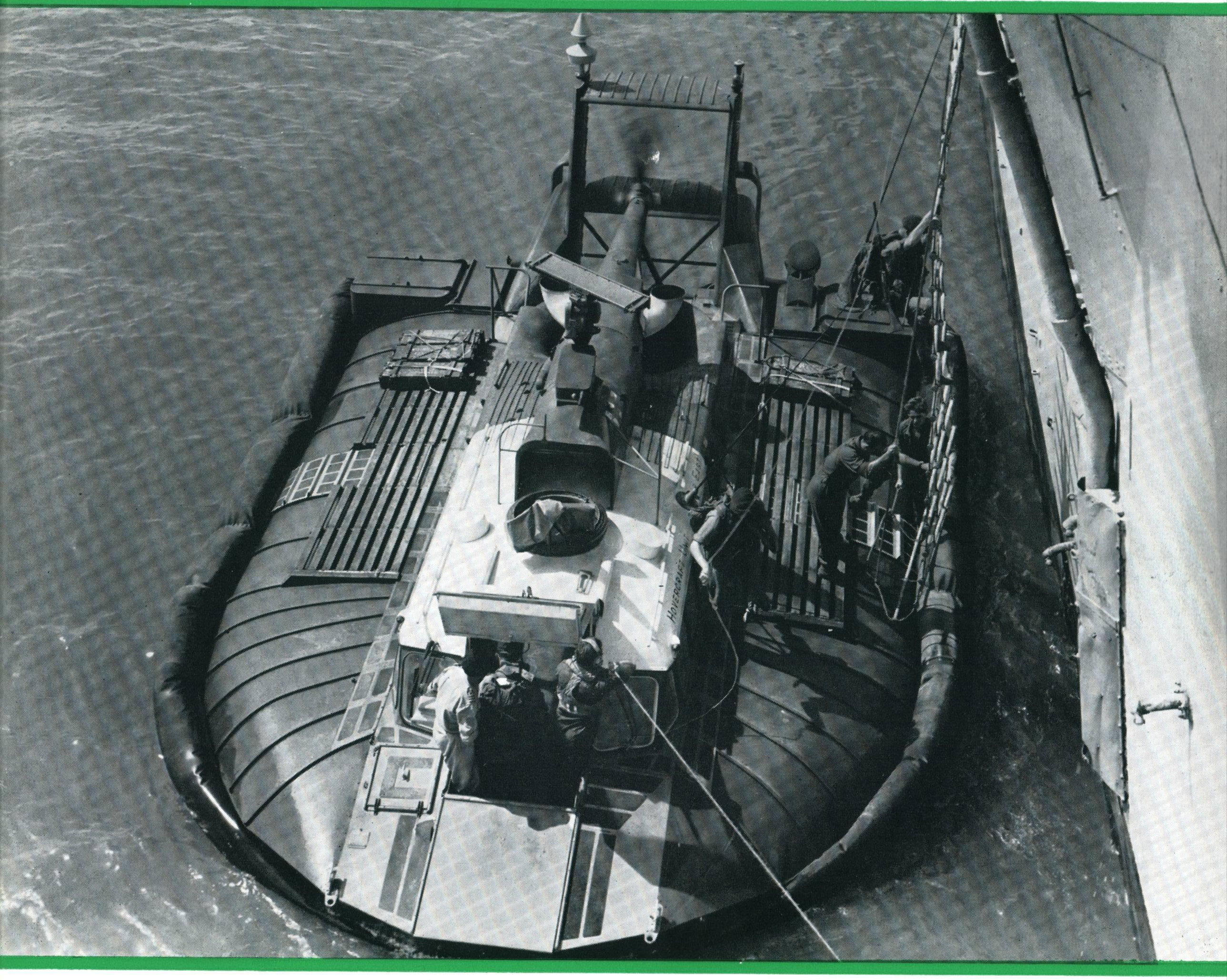
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JOINT SERVICES

RECOGNITION *Journal*



Vol. 21 NOVEMBER 1966 No. 11

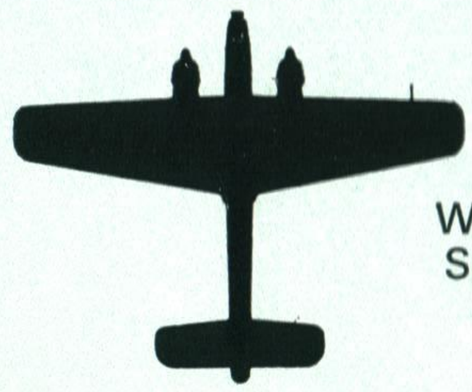
THE COST OF MIS-IDENTIFICATION OF TWIN-ENGINED, TWIN-FINNED BOMBERS

HAMPDENS AND WHITLEYS

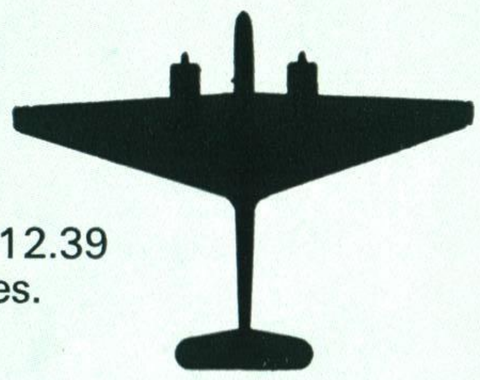
1939-1942



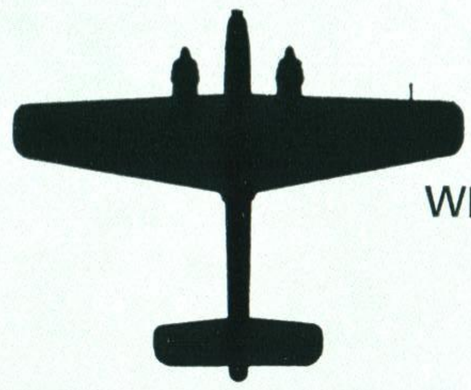
Hampden L4089 21.12.39
Shot down by Spitfires.
Crew baled out



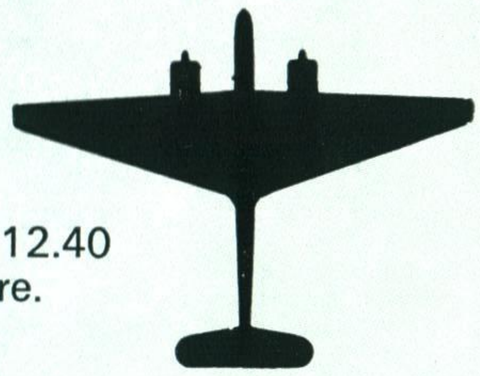
Whitley T4299 3.4.41
Shot down by Hurricane
over Dorset. 1 killed



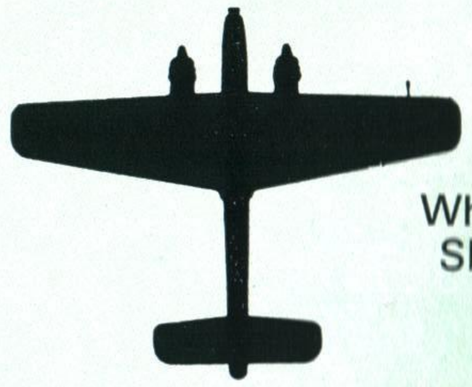
Hampden L4090 21.12.39
Shot down by Spitfires.
1 killed, 1 injured



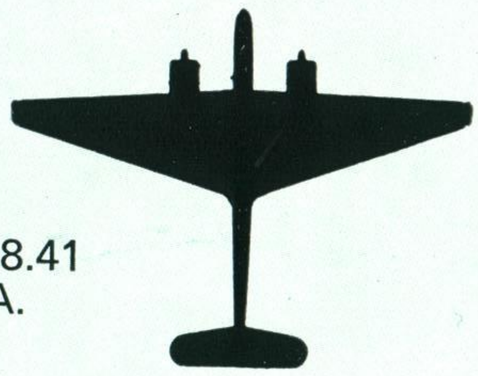
Whitley Z6961 30.10.41
Wrecked by fire from
merchant vestels.
1 killed



Hampden P2071 23.12.40
Shot down by A.A. fire.
Crew baled out



Whitley BD428 13.9.42
Shot down by own ships.
6 killed



Hampden AE259 9.8.41
Wrecked by light A.A.
fire from convoy



Whitley BD212 16/17.10.42
Shot down by British night
fighters. 5 killed



Whitley BD567 23.10.42
Wrecked after being shot
up by Northrop floatplane

The total number of casualties that resulted from the mis-identification of Hampdens and Whitleys are as follows :



15 killed



8 injured

NOVEMBER 1966 Vol. 21 No. 11

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.

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*, Ministry of Defence, Room 409, Old War Office Building, Whitehall, London, S.W.1.

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THE TRAGEDY OF THE "TWINS"

Under a system of recognition training based on memorising facts, it was inevitable that some mistakes would result through facts being confused. The basic facts taught for a Hampden were that it was twin-engined and had twin fins, so did a Whitley and so, most unfortunately, did a Dornier Do17. As a result there was a heavy cost in Hampdens and Whitleys, because they were mistaken for enemy aircraft. Conversely, it can be speculated how many Dorniers went unmolested because they were assumed to be friendly.

One of the pre-war planning orders, opened when war was declared, concerned the dispersal of squadrons in case of an all-out attack by the *Luftwaffe* on the known pre-war permanent stations. Under this scatter plan No. 61 Squadron were detailed to leave Hemswell for Speke. As their Hampdens flew over the Mersey on September 6th, 1939, they were greeted by anti-aircraft fire from the Liverpool defences. Two were hit and when the squadron returned to Hemswell, two days later, one Hampden had to be left behind for repairs.

On December 21st, 1939, following a report that German pocket-battleship *Deutschland* was at sea, No. 44 Squadron sent out twelve Hampdens as a search/strike force. On return in full daylight, two Hampdens, separated from the main formation, were intercepted and shot down by Spitfires from Drem. It was Spitfires that attacked L4100 of No. 106 Squadron over Stradishall killing one of the crew engaged on a cross-country navigational exercise on October 6th, 1940. The following month anti-aircraft fire wounded another Hampden crew member in P1176 of No. 49 Squadron. During November, Spitfires again waded into the attack and P4338 of No. 61 Squadron was damaged. As late as 1942 Hampdens were still being shot up by Spitfire pilots, AT135 of No. 420 Squadron being damaged on March 29th.

The Armstrong Whitworth Whitley was a bomber contemporary of the Hampden. Their respective forms differed greatly, but they shared the same basic description of a Dornier, being twin-engined and twin-finned. The Whitley was operational in the early war years, dropping leaflets over the Ruhr and participating in bombing. A number of Whitley squadrons were switched to Coastal Command and late production models were built for maritime patrol. They also served usefully in Operational Training Units.

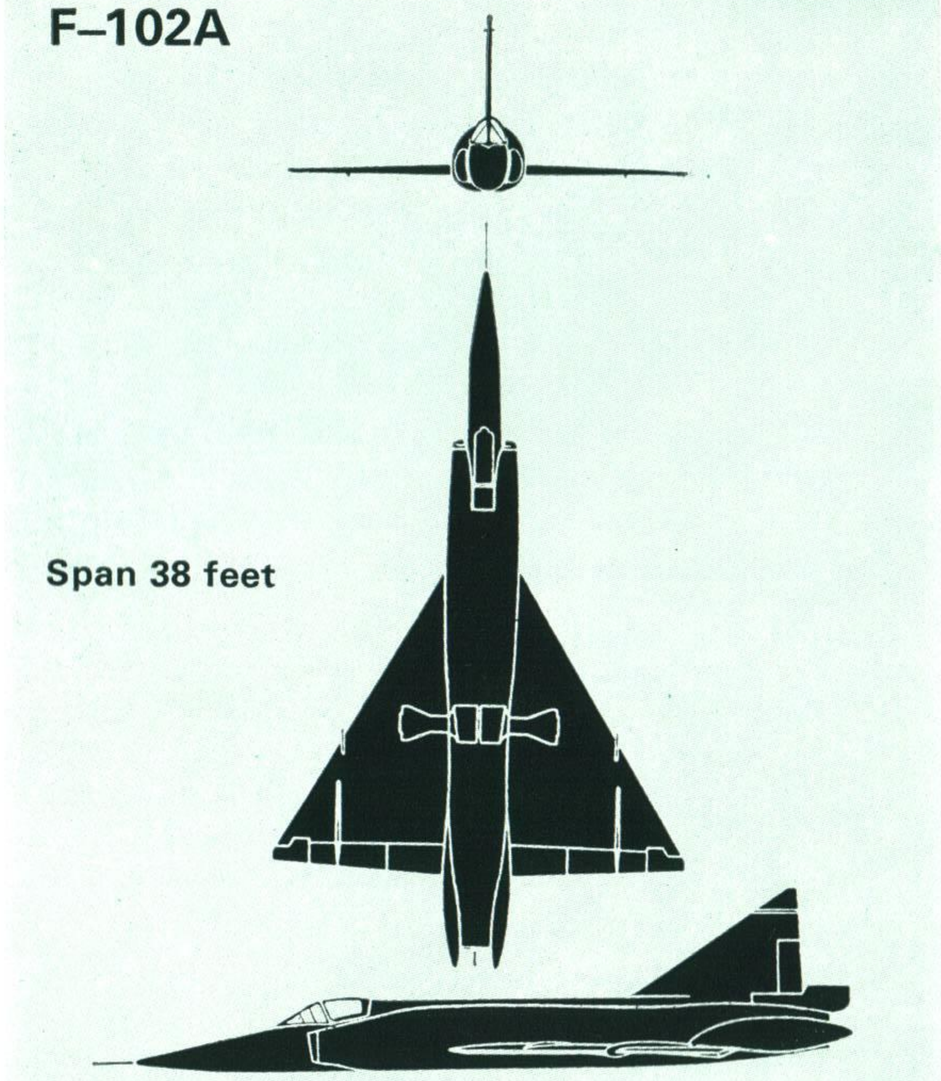
Our war against our Whitleys commenced on July 10th, 1940, when one was fired at from Filey as it returned from patrol over the North Sea. Later that year Whitley N1411 of No. 10 O.T.U. was attacked by a Hurricane from its own unit! This Whitley was forced to land at Squires Gate with a damaged mainplane and that same year N1505 of No. 19 O.T.U. crash-landed at Wick following an engine seizure after being shot up by two Hurricanes.

1941 was something of a nightmare for Whitley aircrews who could not trust their friends. Apart from the total loss of the aircraft through mis-identification detailed opposite, the following incidents were reported by Whitley squadrons in 1941:

March 9th	No. 502 Squadron report one crew member of P5059 injured by A.A. fire from convoy.
March 11th	No. 77 Squadron report T4337 hit by fire from friendly fighter.
May 10th	No. 51 Squadron report T4237 fired on by convoy.
July 6/7th	No. 102 Squadron report two crew members injured in Z6748 after being shot at by Wellington over the target area, Dortmund.
September 17th	No. 612 Squadron report one crew member injured in Z6809 after being shot at by convoy.
October 3rd	No. 502 Squadron report one crew member in Z6650 injured after being fired at by convoy.
November 19th	No. 612 Squadron report one crew member in Z6631 injured by fire from British trawler.

While Hampdens and Whitleys were mistaken for Dorniers, so Blenheims were for Junkers Ju88s, Spitfires for Messerschmitts and so on. Today there are many aircraft having similar basic configurations, but modern training does not involve memorising detail that could lead to such confusion. The lessons are regularly provided here, it only remains for them to be carried out according to the instructions.





F–102 DELTA DAGGER

The first delta-wing fighter of the USAF, the F-102A entered service over ten years ago and is still in service in the USA, Europe and the Far East. So far the type has remained exclusive to the American Forces.

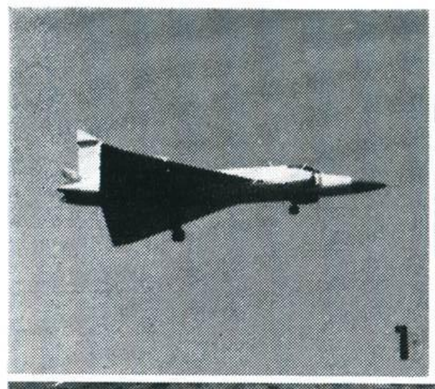
The initial production version had a smaller fin and rudder, but all have been modified to the same standard as shown above.

A combat trainer version of this single-seat fighter was introduced as the TF-102A with a wider front fuselage and revised canopy to accommodate side-by-side seating. Full operational equipment is retained in this version.

Armament is carried internally and thereby the visual variations concern the position of the air brakes carried aft of the tail and the carriage of auxiliary fuel tanks under the wings.

Use the instructions on page 287. Solutions on the cover.





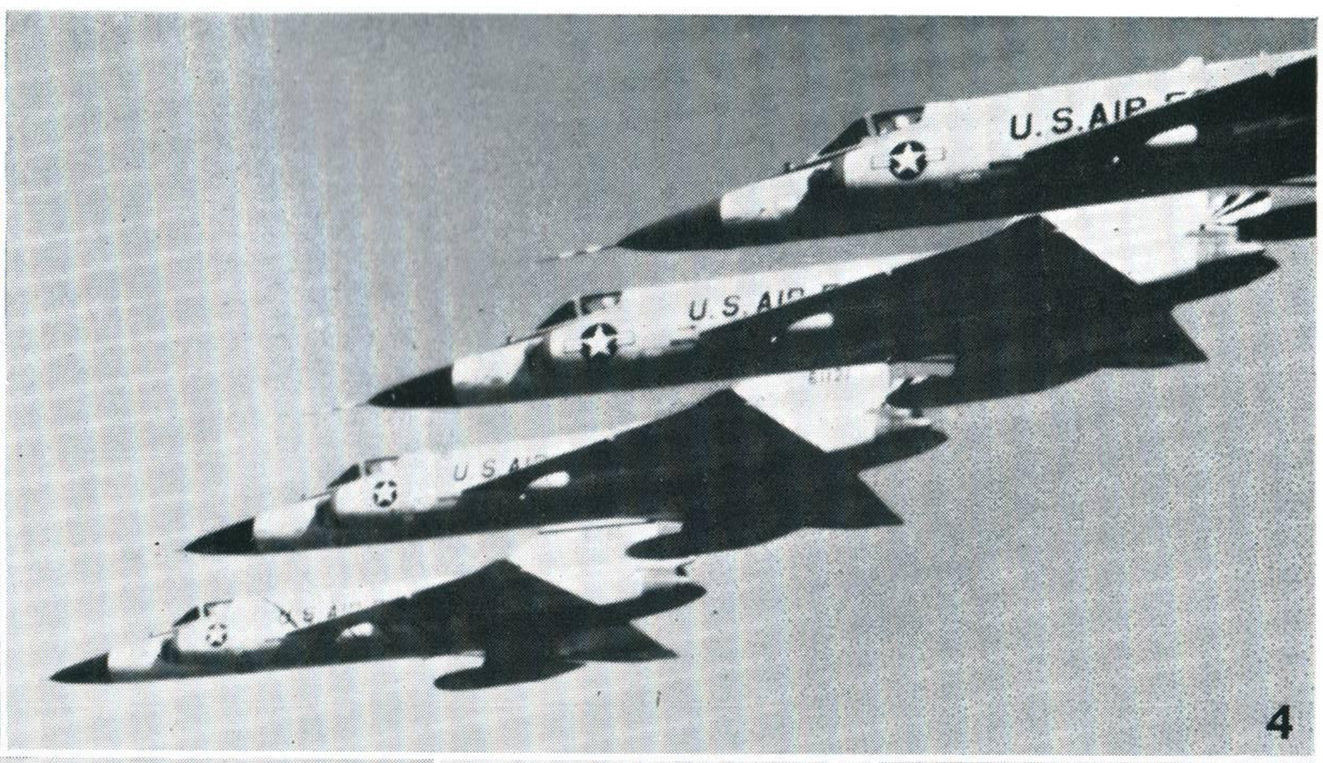
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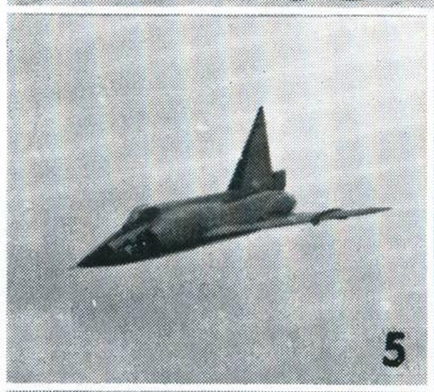
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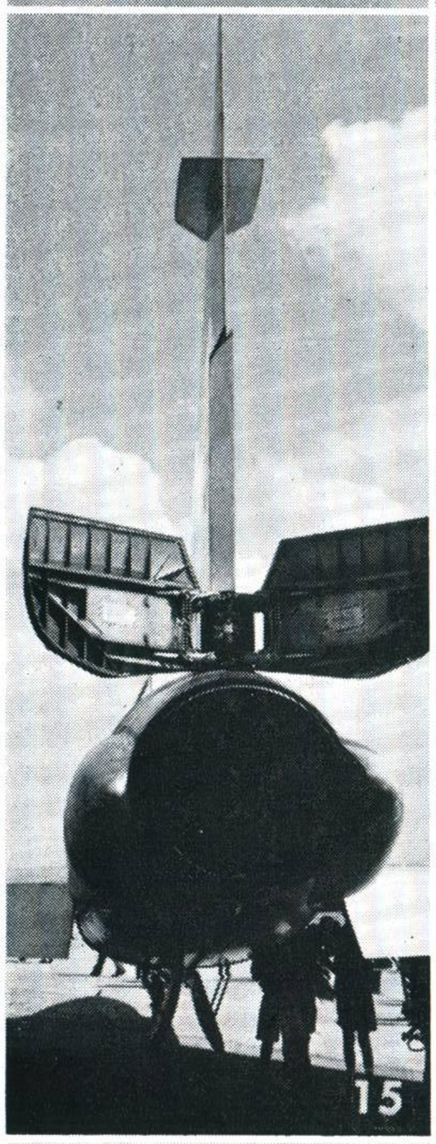
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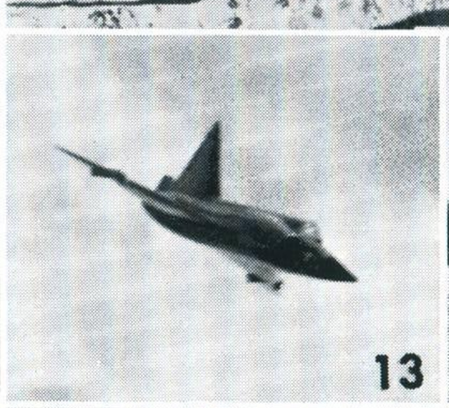
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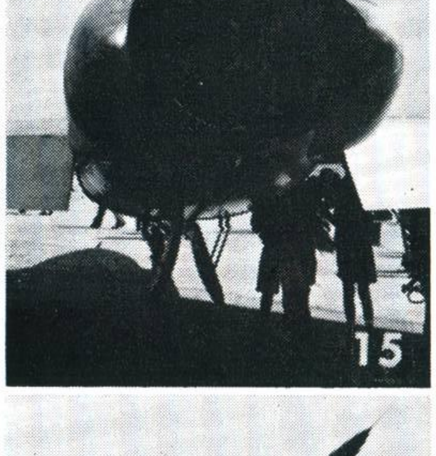
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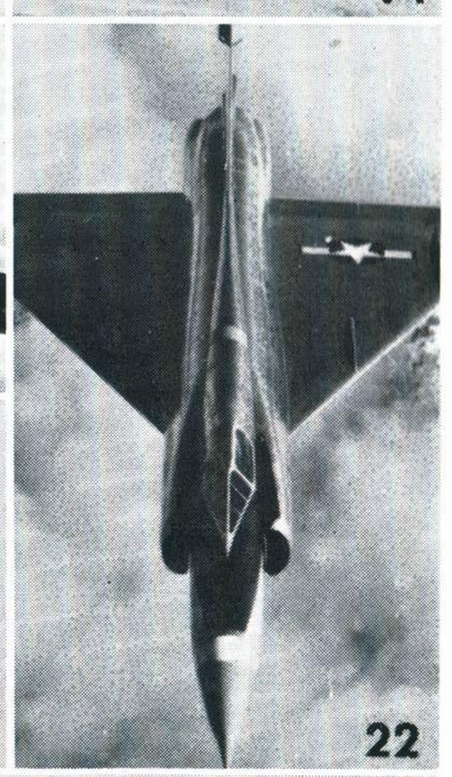
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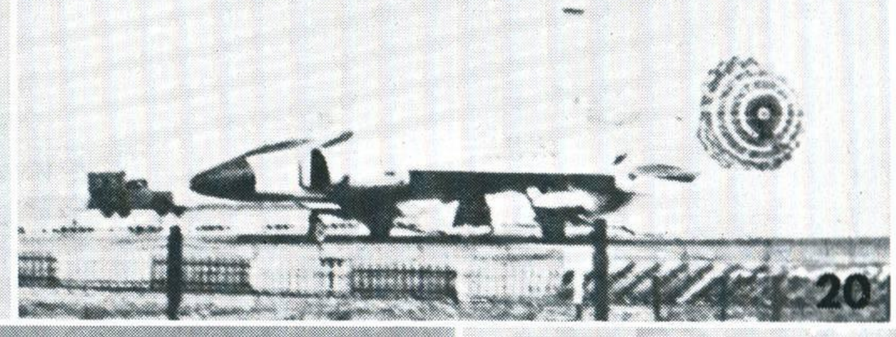
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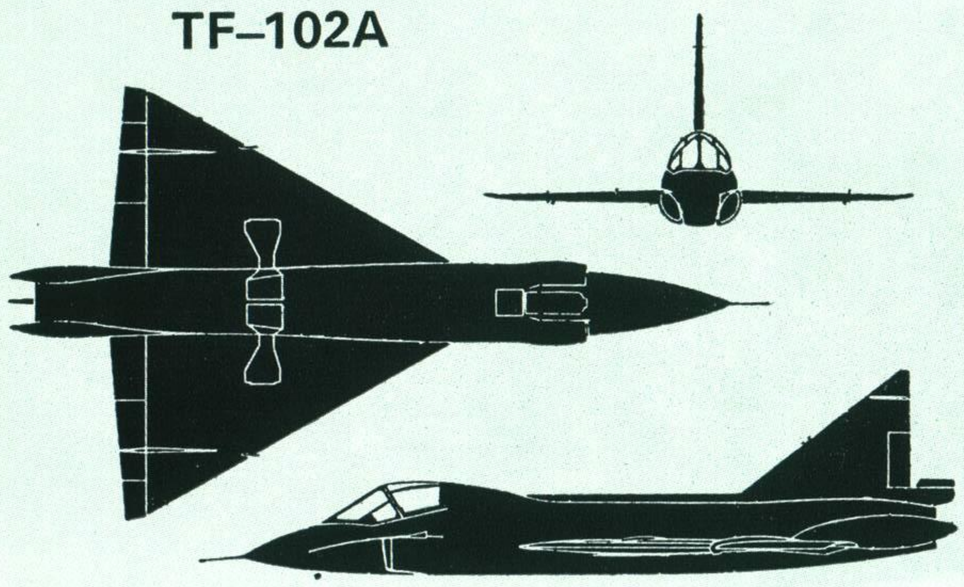


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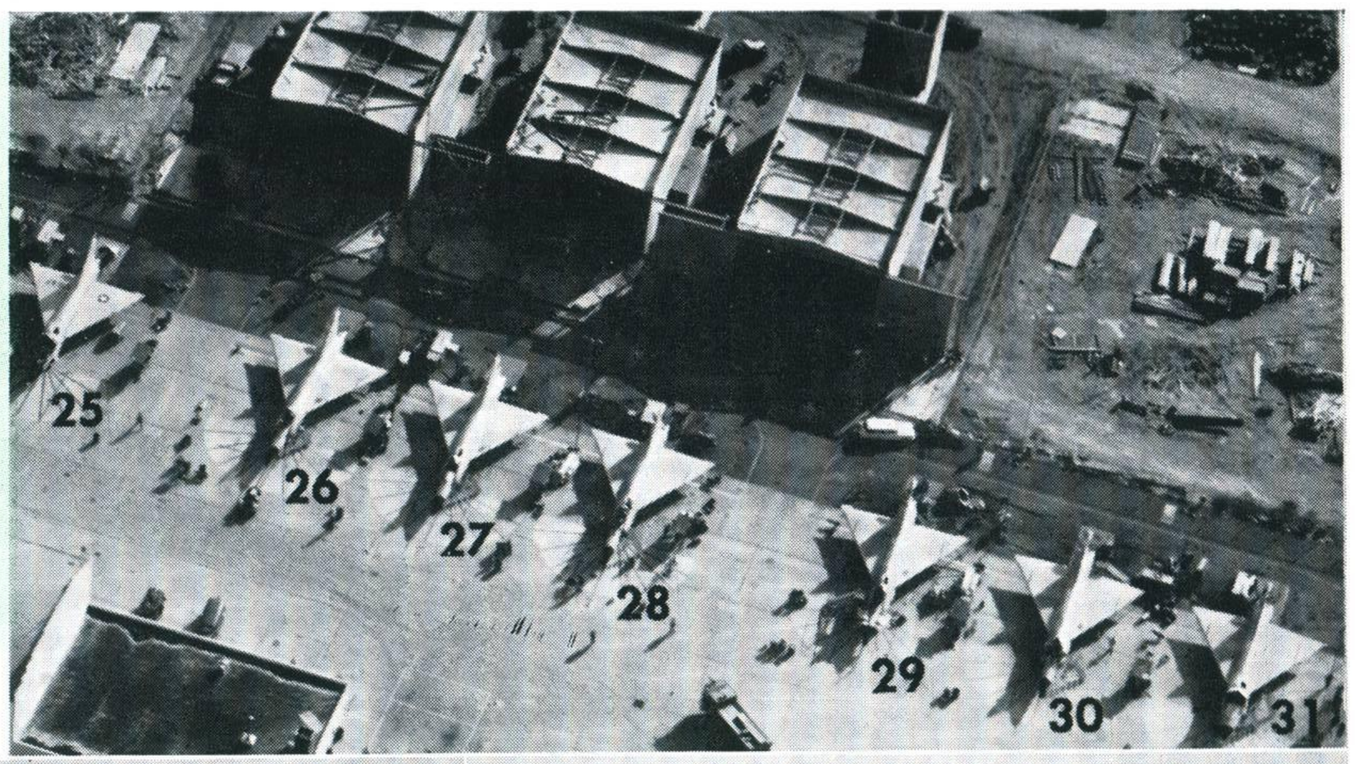


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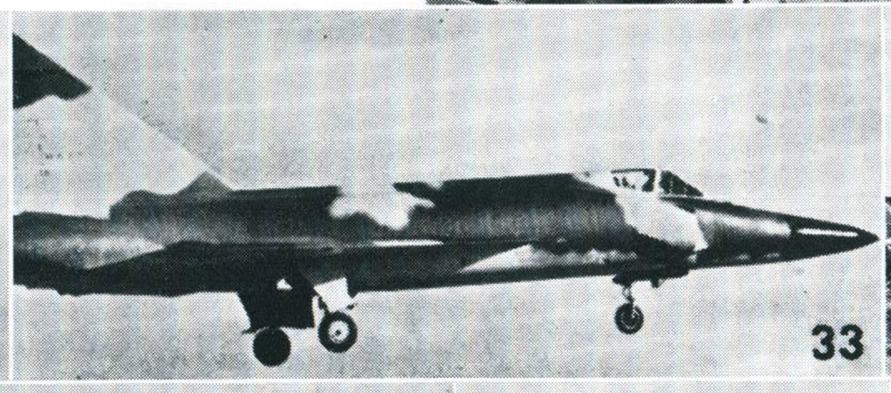
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DELTA DAGGER continued



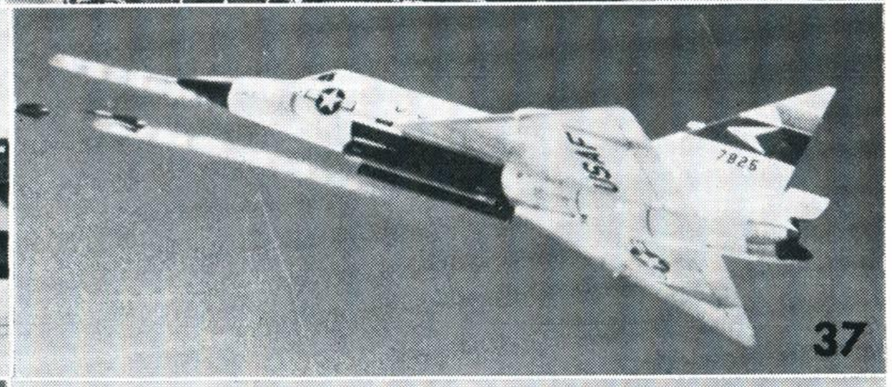




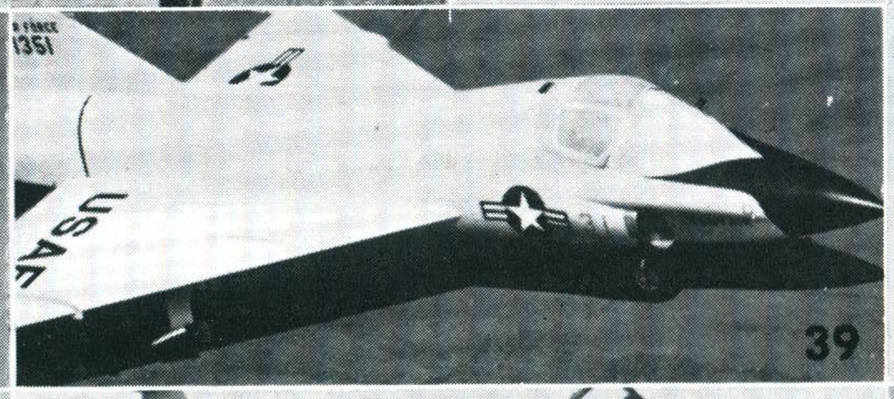


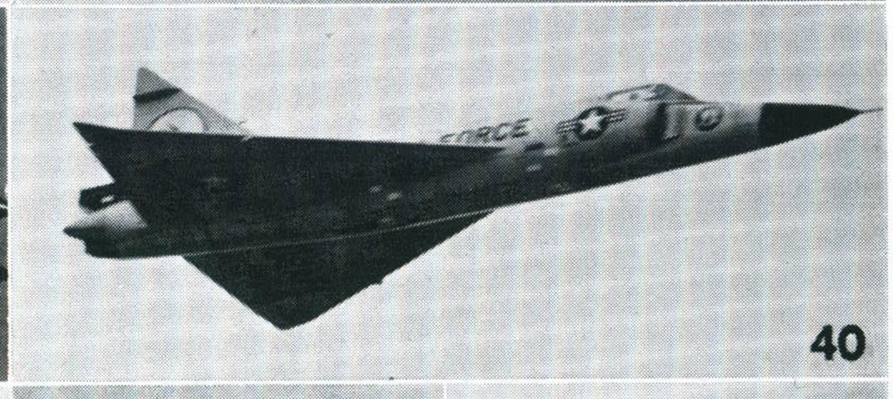








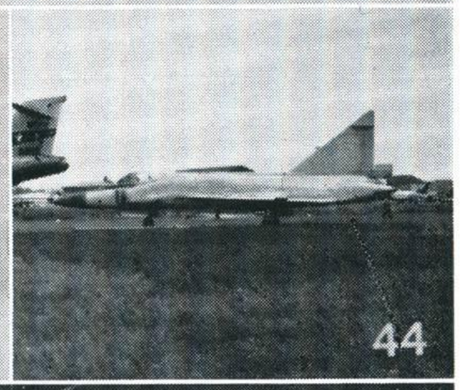




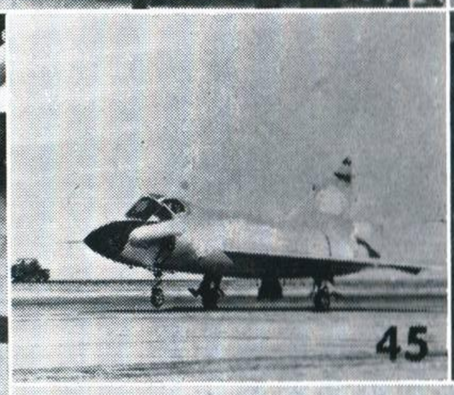


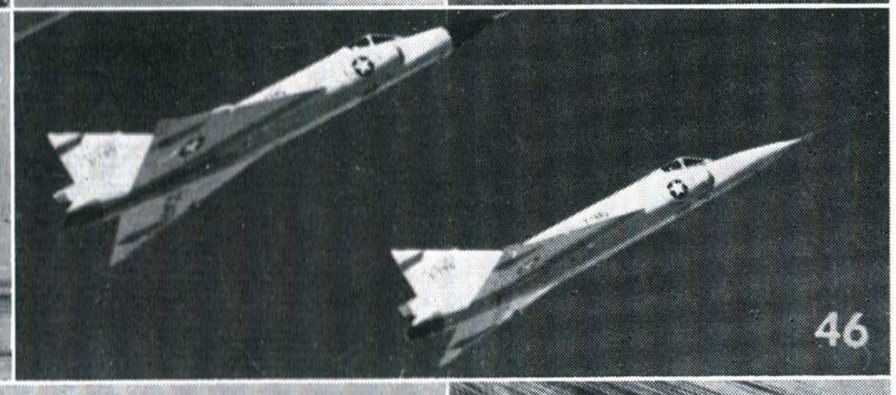




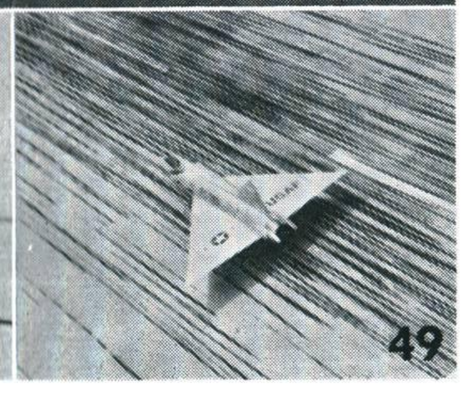












IN PASSING

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.**

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 identifiées 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.**

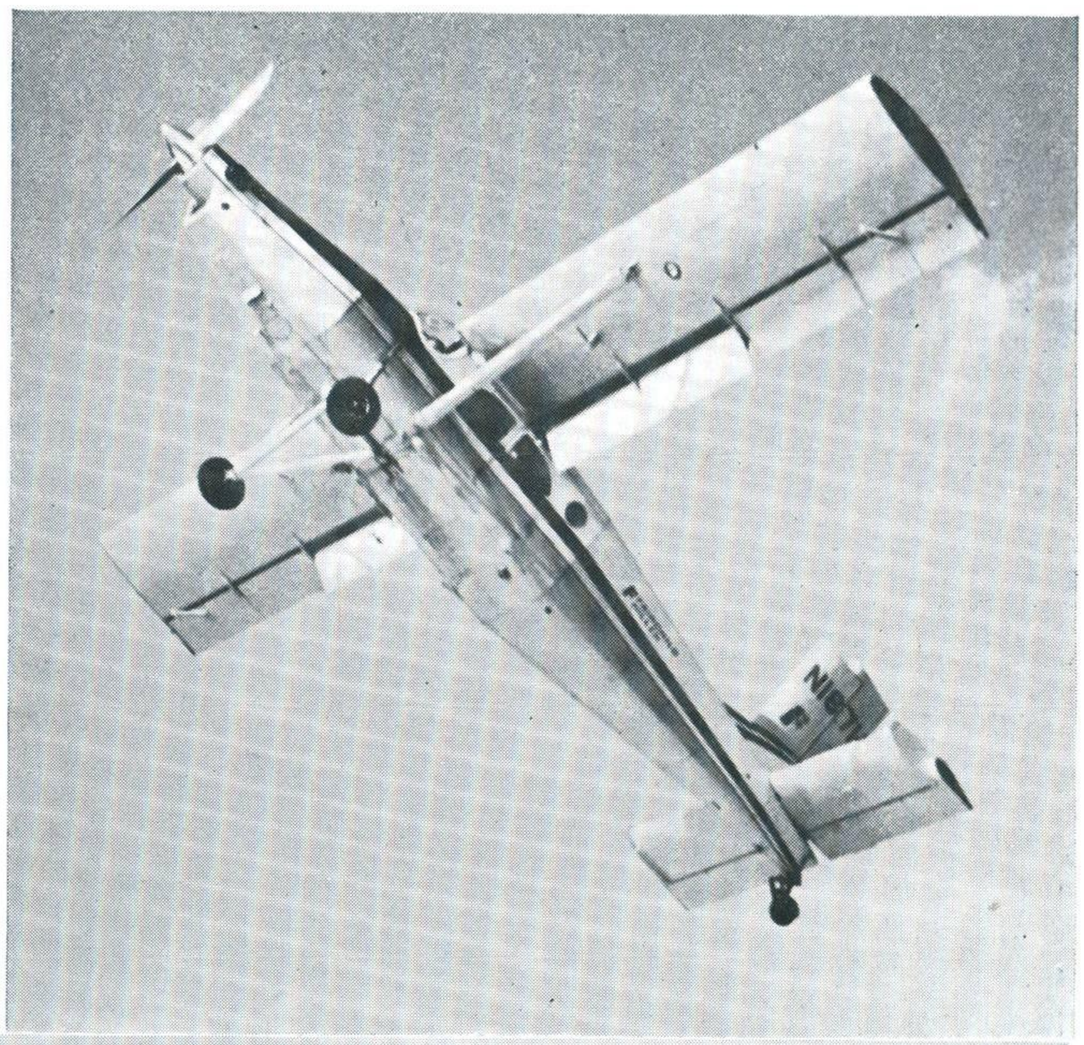
BOOK REVIEW

"The Pocket Encyclopaedia of World Aircraft in Colour—Fighters, Attack and Training Aircraft" by Kenneth Munson. Published by the Blandford Press. Price 16/-

At a most reasonable price by current standards comes this book with no less than 80 colour plates. Each painting shows an aircraft type in profile with a plan view, split down the middle to show upper and lower surface shades. These are in general carefully drawn, handsomely coloured and well reproduced on a good quality paper. A write-up on each aircraft tells the story of the type in a most readable manner.

It is a pity that the book was conditioned by a series, which includes *The Pocket Encyclopaedia of Roses*, as it deserves a style to suit its subject. Already the companion *Bombers, Patrol and Transport Aircraft* is out and the two are advertised as the first of the new series of World Aircraft in Colour —so why call them "pocket encyclopaedia" when "satchel encyclopaedia" is nearer the mark.

B. R.





Since the presentation of the Porter lesson in the August 1965 edition, this Swiss type has been built in the United States by Fairchild Hiller in the Turbo-Porter version, with wheel or float undercarriage to meet the requirements of customers.

Note that the white rudder area becomes "lost" against certain backgrounds as illustrated by the key view.

F–8 CRUSADER

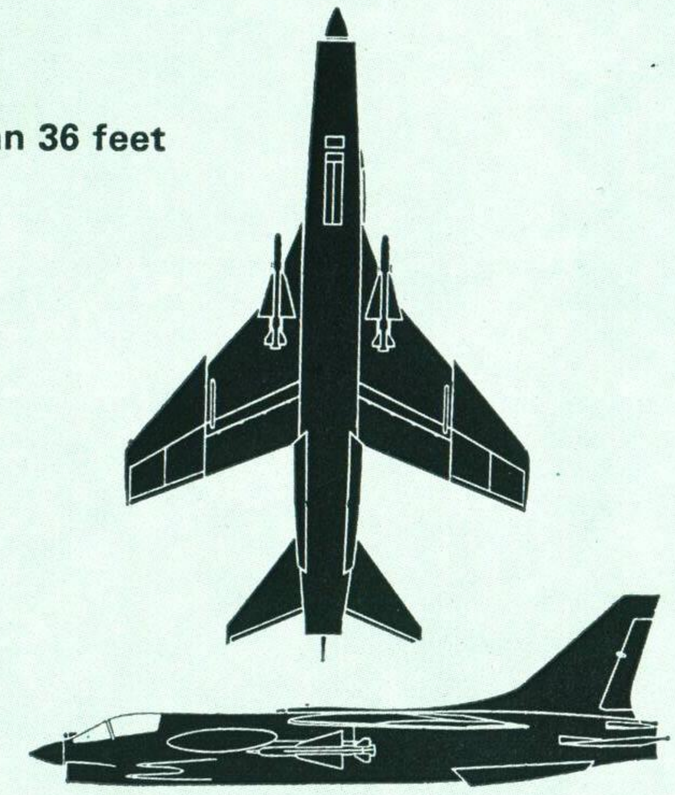
The Crusader is an American fleet fighter with attack capability and with reconnaissance versions. In addition to wide U.S. Navy use, 42 were supplied to the French Navy for their carriers *Clemenceau* and *Foch*.

With a variable incidence wing, the Crusader presents a slightly different configuration at take-off and landing than in normal flying attitude. This feature, incidentally, gives good lift for take-off and permits a slower, safer landing back onto a carrier. Other variations are differences in nose shape according to version, including a two-seat trainer with extended canopy, and the carriage of various underwing stores or fuselage-side missiles. These variations present no special identity problems provided the basic Crusader form is known and the way to know it is explained in the instructions on page 287.

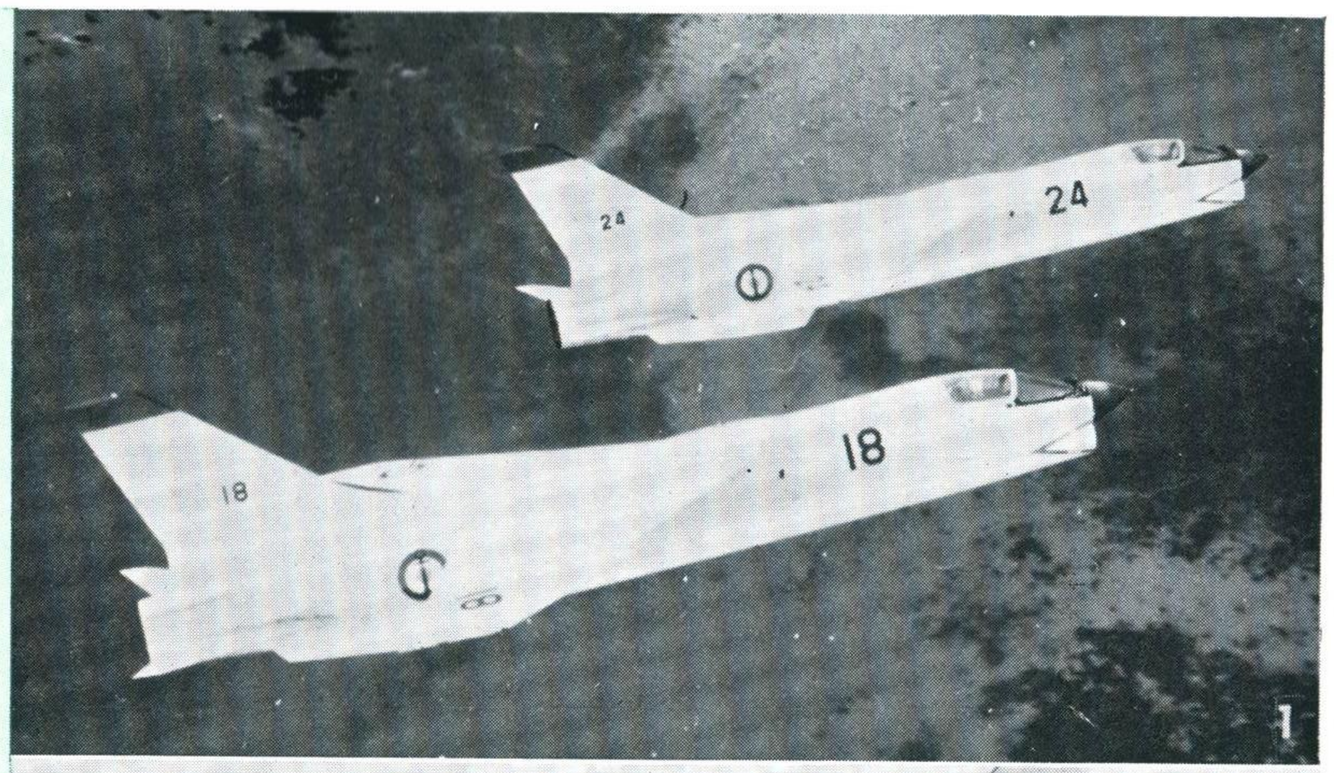
Solutions on the cover







Span 36 feet



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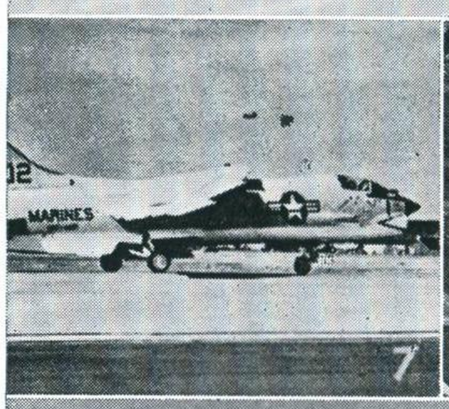
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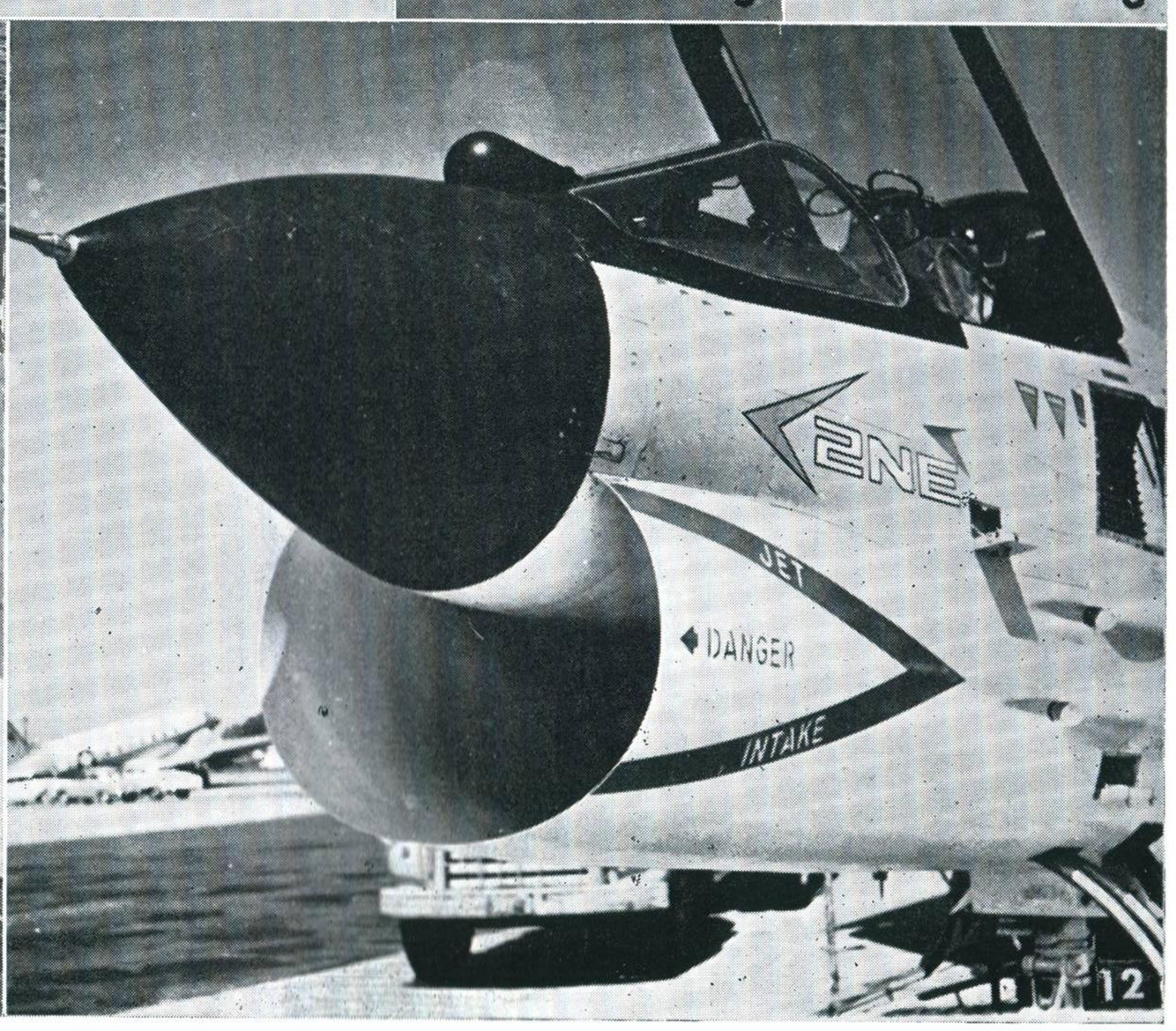
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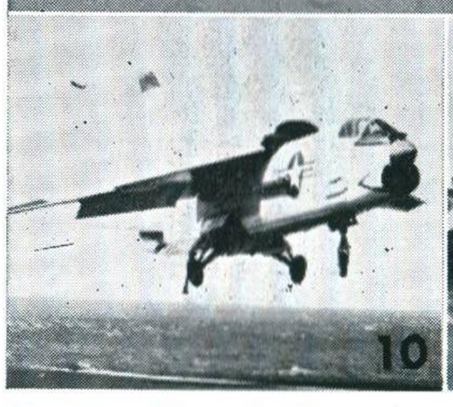
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CRUSADER continued



13

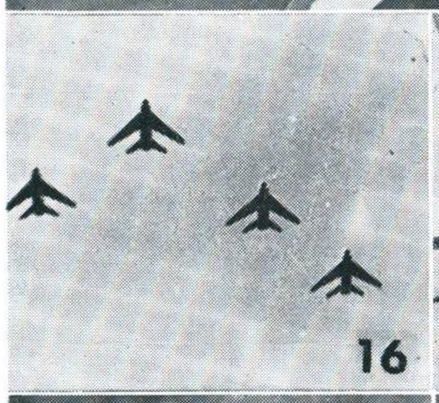




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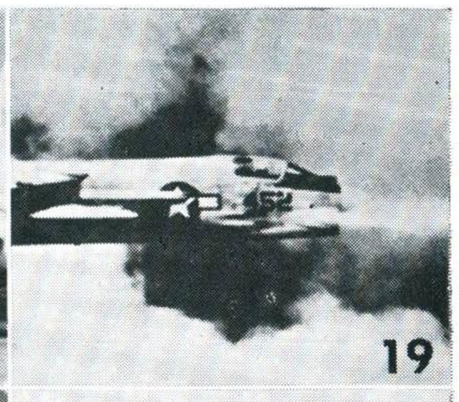
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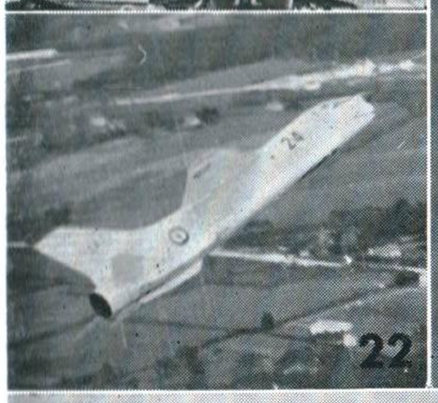
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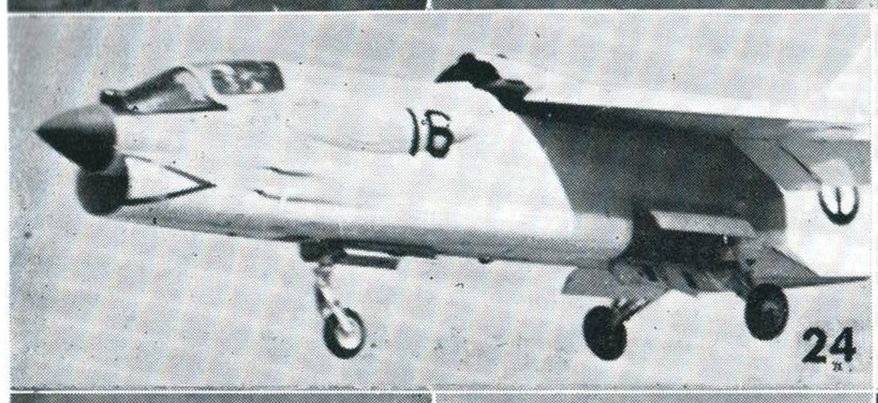
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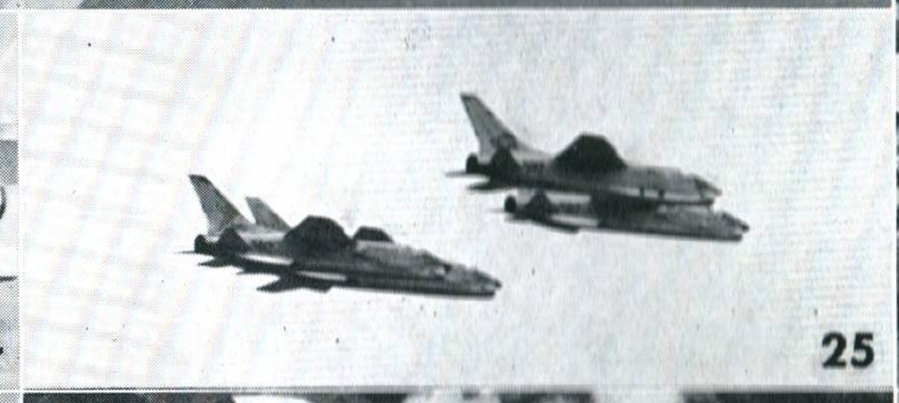
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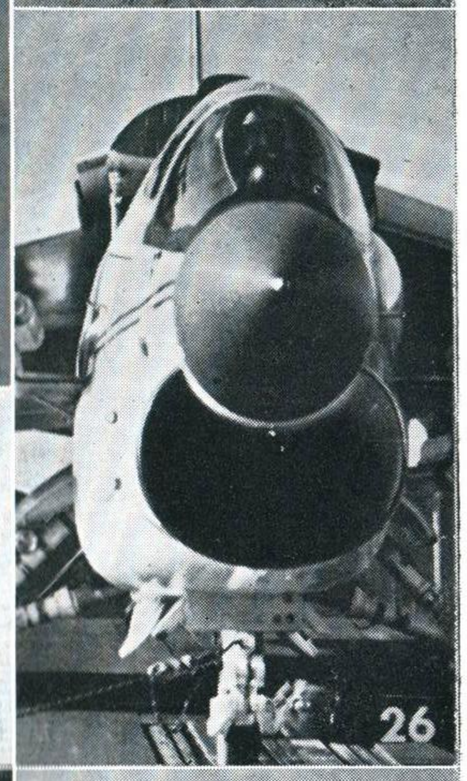
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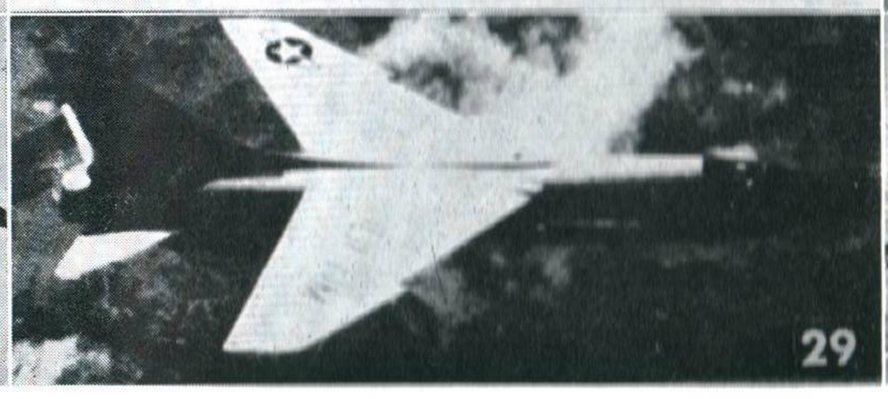
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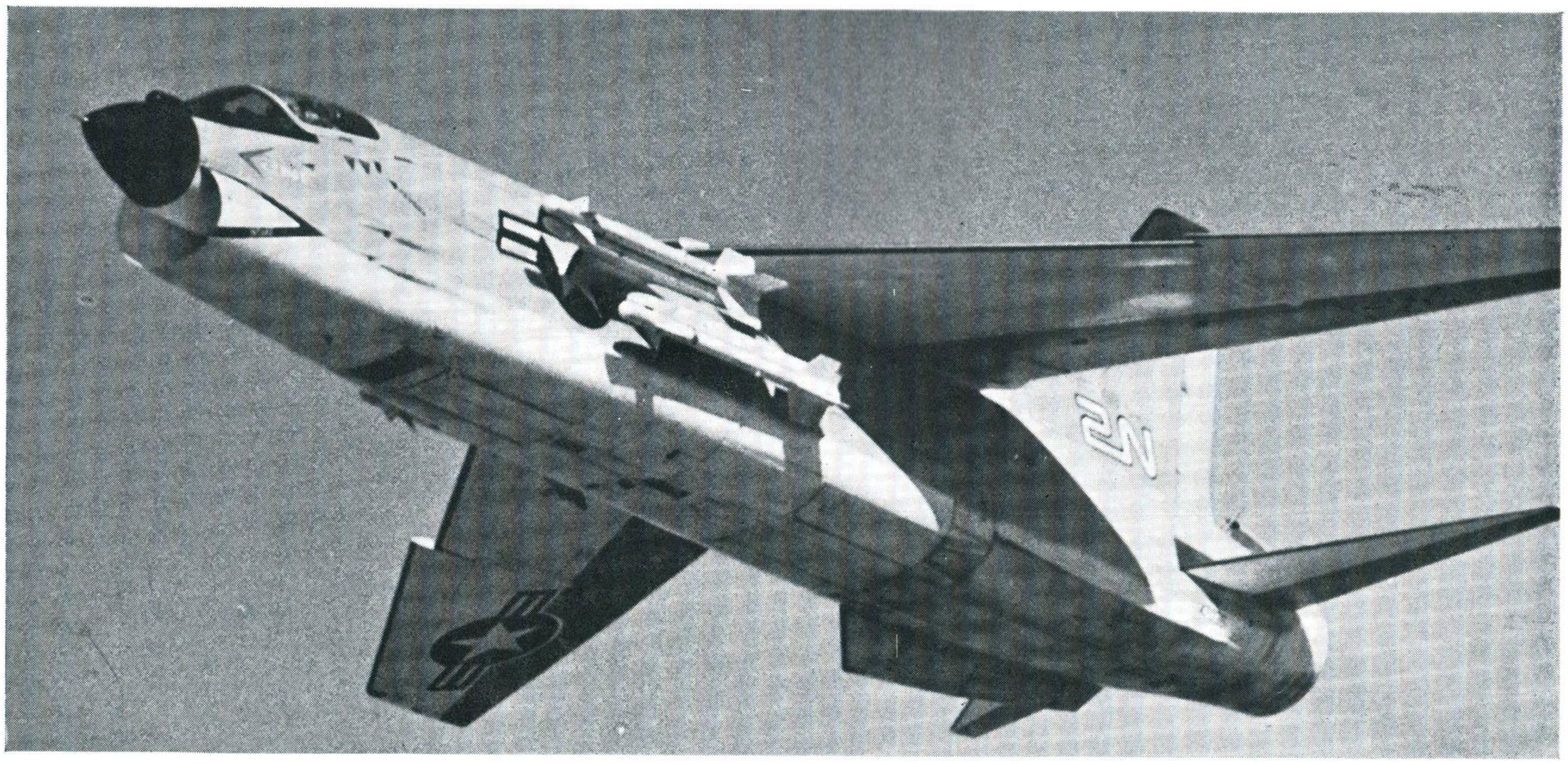
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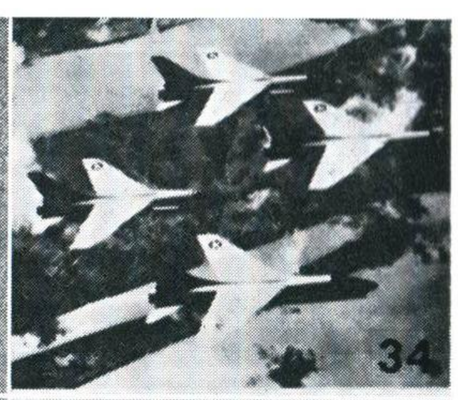
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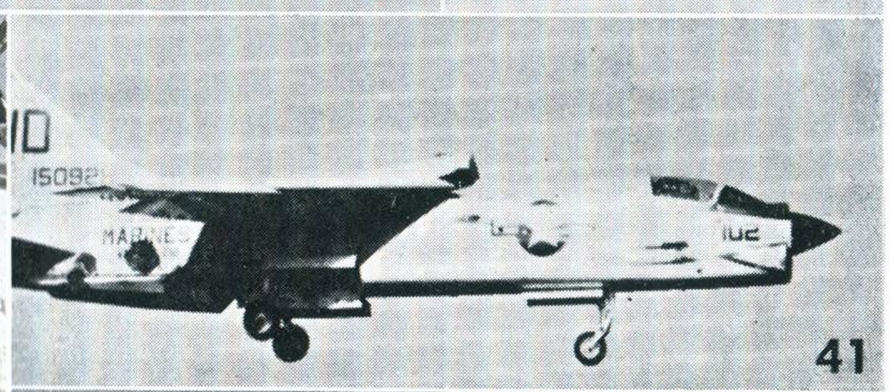

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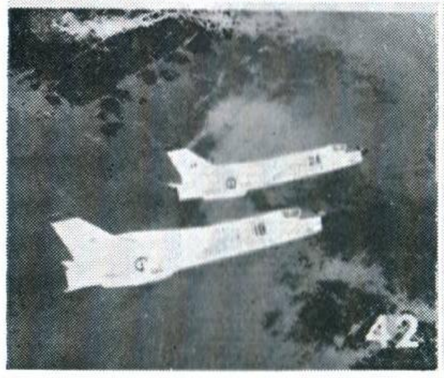

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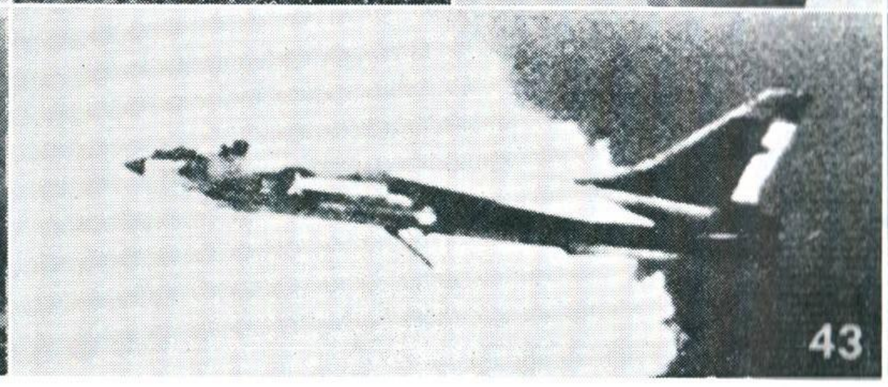

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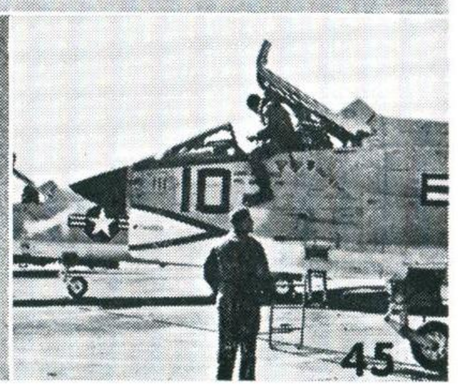

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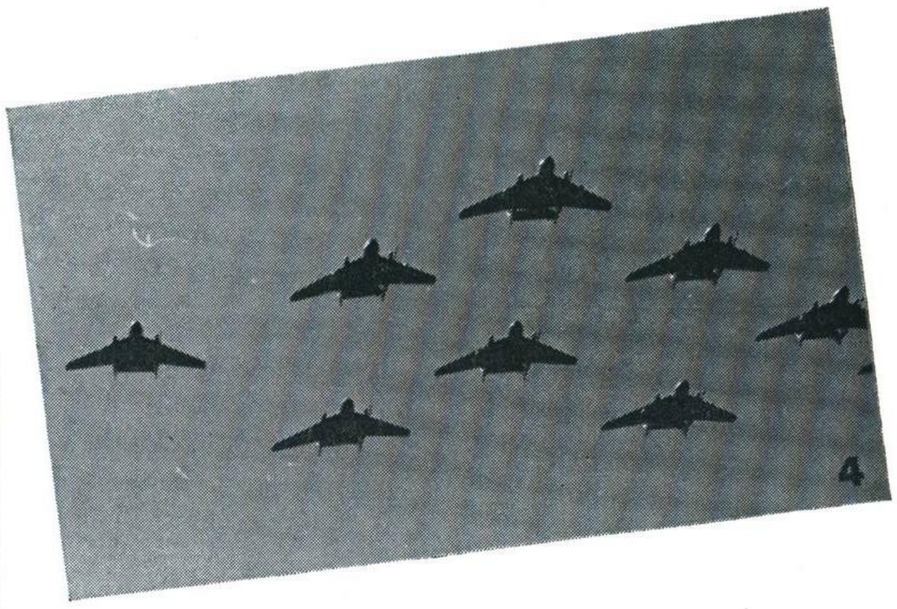
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FARNBOROUGH 1966



The Britten-Norman Islander built on the Isle of Wight.

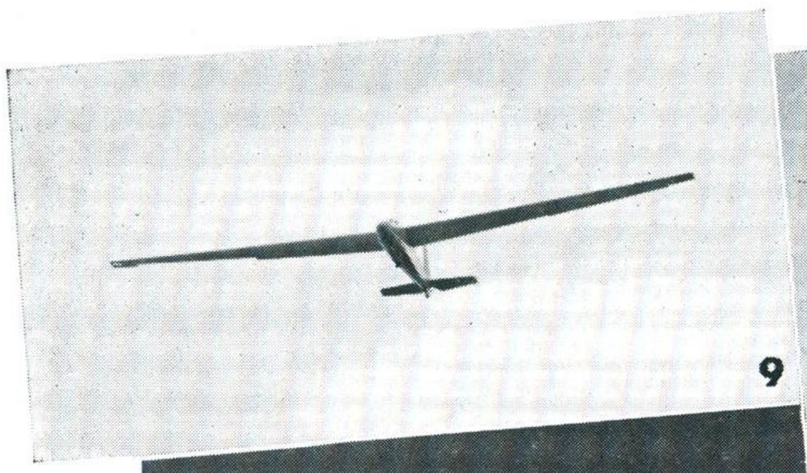


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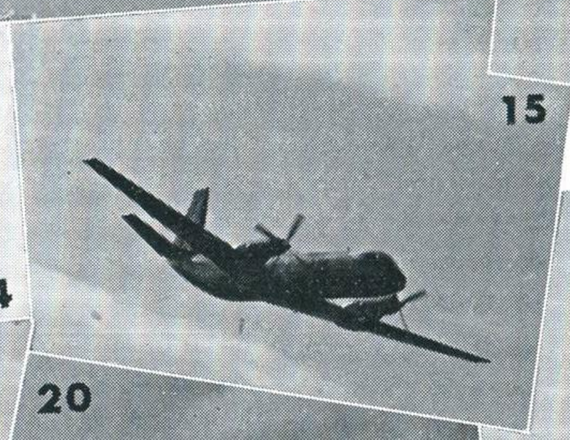


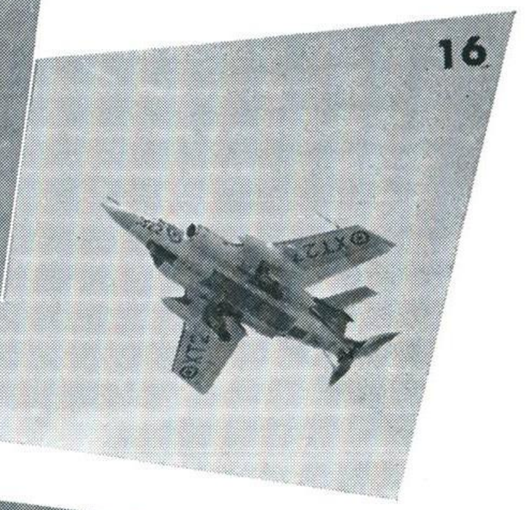
Solutions
on the cover.



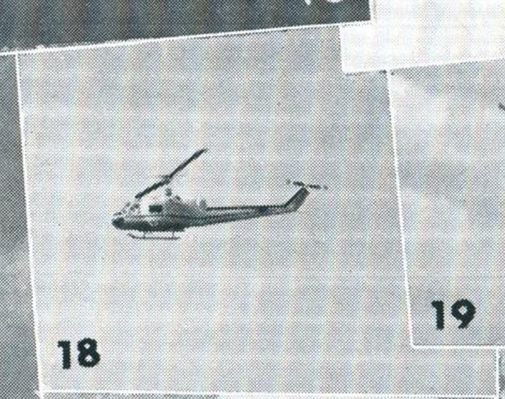


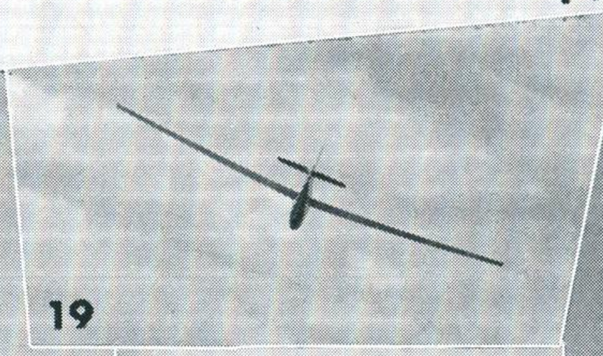


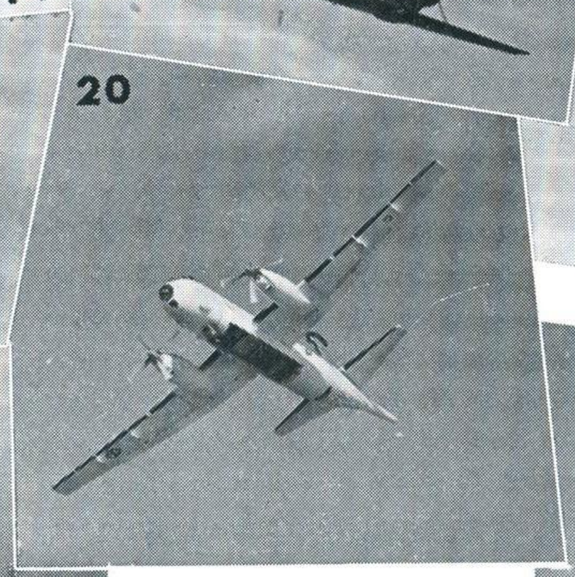


















The Short Skyvan built at Belfast, Northern Ireland.

The 1966 SBAC Flying Display and Exhibition was the 25th Farnborough exhibition by the Society of British Aerospace Companies (formerly the Society of British Aircraft Constructors) which celebrated their 50th anniversary this year.

This was the first SBAC show at which European aircraft, by virtue of British engines or equipment, participated. The emphasis this year was on aircraft and engines for export, instead of a pre-view of new equipment for the Services. Two "export stars" are depicted and a miscellany of aircraft types, taken specially for the *Journal* by the Ministry of Aviation, are presented in test form.

Hovercraft Identification











The first of the Hovershows, the British hovercraft industry's equivalent to the aircraft industry's Farnborough display, was held this year at Browndown, Portsmouth. Other powers are developing their hovercraft industries and this new craft comes into the *Journal* as another subject for identification. In due course lessons on the various types will follow.

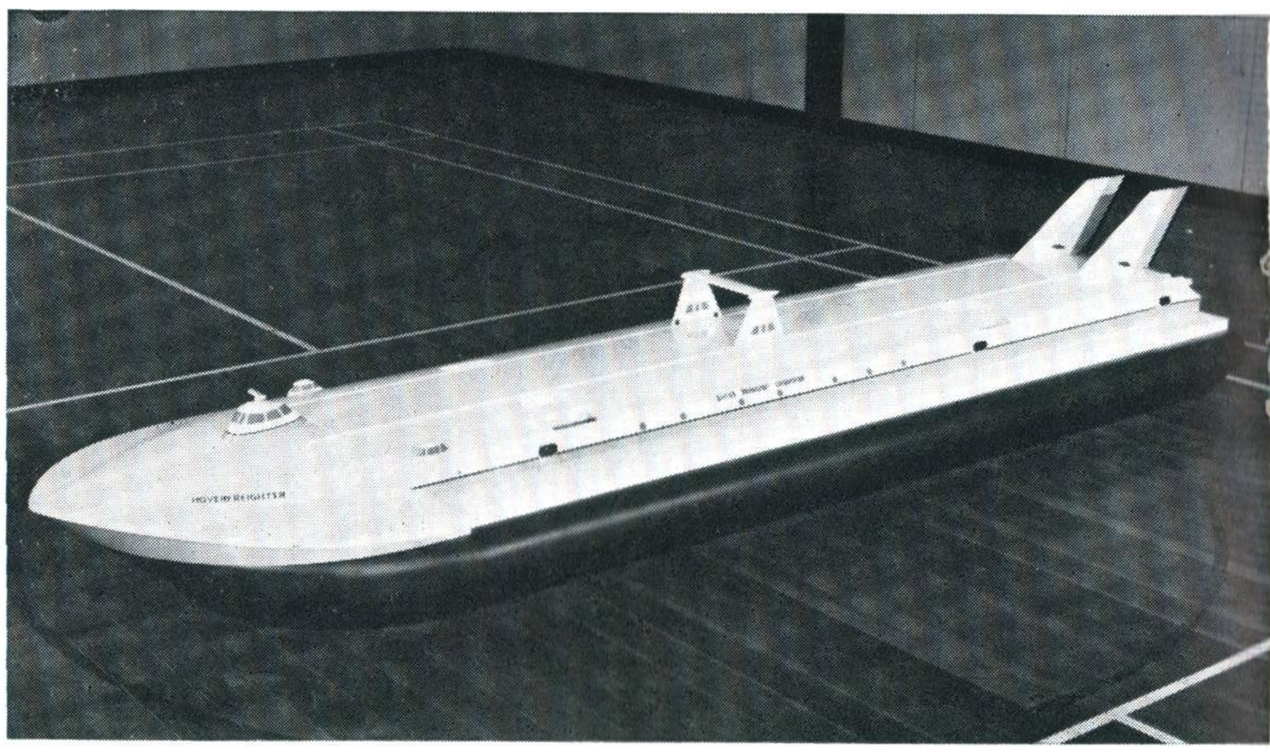
Thanks to the foresight of the late Ministry of Supply, the help of the National Research Development Corporation, to Mr. Christopher Cockerell's genius and the technical facility of Saunders-Roe, now part of the British Hovercraft Corporation, Britain led the field and in 1959 produced the world's first hovercraft. Since then these craft have increased to the point where they may be seen in many parts of the world in regular commercial use and on military trials.

The ability of this particular kind of craft to skim over the land as well as to skate across the surface of the sea, swamp, ice or snow makes it a particularly useful military vehicle. At the present time the smaller vehicles are more practicable but there is evidence that very large types, capable of carrying 2,000 tons are being planned and that at the present rate of development (it is only seven years since its birth) the 1970s should see a large variety of these craft carrying out many functions, both military and civil.

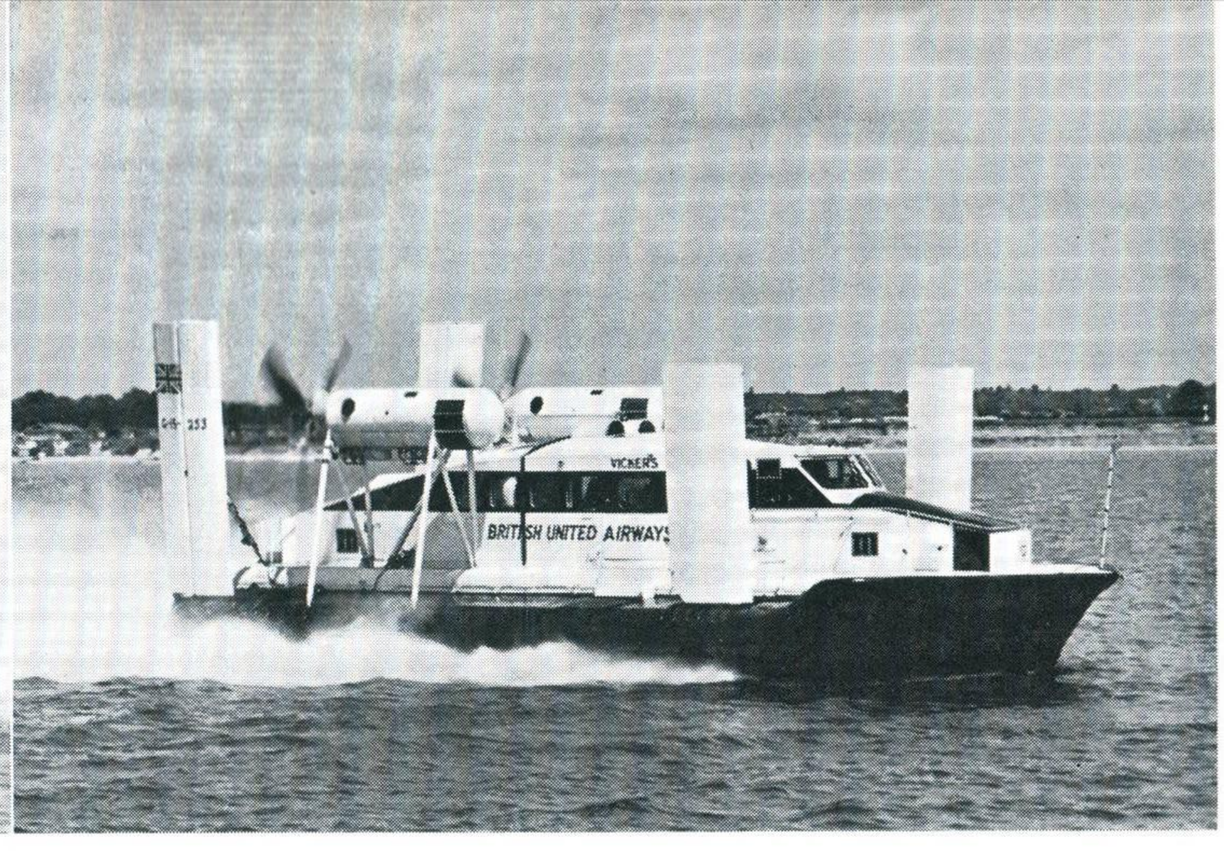
There are no great recognition problems as yet. At sea they are fast moving objects—faster than any ships. They can be seen from afar when under weigh, if only for the reason that they make a distinctive trail of spray. Hovercraft have not been given type names, so that their designations are used for reporting purposes.

Products of the British Hovercraft Corporation are given type numbers, prefixed by SRN. The "SR" stands for Saunders-Roe, the division of Westland Aircraft that developed this craft and is now, with the National Research Development Corporation, absorbed in the British Hovercraft Corporation. Type numbers by other manufacturers all have significant prefix letters, viz. "CC" for Cushion-craft built by Britten-Norman, "D" for Denny Hovercraft and "VA" for Vickers Armstrong.

Top to bottom: SRN1, SRN2, SRN3, SRN5, and SRN6. The SRN4, the largest of the series at 180 tons is not yet completed. All are products of companies now forming the British Hovercraft Corporation.







Vickers Armstrong VA2 (left) which has been tested over desert and ice floes and the VA3 (right), the first hovercraft to go into fare-paying service by a Dee estuary ferry service in 1962.

In France the Société Bertin & Cie have produced a number of air cushion designs which they choose to call Terraplanes; their craft are designated by the firm's initials and their current model, the BC8, is an airfield crash tender hovercraft.

The Royal Swedish Navy ordered an experimental hovercraft from SAAB which was built in collaboration with the Royal Swedish Air Force and the Swedish Defence Research Institute; known as the Saab 401, it is a light research vehicle seating up to four persons.

Development in America has been mainly by Bell Aerosystems and General Dynamics. The large Bell Hydroskimmer prototype capable of carrying 13 fully armed Marines is the SKMR-1 of the U.S. Navy, while the General Dynamics small research vehicle has been designated by its firm the SKIP-1 (Skimmer Investigation Platform No. 1).

In Russia, the Krasnoye Sormovo shipyards have been working on a fifty-passenger air cushion vehicle known as the Sormovich after its designer.

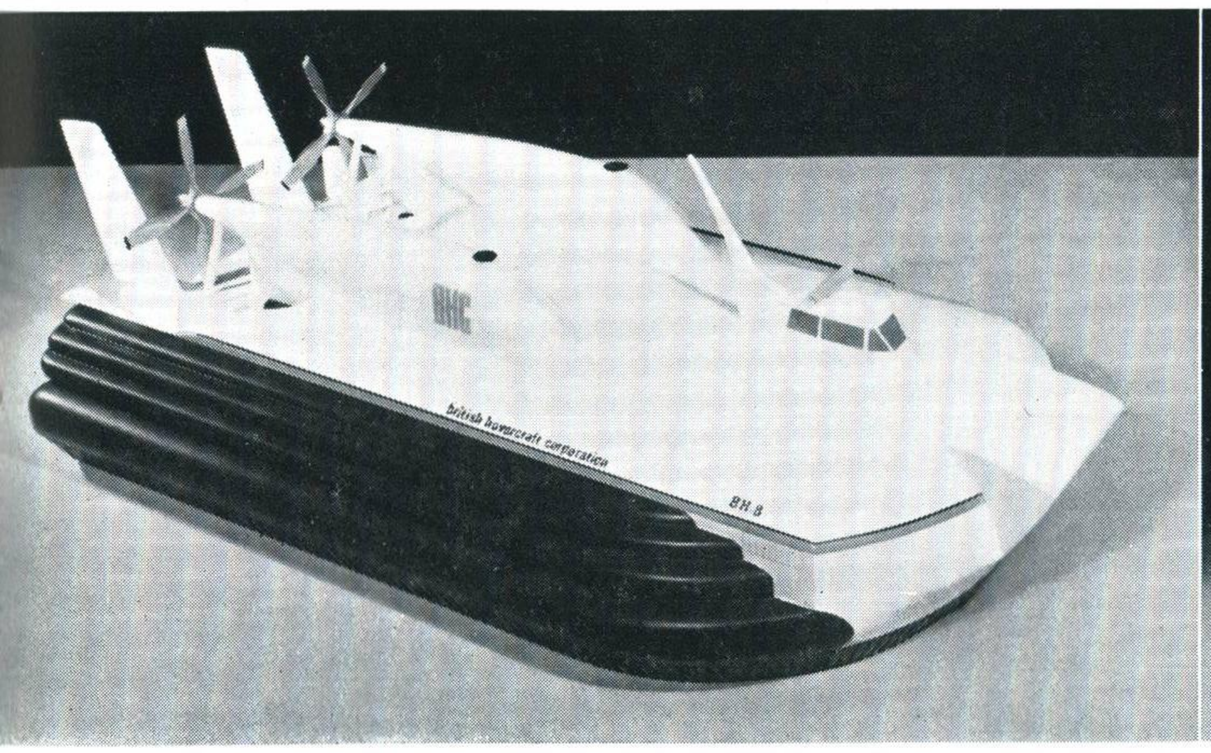
This British invention is now international.

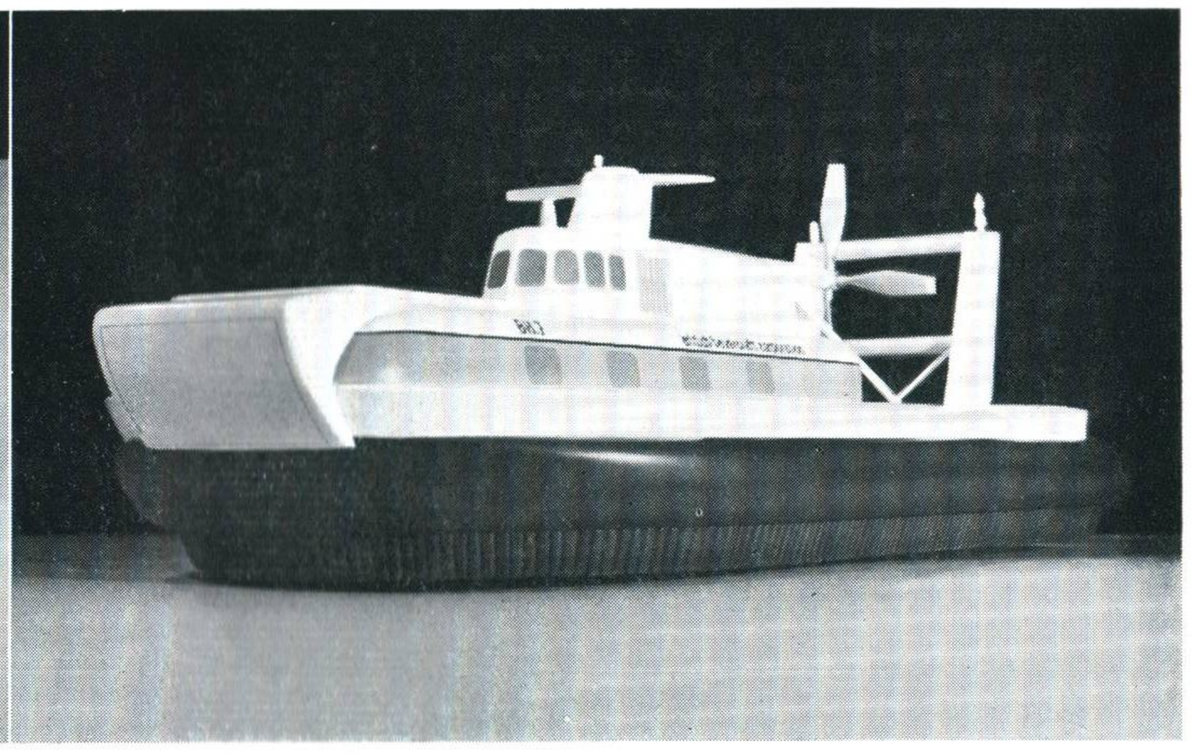


The Britten-Norman CC5 seating 6–8 passengers is, like their new Islander aircraft, in the executive class. It is fitted with dual control for pilot training. Below, the CC2 which has been used by the Naval Air Department of the Royal Aircraft Establishment.



New types from the British Hovercraft Corporation will be known by the letters "BH". The BH7 is a military prototype and BH8 an 80-tonner ; models of these are shown right and left respectively : at the left on the opposite page, the projected 480-feet Hoverfreighter.

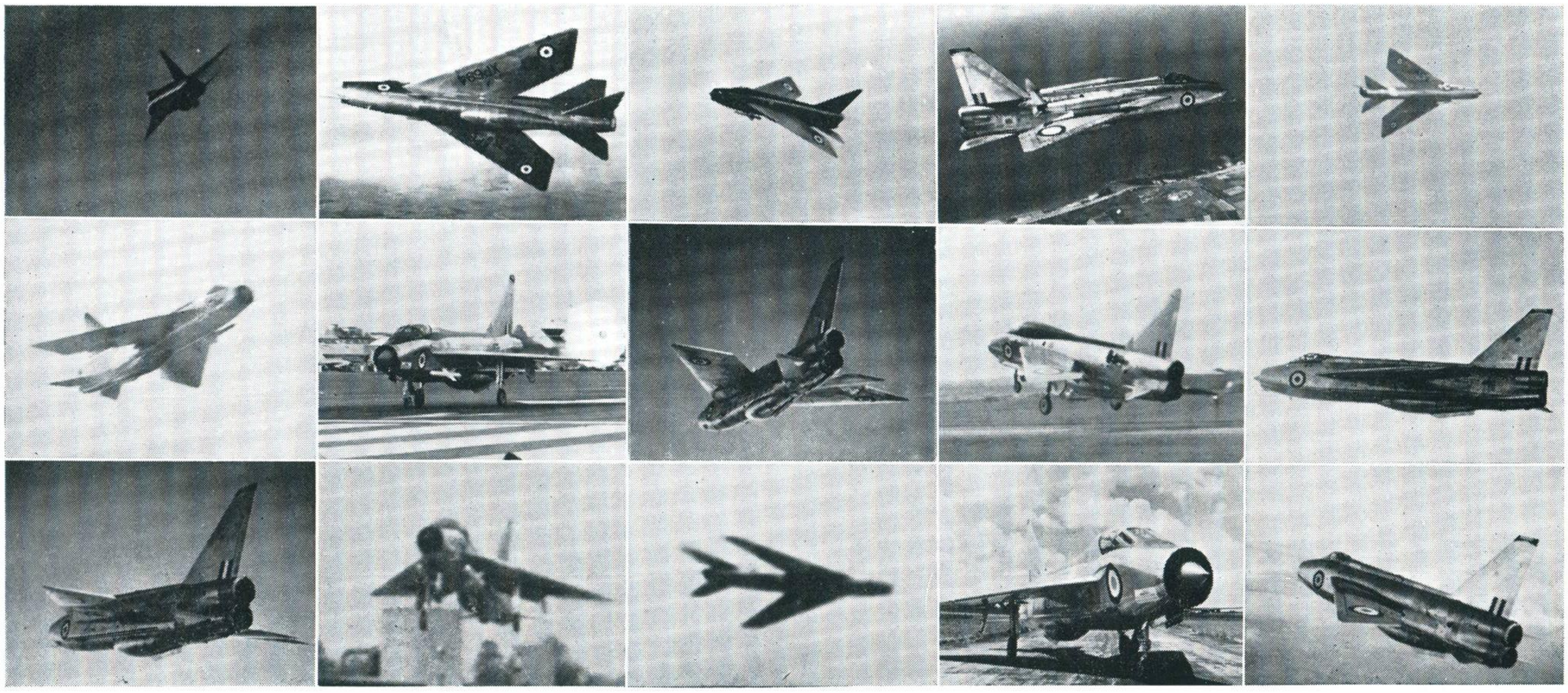




TEST PAPERS

Fashion a grid to the pattern of a lesson and mark with a cross the position of any pictures that do not conform to the subject heading.

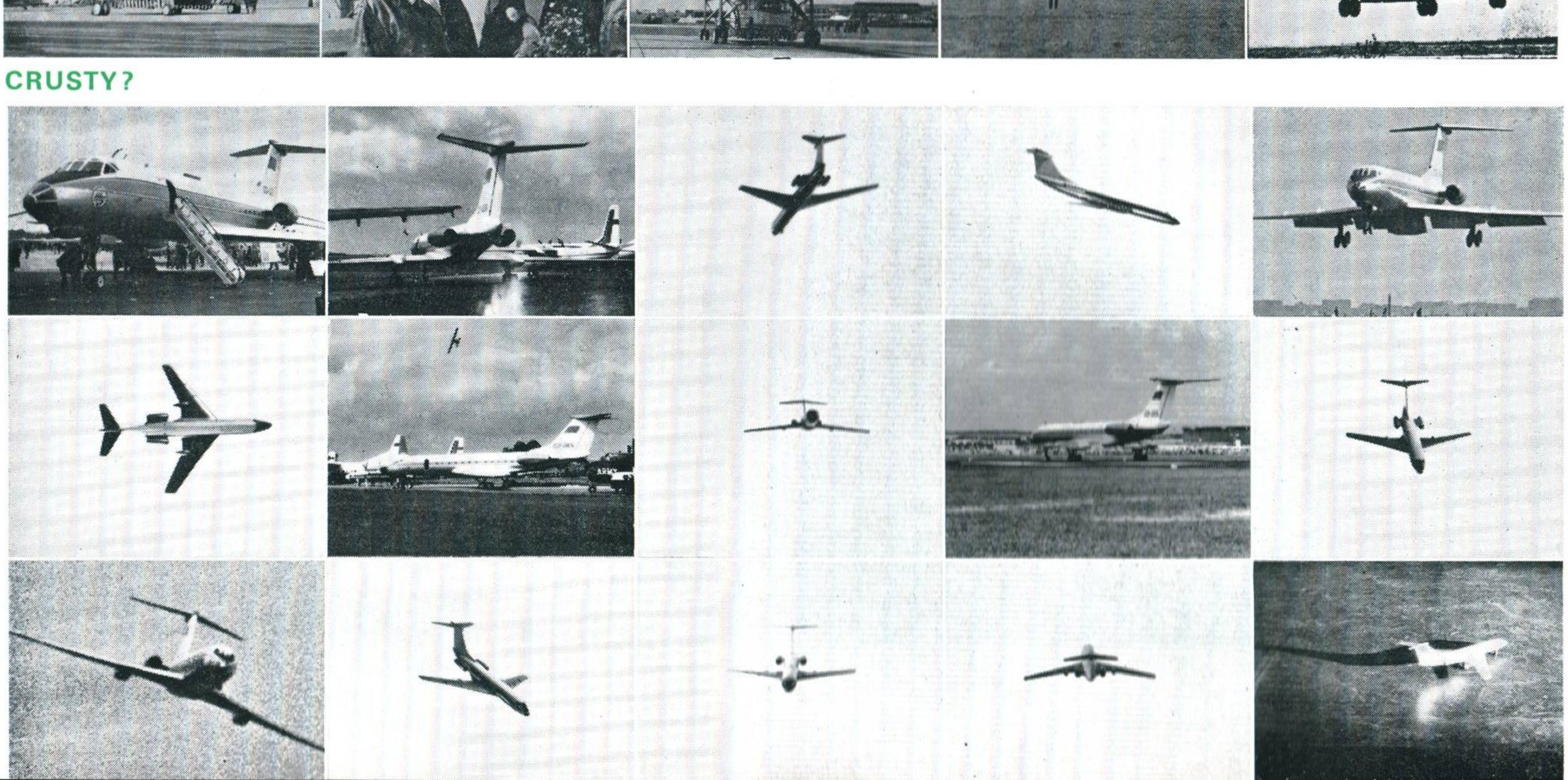
LIGHTNING?



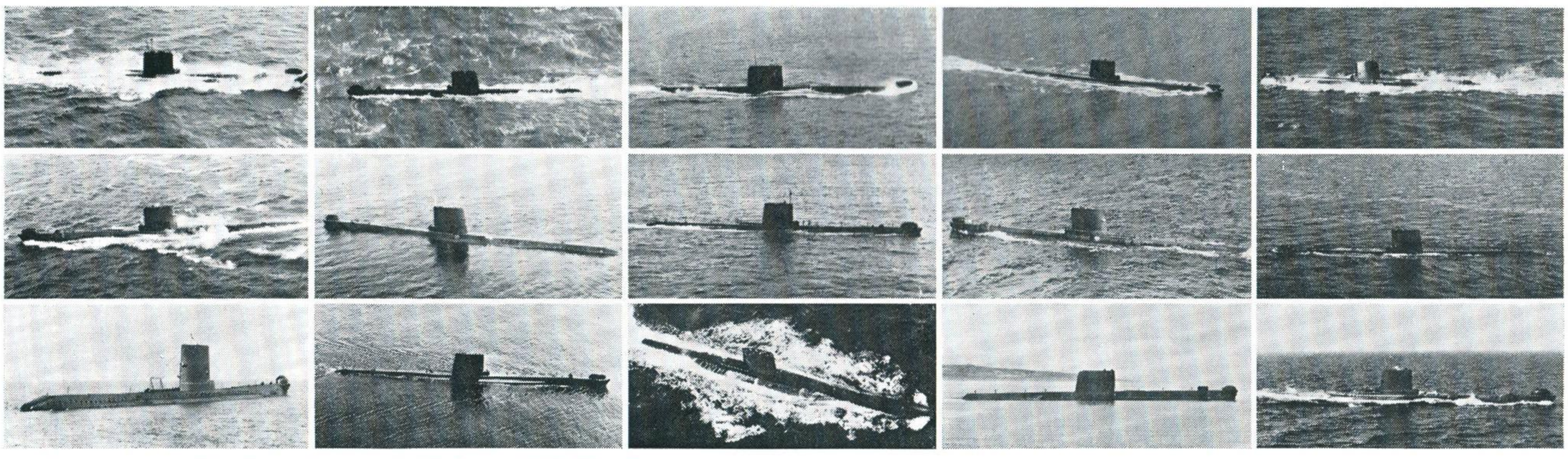
HARKE?



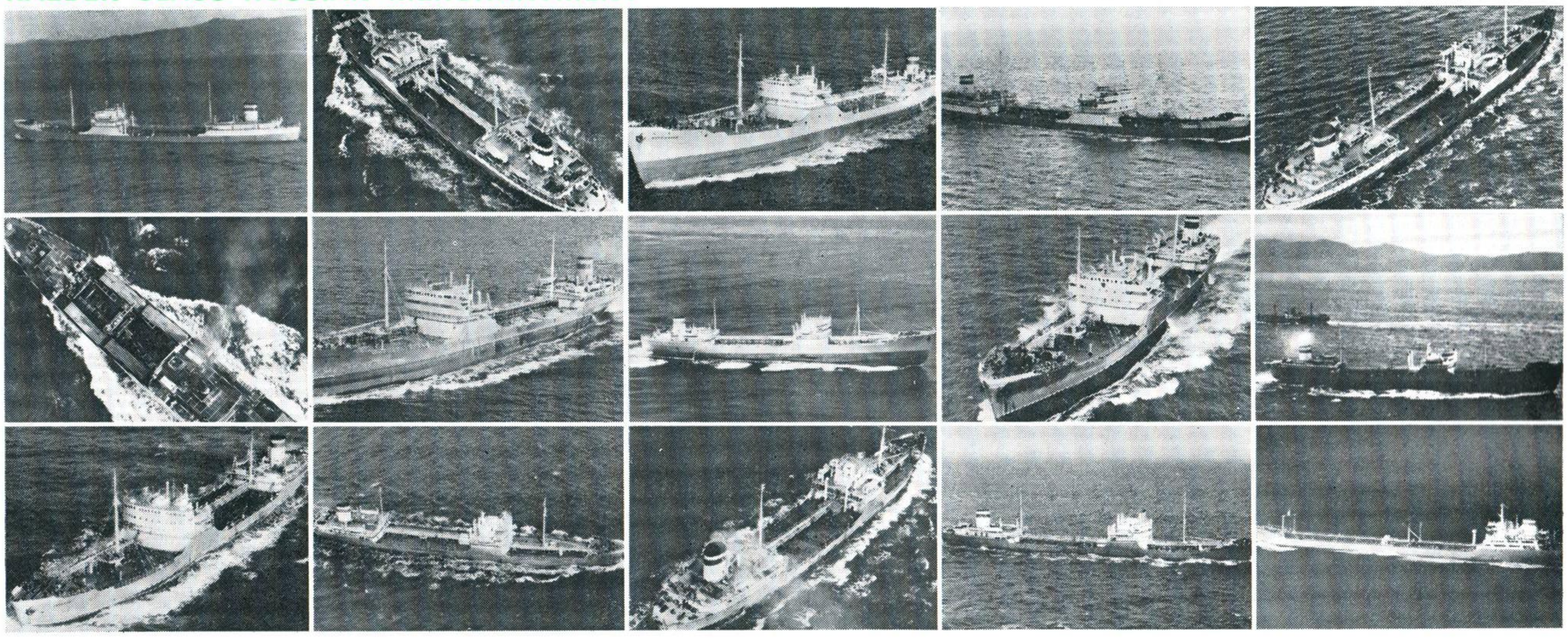
CRUSTY?



ROYAL NAVY "A" CLASS SUBMARINES?

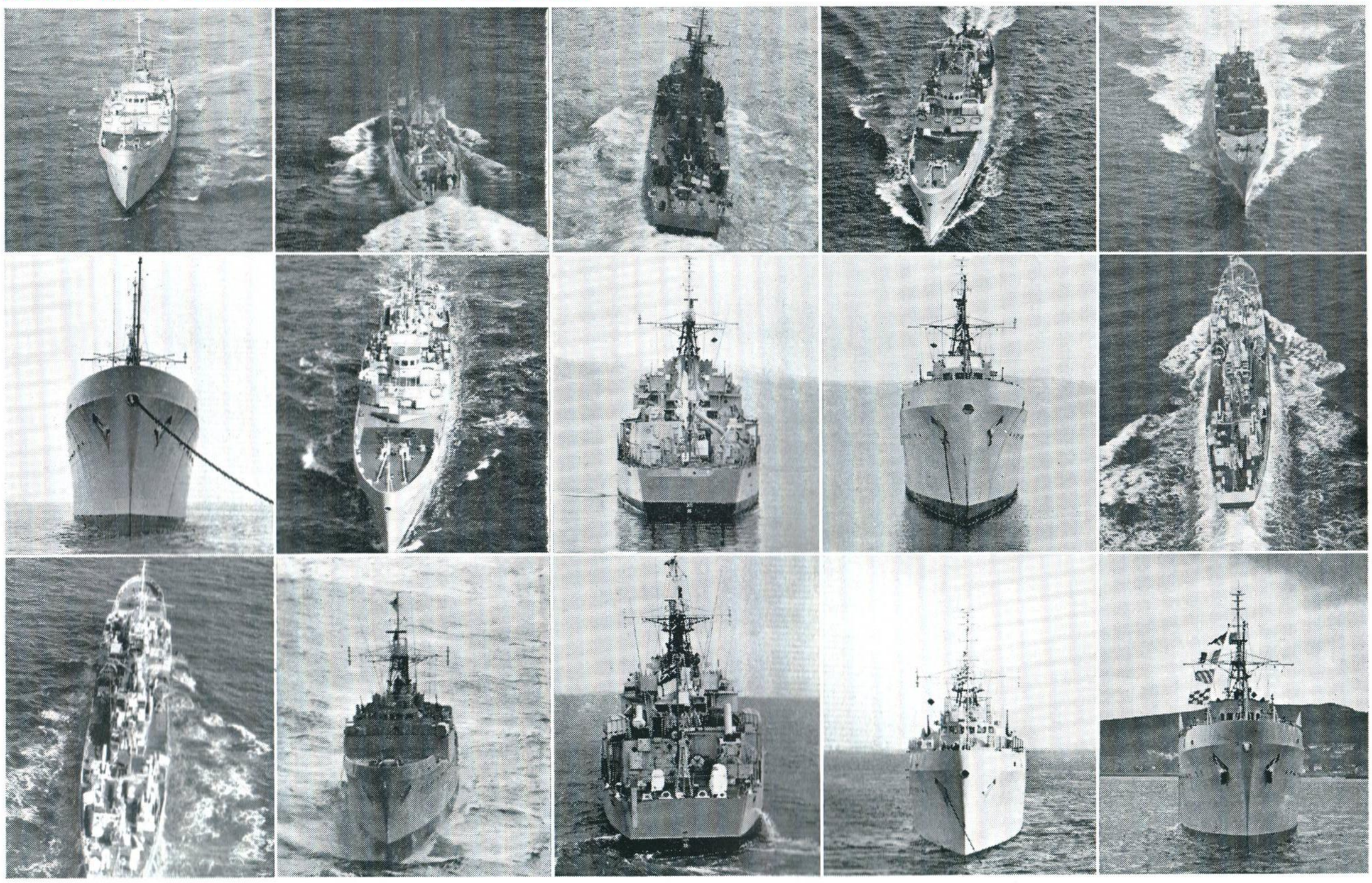


KAZBEK CLASS RUSSIAN MERCHANTMEN?

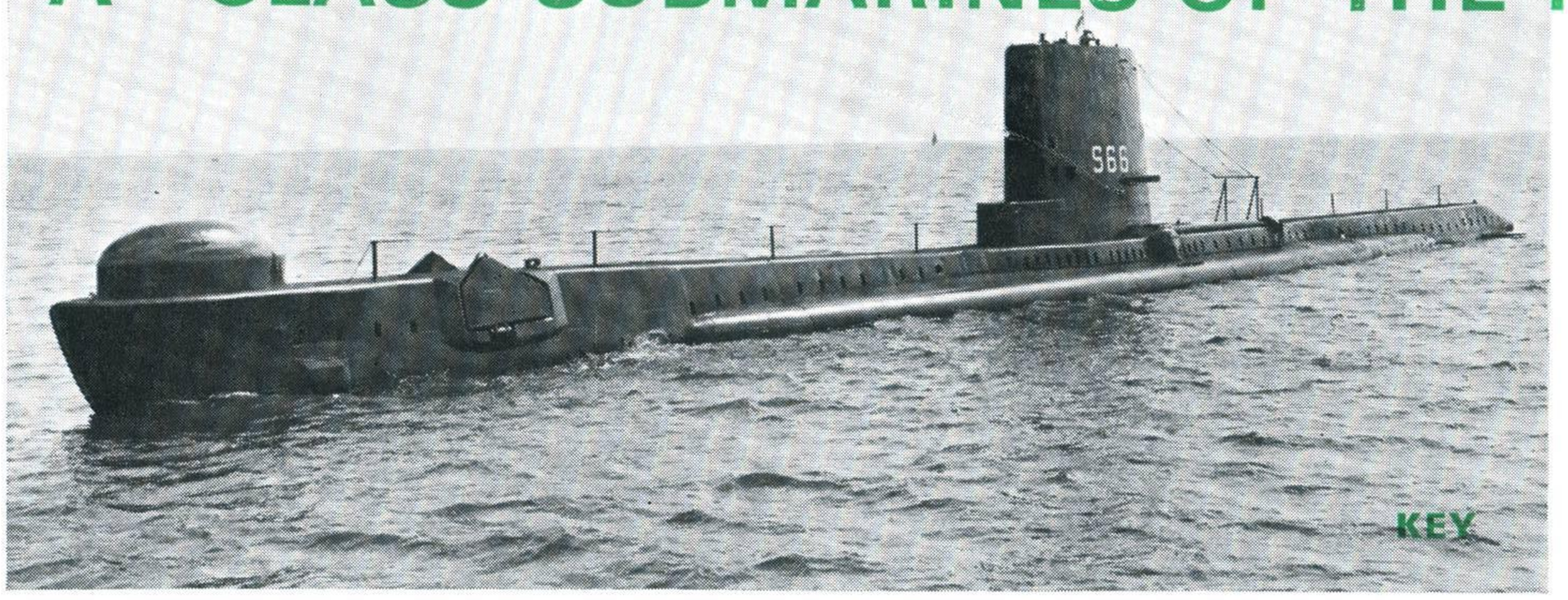


ROYAL NAVY BLACKWOOD CLASS FRIGATES?

Solutions on the cover

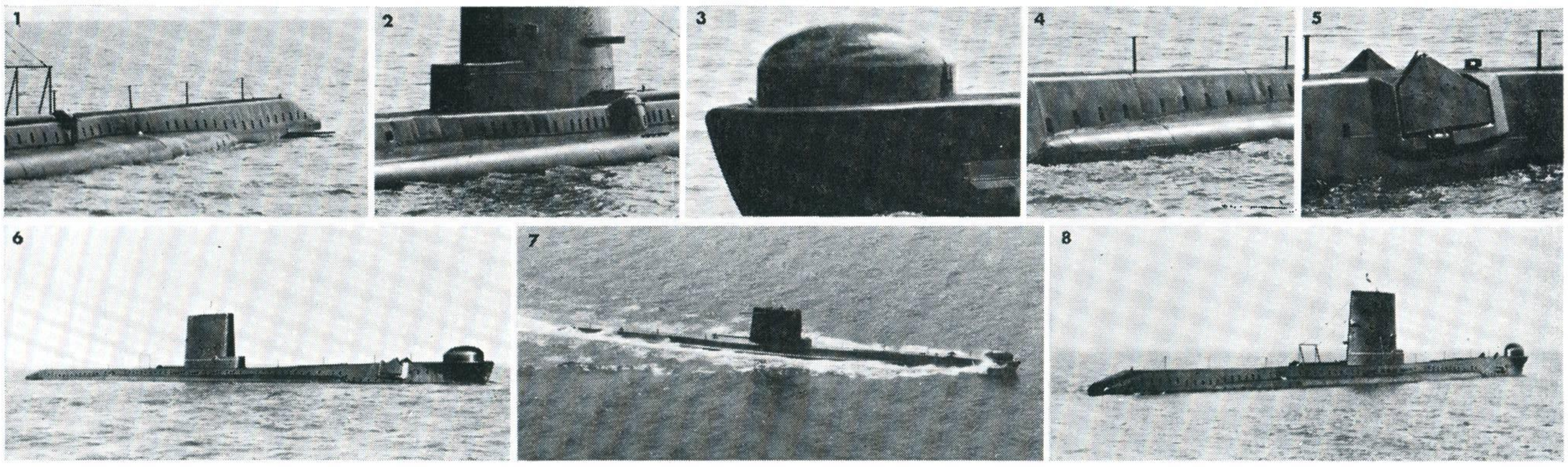


"A" CLASS SUBMARINES OF THE ROYAL NAVY



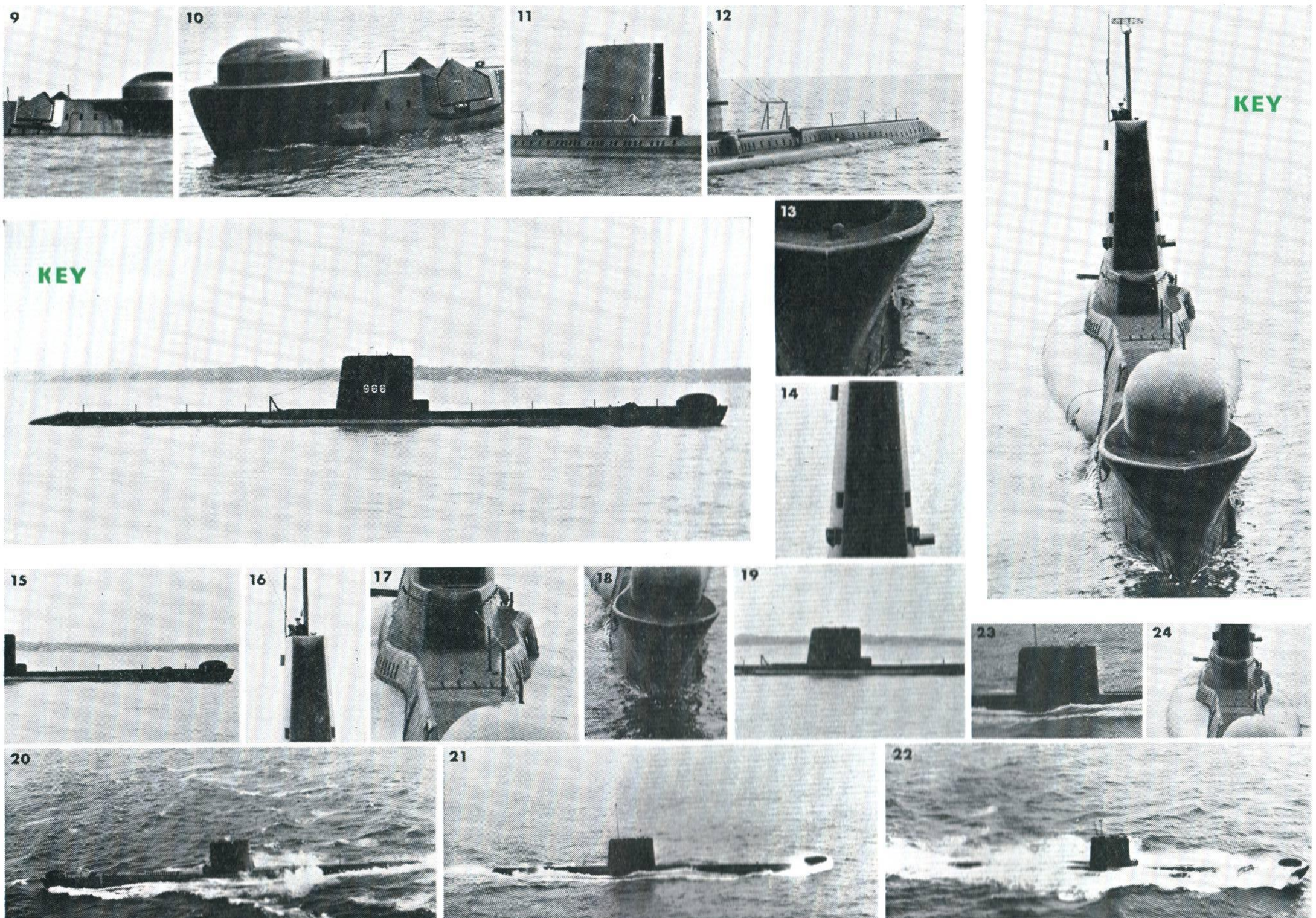


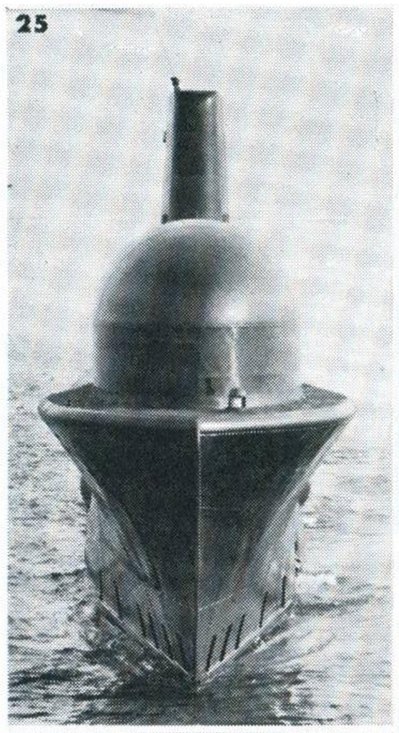
There were some thirty submarines of the "A" Class building during the war, planned for Pacific operations. The fourteen currently in commission have all been modernised to the standard shown in the keys with a fin conning tower 26 feet high.

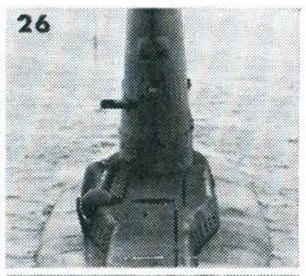


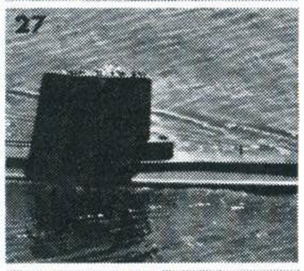
These submarines have an overall length of 283 feet and are of 1,120 tons standard displacement. There is provision on some for the mounting of a 4-in. gun, but this armament is not normally carried.

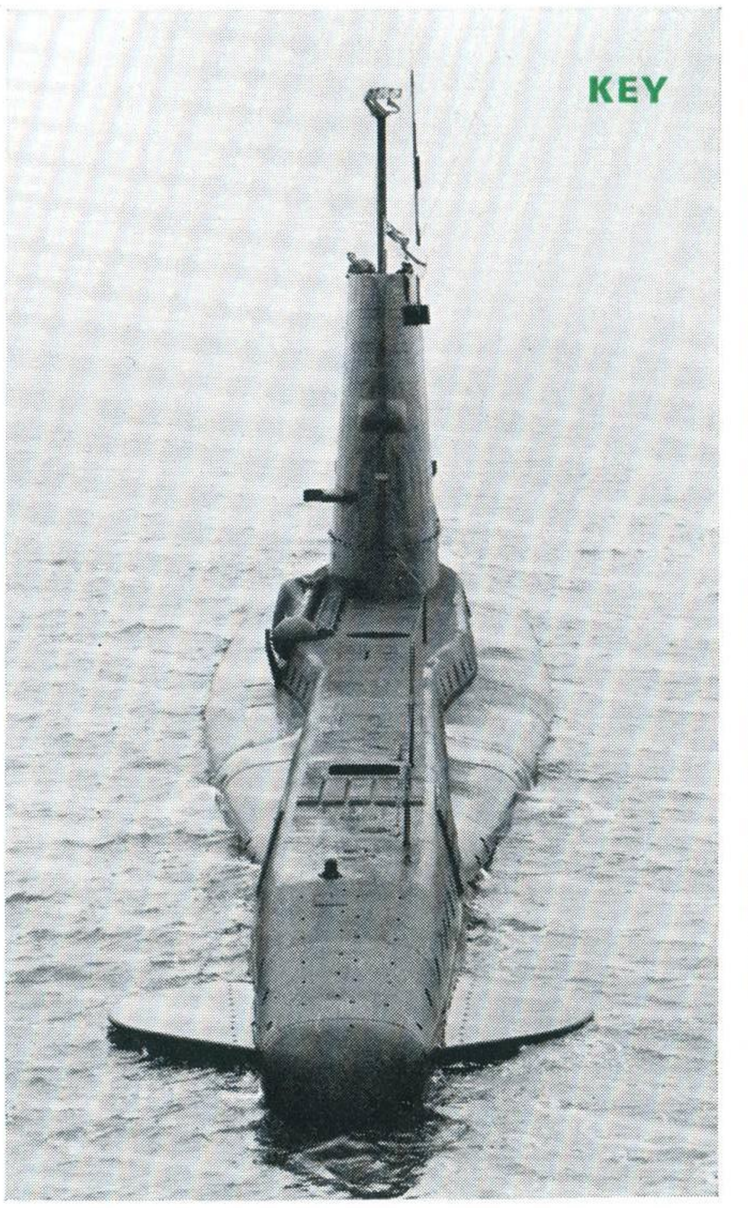
The "A" Class derives its reporting name from the individual names given to the submarines in this class, viz. H.M.S. *Acheron*, *Aeneas*, *Alaric*, etc.
Refer to the instructions on page 287.

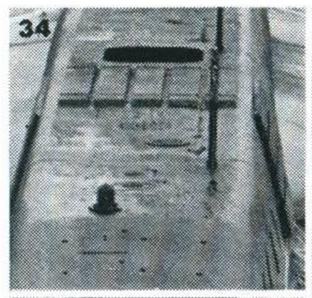






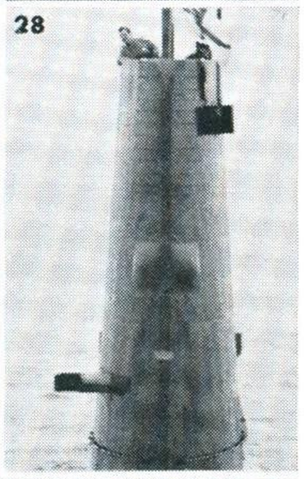


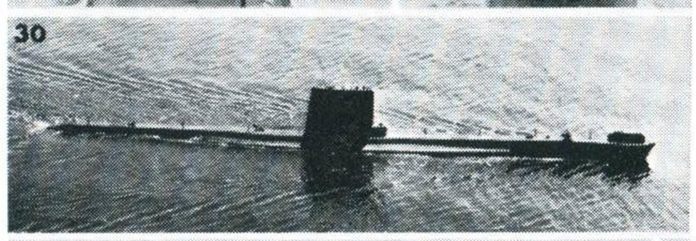




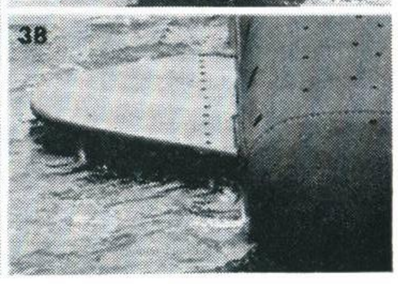




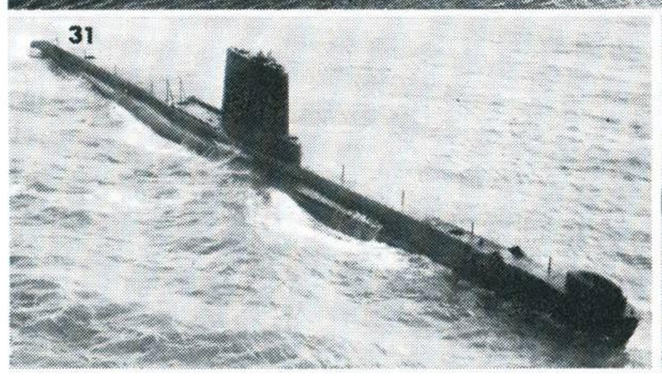


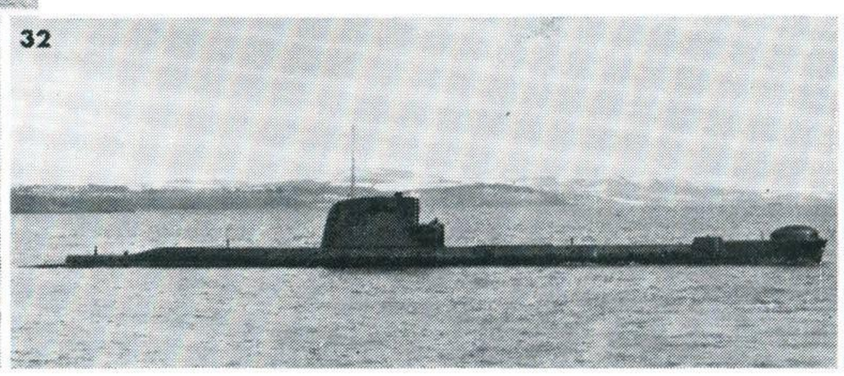


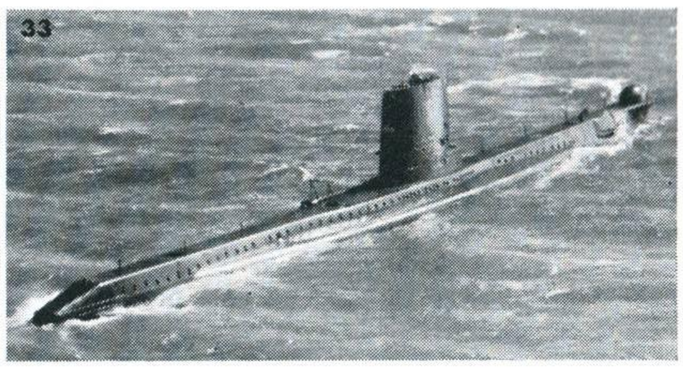






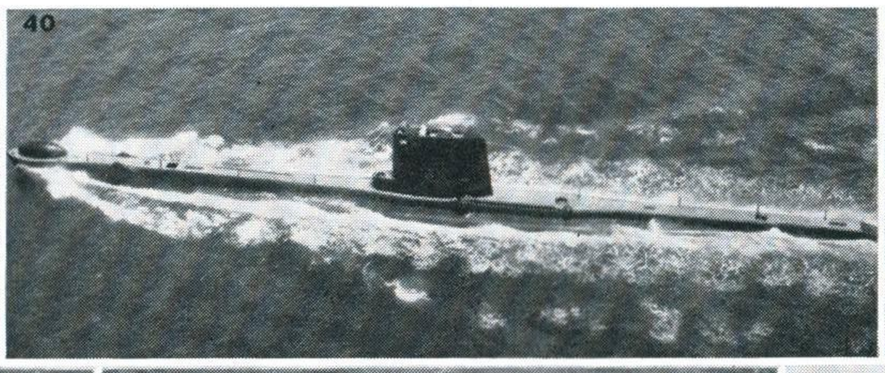


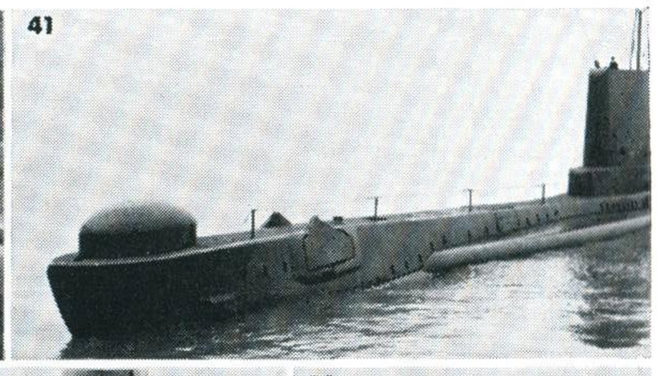




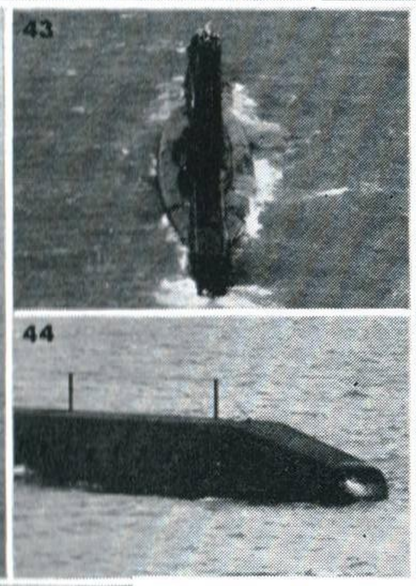
Solutions on the cover



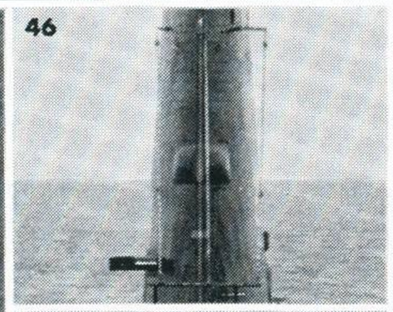


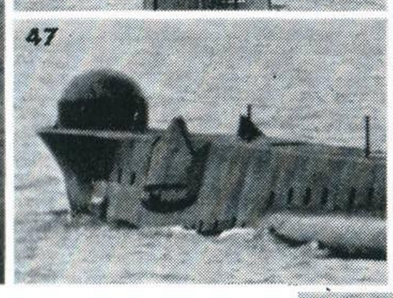


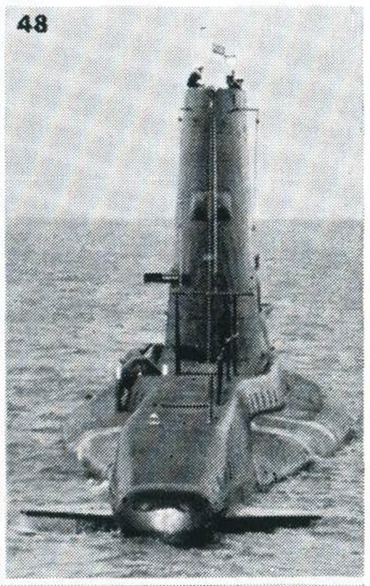










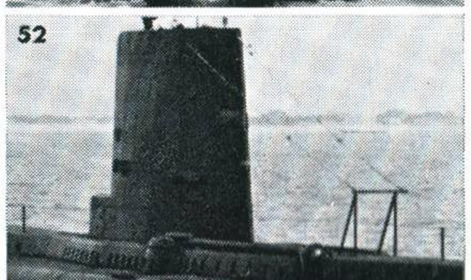












AFV TEST-BATTLE TANKS

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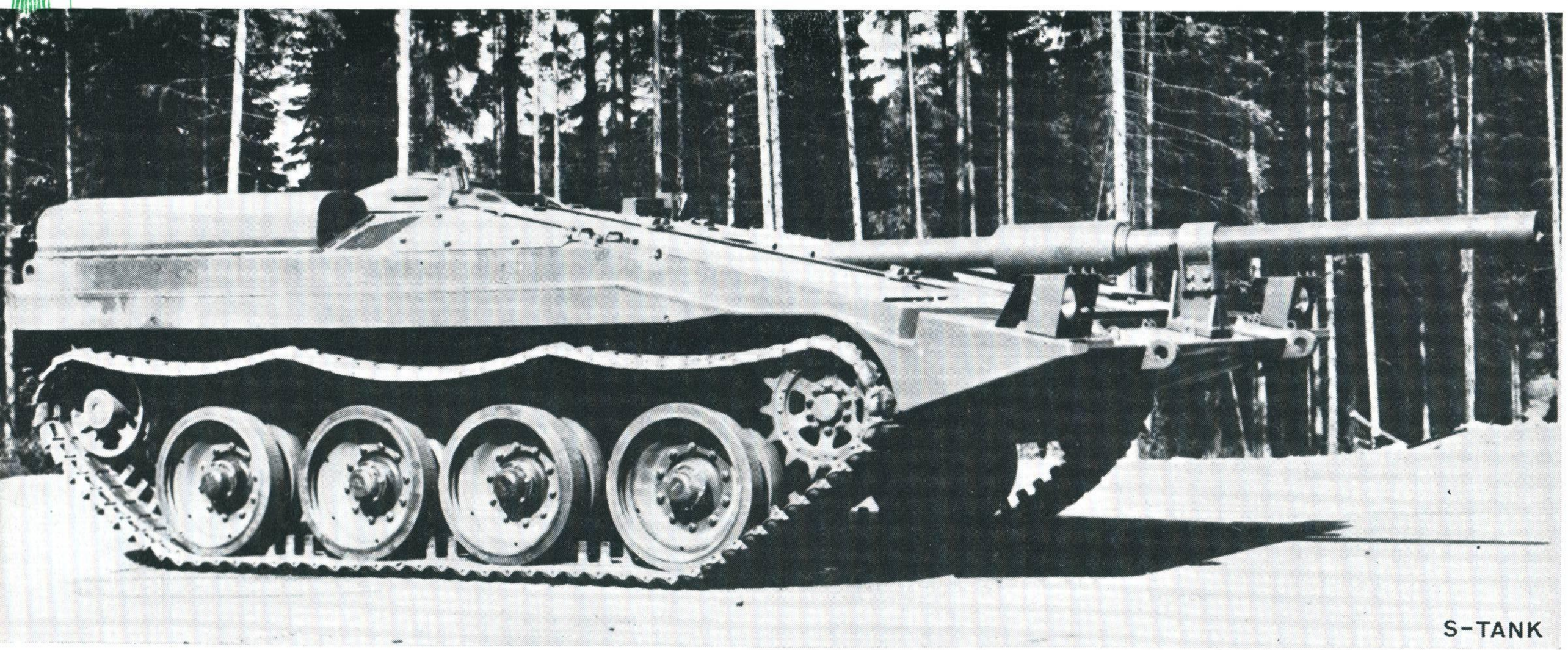
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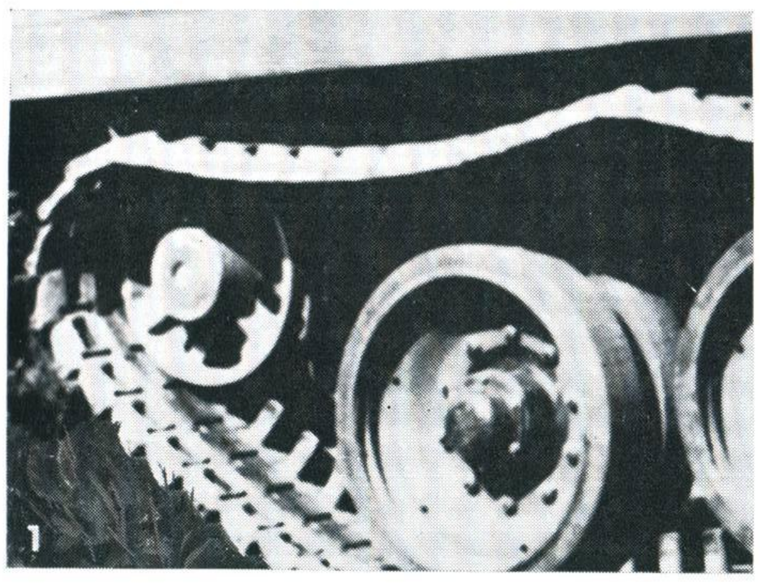
Solutions by type, function and nationality on the cover

SWEDISH S–TANK

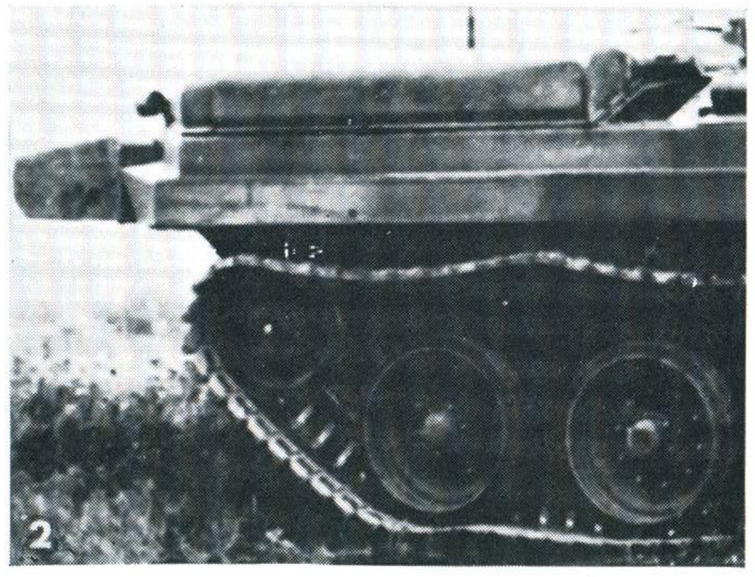
Lesson instructions on page 287.



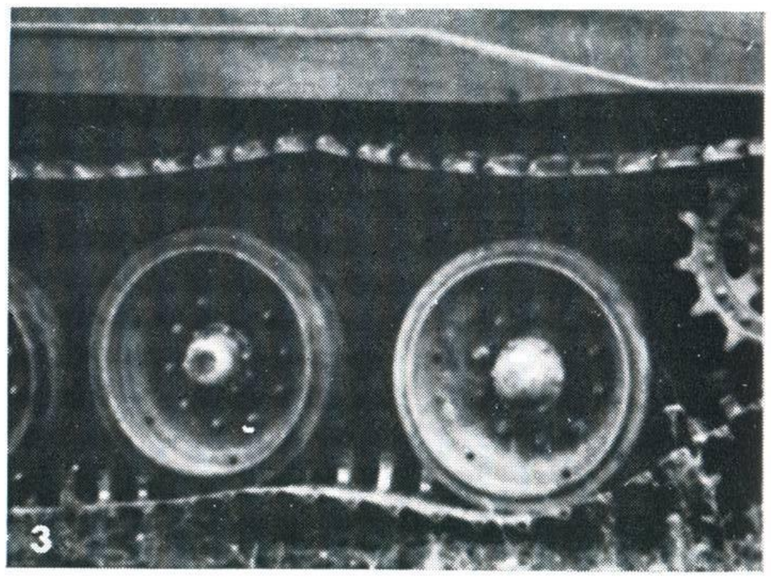
S–TANK



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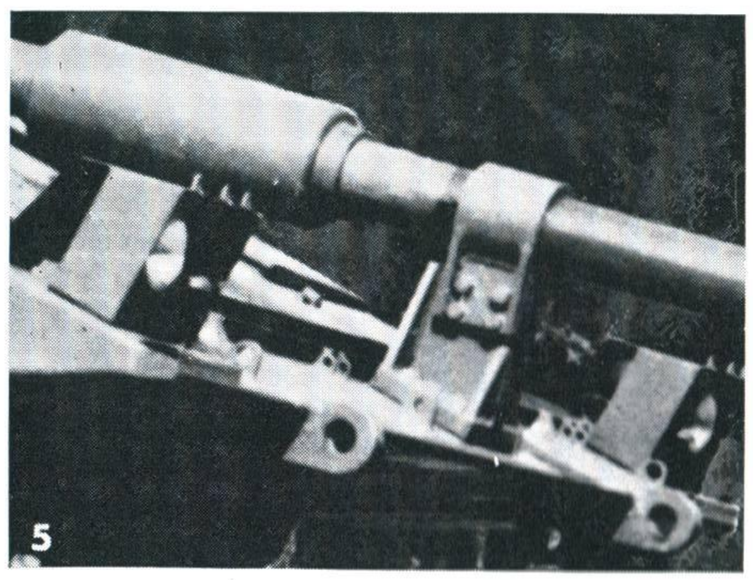
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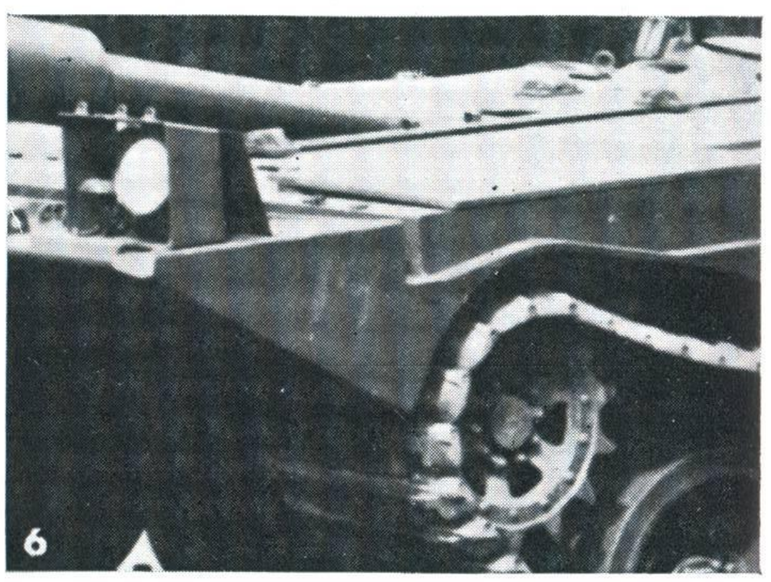
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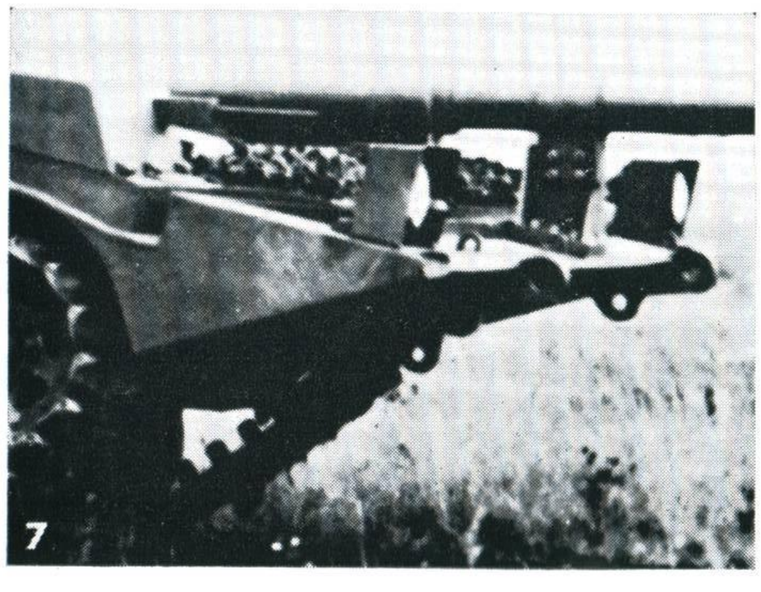
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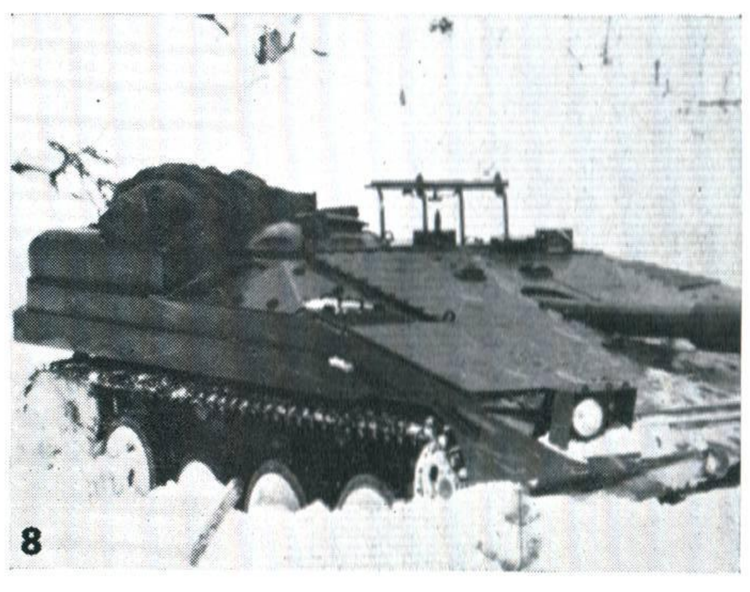
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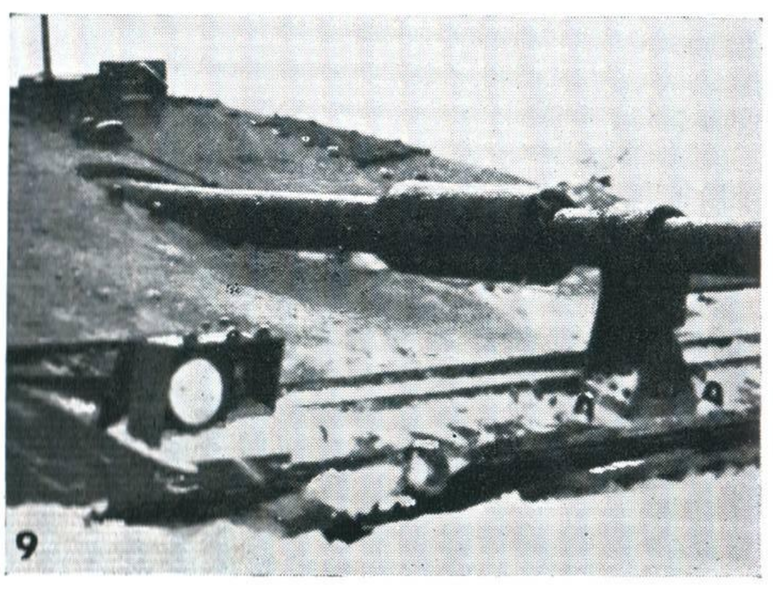
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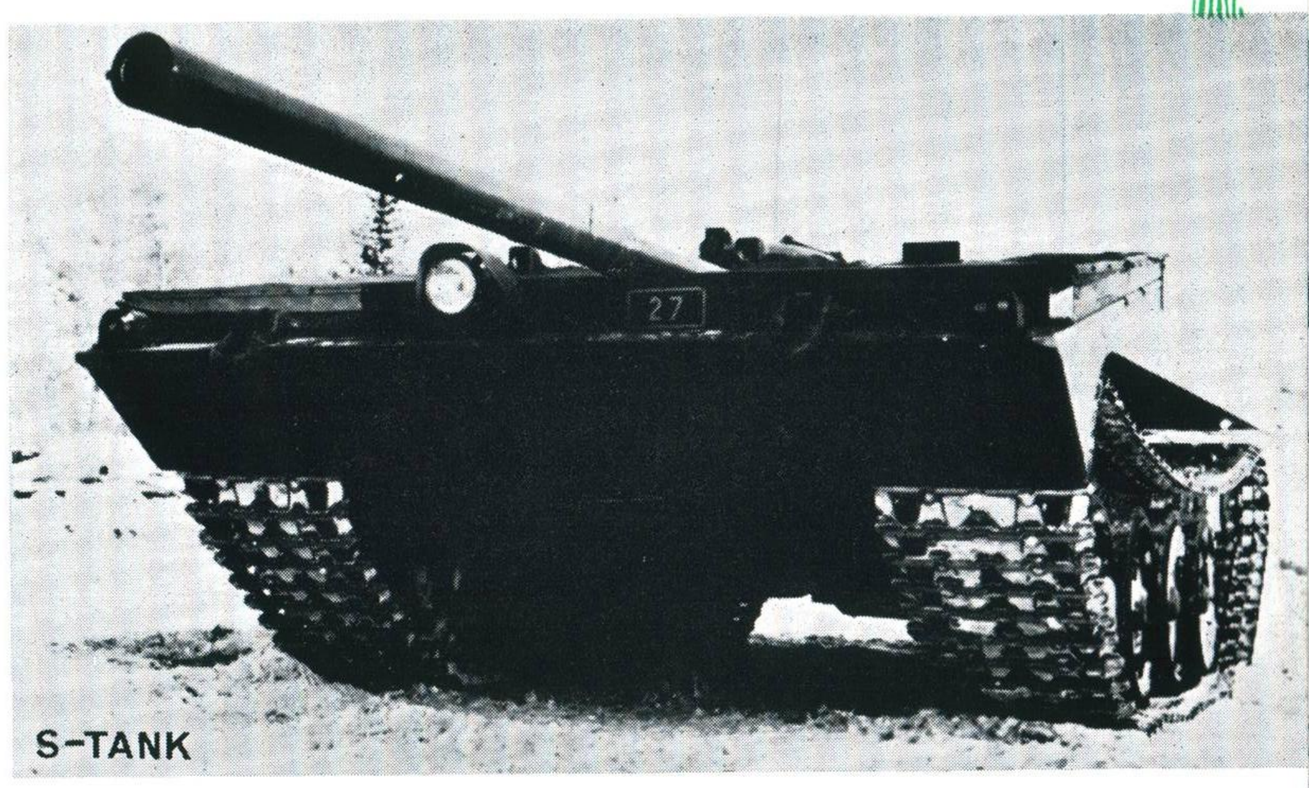
The S-tank, or Strv 103, which is being produced by Bofors for the Swedish Army, is probably the most remarkable of the new generation of battle tanks. As can be seen in the key pictures, it has no turret. What is more, the mounting of its 105-mm. gun is fixed in relation to the hull. In consequence, the gun is elevated or depressed by changing the pitch of the hull by means of an adjustable hydro-pneumatic suspension and traversed by turning the whole tank.

Thanks to its turretless layout with a fixed gun mounting the S-tank has an exceptionally low silhouette, which reduces its chances of getting hit. Due to its small size it also combines very effective armour protection with the relatively light weight of 37 tons.

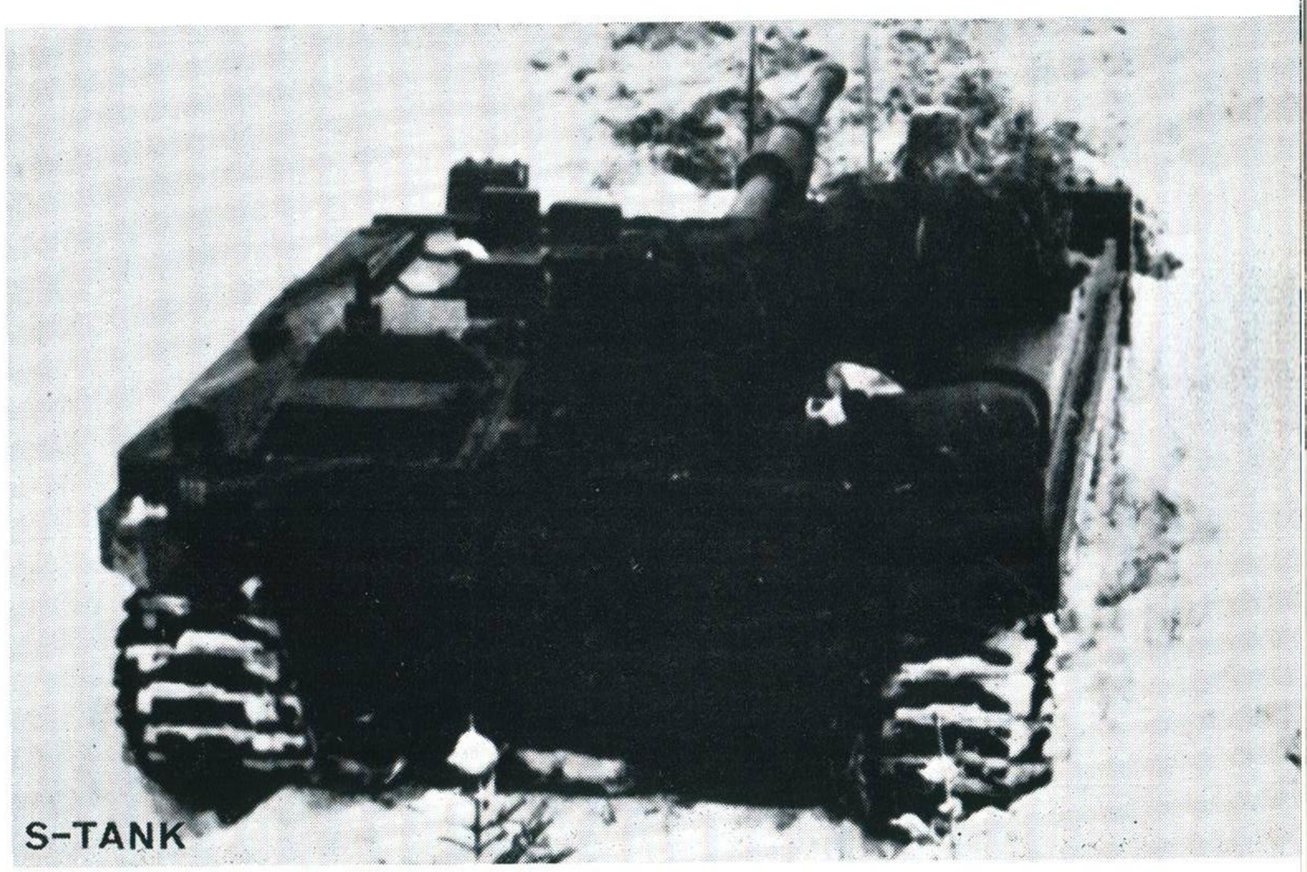
A less obvious feature of the S-tank are its duplicated controls and the high degree of automation, which enable either the commander or driver/gunner to operate it by himself in an emergency. A third crew member operates the wireless sets and drives the tank in reverse.

Behind the central crew compartment is a magazine and automatic loader for the 105-mm. gun. In front, under the exceptionally well-sloped glacis plate, is the engine compartment which houses a Rolls-Royce K.60 diesel and a Boeing gas turbine geared to a common output.

Some external differences exist between the original S-tanks and the latest models, which have gun barrel support brackets, fume extractors and track return rollers.

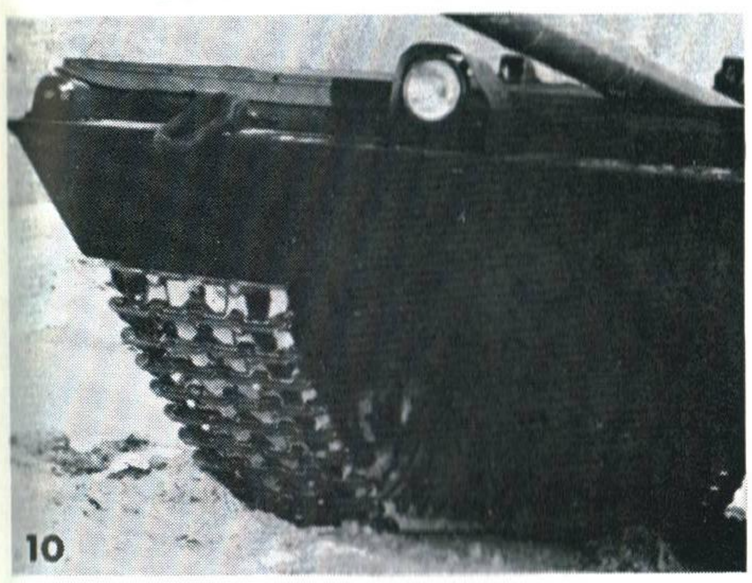


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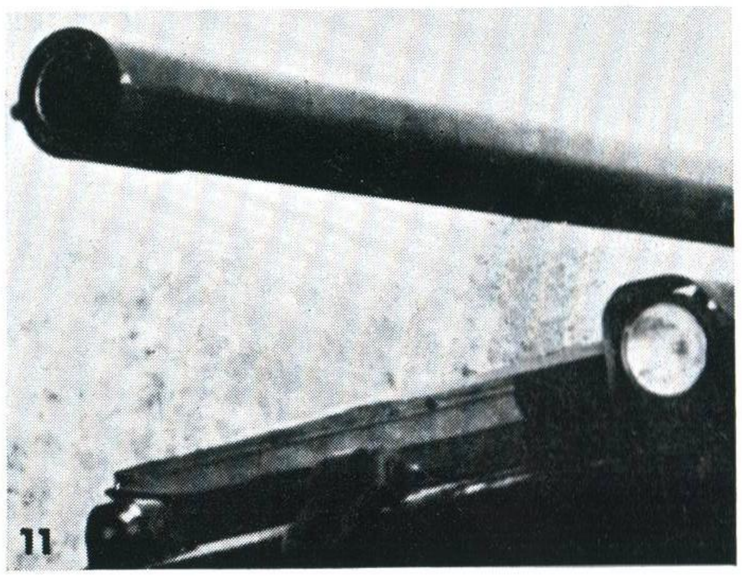


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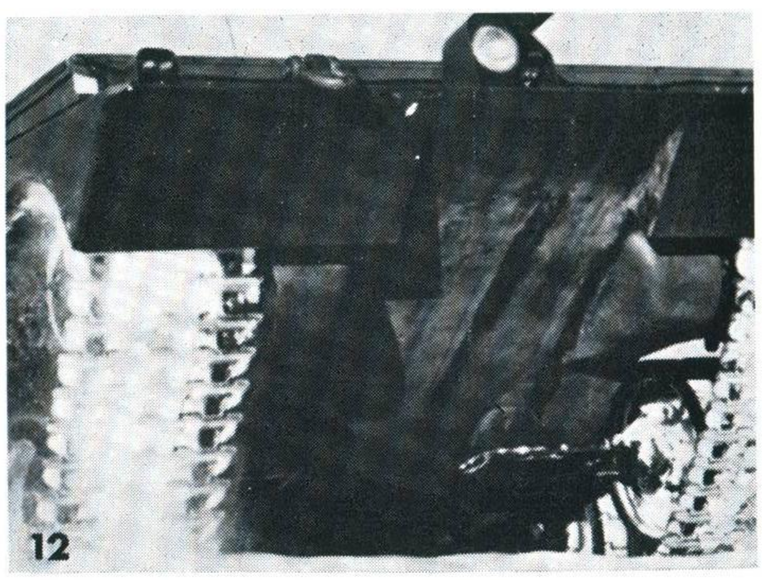
Solutions on the cover



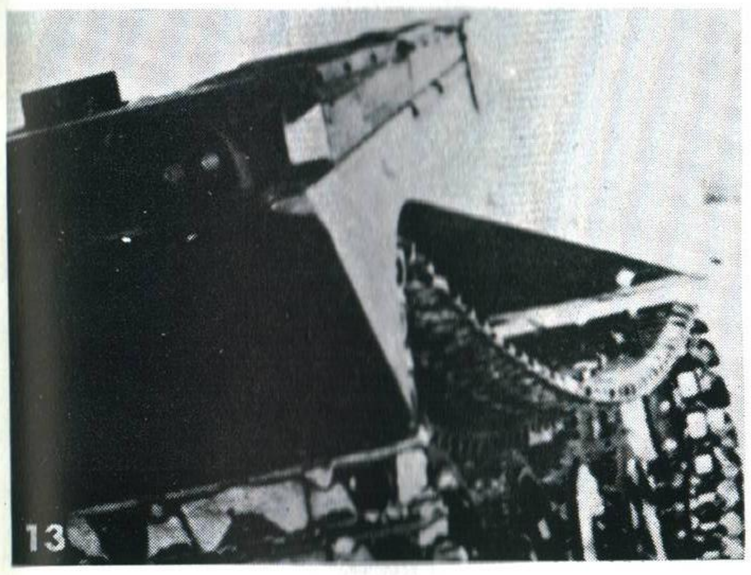
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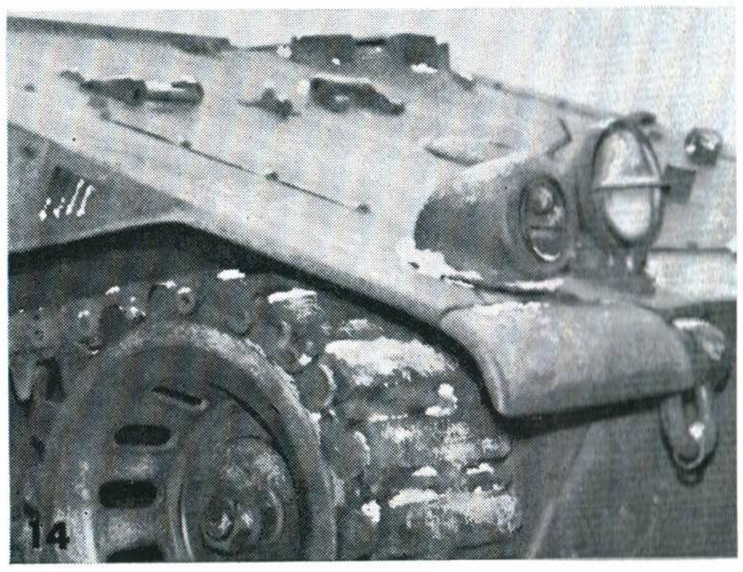
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13



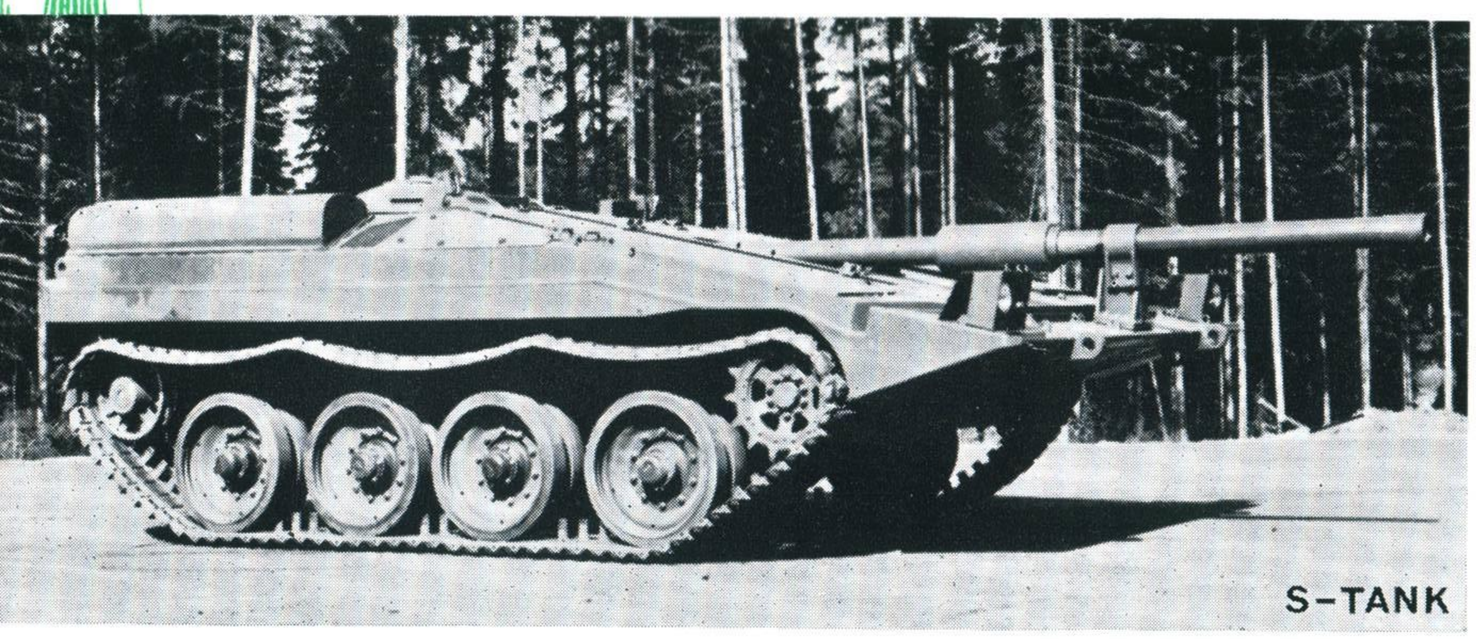
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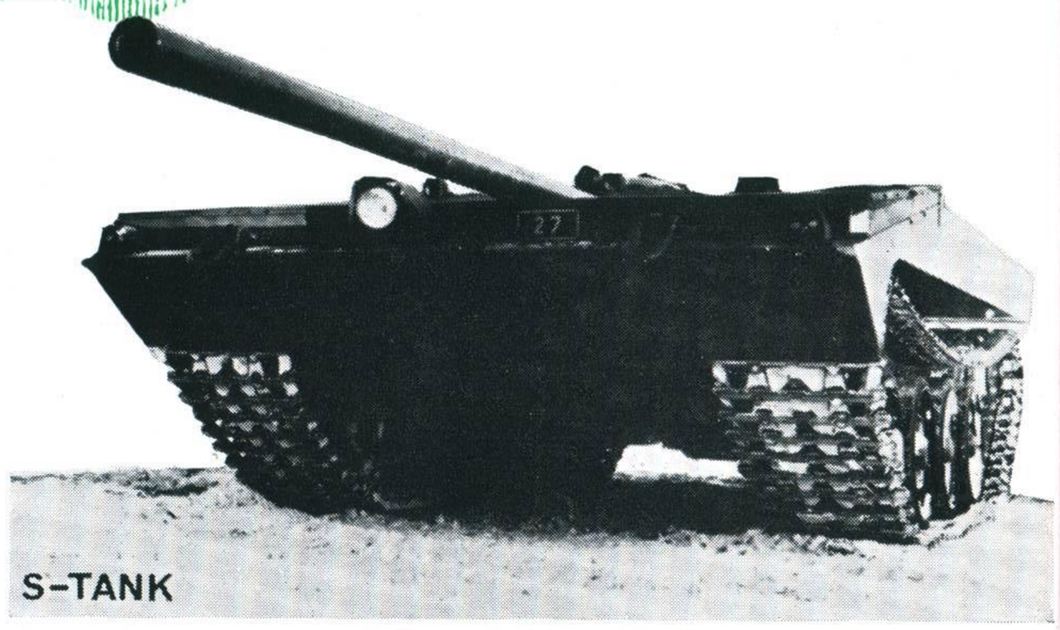
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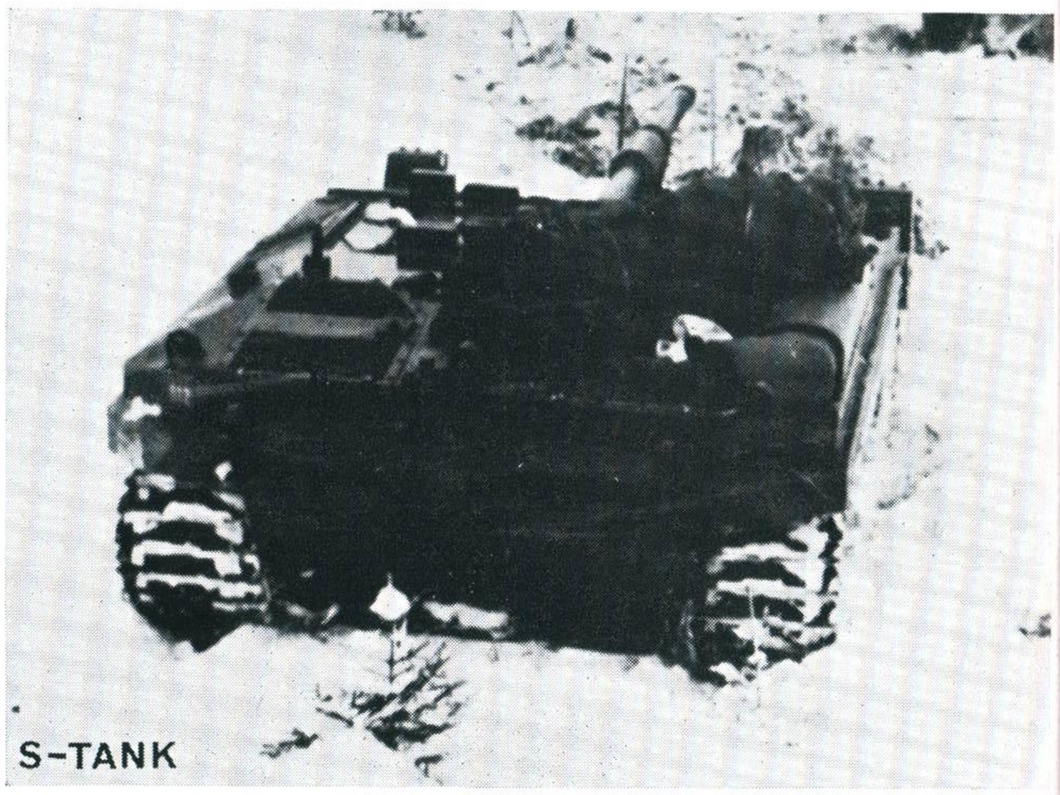


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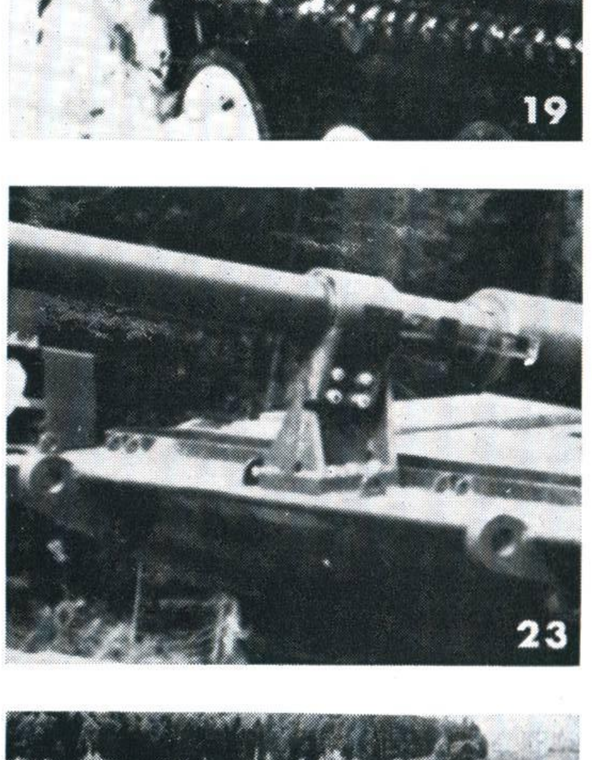
SWEDISH S–TANK continued


S–TANK

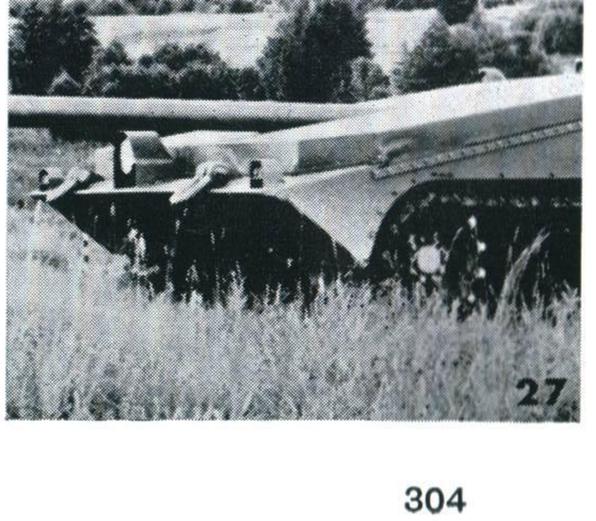

S–TANK

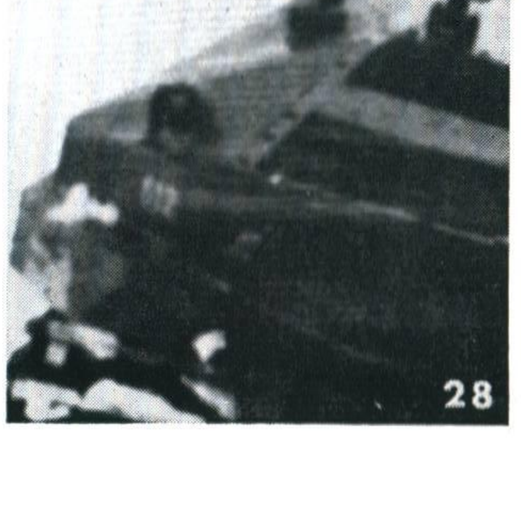

S–TANK


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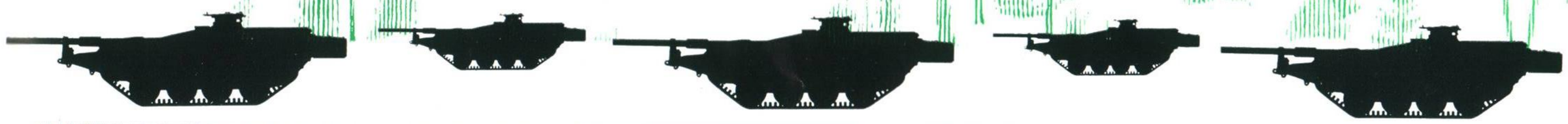
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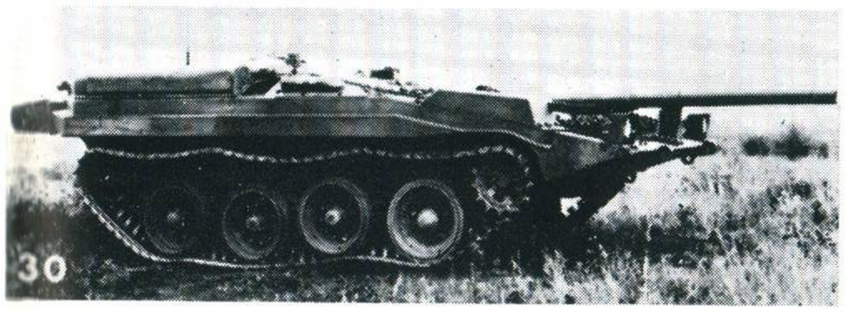
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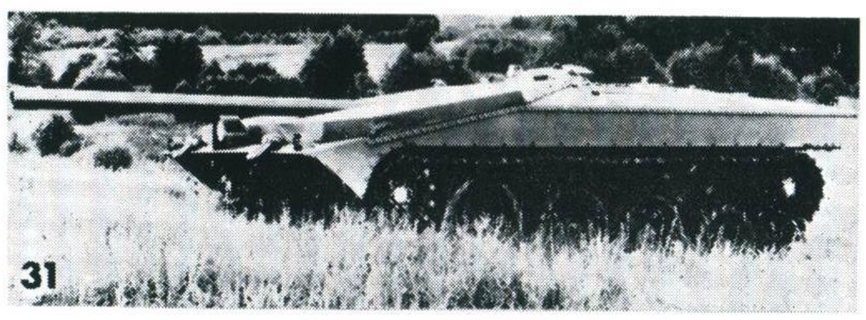
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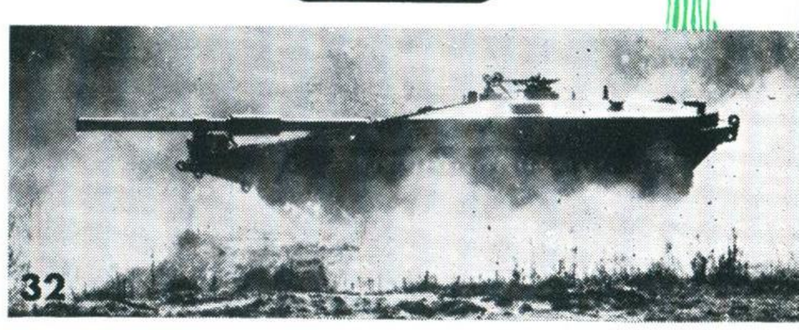
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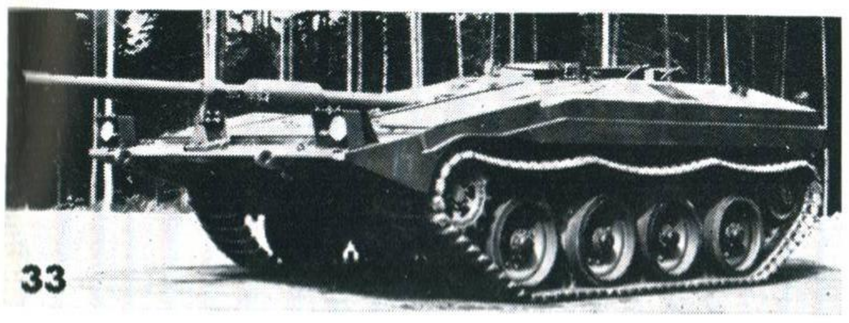
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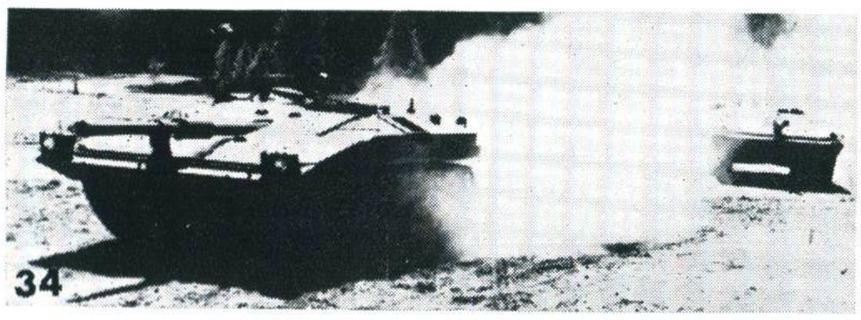


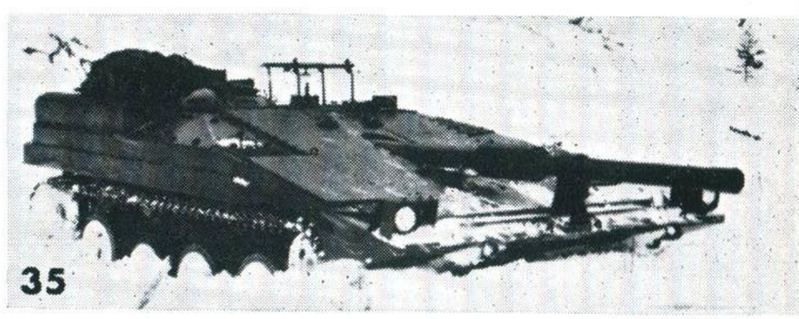

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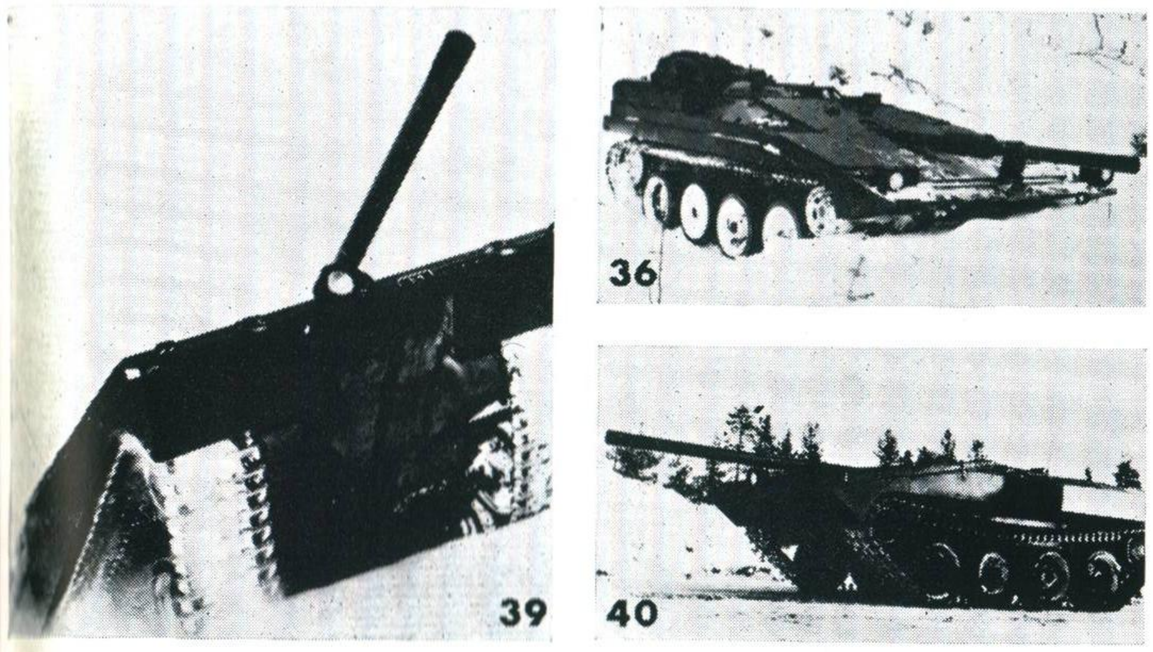

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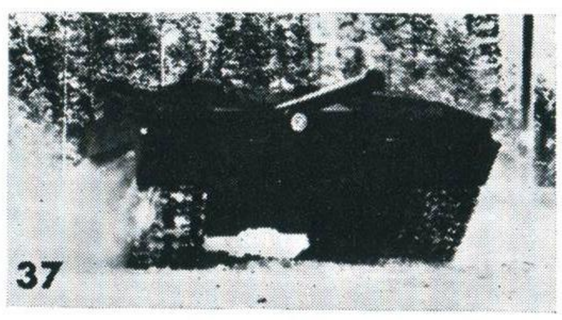

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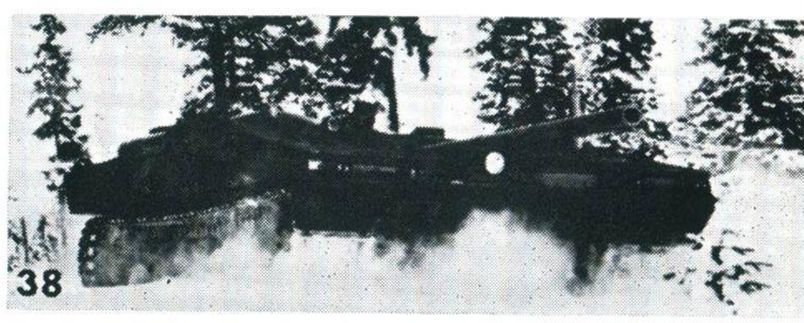

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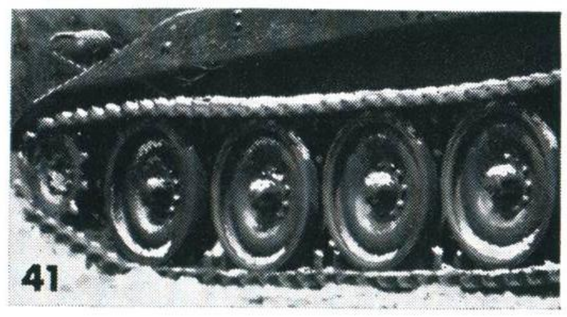
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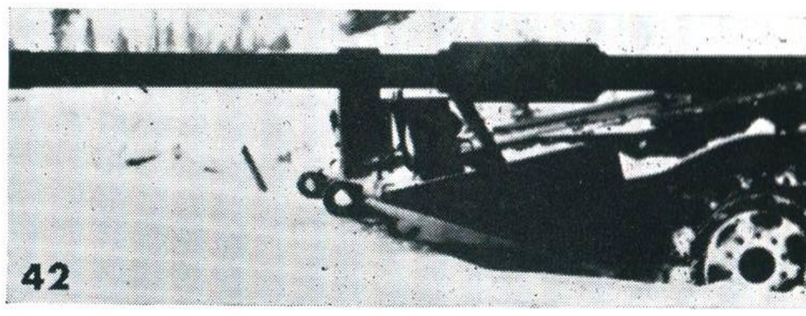

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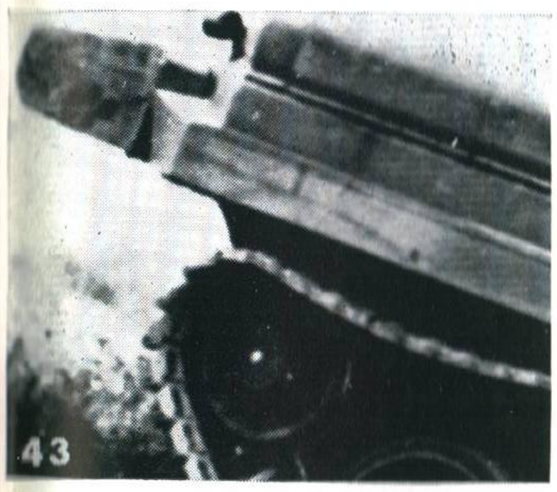

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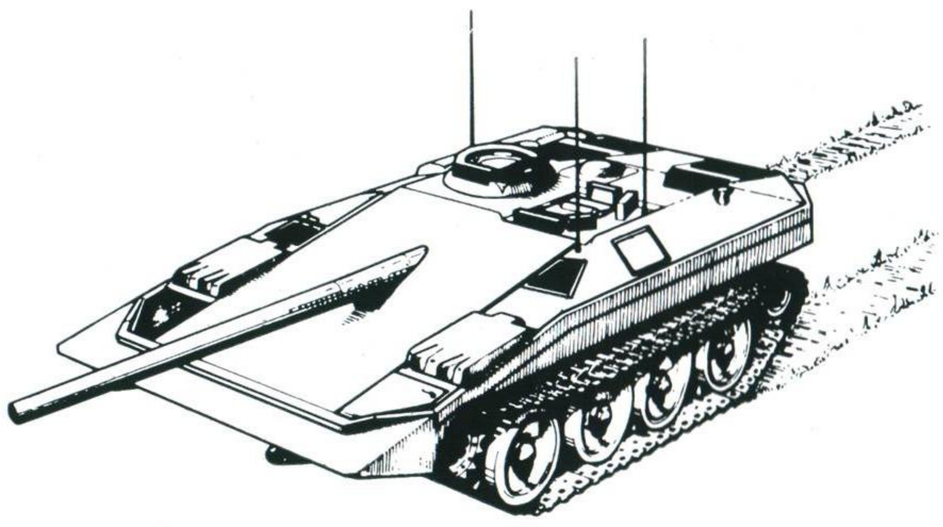
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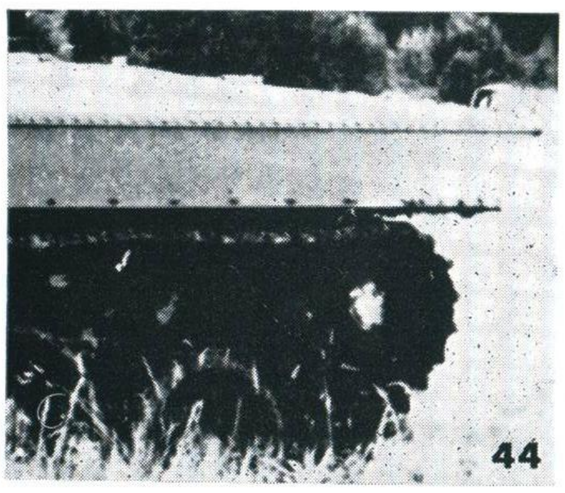
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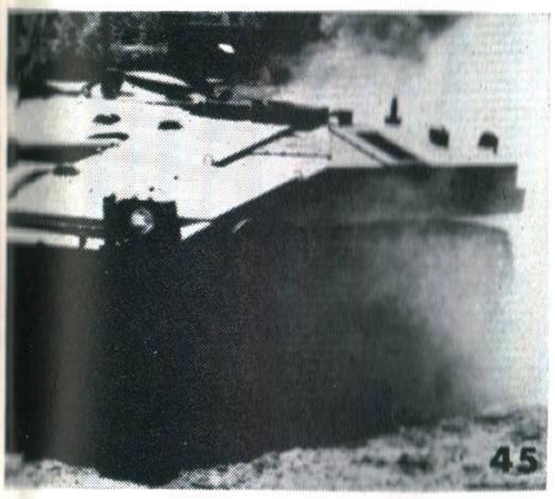

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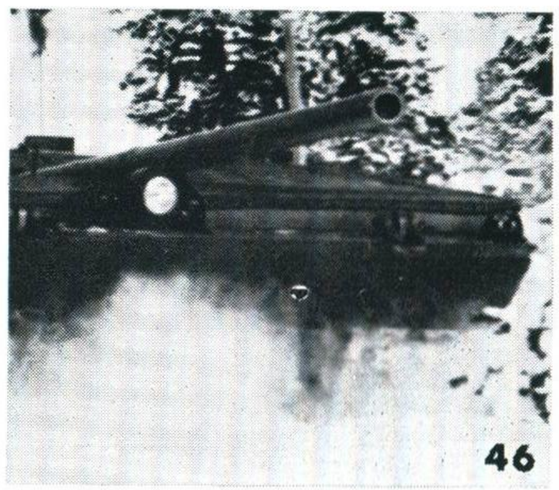

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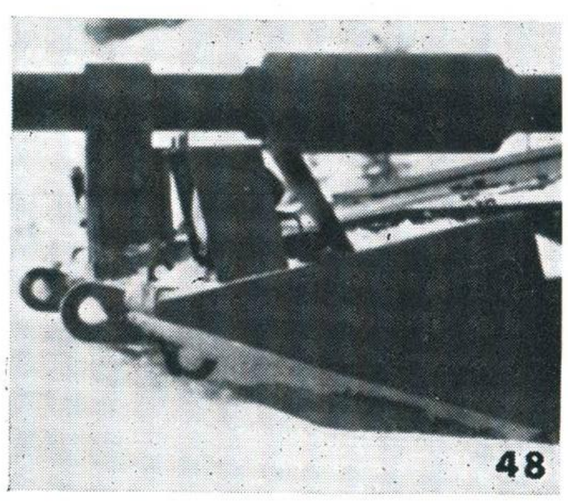


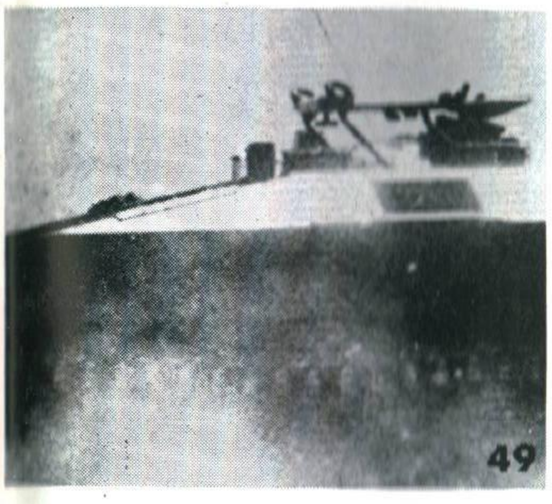

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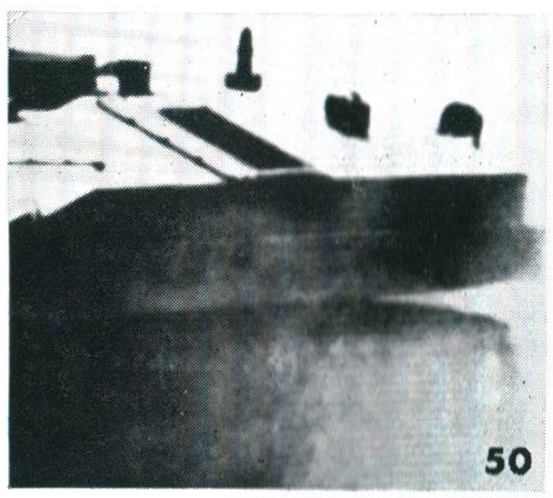

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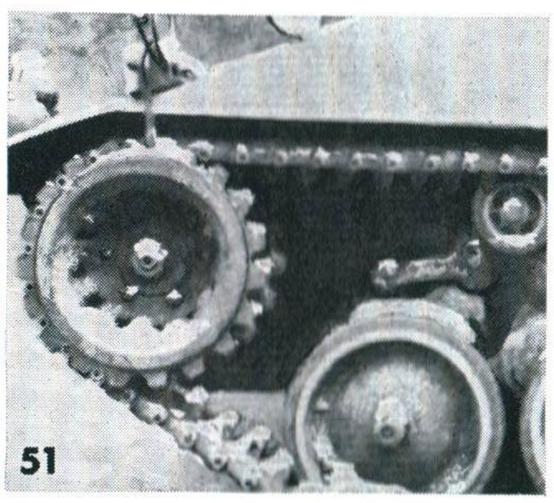

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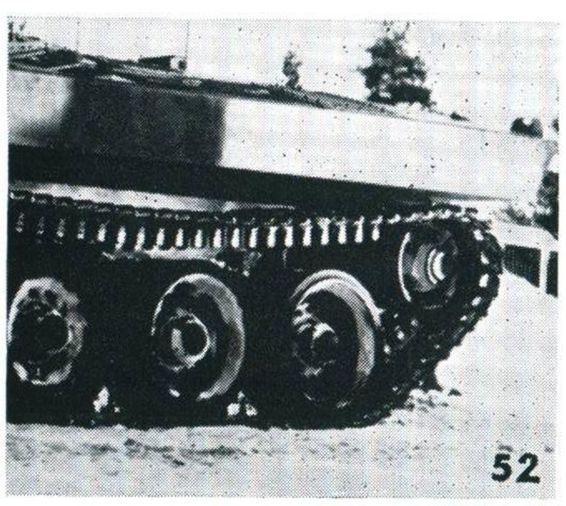

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BRITISH SERVICE AIRCRAFT DESIGNATIONS

The nomenclature of British service aircraft takes into account three factors—the basic type name which for identification training purposes is the reporting name; its function denoted by indicative letters and variations on the original basic type stated by a mark number.

To give an example/ the name Canberra was given to our first jet bomber; the original type (Mk. 1) did not go into production/ thus the following service bomber version became the Canberra B. Mk. 2 (B for Bomber). Later versions developed for photographic reconnaissance and training became the P.R. Mk. 3 and T. Mk. 4 respectively. An acceptable abbreviated form of this is PR 3 and T 4.

The system becomes rather more complicated with an adaptable aircraft, e.g. the Vampire, developed for Air Force and naval use, had two sets of mark numbers, from Mk. 1 for RAF and from Mk. 20 for Royal Navy development. The allocation of such blocks is to avoid confusion when there is joint production. A typical example is the Chipmunk which originated in Canada where Mks. 1 to 9 were reserved for Canadian production. Hence the U.K. produced trainer became the T. Mk. 10 in R.A.F. service with plans made to reserve Mk. 20 upwards for British civil development. Hunters and Canberras have been widely exported to Commonwealth, allied and foreign governments and a similar block system of allotting mark numbers is used with these aircraft.

It is not expected in identity training that discrimination should be made between marks, but that all marks of a particular type, which involve in many cases slight alterations to its silhouette, should be known by the type name.

Listed here is the allocation of type names, with the prefix and mark numbers, of types currently in service, as a reference to correct designations and as a guide to the scope of aircraft types currently in service.

ROLE PREFIX LETTERS CURRENTLY IN USE

A.E.W.	**Airborne Early Warning**
A.H.	**Army Helicopter**
A.L.	**Army Liaison**
A.O.P.	**Air Observation**
A.S.	**Anti-Submarine**
B.	**Bomber**
B(I)	**Bomber/Interdictor**
B(K)	**Bomber/Tanker**
B(PR)	**Bomber/Photographic Reconnaissance**
C.	**Cargo**
C.C.	**Cargo and Communications**
D.	**Drone or Unmanned Aircraft**
F.	**Fighter**
F.G.A.	**Fighter Ground Attack**
F.A.W.	**Fighter All Weather**
F.R.	**Fighter Reconnaissance**
G.A.	**Ground Attack**
H.A.R.	**Helicopter, Aid and Rescue**
H.A.S.	**Helicopter, Anti-Submarine**
H.C.	**Helicopter, Cargo**
H.R.	**Helicopter, Rescue**
H.T.	**Helicopter, Training**
H.U.	**Helicopter, Utility**
M.R.	**Maritime Reconnaissance**
P.R.	**Photographic Reconnaissance**
S.	**Strike**
S.R.	**Strategic Reconnaissance**
T.	**Trainer**
T.X.	**Training Glider**

Alouette A.H.1	Army	French Alouette II
Andover C.1	R.A.F.	HS780 military freighter
C.C.2	R.A.F.	Basic HS748 Transport
Anson C.19	R.A.F.	Communications aircraft
C.21	R.A.F.	T.21 used for transport
Argosy C.1	R.A.F.	Transport command freighter
Auster A.O.P.6	R.A.F.	Limited use
T.7	R.A.F.	Trainer version
A.O.P.9	Army	Standard fixed wing A.O.P.
T.10	R.A.F.	A.O.P.6 as trainer
Bassett C.C.1	R.A.F.	Anson replacement
Beaver A.L.1	Army	DHC-2 built in Canada
Belfast C.1	R.A.F.	10 freighters for R.A.F. only
Belvedere H.C.1	R.A.F.	Only service twin-rotor helicopter
Beverley C.1	R.A.F.	Standard freighter
Britannia C.1	R.A.F.	20 Series 253 for R.A.F.
C.2	R.A.F.	3 series 253 purchased
Buccaneer S.1	R.N.	NA39 strike aircraft
S.2	R.N.	Spey-engined with larger intakes
S.50	S.A.A.F.	S.2 version for export
Canberra B.2	R.A.F.	Initial service version
P.R.3	R.A.F.	Basic B.2 configuration
T.4	R.A.F.	Trainer version of B.2
B.6	R.A.F.	Improved B.2
P.R.7	R.A.F.	Improved P.R.3
B(I)8	R.A.F.	Night interdictor/high altitude bomber
P.R.9	R.A.F.	Revised. Wingspan increased, canopy off-set
D.10	M.O.A.	B.2 as unmanned target
T.11	R.A.F. & Sweden	A.I. trainer with large nose radome
B(I)12	R.N.Z.A.F.	B(I)8 modified
T.13	R.N.Z.A.F.	T.4 modified
D.14	M.O.A.	Version of D.10
B.15	R.A.F.	B.6 for ground attack in Middle East
B.16	R.A.F.	As B.15 with equipment changes
T.17	M.O.A.	Special B.2 modifications
T.T.18	R.A.F.	Tug conversion
T.19	R.A.F.	T.11 conversion
B.20	R.A.A.F.	48 Australian built B.2s
T.21	R.A.A.F.	Trainer version of B.20
P.R.57	I.A.F.	P.R.7 for India
B(I)58	I.A.F.	B(I)8 for India
Chipmunk Mks. 1–9		Were reserved for Canadian development
T.10	R.A.F., R.N. & Army	Elementary trainer and air experience aircraft
Comet C.2	R.A.F.	Conforms to civil Comet 2
T.2	R.A.F.	Flying classroom version
C.4C	R.A.F.	Similar to civil Comet 4C
Devon C.1	R.A.F.	Military version of Dove
C.2	R.A.F.	C.1 with engine change
Dominie T.1	R.A.F.	Military version of HS125
Dragonfly H.R.5	R.N.	Two still retained
Eton T.X.1	C.C.F.	Primary glider
Gannet A.E.W.3	R.N.	Large ventral radome
A.S.4	R.N.	Limited use
T.5	R.N.	Revised canopy
Gnat T.1	R.A.F.	Standard advanced trainer
Grasshopper T.X.1	C.C.F.	Primary glider

Hastings C.1	R.A.F.	Standard transport
C.2	R.A.F.	C.1 with lower tailplane
C.3	R.N.Z.A.F.	Basic C.1
C.4	R.A.F.	V.I.P. standard C.2
T.5	R.A.F.	Radome appendage
Hercules C.1	R.A.F.	C-130K from U.S.A.
Heron C.3	R.A.F.	V.I.P. transport
C.4	R.A.F.	For The Queen's Flight
Hiller H.T.2	R.N.	Hiller 12E helicopters
Hunter F.6	R.A.F.	Retention for reserve
T.7	R.A.F.	Two-seat version
T.8	R.N.	T.7 for naval use
F.G.A.9	R.N.	F.6 with improved armament capability
F.R.10	R.A.F.	Version of F.6
G.A.11	R.N.	Navalised F.4
12	M.O.A.	Cover Mk. number for modifications to F.6 XE531 converted to two-seater
F.50	R.S.A.F.	140 F.4s to Sweden
F.51	R.D.A.F.	F.4 export version. 2 only
F.52	Peru	F.4 exports. 16 only
T.53	R.D.A.F.	Basic T.7s for Denmark
F.G.A.56	Indian A.F.	160 F.6s ordered for ground attack role
F.G.A.57	Kuwaiti A.F.	Four F.G.A9s. ordered
F.58	Swiss A.F.	Basic F.6
F.G.A.59	Iraqi A.F.	Basic F.G.A.9
T.62	Peru	Single F.4 to T.7 standard
T.66	Indian A.F.	22 T.7s with revised armament
T.66A	Civil	Demonstration aircraft
T.66B	J. A.F.	T.66s for Jordan
T.67	Kuwaiti A.F.	Two-seat version F.G.A.57
T.69	Iraqi A.F.	Two-seat version F.G.A.59
Javelin T.3	R.A.F.	Trainer version with extended canopy
F.A.W.9	R.A.F.	Standard service version
Jet Provost T.3	R.A.F.	All-through jet trainer
T.4	R.A.F.	T.3 with increased power
T.5	M.O.A.	Improved T.A. BAC 145
T.51	Sudan A.F.	Armed T.3
T.52	Sudan A.F.	Armed T.4
Kestrel F.G.A.1	Tripartite	Hawker Siddeley P.1127
Kirby Cadet T.X.3	R.A.F., C.C.F.	Slingsby glider
Lightning F.1	R.A.F.	Initial 20 pre-production
F.1A	R.A.F.	Main initial production
F.2	R.A.F.	Improved version
F.2A	R.A.F.	F.2 to F.3 standards including shortened fin
F.3	R.A.F.	Improved F.2 with shorter, square-cut fin
T.4	R.A.F.	Two-seat trainer with revised fuselage shape
T.5	R.A.F.	Two-seat version of F.2/3
F.6	R.A.F.	F.3 aircraft with 600 gallon ventral pack and cambered wing leading edges
F.52	Saudi-Arabia	Interim issue of F.2s
F.53	Saudi-Arabia	Basic F.3 for export
F.55	Saudi-Arabia	Basic T.5 for export
Meteor T.7	R.A.F./R.N.	Limited use trainer with extended canopy
F.8	R.A.F.	Limited retention
D.15–19	M.O.A.	F.4, F.8, N.F.11, N.F.12 & N.F.13 respectively used as target aircraft
T.T.20	R.N./R.A.F.	Earlier marks converted for target towing
D.21	M.O.A.	D.16 for use in Australia
Pembroke C.1	R.A.F.	Military Prince
Pembroke (continued)		
C(PR)1	R.A.F.	C.1 for photography
C.51–55	Various	Export C.1s for Belgium, Sweden, Finland, Western Germany and the Sudan
Pioneer C.C.1	R.A.F.	Overseas use
Prefect TX.1	R.A.F., C.C.F.	Slingsby sailplane
Provost T.1	R.A.F.	Retention of ex-standard primary trainers
T.51–53	Various	Export T.1s for Eire, Venezuela and Burma
Scimitar F.1	R.N.	Fleet fighter
Scout A.H.1	Army	Similar to Wasp
Sea Devon C.20	R.N.	Navalised Devon
Sea Hawk F.G.A.6	R.N.	Limited use
F.G.A.50	R.N.D.	22 F.G.A.6s for Dutch Navy
F.G.A.100	W. German Navy	34 F.G.A.6s with under-tank provision
F.101	W. German Navy	34 F.G.A.100s with revised electronic equipment
Sea Heron C.1	R.N.	Naval version of Heron
Sea Prince C.1	R.N.	Similar to Pembroke
T.1	R.N.	Flying classroom version
C.2	R.N.	C.1 with modified tailpane
Sea Vampire T.22	R.N.	Naval Vampire T.11
Sea Venom		
F.A.W.22	R.N.	Limited retention
F.A.W.53	R.A.N.	For Royal Australian Navy
Sea Vixen		
F.A.W.1	R.N.	Standard fleet fighter
F.A.W.2	R.N.	F.A.W.1 to new standard
Sedbergh T.X.1	C.C.F.	Slingsby T.21b glider
Shackleton M.R.2	R.A.F.	Coastal Command aircraft
M.R.3	R.A.F.	Revised version with tricycle undercarriage and wingtip tanks
T.4	R.A.F.	Trainer version of M.R.1s
Sheldrake D.1	R.N.	Radioplane target drone
Sioux A.H.1	Army & R.M.	Bell 47G-3B-1 helicopter
Skeeter A.O.P.12	Army	Limited retention
Swallow T.X.1	R.A.F.	High performance sailplane
Sycamore H.R.14	R.A.F.	Limited retention
H.R.50	R.A.N.	Export version
H.R.51	R.A.N.	Basic H.R.14
Tiger Moth T.2	R.N.	Six for special use
Twin Pioneer		
C.C.1	R.A.F.	Overseas use
C.C.2	R.A.F.	New standard. Outline unchanged
Valetta C.1	R.A.F.	Short range transport
T.3	R.A.F.	Flying classroom
Vampire T.11	R.A.F.	Limited use
T.33	R.A.A.F.	36 trainer Vampires to Australia
T.34	R.A.N.	5 navalised T.11s
T.35	R.A.A.F.	68 T. 33s with increased range
T.55	Various	Export Vampire Trainer
VC10 C.1	R.A.F.	Civil designation retained
Victor B.1	R.A.F.	"V" Bomber. Original service version
B/K.1	R.A.F.	Tanker capability conversions
B.1A	R.A.F.	Additional equipment
B/K.1A	R.A.F.	B.1A with tanker capability
B.2	R.A.F.	Revised B.1. Blue Steel capability and large underwing tanks
B/SR.2	R.A.F.	Strategic reconnaissance
Vulcan B.1	R.A.F.	"V" Bomber. Initial service version
B.1A	R.A.F.	B.1 with enlarged tail cone

Vulcan (continued)

B.2	R.A.F.	Developed version with enlarged intakes and Blue Steel capability

Wasp H.A.S.1	R.N.	Basic Scout A.H.1 design
Wessex H.A.S.1	R.N.	Westland-built Sikorsky S.58
H.C.2	R.A.F.	Differs visually by single exhaust stub
H.A.S.3	R.N.	Re-engined H.A.S.1. Differs visually by dorsal hump
H.U.5	R.N. & R.M.	Colloquially, the Commando Wessex

Wessex (continued)

Mk.31	R.A.N.	27 export. Similar to H.A.S.1
Mk.52	Iraqi A.F.	12 ordered 1964
Mk.53	Ghana A.F.	2 ordered

Whirlwind

H.A.R.2	R.A.F.	One remaining in service
H.A.R.3	R.N.	A few still serviceable
H.A.S.7	R.N.	Standard
H.A.R.9	R.N.	Mk. 7 with Gnome engines
H.A.R.10	R.A.F.	Whirlwind Series 3 built with Gnome engines
H.C.C.12	R.A.F.	2 for The Queen's Flight
H.A.S.22	R.N.	American-built models



Cover Photo: SRN5 of the Hovercraft Unit, Far East, under trials last year.

SOLUTIONS TO TESTS AND EXERCISES

Page 284 **F-102 DELTA DAGGER**

All targets are of **F-102 Delta Daggers** except for Nos. 14 and 34. The full list of designations is as follows:

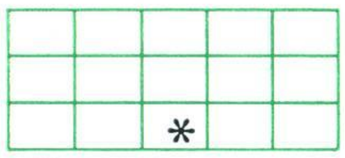
1 F-102A	13 F-102A	25 TF-102A	37 F-102A
2 F-102A	14 Draken	26 F-102A	38 F-102A
3 F-102A	15 F-102A	27 F-102A	39 TF-102A
4 F-102A	16 F-102A	28 F-102A	40 F-102A
5 F-102A	17 F-102A	29 F-102A	41 F-102A
6 F-102A	18 F-102A	30 F-102A	42 TF-102A
7 F-102A	19 F-102A	31 TF-102A	43 F-102A
8 TF-102A	20 F-102A	32 F-102A	44 F-102A
9 F-102A	21 F-102A	33 F-102A	45 TF-102A
10 F-102A	22 F-102A	34 F-106A	46 F-102A
11 F-102A	23 F-102A	35 F-102A	47 F-102A
12 F-102A	24 TF-102A	36 F-102A	48 F-102A
			49 F-102A

Page 288 **F-8 CRUSADER**

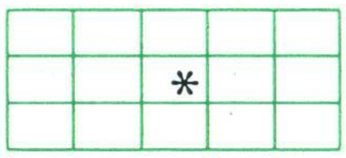
All targets are of **F-8 Crusaders** except Nos. 16 and 35 which are **Farmers.**

Page 296 **TEST PAPERS**

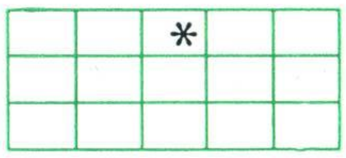
LIGHTNING ?



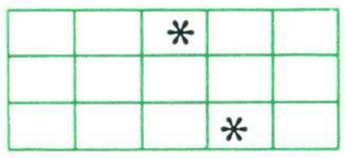
HARKE ?



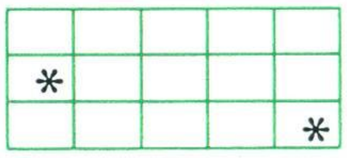
CRUSTY ?



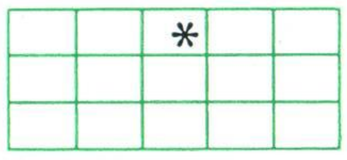
"A" CLASS ?



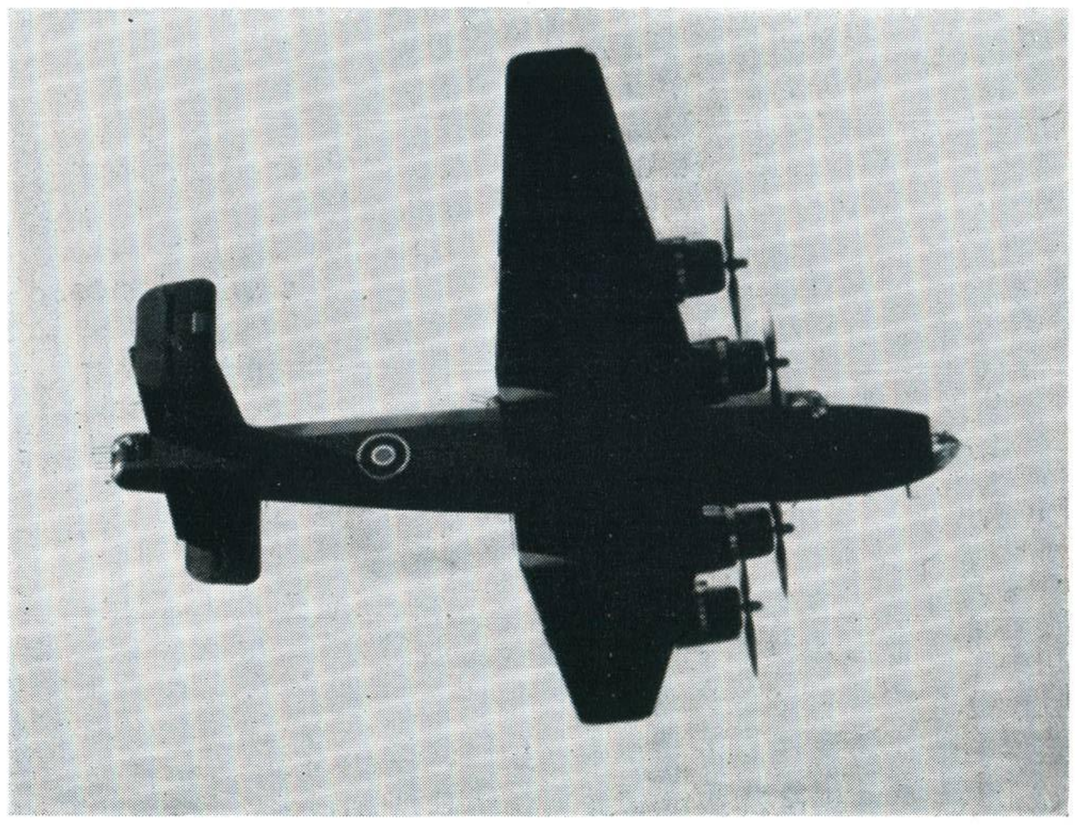
KASBEK ?



BLACKWOOD ?



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A famous bomber of the war for your identification. Solution next month.

Page 292 **FARNBOROUGH 1966**

1 Gnats	9 Slingsby Dart sailplane	16 Buccaneer S.2
2 Jet Provost	10 One-Eleven	17 Beagle B.206Ss (Bassets)
3 Wessex H.A.S.3	11 VC10	18 Agusta-Bell 204B (Iroquois)
4 Sea Vixens	12 Lightning F.6	19 Slingsby Dart sailplane
5 Twin Otter	13 Piaggio Douglas 808	20 Atlantic
6 Vulcan B.2	14 Shackleton M.R.3	21 Transall
7 Skyvan	15 Andover	22 Wasp A.S.1
8 Fiat G91T		23 Friendship

N.B. Reporting names, where different from correct designation are given in brackets.

Page 298 **"A" CLASS SUBMARINES OF THE ROYAL NAVY**

All targets are of **"A" Class submarines** except No. 32 which is a **"T" Class** and Nos. 21 and 23 which are **"O"** or **"P" Classes.**

Page 300 **AFV TEST—BATTLE TANKS**

No.	Type Name	Function	Nationality
1	Centurion	Medium Gun Tank	British
2	T-54	Medium Tank	Russian
3	M60	Battle Tank	American
4	S-Tank	Battle Tank	Swedish
5	Centurion	Medium Gun Tank	British
6	M47	Medium Tank	American
7	T-54	Medium Tank	Russian
8	AMX30	Battle Tank	French
9	S-Tank	Battle Tank	Swedish
10	Jagdpanzer (Kanone)	Tank Destroyer	German
11	M47	Medium Tank	American
12	T-34/85	Medium Tank	Russian
13	M47	Medium Tank	American
14	Leopard	Battle Tank	German

Page 302 **SWEDISH S-TANK**

All targets are of the **Swedish S-Tank** except for the following:

No. 14 Hotchkiss Armoured Supply Carrier
No. 41 T120E-1
No. 51 SPz Kurz

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