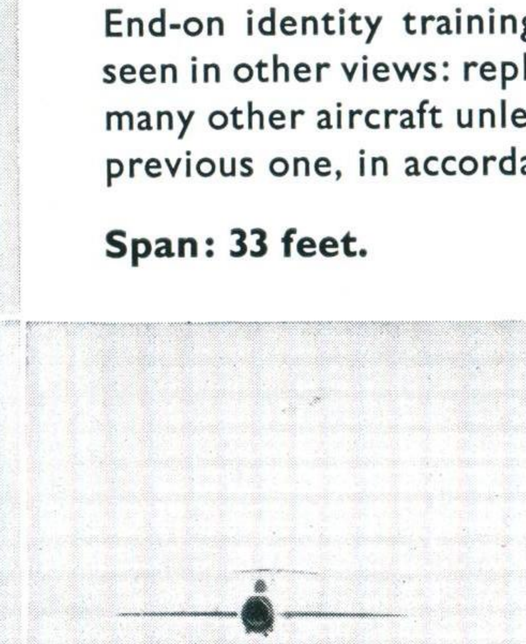
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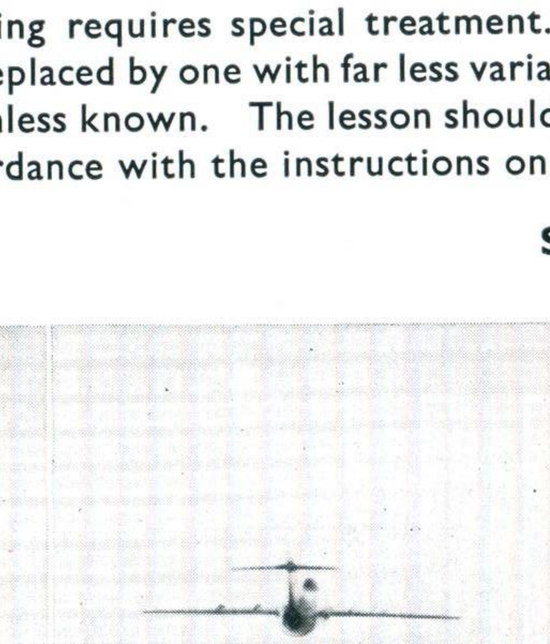
**Solutions on the cover.**

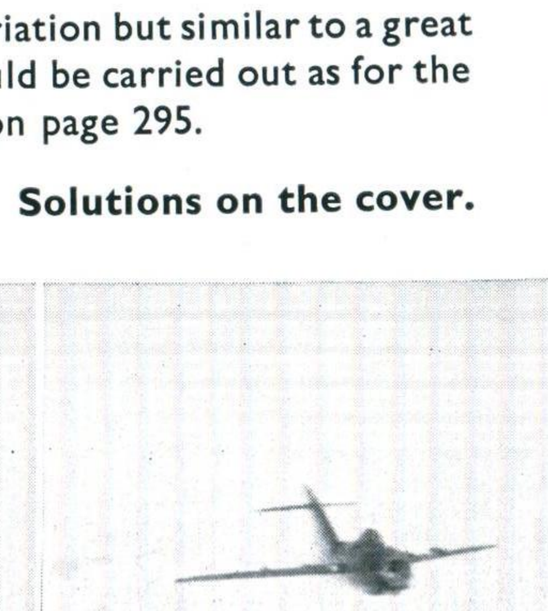

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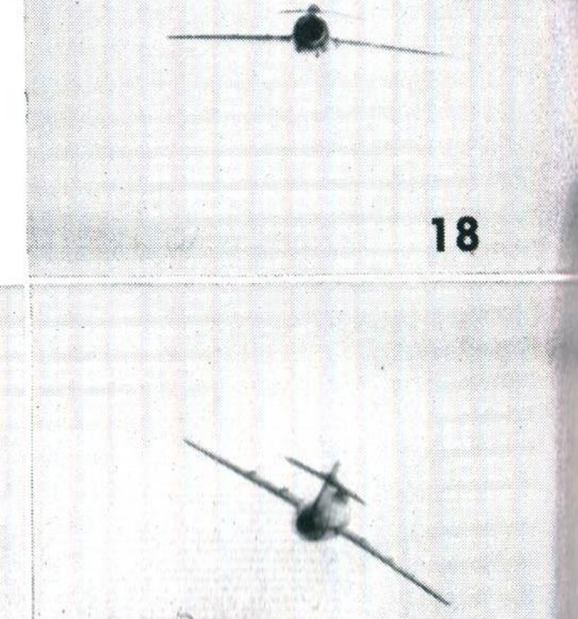

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# MIND THE GAP!

"What gap?" you may ask. The gaps in your experience of Russian aircraft of course, which is exactly what this test will tell you if you do it correctly. List the target numbers and identify as rapidly as possible in *number order*; write down each answer, leave gaps for hesitations, uncertainties, stumblings, second thoughts, etc. Check your list *when complete*: correct mistakes and fill the gaps—BUT don't imagine you now know those you missed out on. So take action.

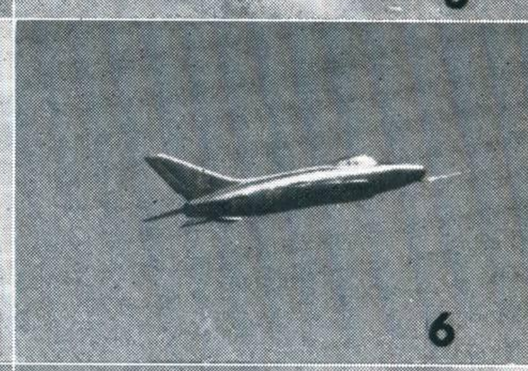

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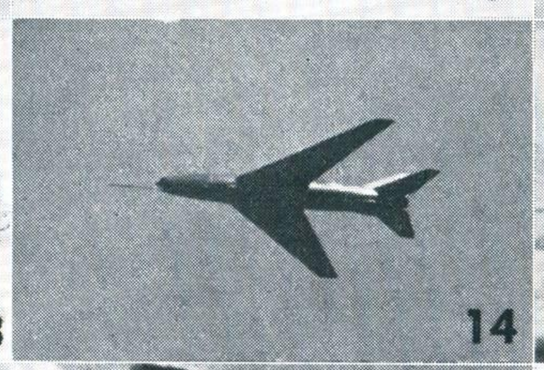

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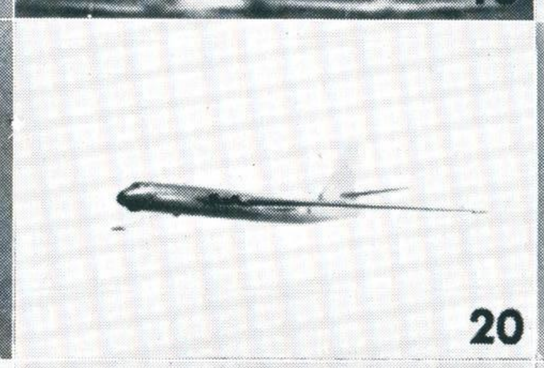

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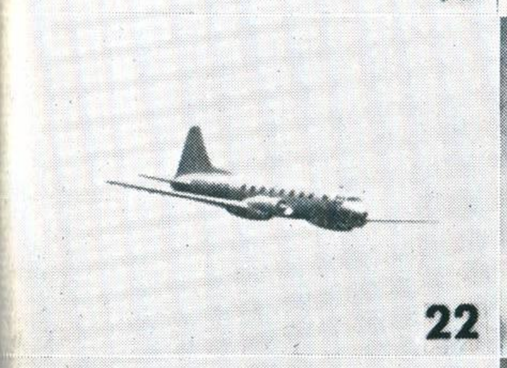

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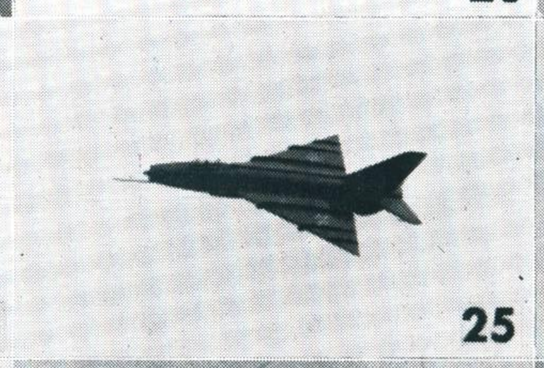

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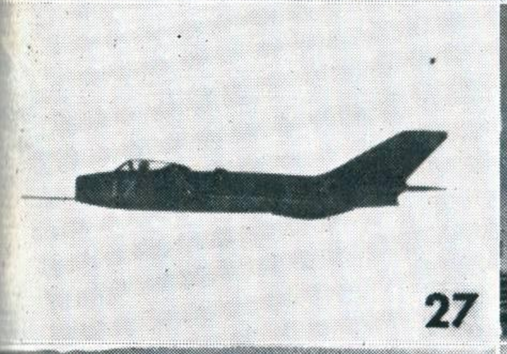

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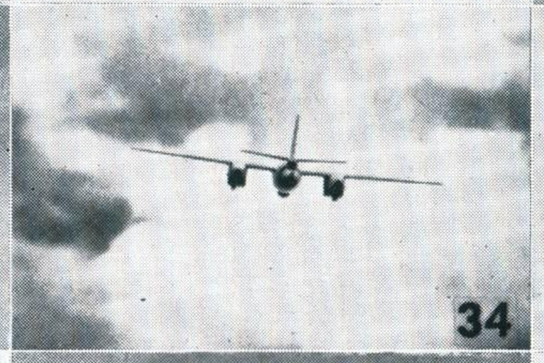

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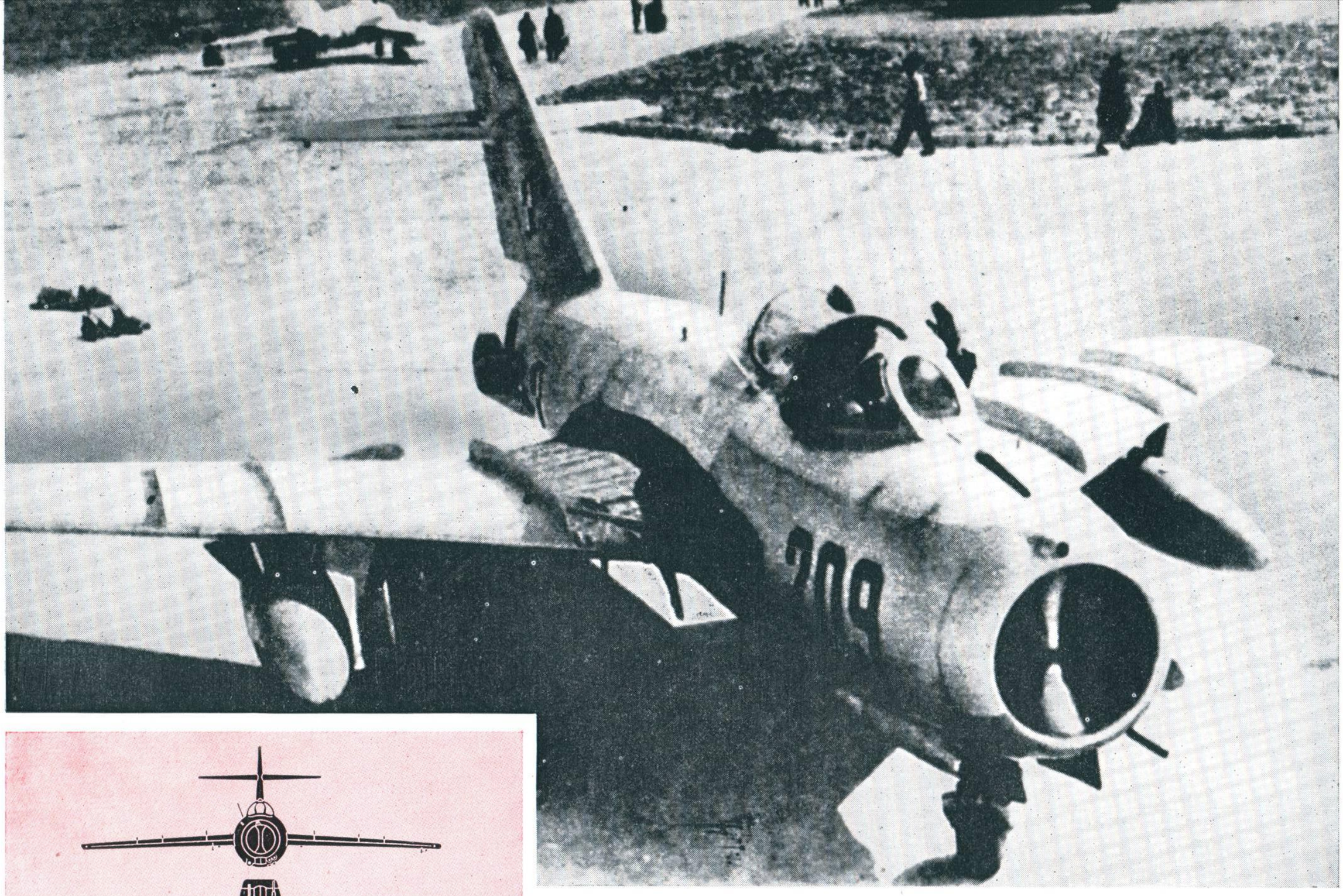

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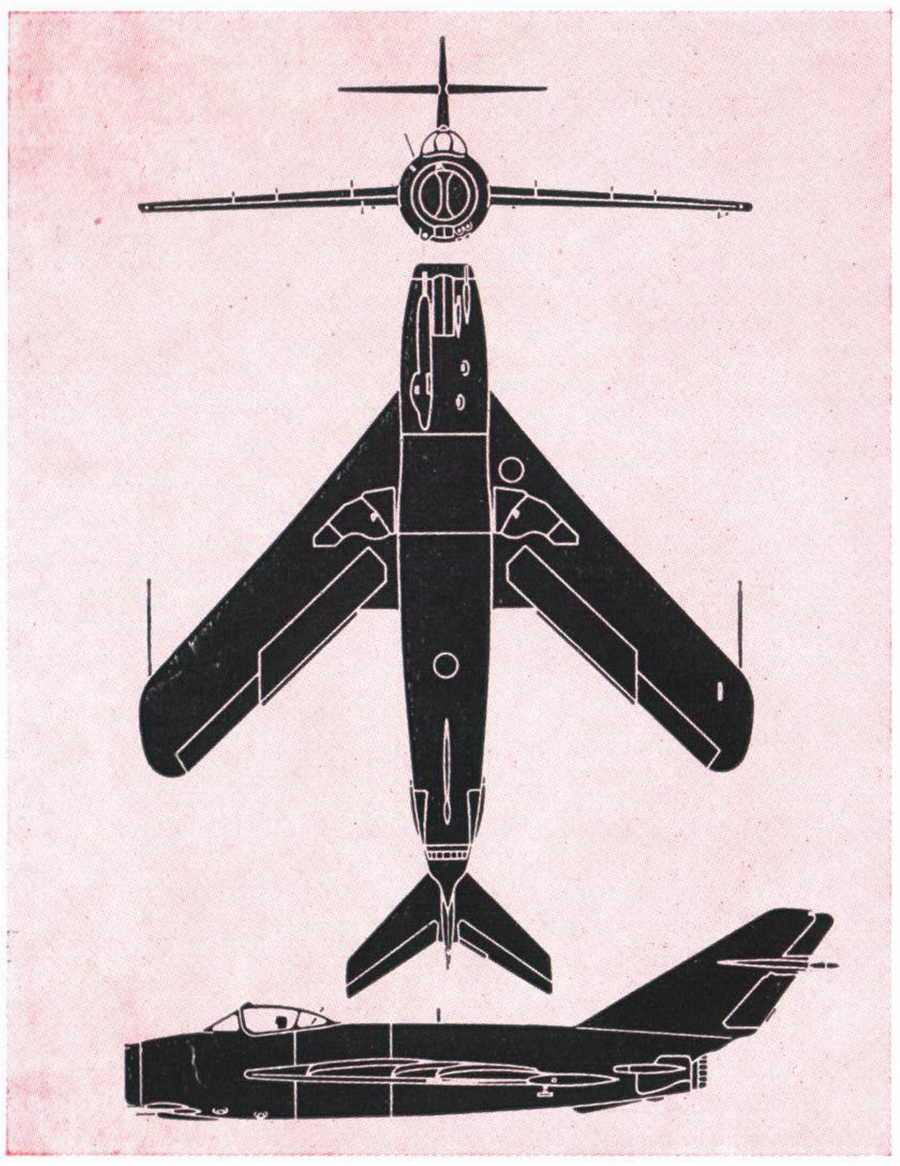

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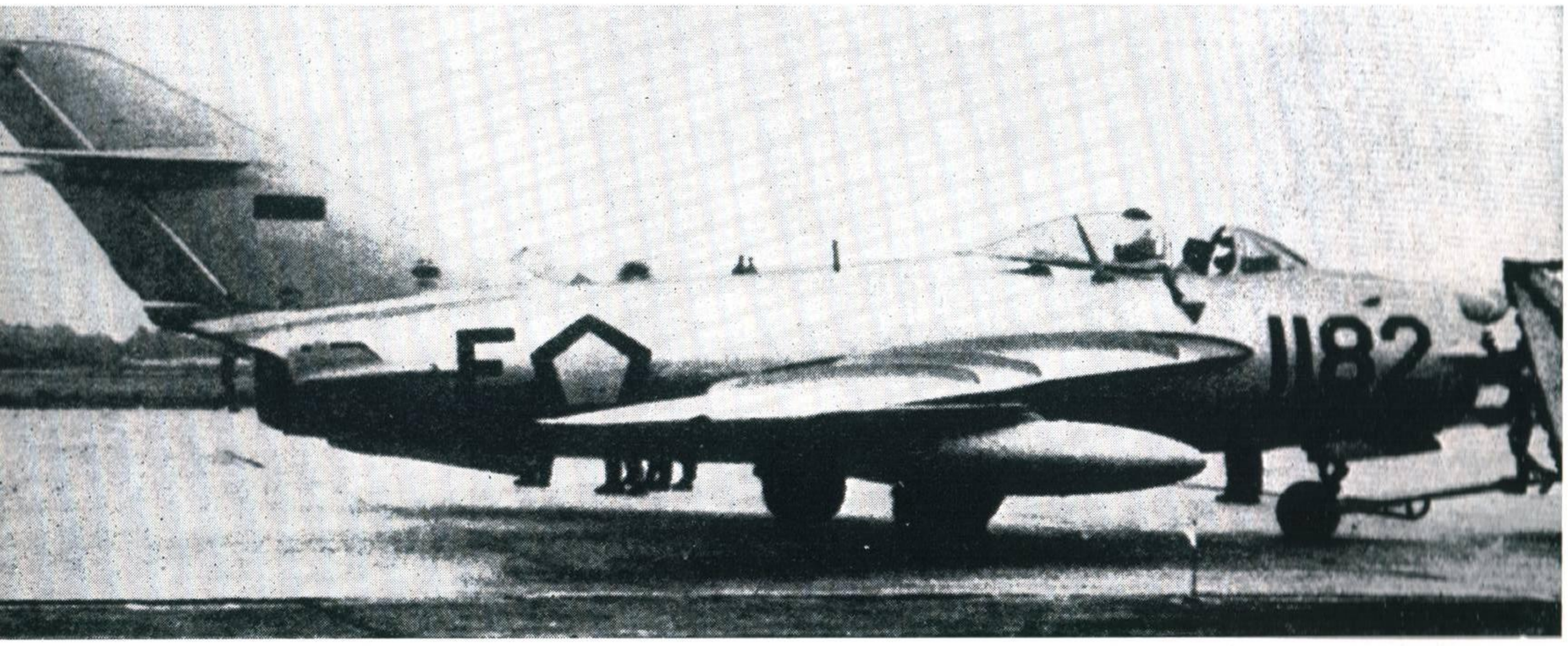
SPAN: 36 FEET

# Fresco Refresher

The previous lesson features the earliest of the MiGs still in large-scale service, the MiG-15 Fagot. This lesson presents its successor, the MiG-17 Fresco which has been built in Poland, Czechoslovakia and China and has been supplied to a dozen different countries.

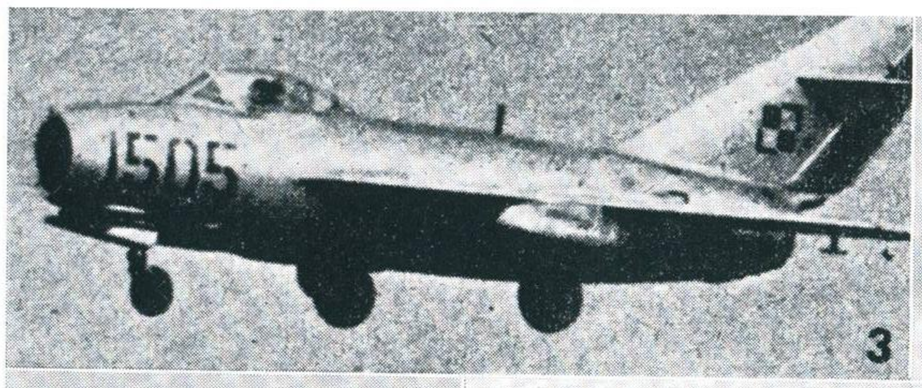
Variations on the basic Fresco have given rise to "A", "B", "C", "D" and "E" designations as described overleaf. For practical identification purposes, only the Fresco "D" and "E" with a bulbous radome in the nose have a distinguishing visual feature.

Comply with the lesson instructions on page 295 to freshen up on the Fresco.

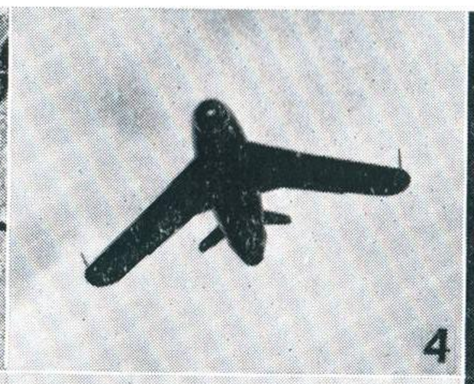






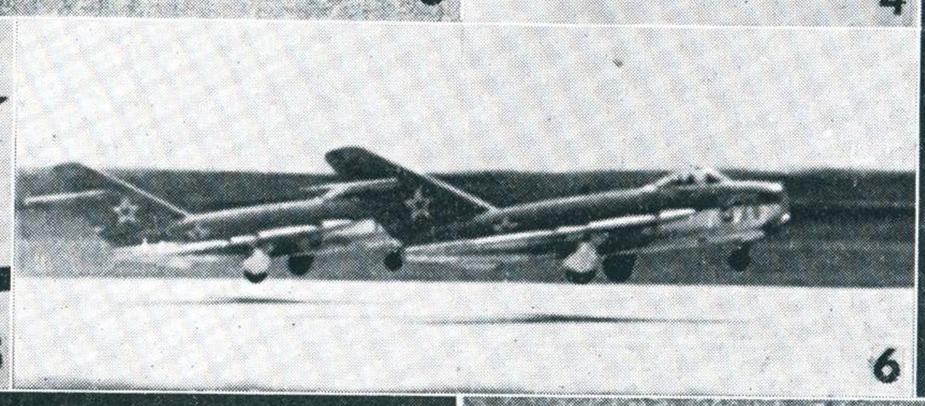



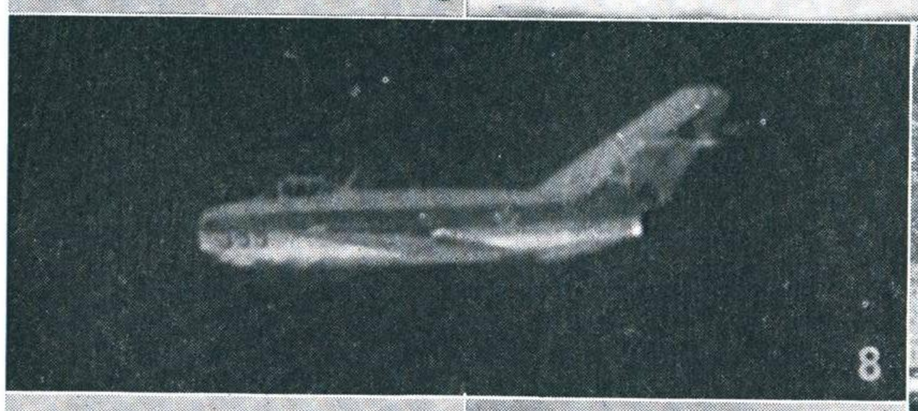
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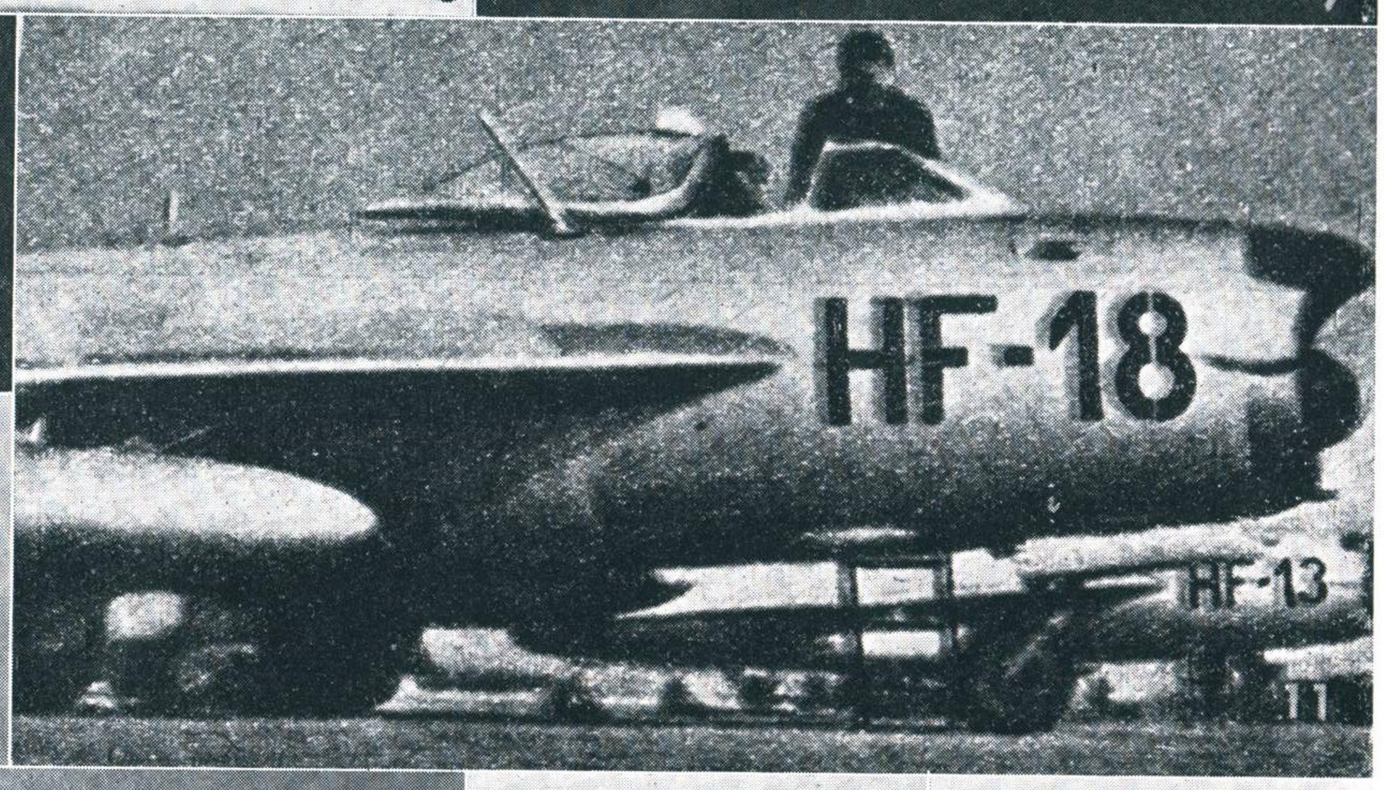

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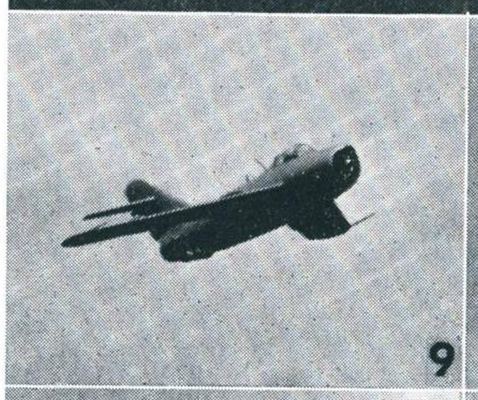

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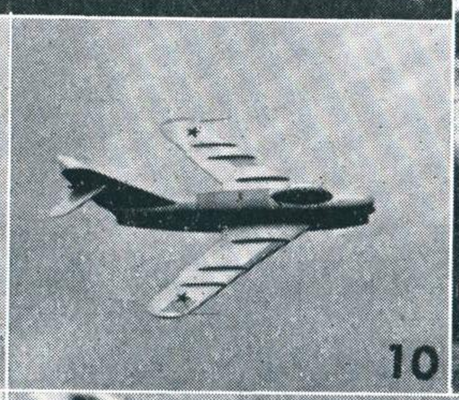

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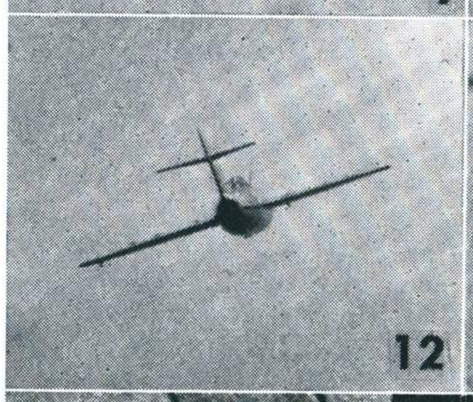

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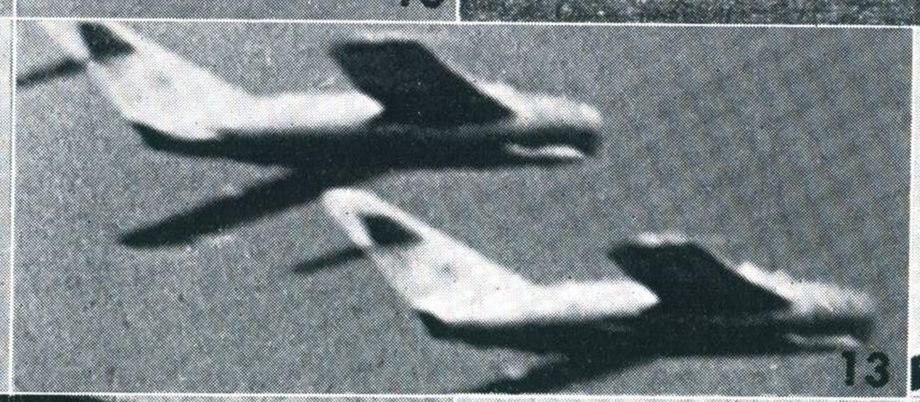

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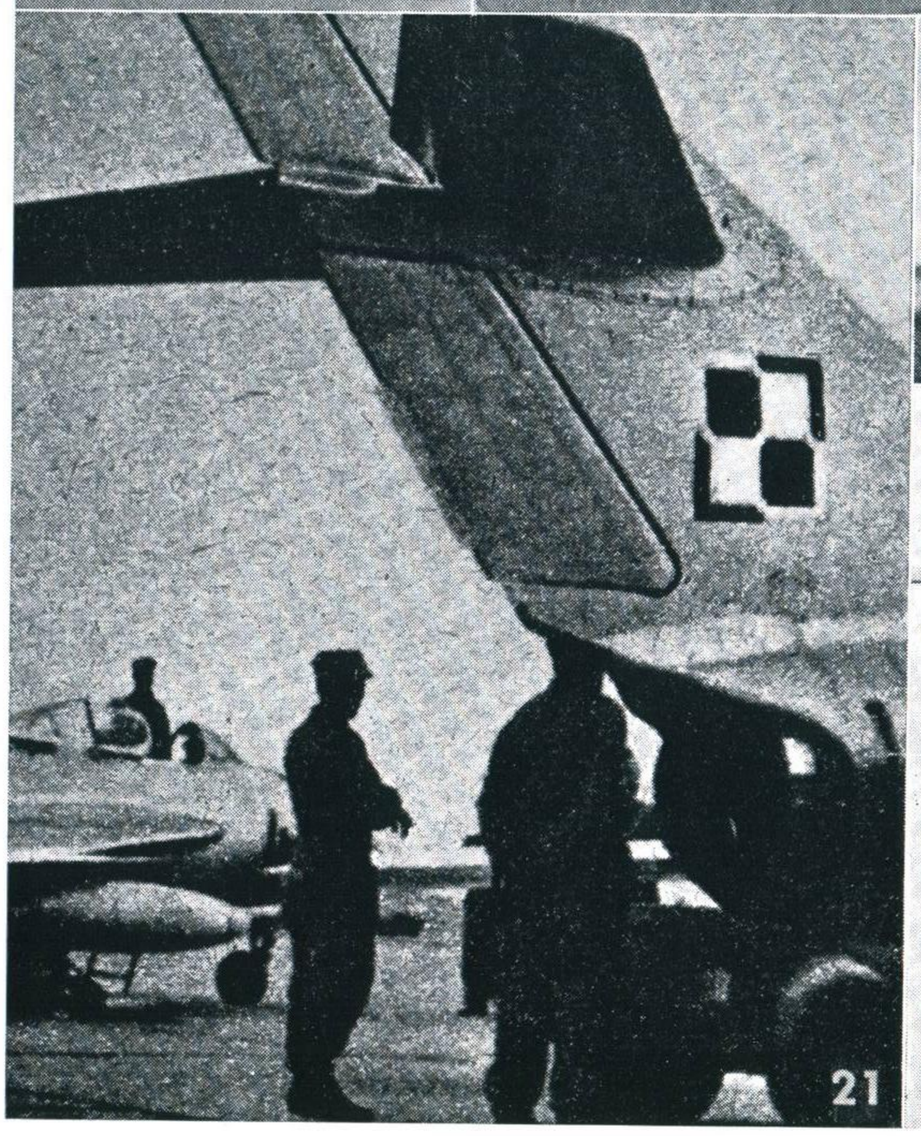

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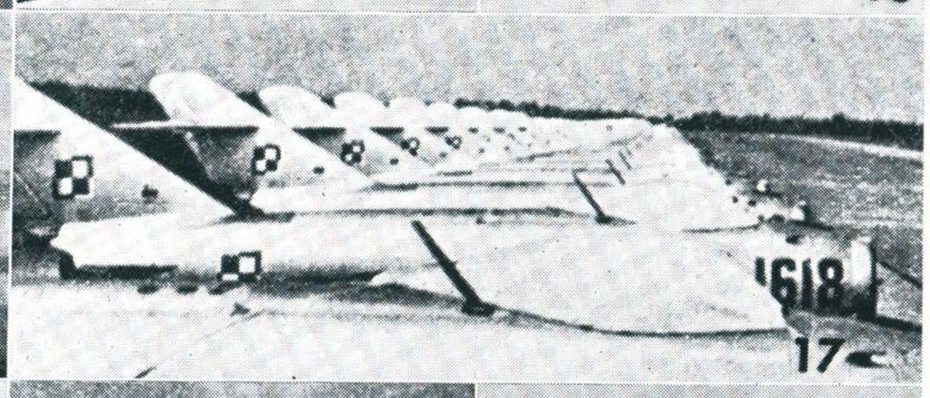

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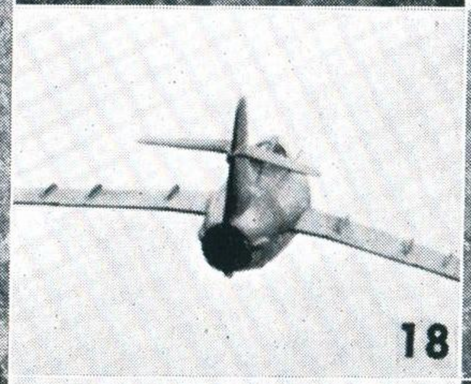

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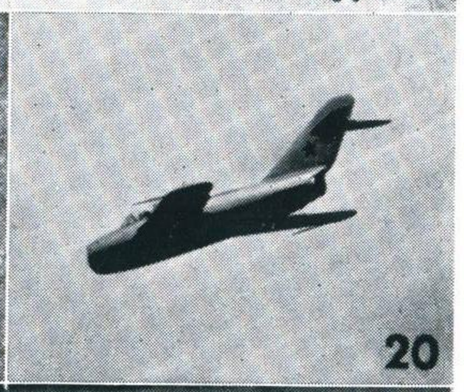

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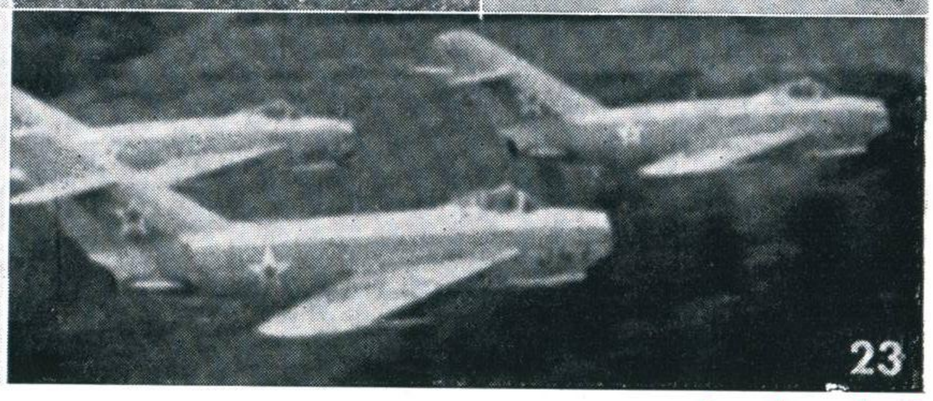

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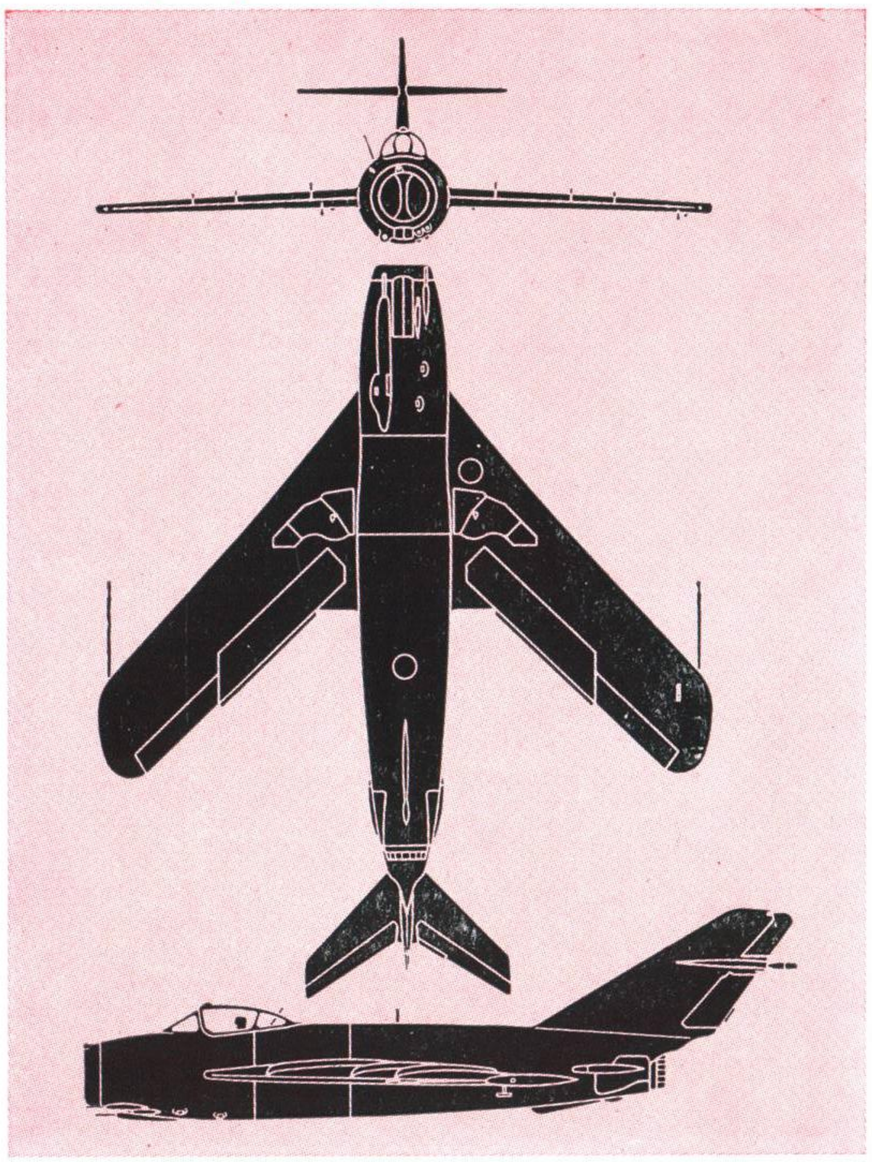

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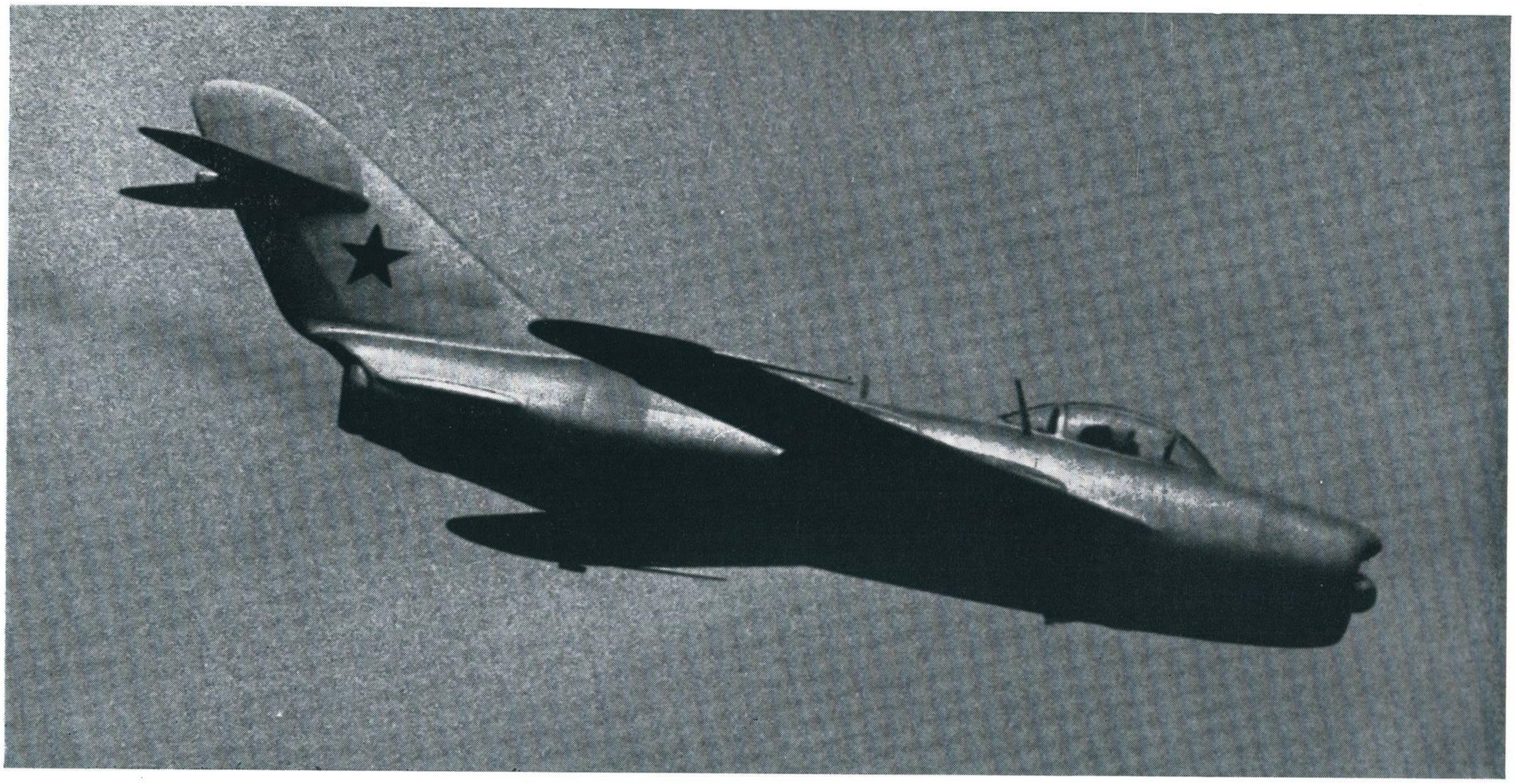
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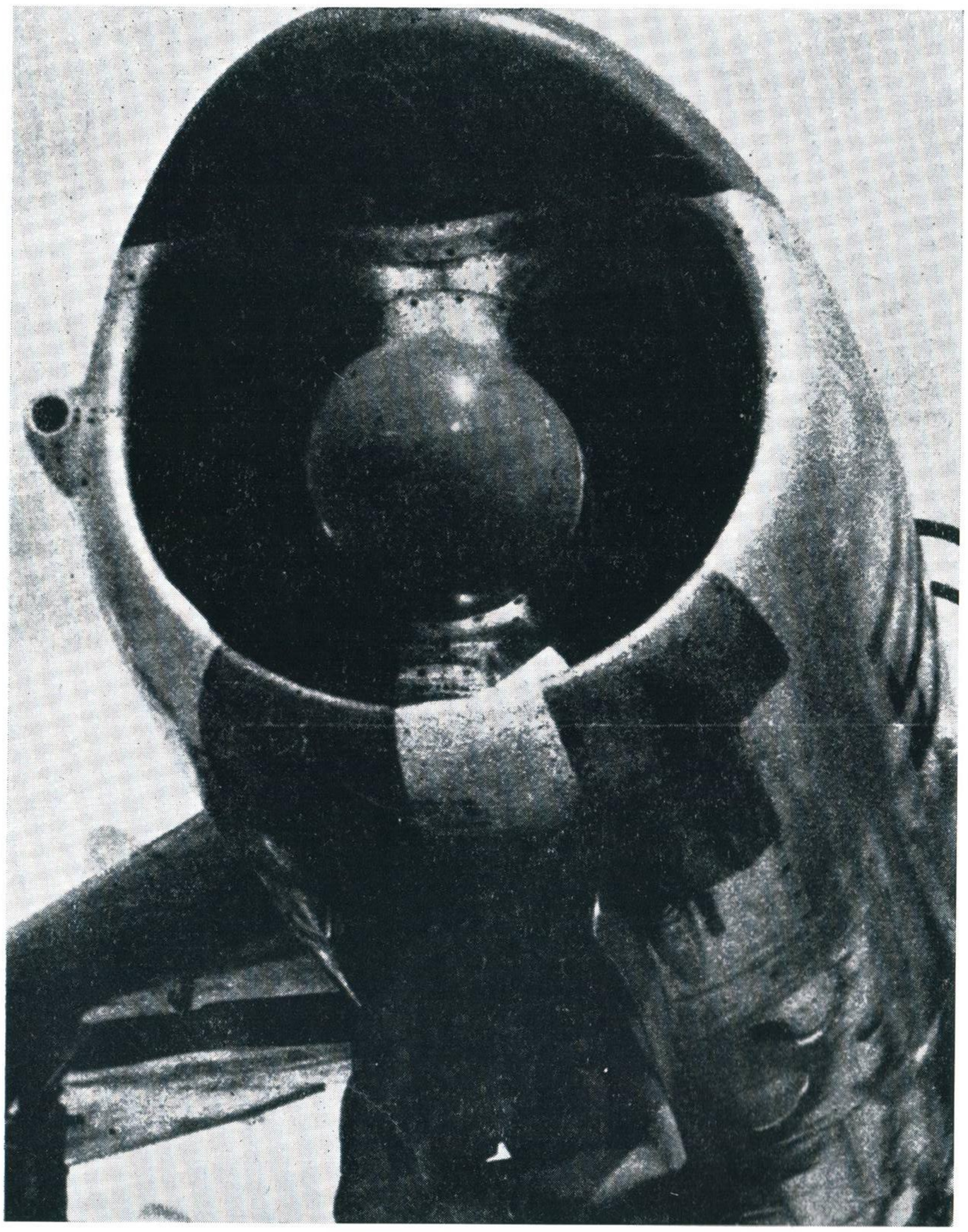


To distinguish between a Fresco (MiG-17) and Fagot (MiG-15) note the wing fences, three on each wing of the Fresco as shown in target No. 29 and the "pen-nib" aspect of the rear jet orifice.





# FRESCO FACE-TO-FACE



## FRESCO "D"

There are five recorded versions of the Soviet fighter Fresco as follows:

Fresco "A" Original version with dive brakes in rear fuselage. VK-1 turbojet engine.

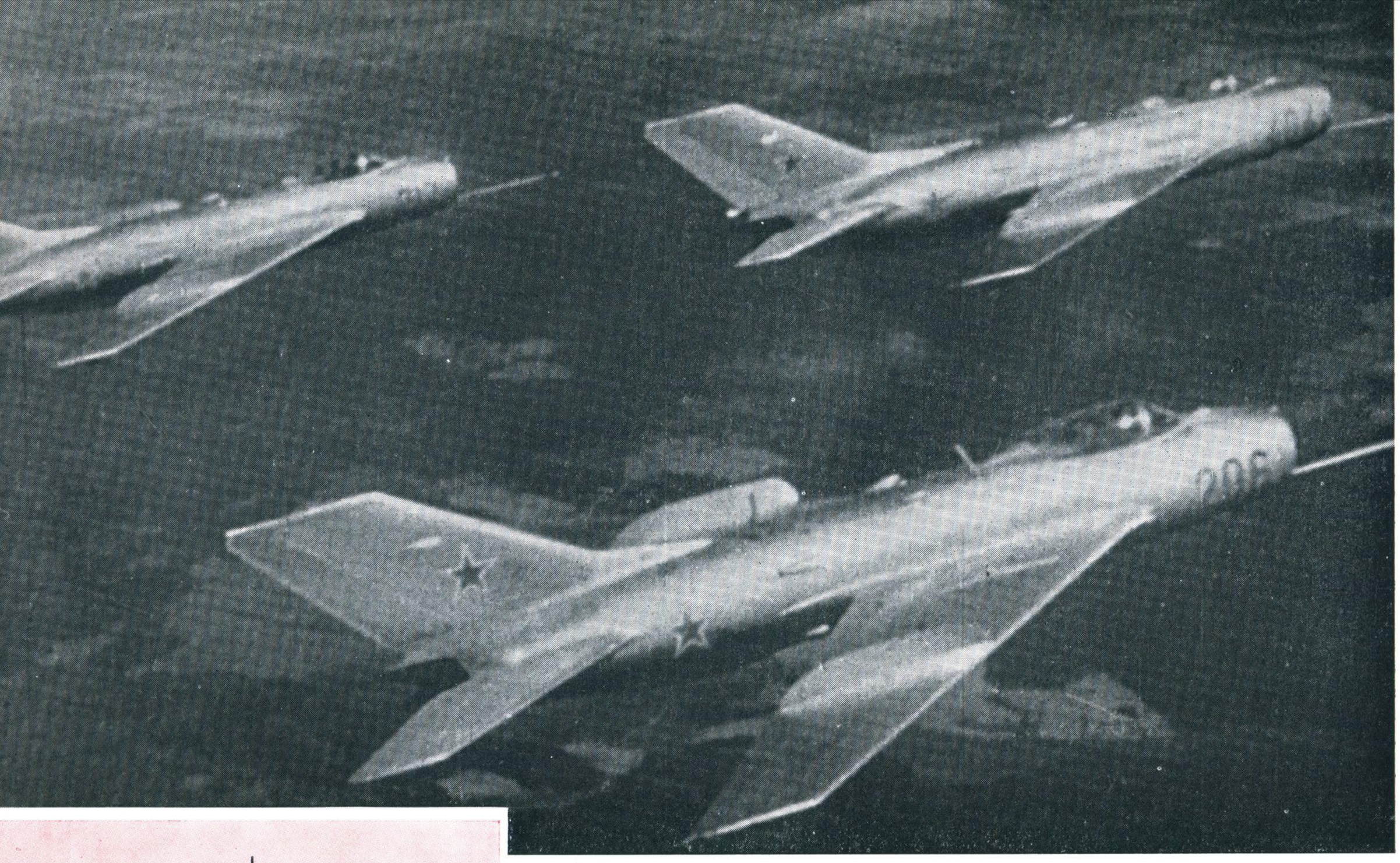
Fresco "B" Similar to "A" model but with airbrakes positioned in the fuselage adjacent wing trailing edge.

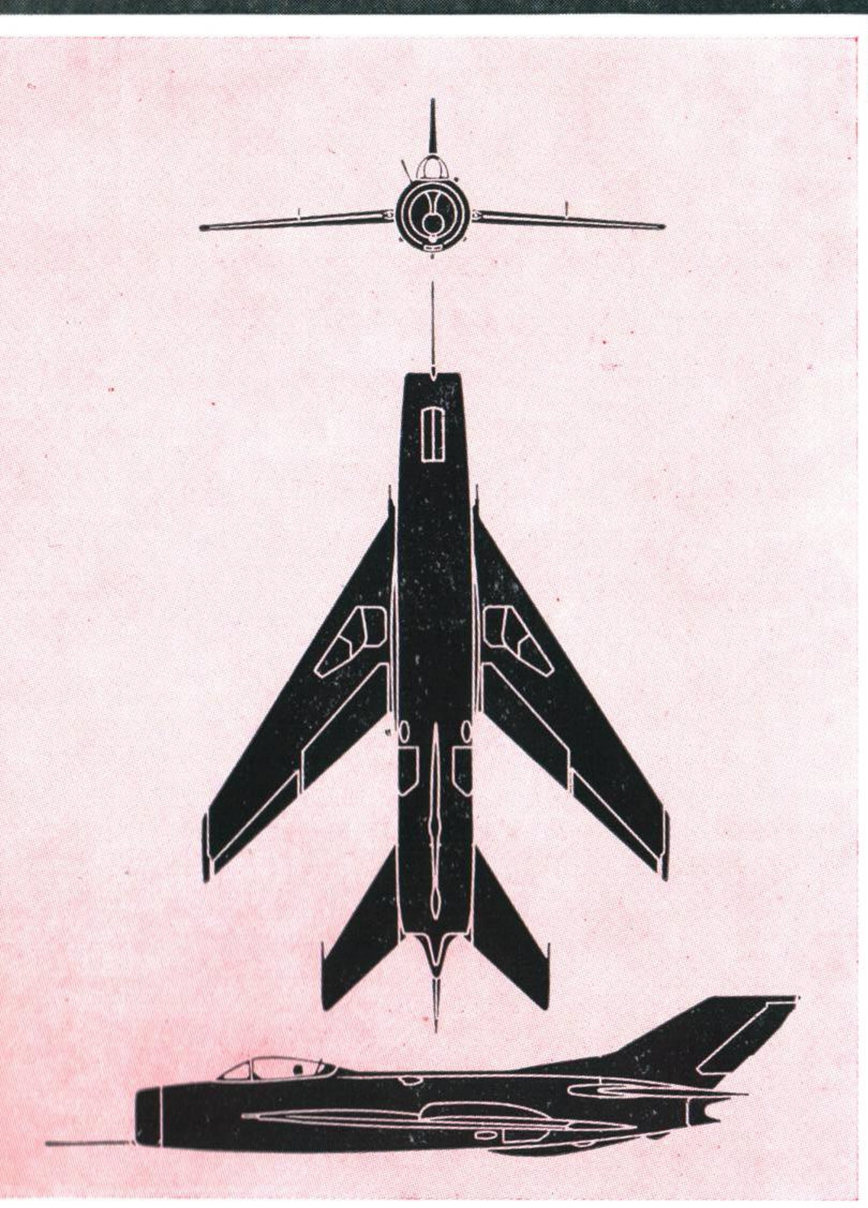
Fresco "C" Similar to "A" with afterburning VK-1A engine.

Fresco "D" As "C" with A.1. radar in nose as shown.

Fresco "E" Similar to "D" but without afterburner.

For Frescos "A" to "C" no great recognition differences were involved, but the "D" with its lip-type intake and bulbous nose is brought to your attention here.





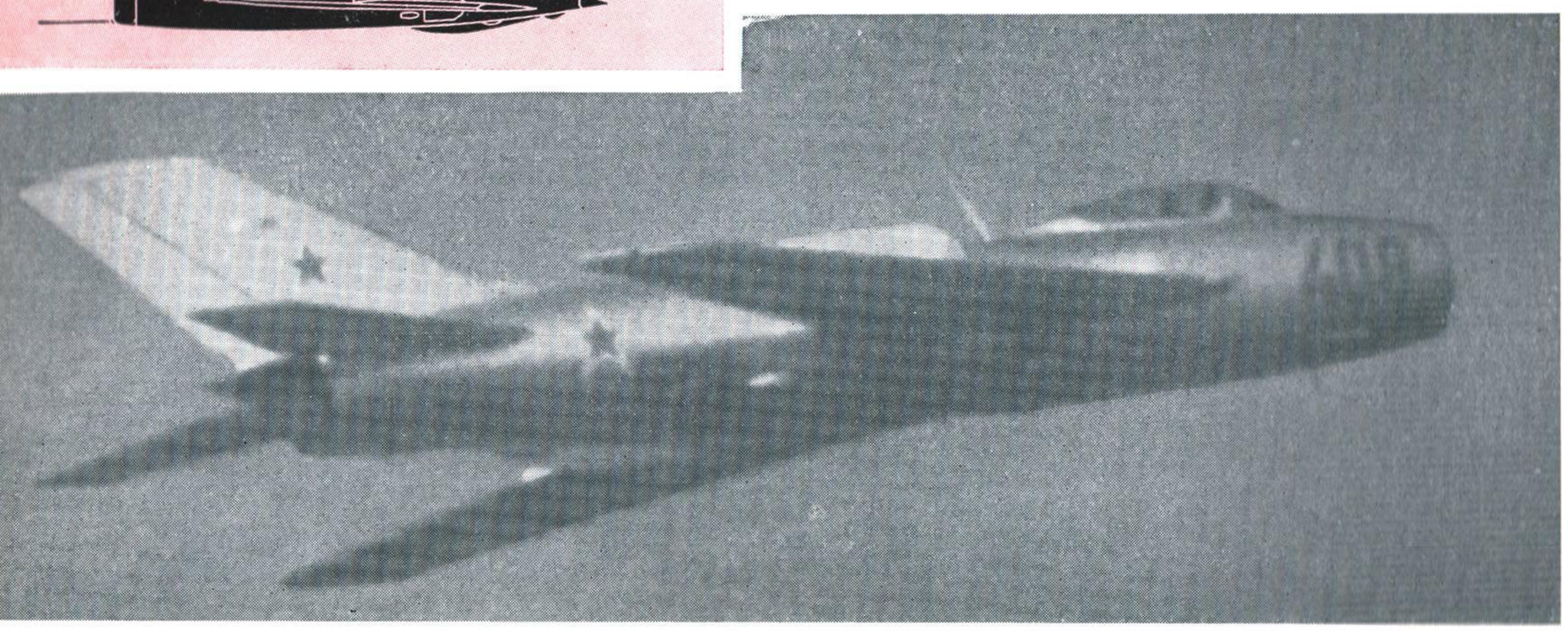
# Farmer

Next, in the arithmetical progression of MiGs is the MiG-19 Farmer, Russia's first supersonic fighter. Several versions exist with minor visual differences including an all-weather version with a nose similar to Fresco "D". Underwing stores may include auxiliary fuel tanks, rocket pods and beam-riding missiles.

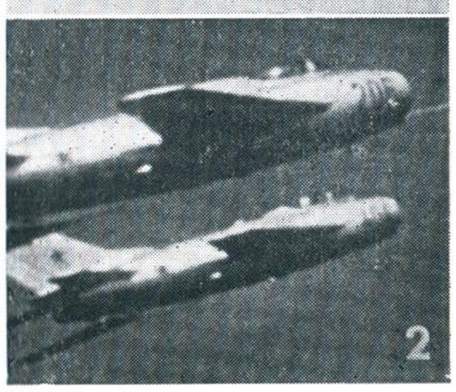
Farmer first made its appearance at Tushino as far back as 1955 and now is in service in a number of Soviet satellite countries and in Indonesia.

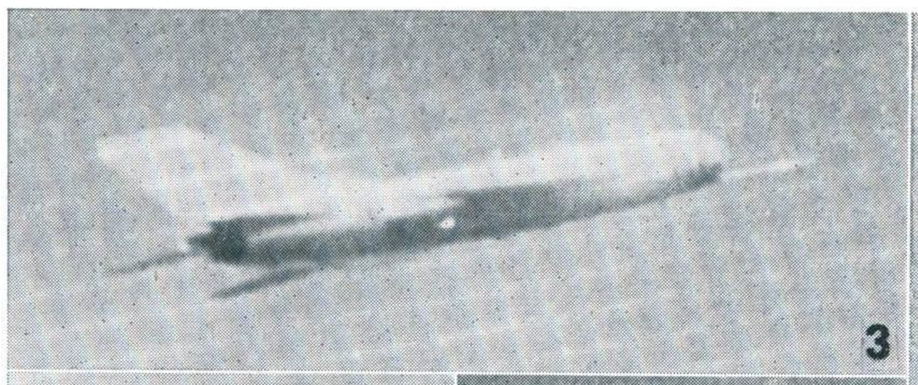
Read the lesson instructions on page 295 before attempting to identify the targets; you are warned that at least one is of an earlier type of MiG, another is of a different type of Russian fighter and another is an out-and-out joker.

**Span: 32 feet.**



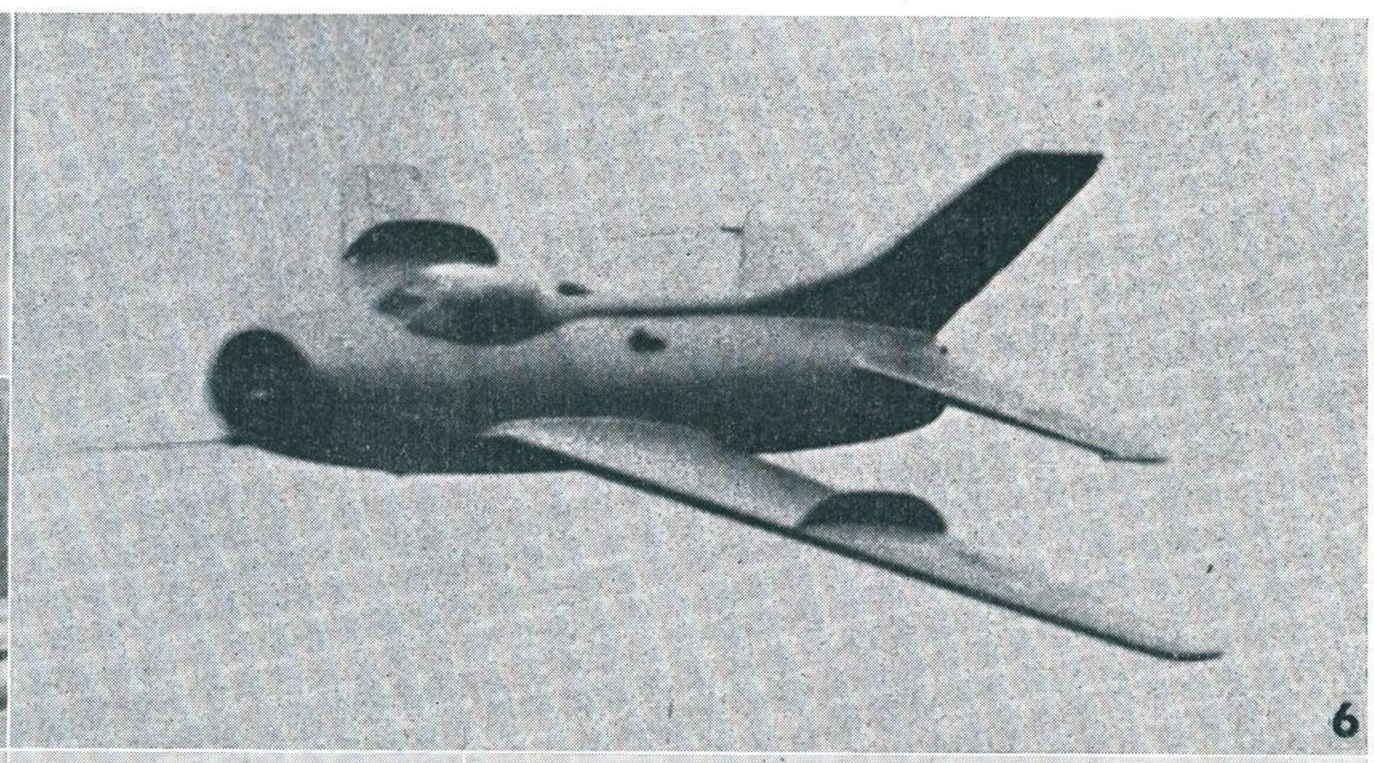


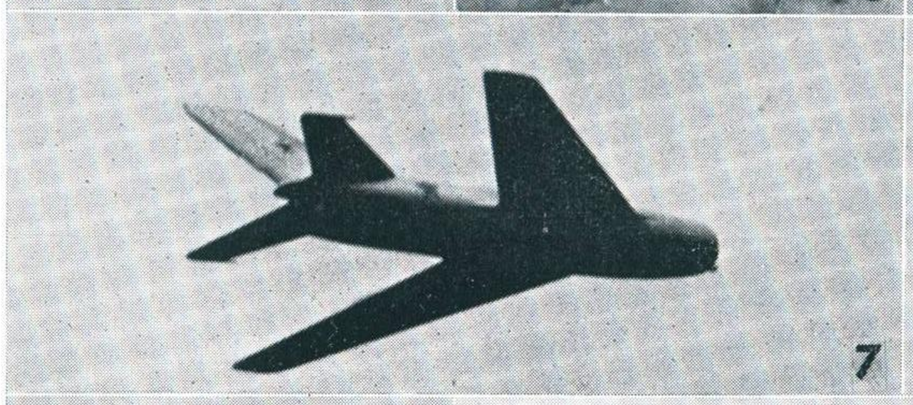




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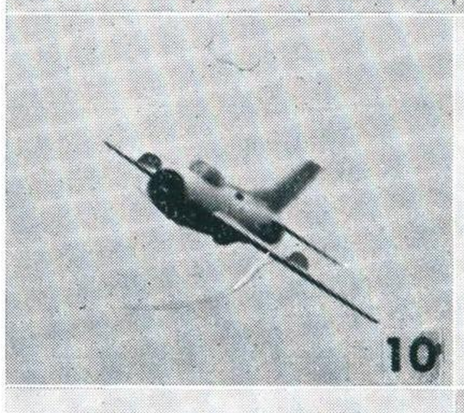

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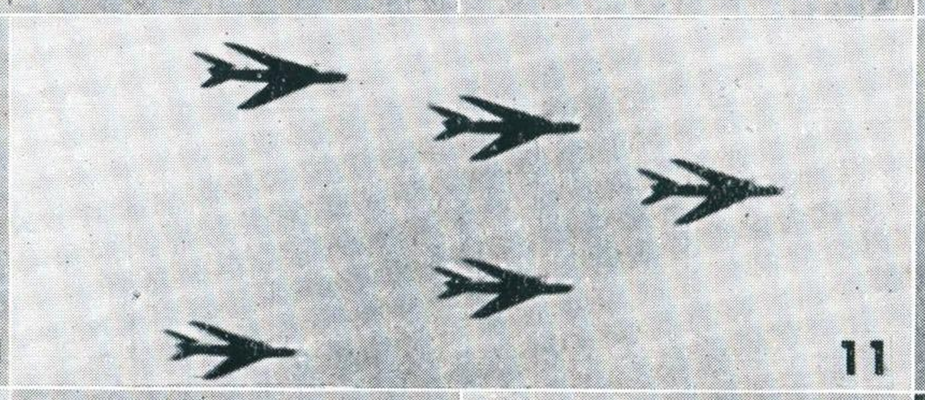

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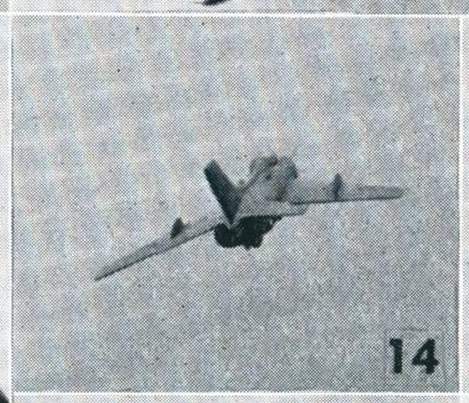

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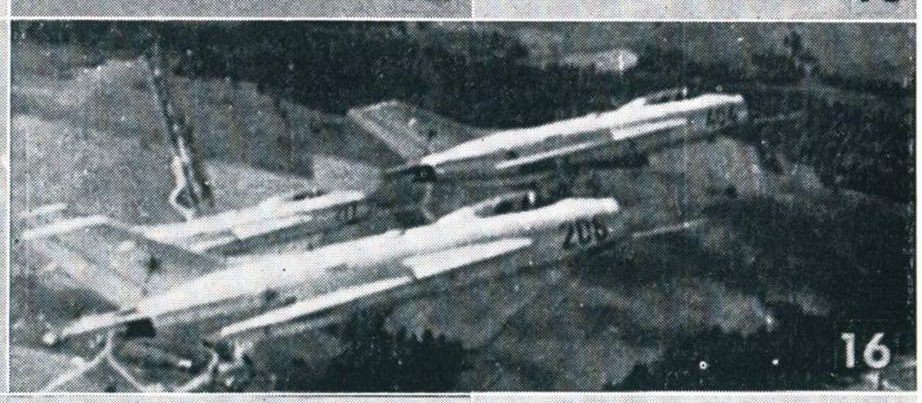

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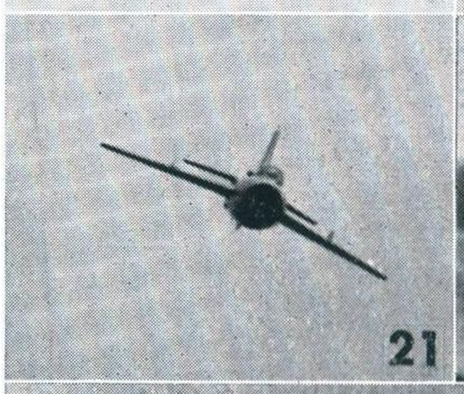

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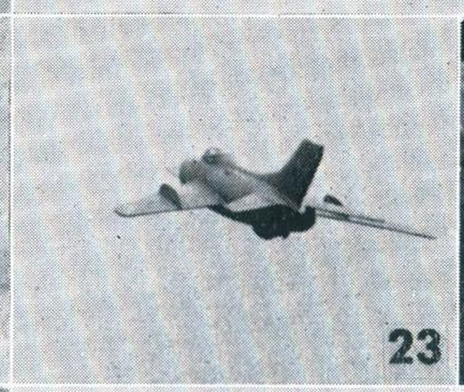

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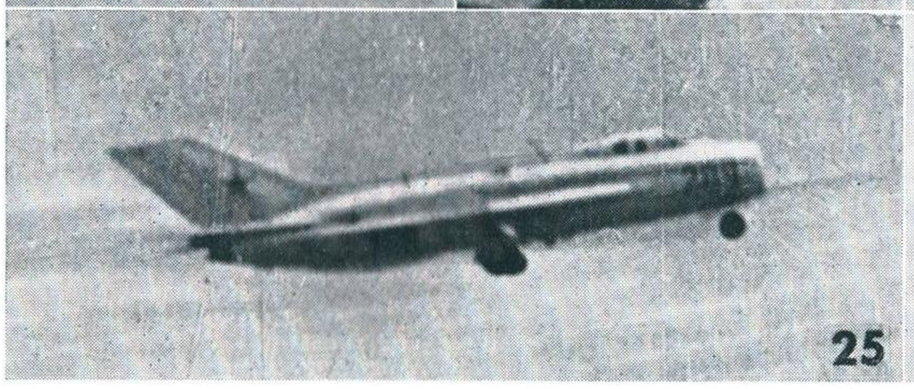

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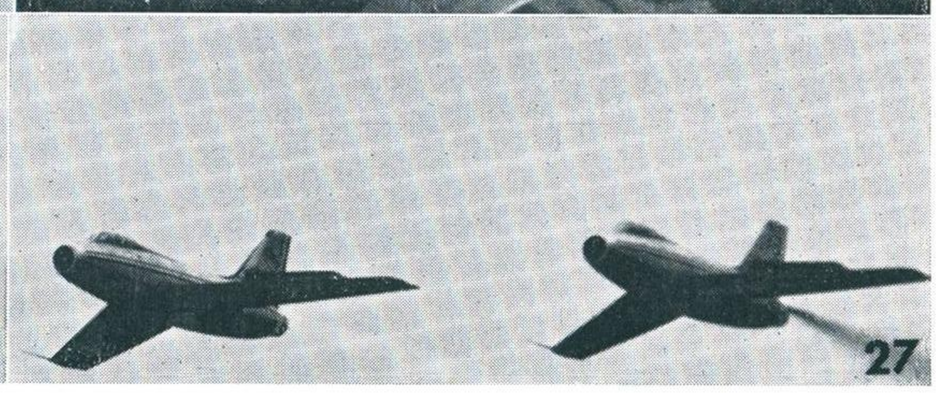

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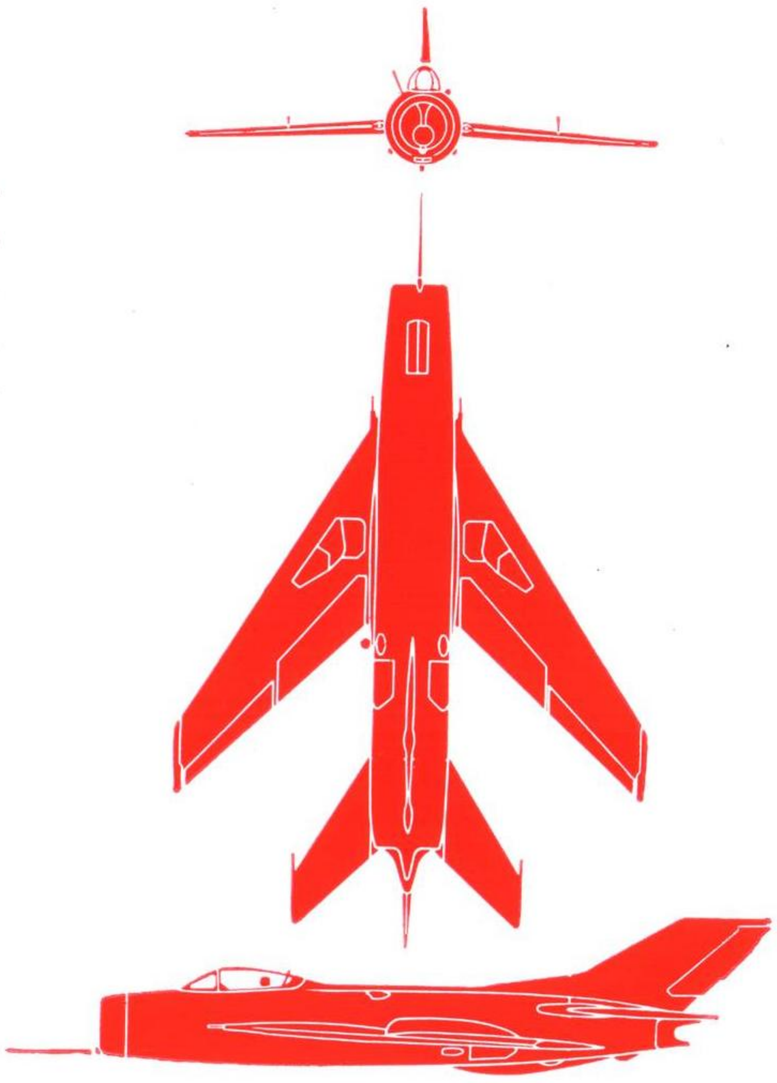

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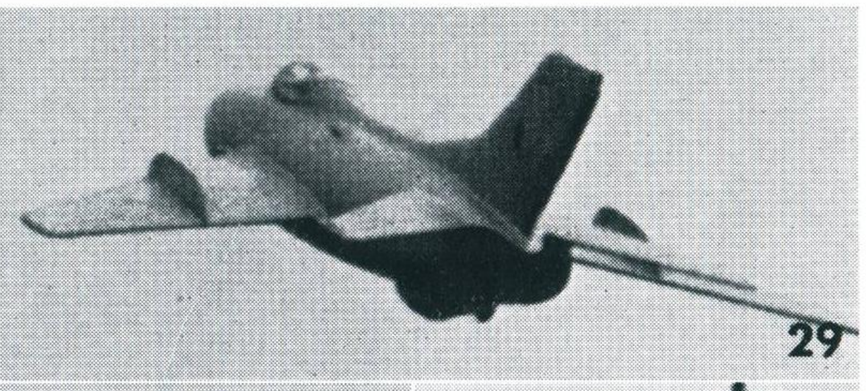

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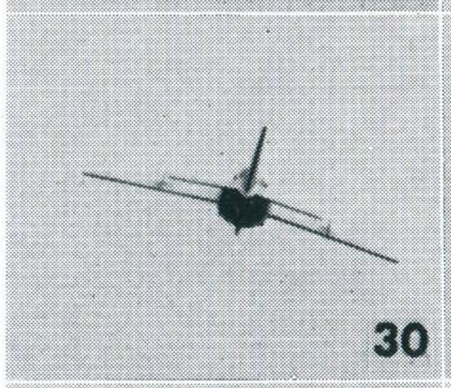

27

# ***Farmer*** *(continued)*

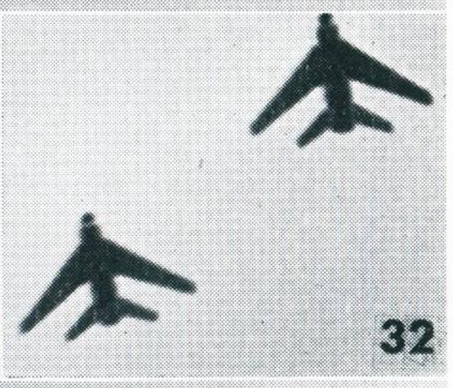


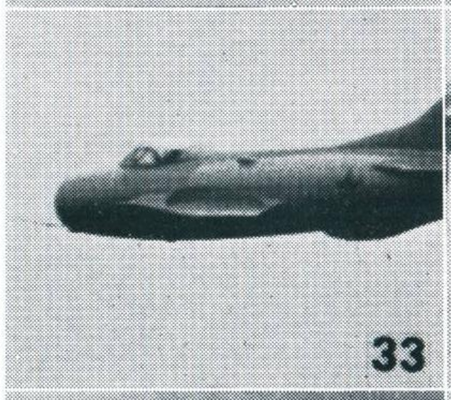

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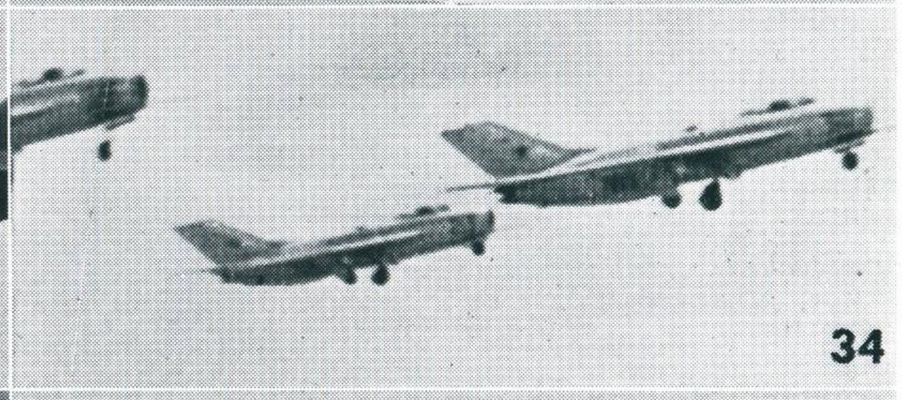

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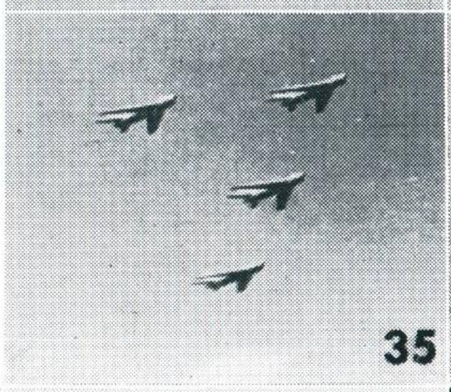

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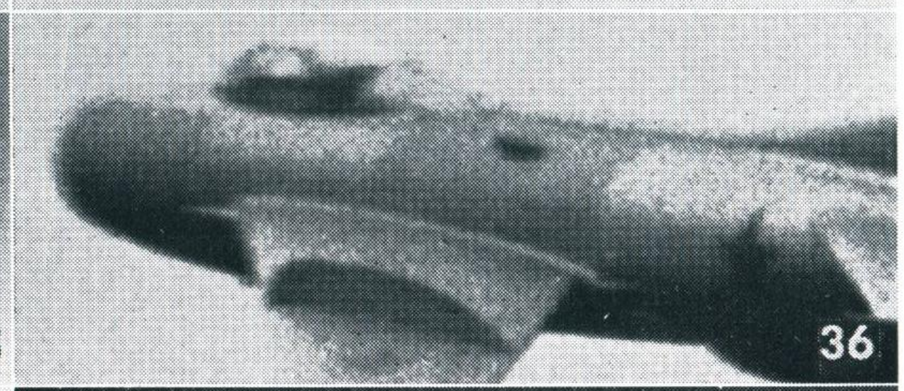

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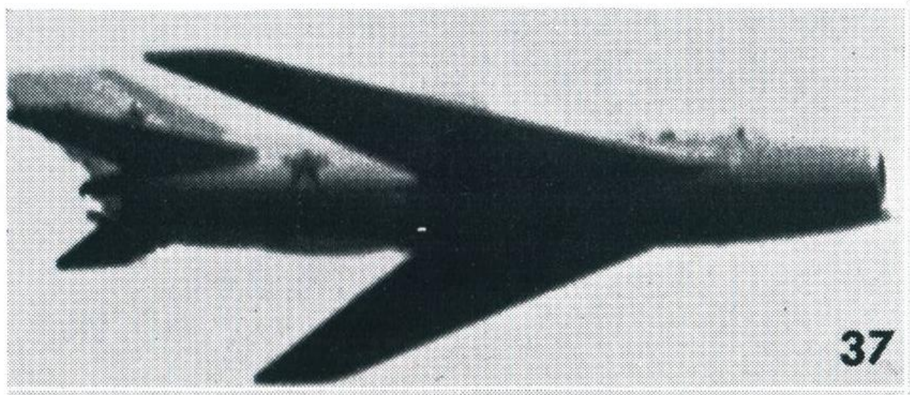

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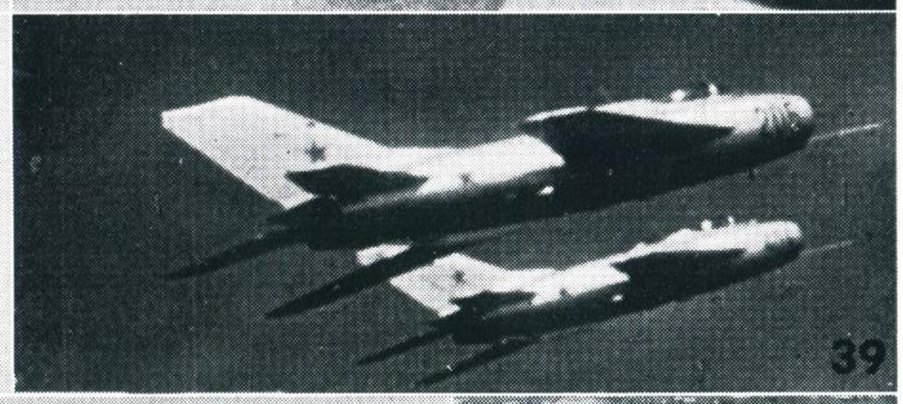

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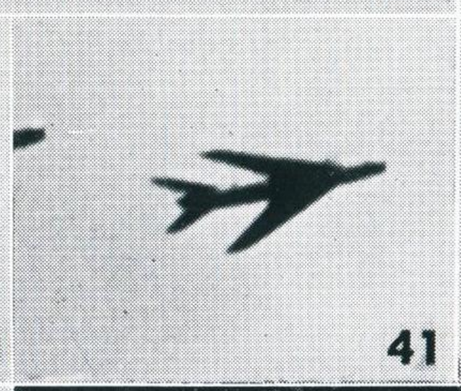

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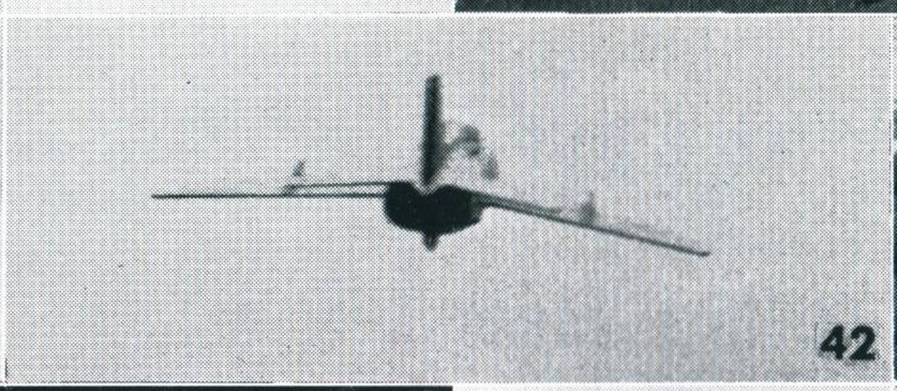

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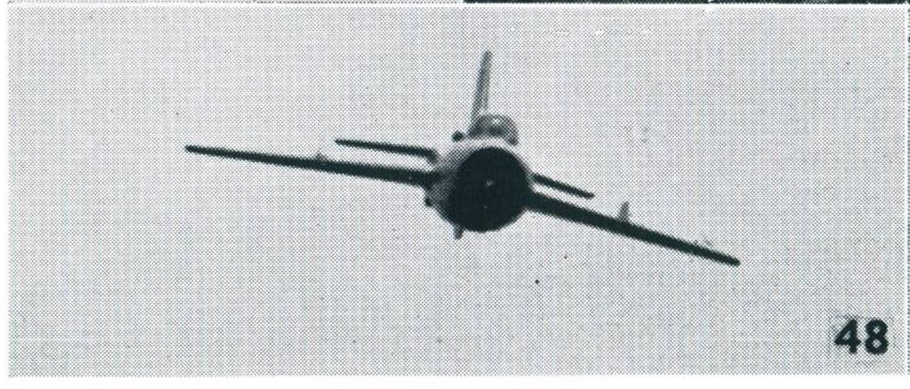

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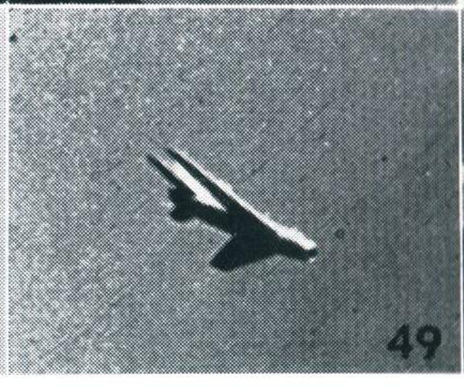

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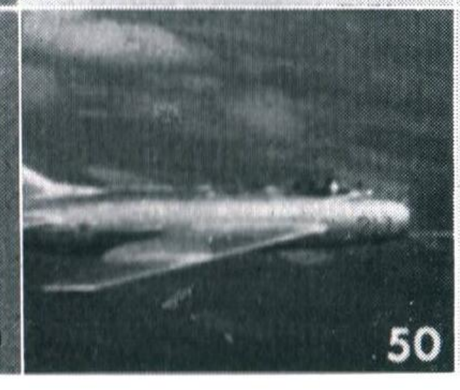

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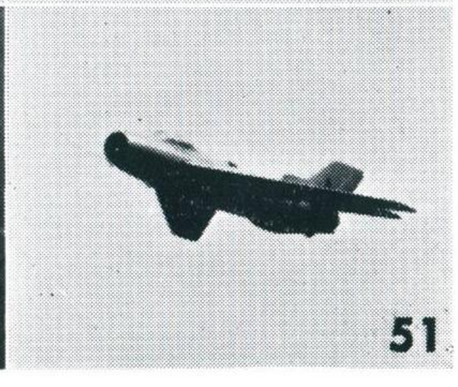

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# IDENTITY TRAINING

**In recent years Recognition has changed beyond recognition — and though we may still call it Recognition Training it really isn't: this is why — and how.**

In everyday talk, the words "Recognition" and "Identification" convey much the same idea. This does not usually matter very much to most of us, but it is important for those engaged in identification training to realise that there is a difference of meaning between these two words and to distinguish between recognising and identifying in thought and deed.

The dictionaries define "to recognise" as "to know again": and, "to identify" as "to establish the identity of". So, recognising something means that you have seen that something before, and that you are familiar with it; but do not necessarily know what it is. But identifying something means that you know what it is, and implies, incidentally, that you are familiar with it.

All of us have suffered embarrassment when meeting people whom *we know* we know (recognise), but cannot name (identify). Unfortunately, it happens that many of us can look at aircraft, ships or tanks which are familiar—perhaps very familiar—but we cannot identify them. In peace-time, this can at worst be a great hindrance on exercises and manoeuvres. In war, it can be fatal, and is, of course, the reason why identity training is necessary.

The ability to "know again" (recognise) is one that is learned naturally and automatically and mostly unconsciously through familiarity. For example, one needs little experience to become familiar with quite complex road systems, buildings, vehicles and a host of other things, but when asked to name (identify) the streets, buildings, etc., we are often unable to do so.

When the object is familiar but cannot be identified, one does not need to know more about the object so much as one needs training to identify it: and mere familiarisation, by illustrations, etc., does nothing to develop that skill.

Some of us are sufficiently interested in certain military objects to teach ourselves to identify them, but this is not, understandably, the case with the majority. In any case, in these days many must train to identify objects in many different fields of activity, i.e. aircraft, ships and tanks and others.

Modern training technique eases this task but it is essential that Instructors should know how it should be done. The need is to awaken within the minds of the students an inherent identifying ability, and the best way to do this is *not* by showering students with photographs and information, but to present the material in a controlled manner which forces identification training. It should be noted here that spotting tests are tests of training and not a substitute for training.

Some readers will have been on Courses explaining how training is best done, but for those who have not, the full procedure for carrying out lessons is set out in every copy of the *Journal*, together with many training devices. Much can be learned by students without an instructor, though not without supervision.

Time was when the student needed a highly trained and knowledgeable instructor who had to prepare a comprehensive illustrated lecture on each object. He then prepared his classroom by setting up blackboard, epidiascope, etc.; then gathered together the pupils—and gathered them irrespective of their previous experience—and "talked" his subject into them. A tiresome business for Instructor and instructed alike.

The Modern Recognition Instructor has a different and considerably lighter task. It is simply to ensure that trainees are provided with the appropriate training devices and to see that they submit themselves to the necessary procedures. In short, the Instructor's task today is not so much teaching as supervision: the lessons being prepared in pre-digested form far from his class. In fact he needs no classroom at all —for the essence of the new training system is that it will provide individual training as and when required, for an hour or two, or to fill in the odd twenty minutes.

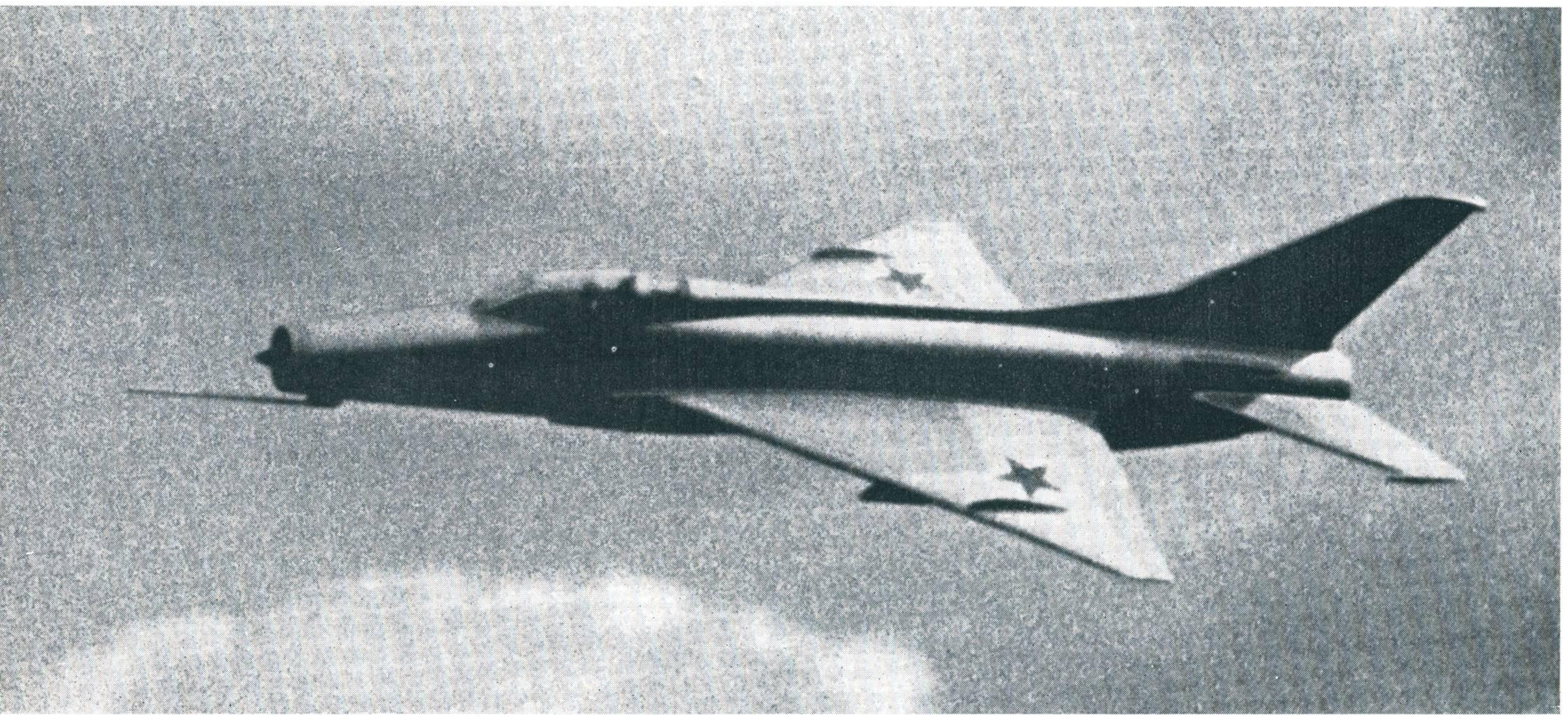
**Conduite des leçons**

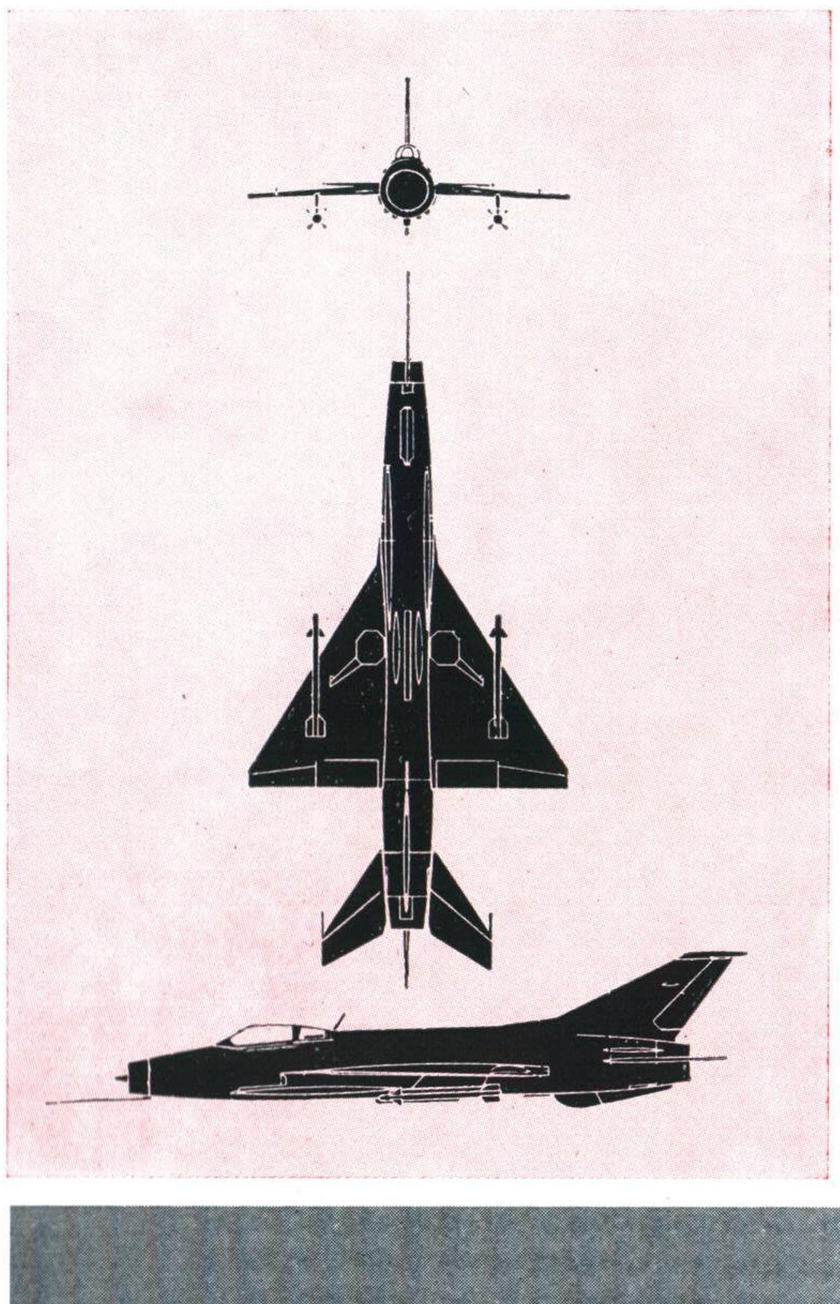
1. **Lire le texte correspondant à la leçon.**
2. **Préparer une liste de numéros de cible, de façon à pouvoir prendre les cibles dans n'importe quel ordre.**
3. **Identifier les photos de la cible en les comparant avec les vues-clé : commencer par les plus faciles de manière à gagner de l'expérience : se servir aussi de cibles déjà identifées pour trouver les plus difficiles.**
4. **Quand vous serez certain de l'identité d'une cible, notez son nom immédiatement en face du numéro correspondant sur votre liste. CECI EST IMPORTANT.**
5. **Les leçons ne devront pas être précipitées ou d'une durée limitée à l'avance. En ce qui concerne les débutants, il est plus important d'identifier avec précision que rapidement.**
6. **Ne pas s'efforcer d'apprendre par cœur les détails, les formes ou les noms.**

**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.**





# FISHBED

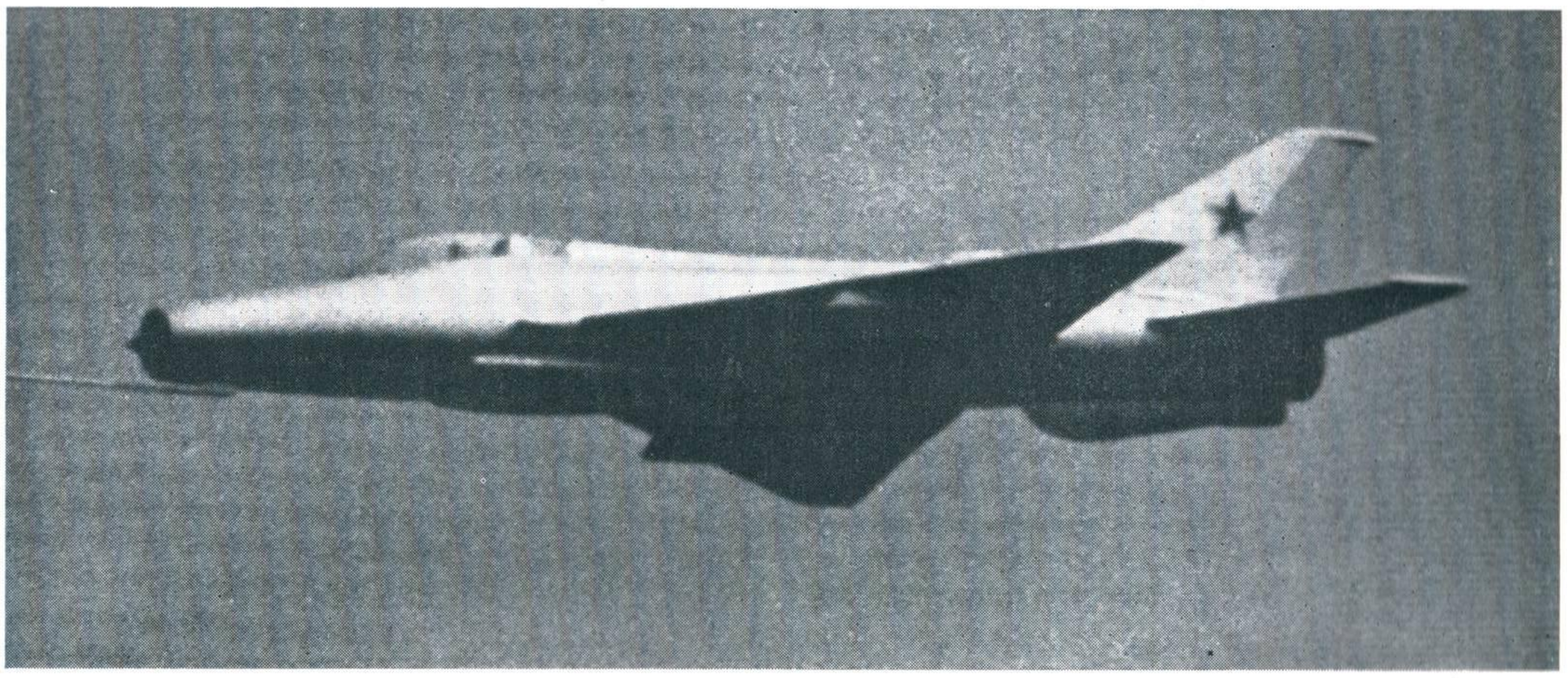
Continuing the series on MiG fighters—MiG-15 Fagot, MiG-17 Fresco and MiG-19 Farmer—comes the MiG-21 Fishbed.

The outstanding characteristics of the Fishbed are a delta-wing forming almost an equilateral triangle and a large ventral fin. Variations to its outline include the carriage of two air-to-air missiles on underwing pylons and jet assisted take off rockets on the belly which can be jettisoned in flight.

In large-scale service, the Fishbed is one of the most important of the Russian service aircraft and must be known. That means carrying out the instructions on page 295.

This lesson concerns the Fishbed C. The later Fishbed D with pitot boom re-positioned and lengthened forward fuselage, will be featured later.

**Span: 25 feet.**







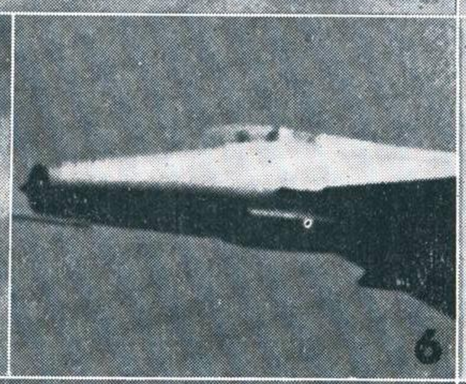


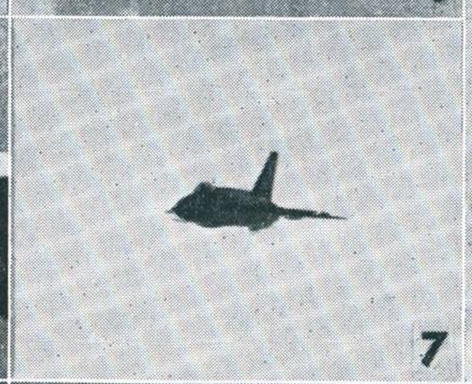
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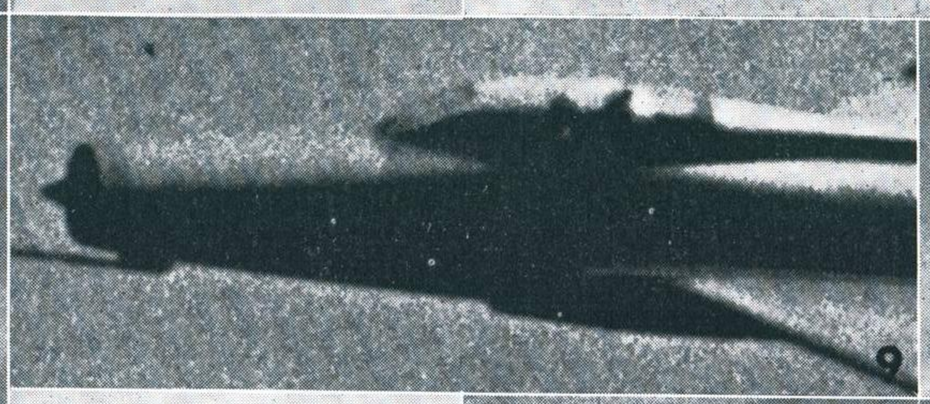

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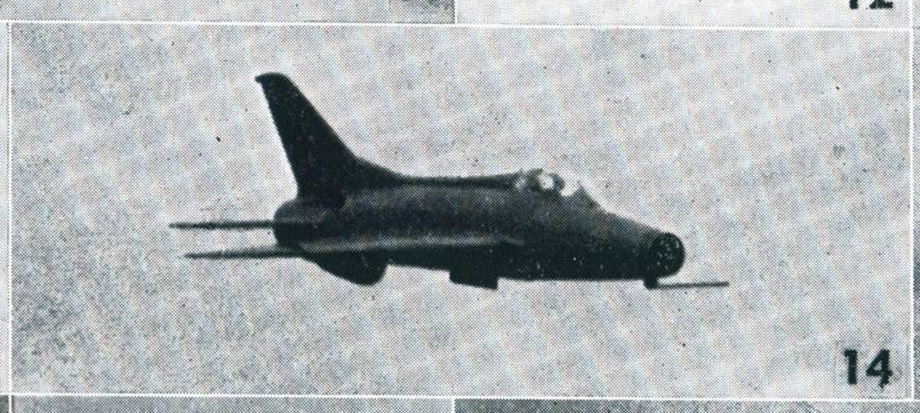

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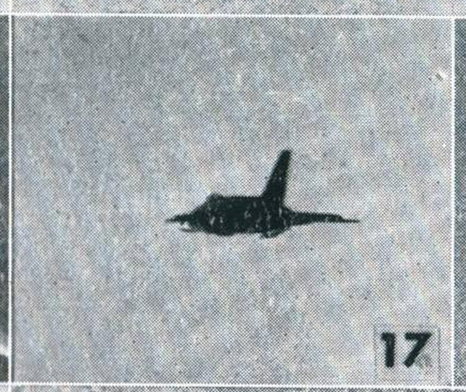

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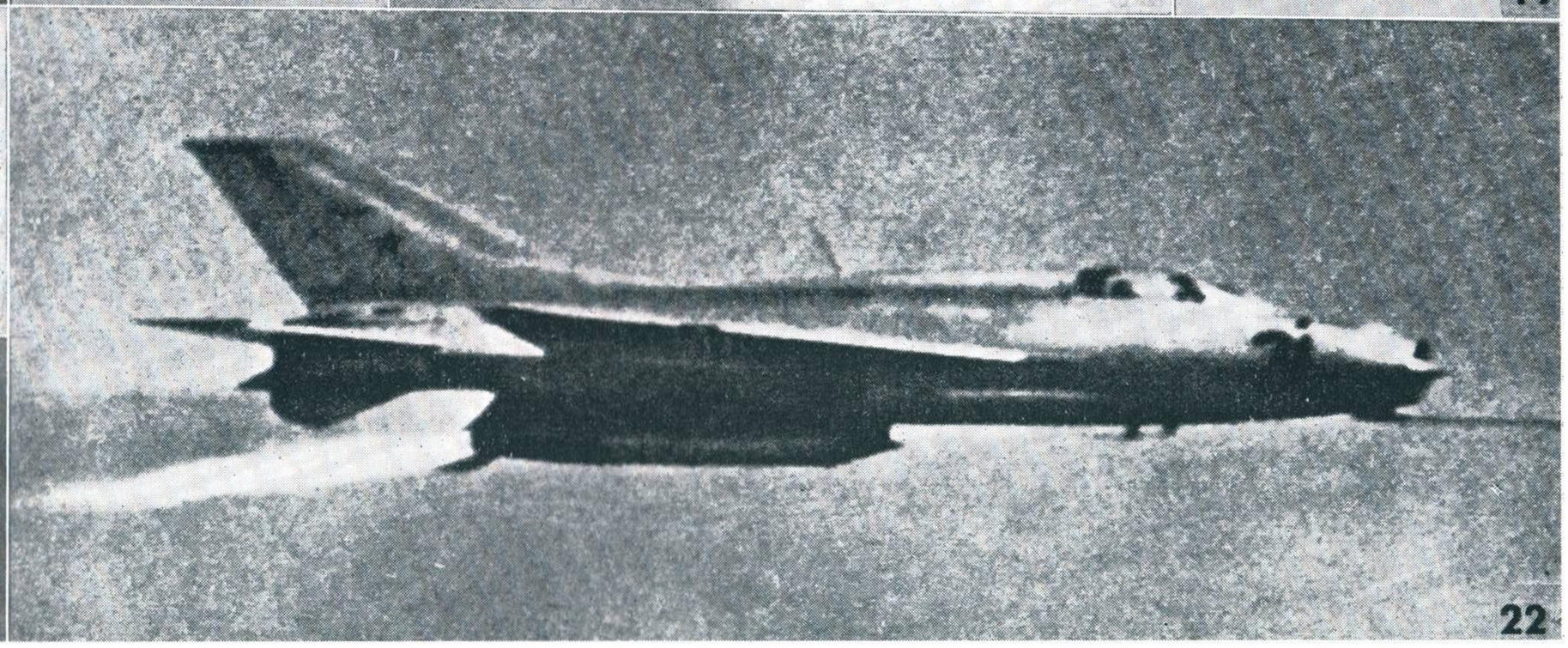

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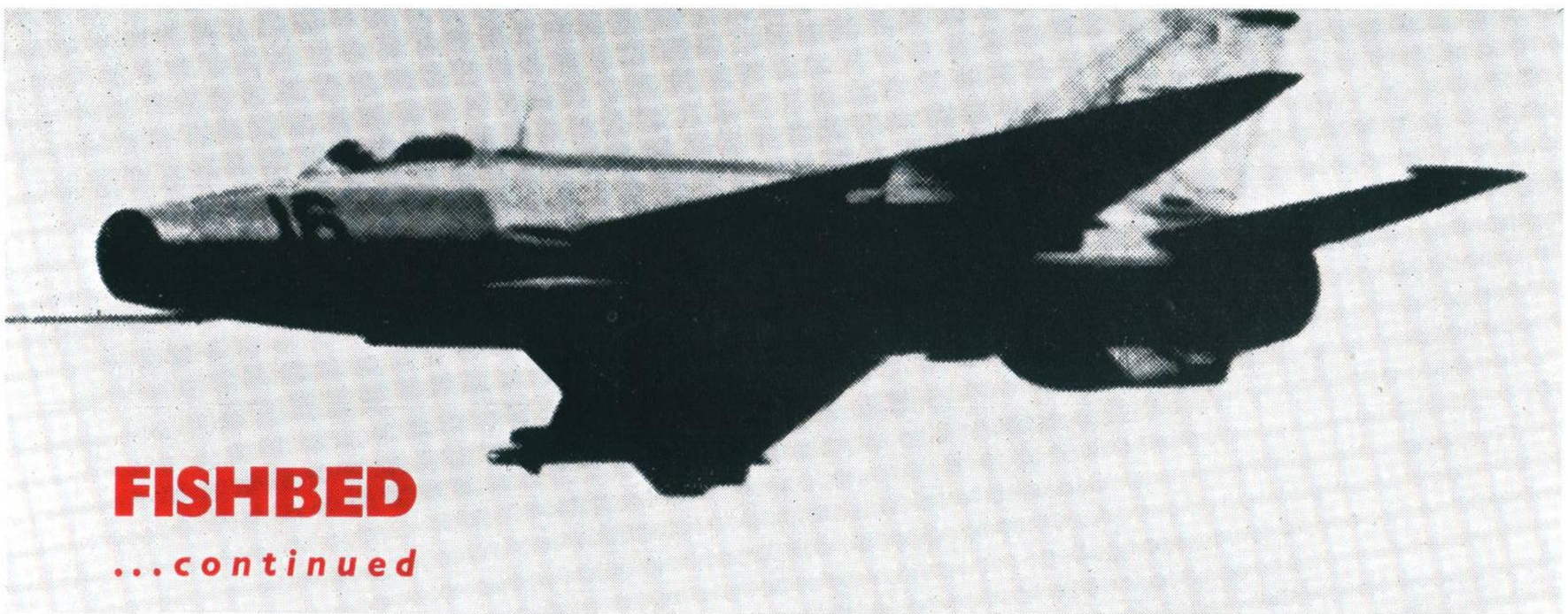

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# FISHBED

*...continued*




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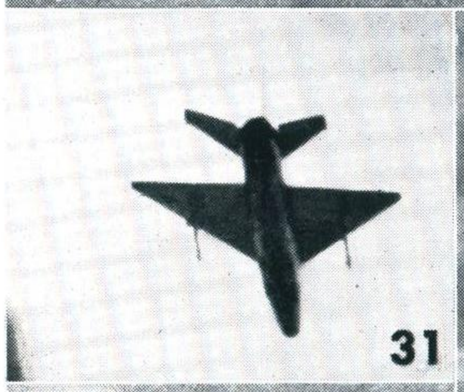

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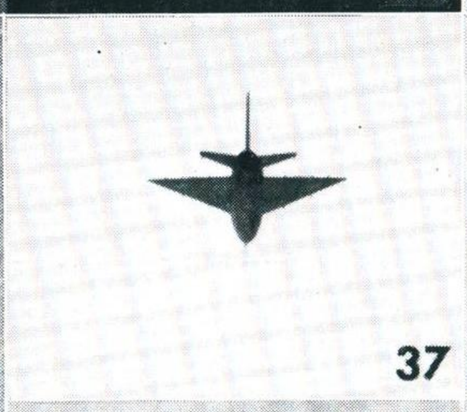

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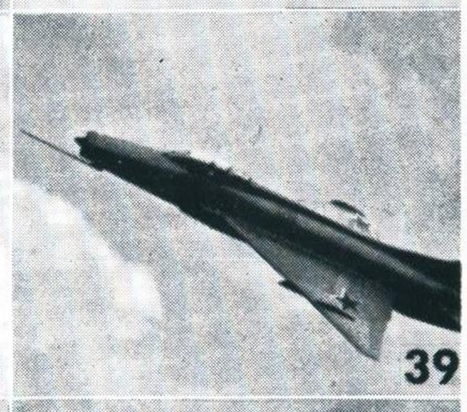

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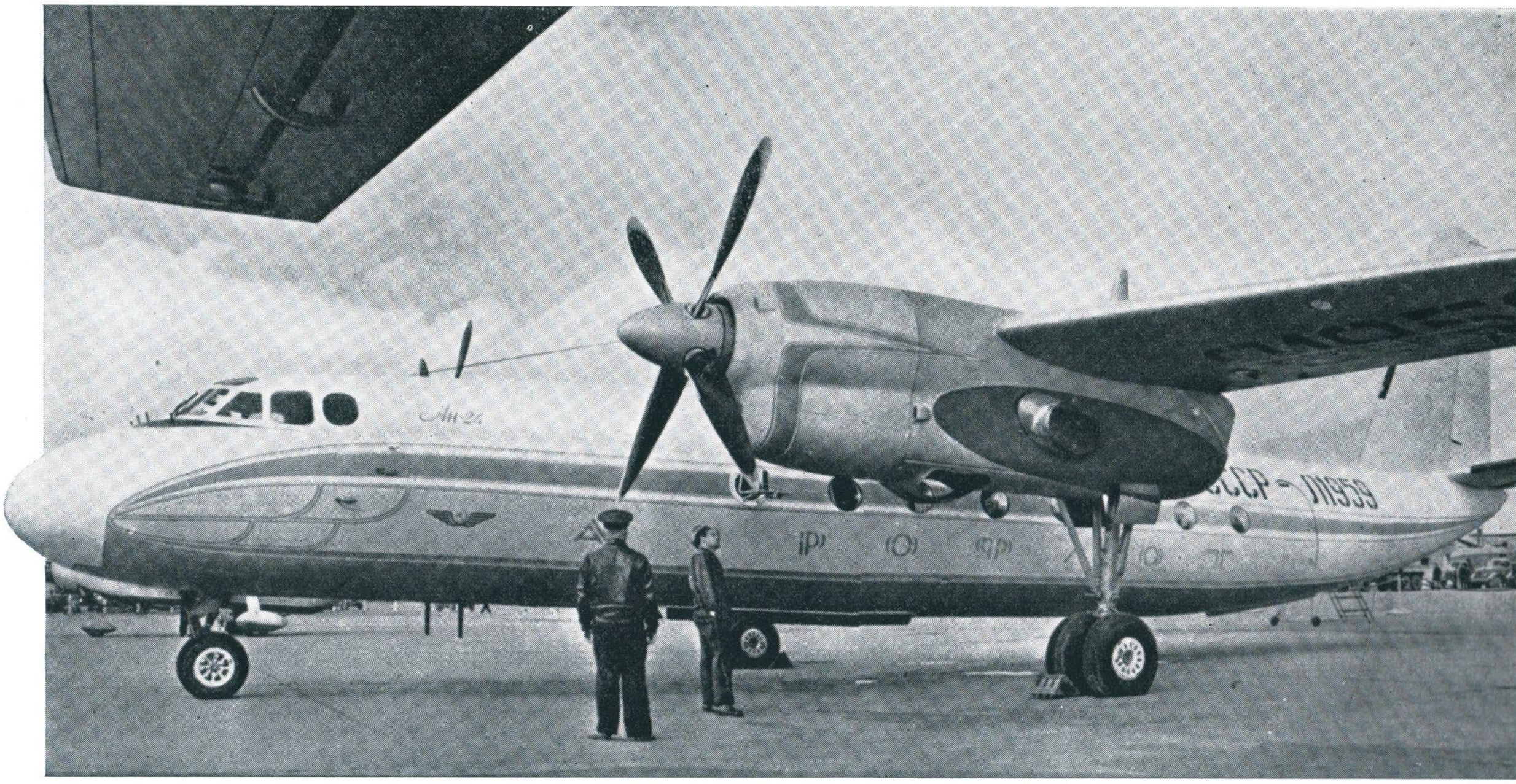

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Some Russian aircraft actually bear a clear indication of their type, as in the case of this prototype local-service airliner (Named Coke) which has the designation An-24 inscribed on the fuselage.

# Soviet Aircraft Designations

Names are correct for all reporting purposes where Russian aircraft are concerned, but since the use of these names is a Service matter, they are not necessarily adopted by the aeronautical press who use, as far as they can ascertain, the Russian designation. They are recorded here for reference purposes.

The system of designating Russian aircraft is given in our editorial "Russian Designations and Designers". Briefly it is to use letters indicative of the surname of the head of the design team with a qualifying series number.

Designers designations are as follows:

**An—Antonov**
**Be—Beriev**
**Il—Ilyushin**
**Ka—Kamov**
**La—Lavochkin**
**Li—Lisunov**
**MiG—Mikoyan and Gurevich**
**Mi—Mikhail L. Mil**
**Pe—Petlyakov**
**Po—Polikarpov**
**Su—Sukhoi**
**Tu—Tupolev**
**Yak—Yakovlev**

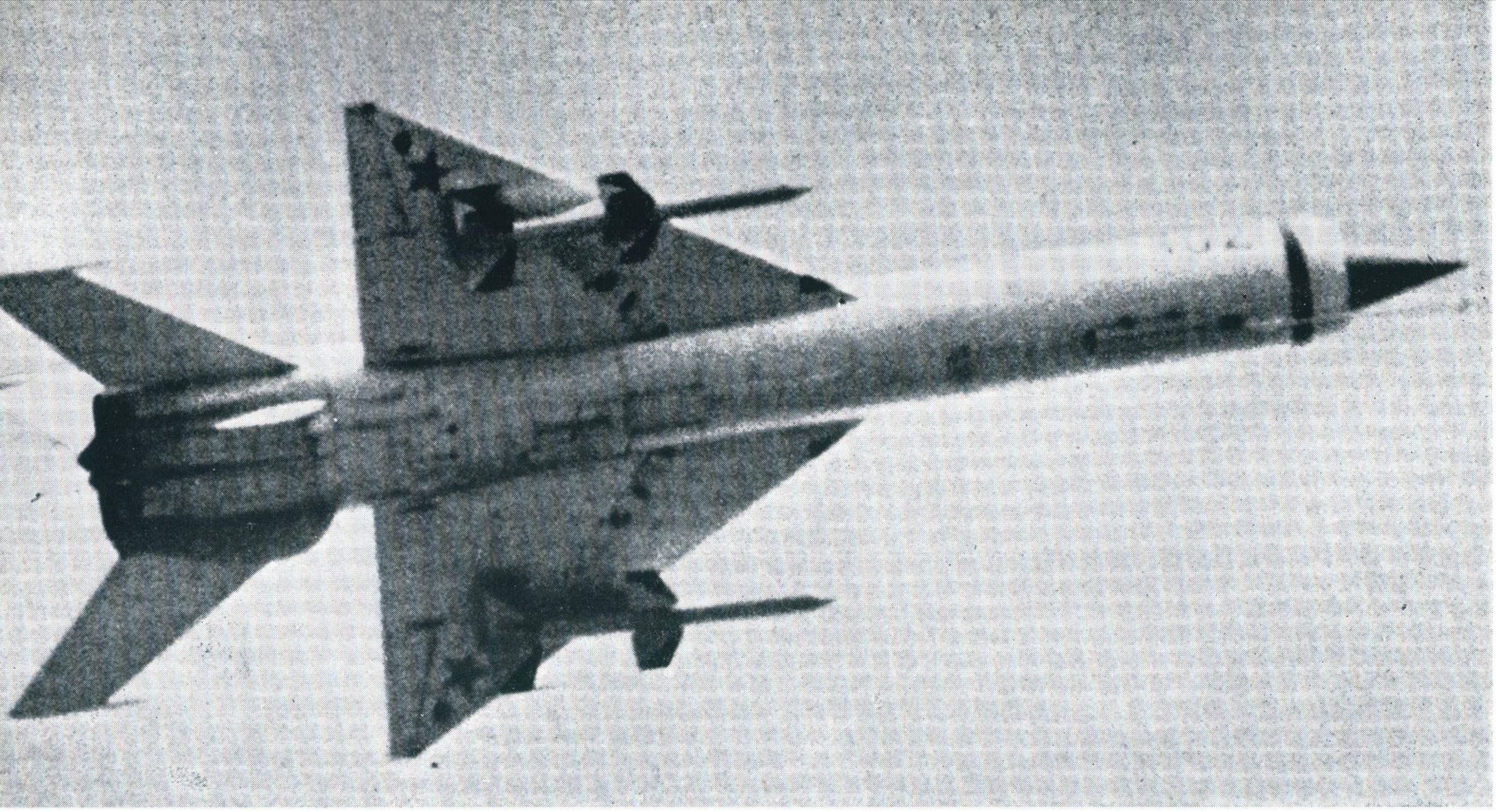
Training versions are prefixed "U-".

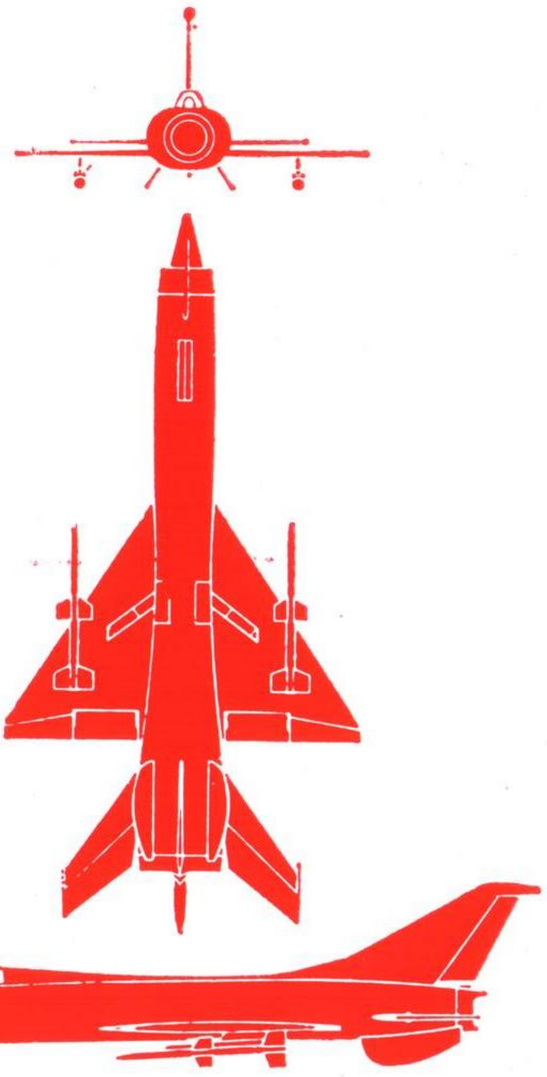
Names with Russian designations where known are as shown opposite.

| | |
|---|---|
| Bear | Tu-95 |
| Beast | Il-10 |
| Buck | Pe-2 |
| Bull | Tu-4 |
| Badger | Tu-16 |
| Beagle | Il-28 |
| Bosun | Tu-14 |
| Cab | Li-2 |
| Camel | Tu-104 |
| Camp | An-8 |
| Cart | Tu-70 |
| Cat | An-10 |
| Classic | Il-62 |
| Cleat | Tu-114 |
| Clod | An-14 |
| Coach | Il-12 |
| Cock | An-22 |
| Coke | An-24 |
| Colt | An-2 |
| Cooker | Tu-110 |
| Cookpot | Tu-124 |
| Coot | Il-18 |
| Crate | Il-14 |
| Creek | Yak-12 |
| Crusty | Tu-134 |
| Cub | An-12 |
| Fagot | MiG-15 |
| Fang | La-11 |
| Farmer | MiG-19 |
| Fishbed | MiG-21 |
| Flashlight | Yak-25 |
| Frank | Yak-9 |
| Fresco | MiG-17 |
| Hare | Mi-1 |
| Harke | Mi-10 |
| Hen | Ka-15 |
| Hip | Mi-8 |
| Hog | Ka-18 |
| Hook | Mi-6 |
| Hoop | Ka-22 |
| Hoplite | Mi-2 |
| Horse | Yak-24 |
| Hound | Mi-4 |
| Madge | Be-6 |
| Magnet | U-Yak-17 |
| Magnum | Yak-30 |
| Mallow | M-10 |
| Mandrake | Yak |
| Mangrove | U-Yak-25 |
| Mantis | Yak-32 |
| Mascot | U-Il-28 |
| Max | Yak-18 |
| Maya | Delfin |
| Midget | U-MiG-15 |
| Moose | Yak-11 |
| Mote | Be-2 |
| Mule | Po-2 |

# FLIPPER

Soviet counterpart of the R.A.F.'s Lightning is Flipper which appears to be a twin-engined development of Fishbed.
It has been illustrated for the *Journal* by Frank Wootton.

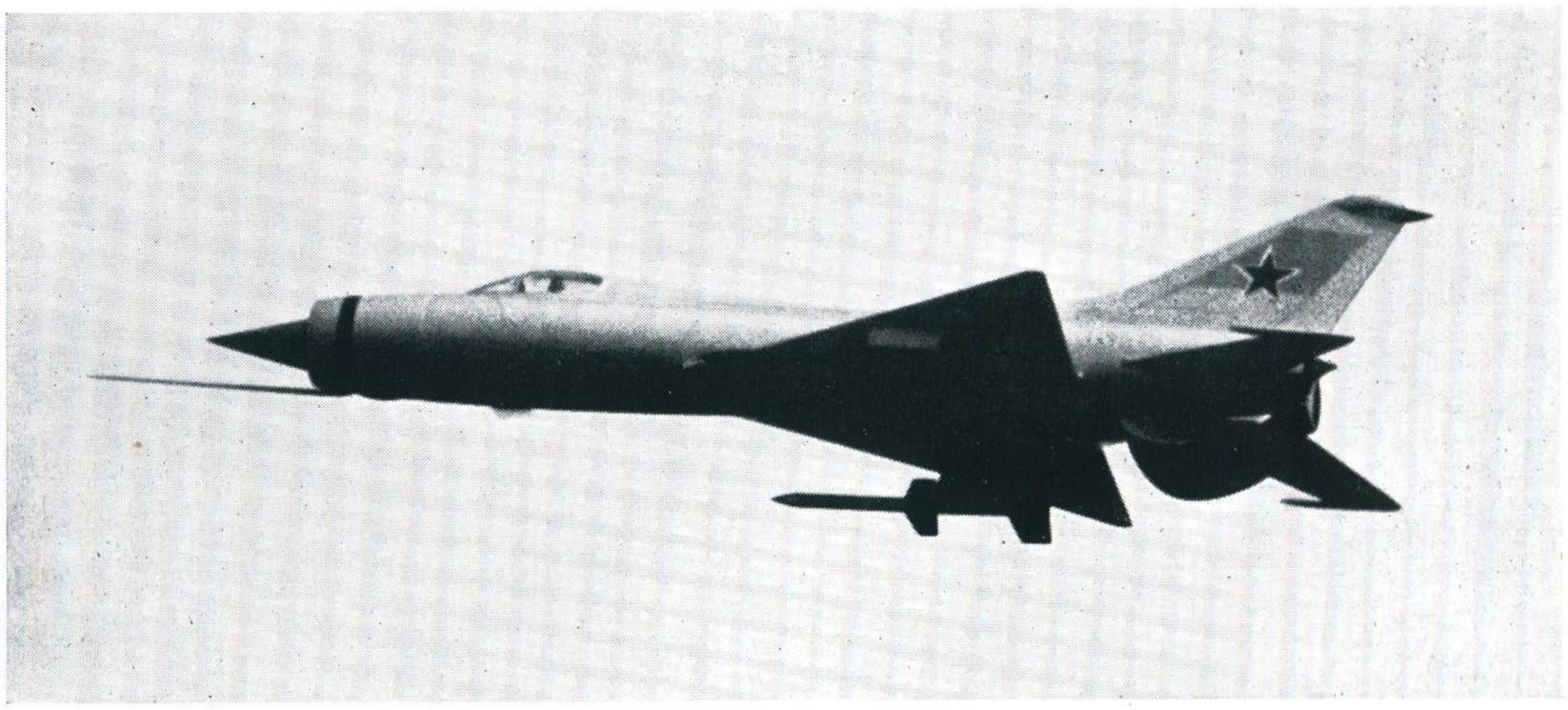




# FLIPPER

With general configuration giving the impression of a twin-engined MiG-21 Fishbed, and with a tailplane much like that of a MiG-19 Farmer, there seems little doubt that this new Russian fighter, featured here, with the allotted name Flipper, is yet another MiG. Russian designs have paralleled developments in Britain, France and America and it could be said to be the Soviet counterpart to the R.A.F.'s Lightning.

To learn to identify Flipper use the instructions on page 295 and refer to the excellent impression of Flipper presented by Frank Wootton on the preceding two pages.



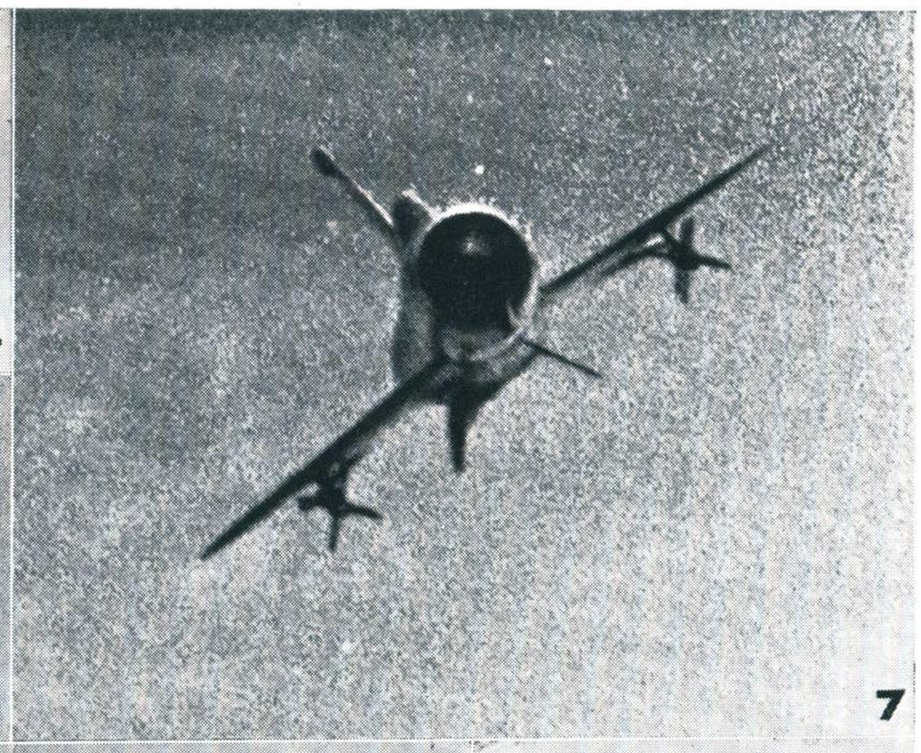






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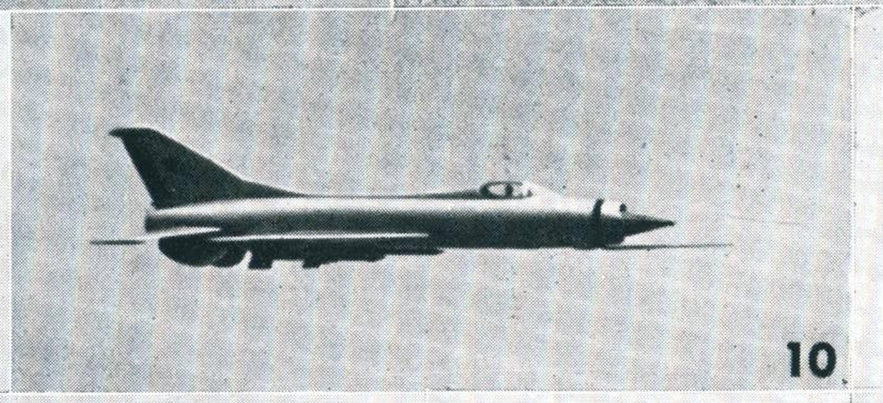

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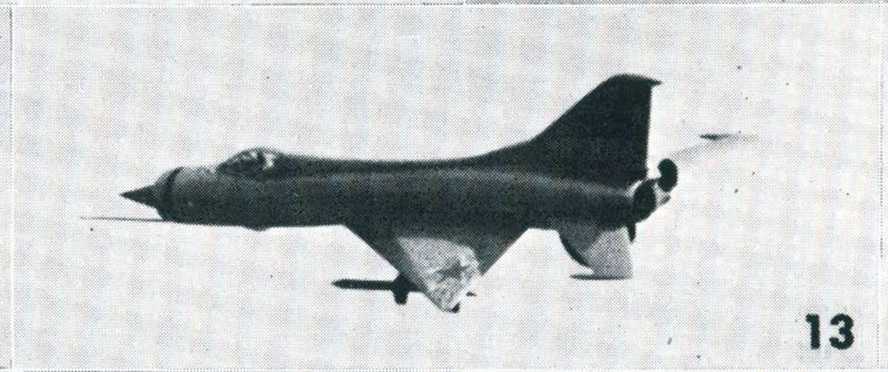

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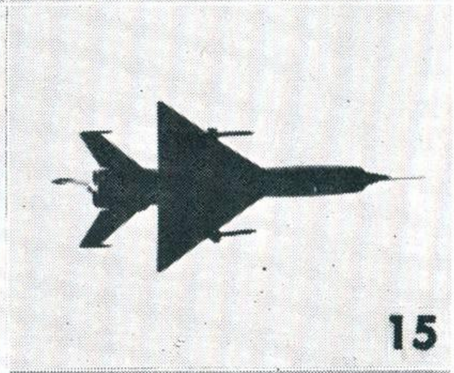

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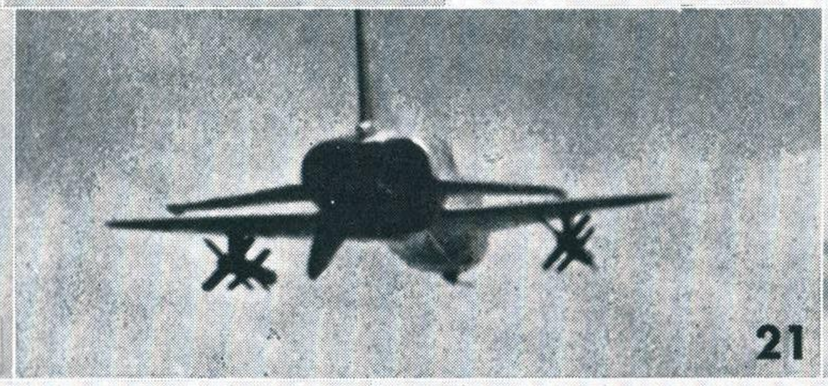

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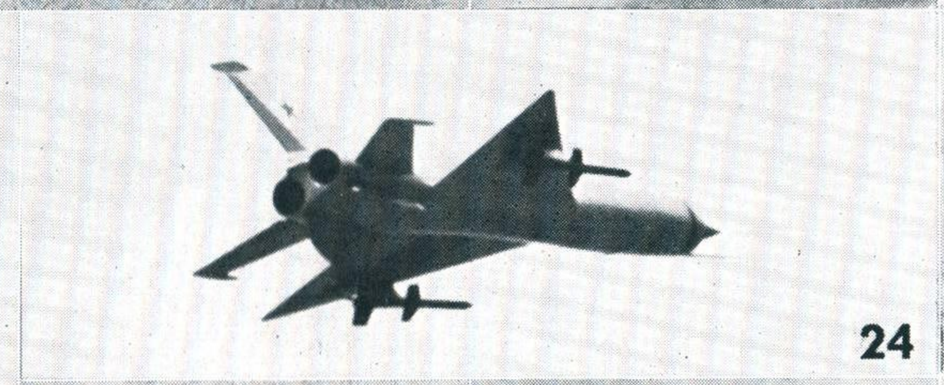

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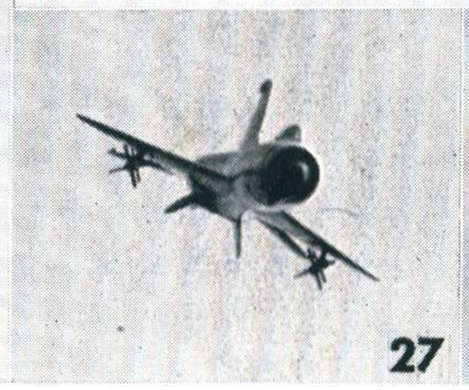

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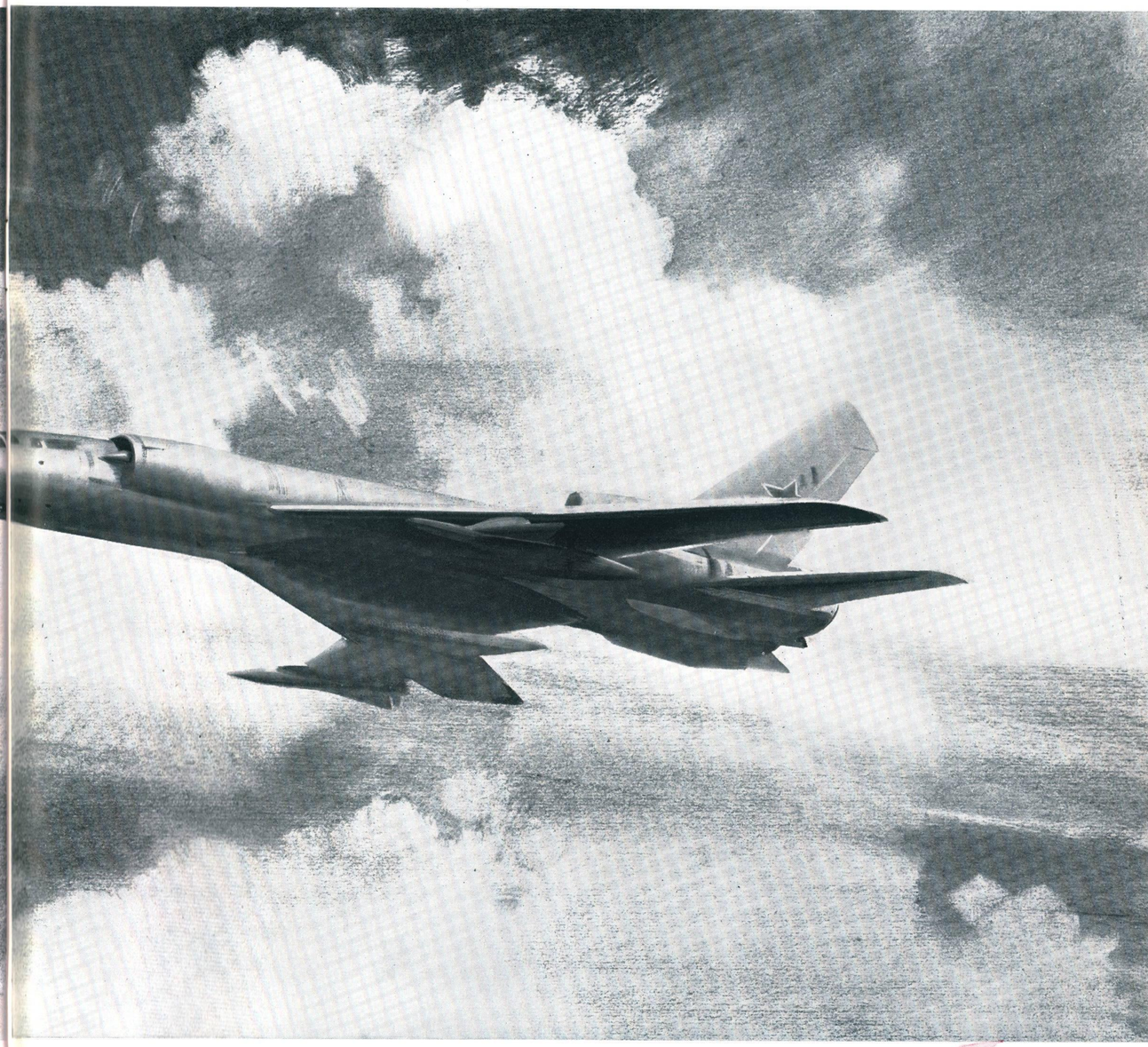


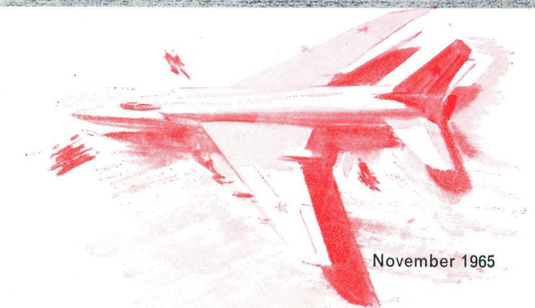
# FIDDLER

An impression by Frank Wootton of Russia's twin jet all-weather fighter, Fiddler, which made its debut at the 1961 Aviation Day Display at Tushino.

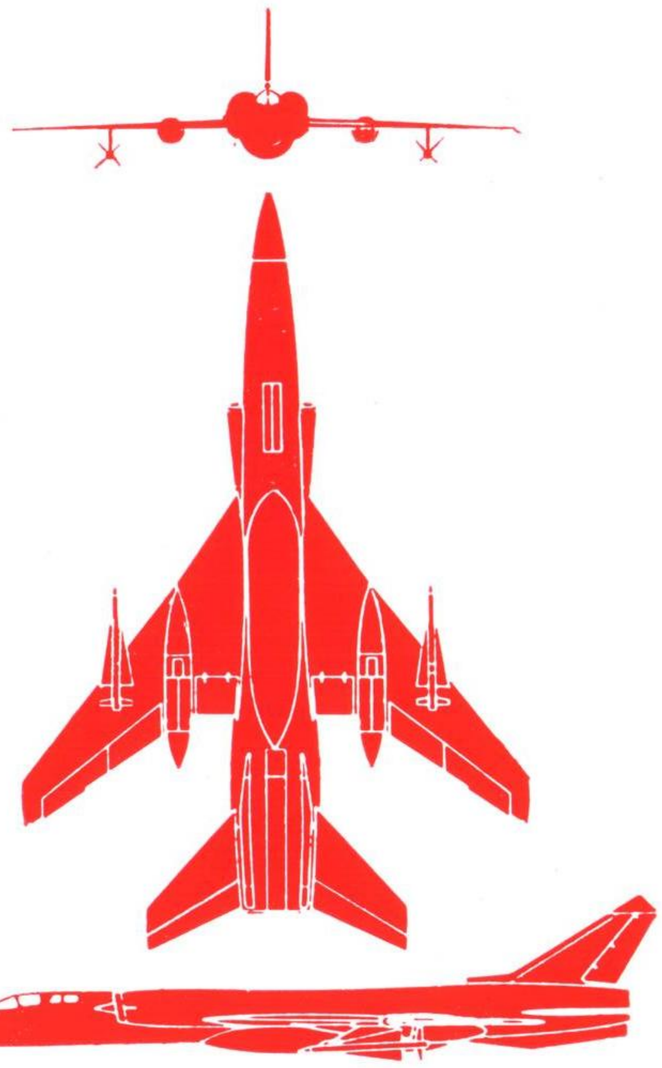
*The large fairings on the wing provide a permanent recognition feature, but should not be confused with the large underwing Ash missiles carried on pylons placed well out-board.*







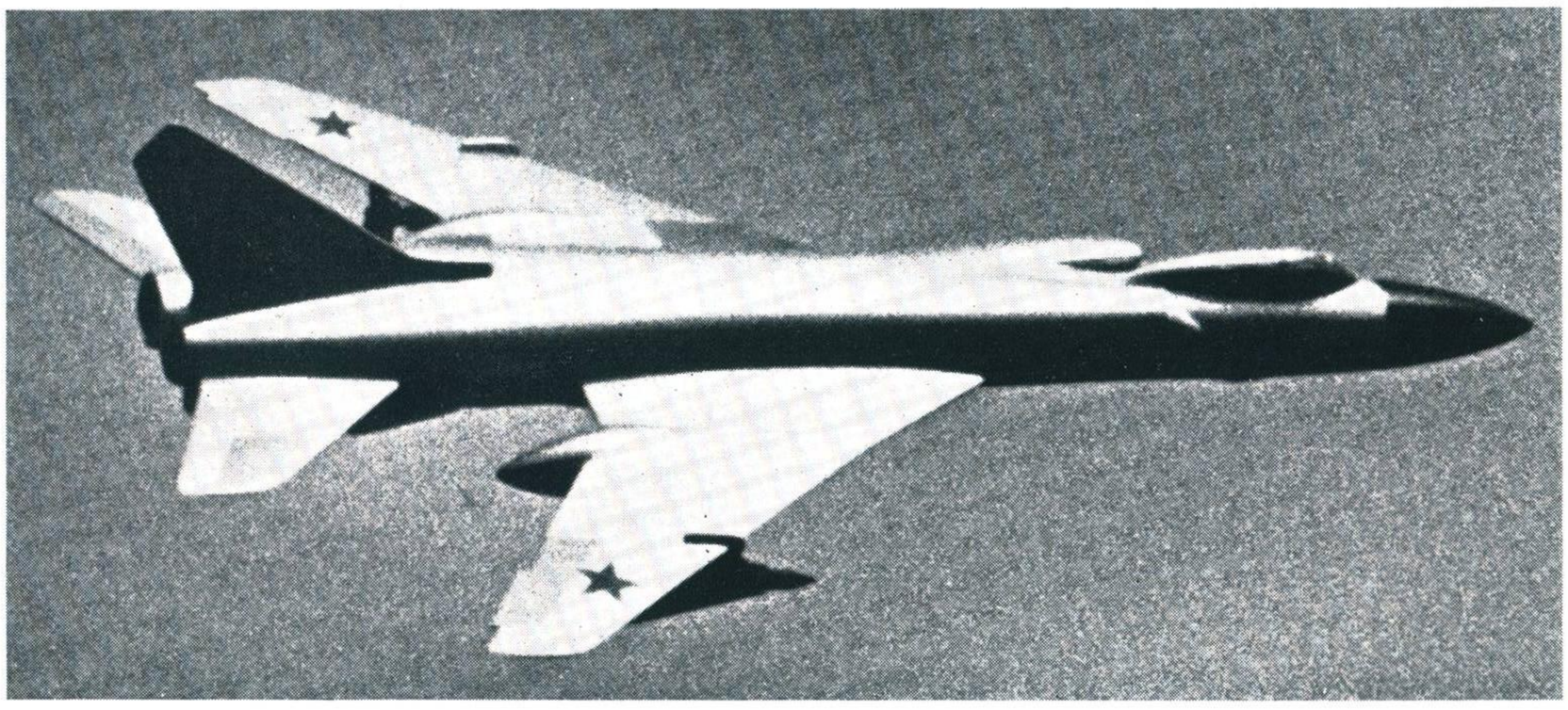




# *FIDDLER*

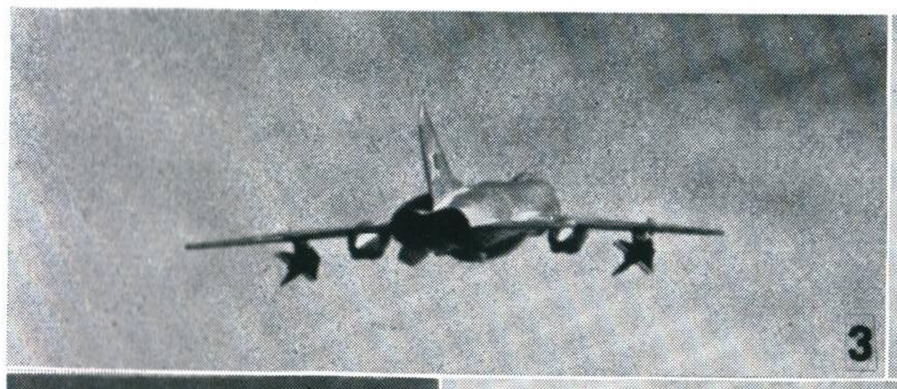
This supersonic twin-jet Russian fighter was first revealed in 1961 and it is exclusive to the Soviet Air Force. Among the range of underwing stores carried by Fiddler are Ash air-to-air missiles as shown in these views.

Using the key views above and below, the drawing on the preceding page and the adjacent silhouette, in accordance with instructions on page 295, you are required to identify the 28 targets displayed. *Solutions appear on the cover.*







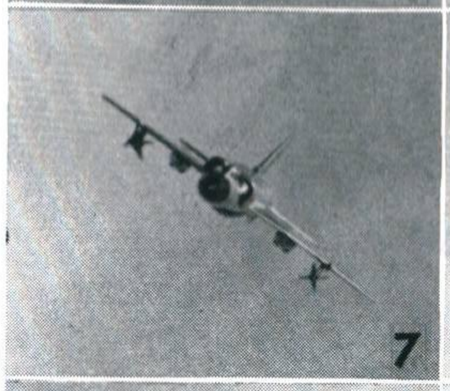


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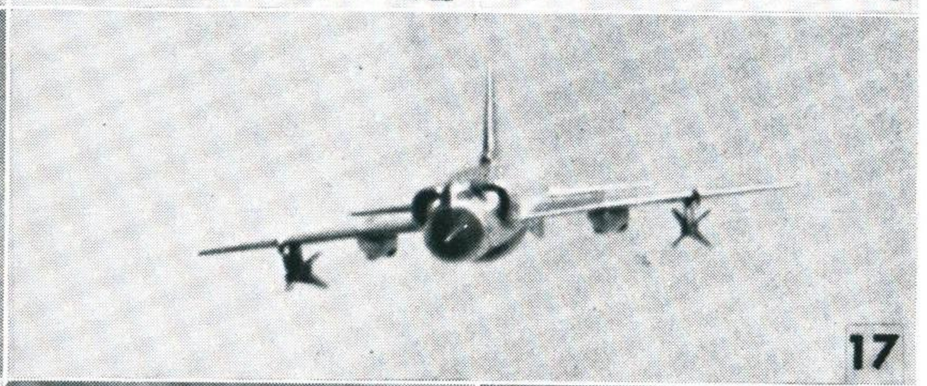

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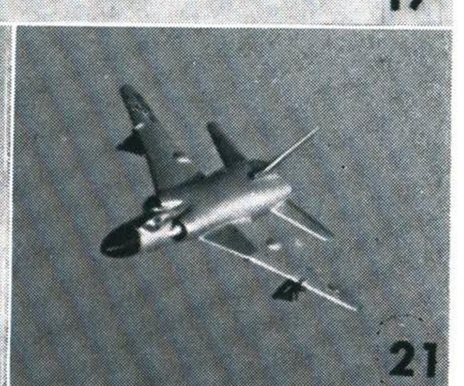

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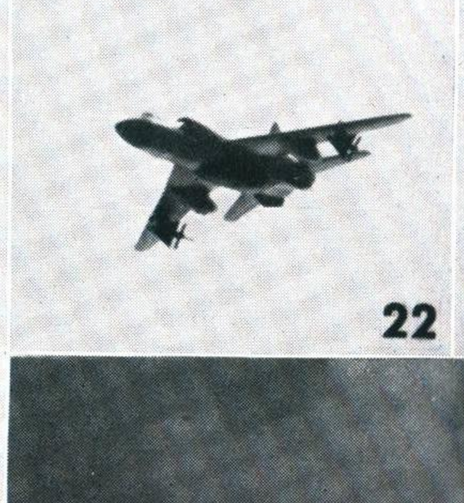

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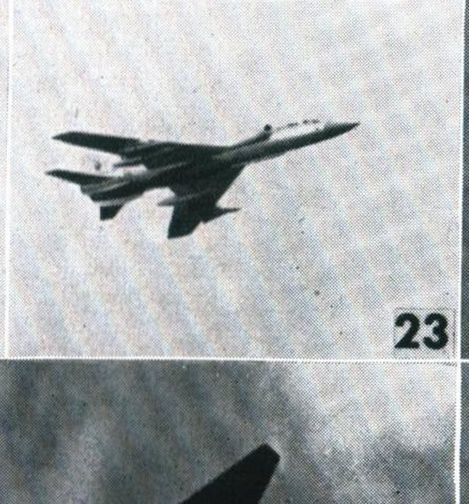

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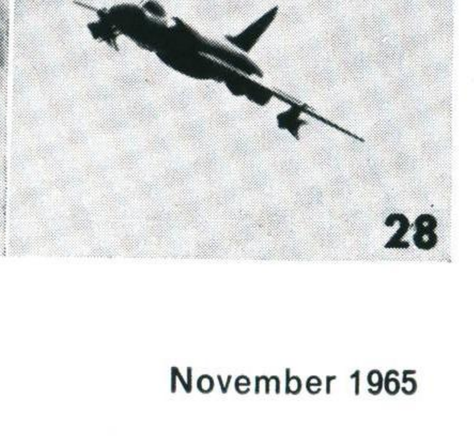

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**Cover Picture: Cock**, the new **Antonov An-22** transport (centre), **Classic** (tail on left) and **Cub** (nose on right) were some of the largest aircraft exhibited at the 1965 Paris Salon; further pictures of these Russian aircraft appear above and below.

# SOLUTIONS TO TESTS AND EXERCISES

*Page 284*

## FAGOT

All targets are of the **Fagot** except No. 8 which is a **Sabre** and No. 12 which is a **Fresco (MiG-17)**.

*Page 286*

## FAGOT END-ON

All targets are of **Fagots** except No. 5 which is a **Fresco.**

*Page 287*

## MIND THE GAP!

To help fill the gaps, references to earlier *Journal* lessons are given by each solution.

1. Cleat (Jan. '62)
2. Hound (Jun. '61)
3. Madge (May '63)
4. Cat (Jan. '61)
5. Bosun (Dec. '58)
6. Faceplate (obsolete)
7. Camp (Feb. '61)
8. Fishbed (Mar. '63)
9. Colt (May '62)
10. Flashlight C (Aug. '60)
11. Cleat (Jan. '62)
12. Beagle (Mar. '62)
13. Crate (Oct. '59)
14. Faceplate (obsolete)
15. Badger (Aug. '63)
16. Bear (Sep. '64)
17. Mascot
18. Bear (Sep. '64)
19. Fresco (Nov. '65)
20. Bison (Jun. '58)
21. Camel (Jun. '64)
22. Coach (Mar. '62)
23. Bosun (Dec. '58)
24. Flashlight B (Aug. '60)
25. Fishbed (Mar. '63)
26. Fitter (Mar. '64)
27. Farmer (Feb. '63)
28. Crate (Oct. '59)
29. Colt (May '62)
30. Bear (Sep. '64)
31. Cat. (Jan. '61)
32. Camel (Jun. '64)
33. Badger (Aug. '63)
34. Beagle (Mar. '62)
35. Fitter (Mar. '64)
36. Camp (Feb. '61)
37. Beagle (Mar. '62)
38. Bear (Sep. '64)
39. Coot (Sep. '63)
40. Hare (May '65)
41. Fresco (Nov. '65)
42. Cab (Dakota)
43. Cleat (Jan. '62)
44. Beagle (Mar. '62)
45. Badger (Aug. '63)
46. Badger (May '63)

N.B. Cab (Lisunov Li-2) is the Soviet-built version of the Dakota which is still in use and Mascot is a training version of the Beagle.

*Page 288*

## FRESCO REFRESHER

All targets are of **Frescos** except No. 3 and No. 32 which are Fagots and No. 25 which is a **Sabre (F-86K)**.

*Page 292*

## FARMER

All targets are of **Farmers**, except for the following: No. 15 **Fitter**, No. 27 **Mystère IVAs** and No. 43 **Frescos.**

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## FISHBED

All targets are of **Fishbeds** except Nos. 19 and 35 which are **Super Sabres.**

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## FLIPPER

All targets are of **Flippers** except No. 22 which is a **Fishbed.**

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## FIDDLER

All targets are of **Fiddlers** except for No. 15 which is a **Blinder.**




Printed for Her Majesty's Stationery Office by William Clowes & Sons, Limited, London and Beccles. BN/6068. 19,500. 11/65