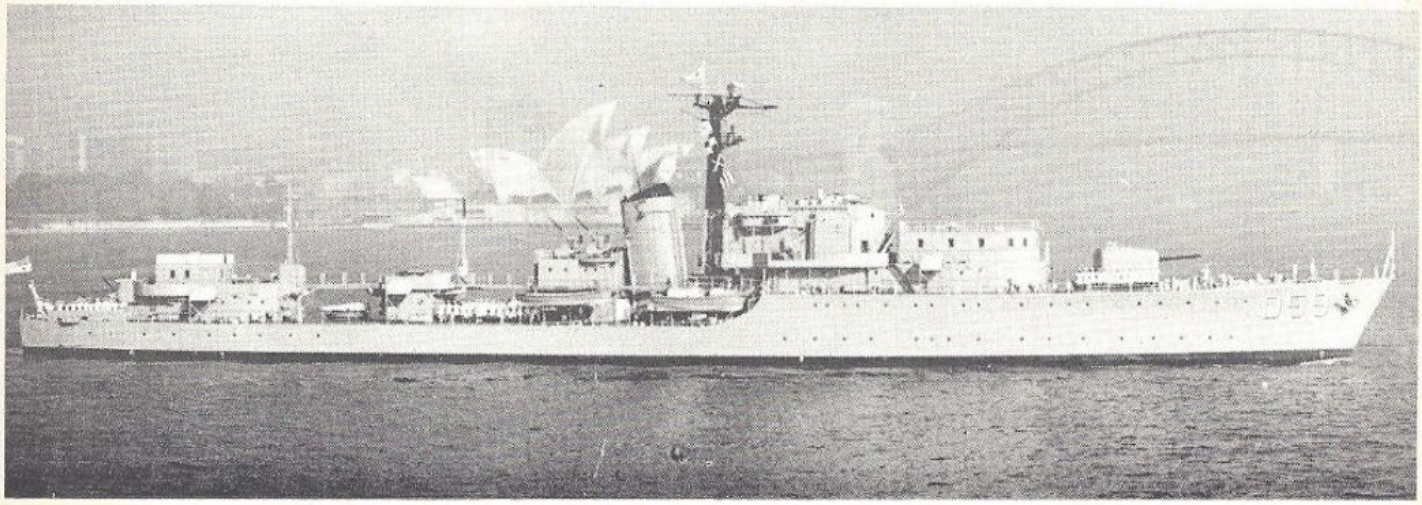
THE AUSTRALIAN modeller

No.8 40c



- **PLANS**
  - BEAGLE PUP 100
  - FIAT CR 42 FALCO
  - RAN. A4G SKYHAWK
  - GATLING GUN
- **SCRATCH BUILD**
  - NAVAL VESSELS
- **CONVERSIONS** BATTLE CLASS DESTROYER TO RAN ANZAC
- **BUILD**
  - PANZER ELEPHANT
  - SUPER SPAD
  - ANTIQUE CANNONS
- **AUSTRALIAN R-C SPEED RECORD**

FROG

1-72 INTERNATIONAL SCALE

official kit manufacturers of aircraft featured in the film.....

"Battle of Britain"

PLUS-exclusive picture frame display stand!

Three Great Kits Available—

- **F510 Hawker Hurricane and Junkers JU87G Stuka.**
- **F511 Supermarine Spitfire Mk. 1A and Junkers JU88.**
- **F512 Bristol Blenheim Mk. 1 and Messerschmitt Bf 109F**

AT YOUR HOBBY & TOY STORE NOW!

PLUS MANY OTHER FAMOUS FROG MODEL KITS

Sole Australian Agents: **TOY TRADERS PTY. LTD., SYDNEY**

THE AUSTRALIAN modeller editorial

editor Ray Smith,

On studying the correspondence received from readers over the last few months, one thing has become very obvious and that is the lack of communication between modellers generally. By this it is meant that many enthusiasts are completely unaware of activities outside their own particular field of interest. Try buying a magazine or book occasionally on some other branch of the hobby field and you will be surprised to find just how much you can learn. Maybe a new building or painting technique, or a method of tackling a difficult job that could be adapted to your branch of modelling. Try it!

Even worse in the lack of communication field is the modeller that does not know what is going on in the district he lives in! You may think this is kidding but rest assured that it happens. A good example of this was the readers column page in issue No. 6 where two readers from Melbourne, living in adjacent suburbs, wrote individually requiring war gamers to contact them. Through the publicity given in the column things started popping around that area and the last we heard was that the club formed had over 20 active members and was expanding rapidly. They are even producing a newsletter, a copy of which we recently received. Well done lads!

In almost every mail we get letters from readers asking for little bits of information such as, how to start a motor, what colour scheme is correct, where can I get such and such, etc. etc.

We try to help wherever possible but it is a task far too demanding to reply to each query. (Sorry but sending a self addressed envelope does not help). In many cases the answer is to contact another modeller nearby and seek his aid. We realize that in some isolated areas, this is not possible and this is where we try to help the person concerned. However, it is truly amazing how many queries come from areas where there are many active clubs and this brings us back to our starting point . . . lack of communication.

To try and help matters in this respect, A. M. is going to compile a Club Register and publish it from time to time, keeping it up date with new additions as received. WILL ALL CLUB SECRETARIES NOTE that ALL WE NEED is: 1. The name of the club. 2. The secretary's name and address. 3. Type of modelling. (Slot cars, R/C, Plastic, Control line, etc.) The first list will go in the next issue so get your secretary on the job, club members.

HISTORIAN PUBLISHERS

3 GRANDVIEW DRIVE CAMPBELLTOWN N.S.W. AUSTRALIA.

Exceptional Value!

NOW IN REVISED, UPDATED FORM

The definitive story of the Battle of Britain

As told by DEREK WOOD with DEREK DEMPSTER

With a foreword by AIR CHIEF MARSHAL the LORD DOWDING

THE NARROW MARGIN

OF SPECIAL INTEREST TO MODELLERS—CONTAINS 200 PHOTOGRAPHS FROM BRITISH AND GERMAN SOURCES AND DETAILED DRAWINGS OF THE ARCRAFT OF THE BATTLE.

Size 7¼in x 9⅛in and 1in thick!

QUANTITY AND QUALITY—361 pages, weight 1lb 11oz.

This OUTSTANDING book is only $3.95 plus 20c packing and postage.

AIRCAM—OSPREY PUBLICATIONS SPECIAL!

BATTLE OF BRITAIN

HAWKER HURRICANE, SUPERMARINE SPITFIRE, MESSERSCHMITT Bf 109

This interesting little book contains markings details for no less than SEVENTY-EIGHT fighters of the Battle of Britain IN FULL COLOUR!

7¼in x 9¼in and 38 pages on heavy quality paper for $3.25 plus postage.

KOOKABURRA—

COMBAT AIRCRAFT OF THE BATTLE OF BRITAIN

The TEN principal types of aircraft flown in combat during the Battle are described in detail, with a history, scale drawings of representative aircraft showing markings details, full specifications and performance figures, many photographs and in addition, three pages of full colour photographs. JUST PUBLISHED! A compact history for only $1.25 plus postage.

HISTORIAN PUBLISHERS—

LOCKHEED P-38 LIGHTNING—A Pictorial History

by ANTHONY SHENNAN

Here, in pictorial form with informative captions, is a comprehensive development story of one of the most famous U.S. fighters of World War II.

Contents, EIGHTY-SEVEN black-and-white photos and eight colour photos, text, plus a page of colour side elevations. Each book has a 1/36th scale drawing of the P-38L-5-LO as a fold-out, at the regular price of:

New price for second printing, $1.95.

HISTORIAN PUBLISHERS—

THERMOPYLAE, LAST OF THE RACING CLIPPERS

by JOHN CROSSE

This detailed history of the famous tea clipper of 100 years ago is well told and contains many interesting facets of life at sea under sail.

New price, second print $1.95 each plus postage.

Coming soon!

CUTTY SARK, LAST OF THE RACING CLIPPERS

by CYRIL L. HUME

40 pages, four pages of colour.

Paintings by John Allcot F.R.A.S., Australia's greatest living marine artist. Many rare and previously unpublished photographs. Available next month at the new low price of only $1.95 plus postage.

HISTORIAN PUBLISHERS 3 GRANDVIEW DRIVE, N.S.W., AUSTRALIA

Please send me books below.

Please PRINT NAME and ADDRESS

Name .....

Address .....

.....

Country ..... Postcode .....

Other new titles available soon!

WE ARE TAKING ORDERS NOW (SEND NO MONEY) FOR

AUSTRALIAN FIGHTER ACES—1939-45

by F/Lt. ALLAN C. BLYTHE

This magnificent volume describes the careers of 81 Aces, with scale views of their aircraft, many in full colour. Possible selling price will be $10.00 for approximately 196 pages on finest art paper. Size 8in x 10in. Publication date (tentative) OCTOBER 1970. Pre-publication orders before October, 10 per cent discount.

Value!

VETERAN & VINTAGE AIRCRAFT

by LESLIE HUNT

ONLY $3.00. 160 PAGES.

AIRCAM—Osprey Publications

Multiple colour pages, hundreds of aircraft illustrated with camouflage and markings details.

1. NORTH AMERICAN MUSTANG, P-51D.
2. REPUBLIC P-47 THUNDERBOLT.
3. NORTH AMERICAN MUSTANG I-IV.
4. SUPERMARINE SPITFIRE Mk. I to XIV.
5. NORTH AMERICAN P-51B & C MUSTANG.
6. CURTISS KITTYHAWK Mk. 1 to IV.
7. CURTIS P-40D-N WARHAWK.
8. SUPERMARINE SPITFIRE Mk. XIV to Mk. 24.

51. BATTLE OF BRITAIN and just arrived from U.K., the NEW AIRCAMS:
52. FINNISH AIR FORCE, 1918-1968.
10. LOCKHEED P-38 LIGHTNING.
9. S.P.A.D. SVII & SXIII (French Scout of World War I) and first of the new World War I Aircams.

EACH, $3.25 plus postage. (All orders over $10.00 post free.)

KOOKABURRA TECHNICAL PUBLICATIONS

New!

COMBAT AIRCRAFT OF THE BATTLE OF BRITAIN (colour).
FOCKE WULF Fw 190 Pt. 1 (colour).
FOCKE WULF Fw 190/Ta 152 Pt. 2 (colour).
REPUBLIC P-47 THUNDERBOLT Pt. 1 (Razorbacks) (colour).
WESTLAND WHIRLWIND.
COMMONWEALTH BOOMERANG.
LOCKHEED P-38 LIGHTNING.
THE ALBATROS FIGHTERS.
THE SOPWITH SNIPE (new reprint, April).
HAWKER HURRICANE (new reprint, April).
MARKINGS OF THE ACES, Pt. 1, Eighth U.S. Air Force.
MARKINGS OF THE ACES, Pt. 2, U.S. Navy Pacific (colour).
WARPLANES OF THE R.A.A.F.
WIRRAWAY & BOOMERANG MARKINGS.
MESSERSCHMITT Me 262 Pt. 1 and 2.

EACH, $1.25 plus postage.

AERO PUBLISHERS

REPUBLIC P-47 THUNDERBOLT.
NORTH AMERICAN P-51 MUSTANG.
KAMIKAZE.

EACH, $3.25 plus postage.

J.W.C. PUBLICATIONS

ART CHESTER STORY by John Collier and Underwood	$2.95
MARSEILLE, STAR OF AFRICA, by Heinz J. Nowarra	$1.95
JUNKERS JU 87, by Heinz J. Nowarra	$1.95
JUNKERS JU 88, by Heinz J. Nowarra	$1.95
U.S. NAVY MARKINGS, PACIFIC THEATRE, 1939-42 DOLL.	$2.95

GRENADIER BOOKS

A lavish colourful presentation.

RED ARMOUR IN COMBAT, by Martin J. Millar Jnr.	$4.95

FEIST PUBLICATIONS

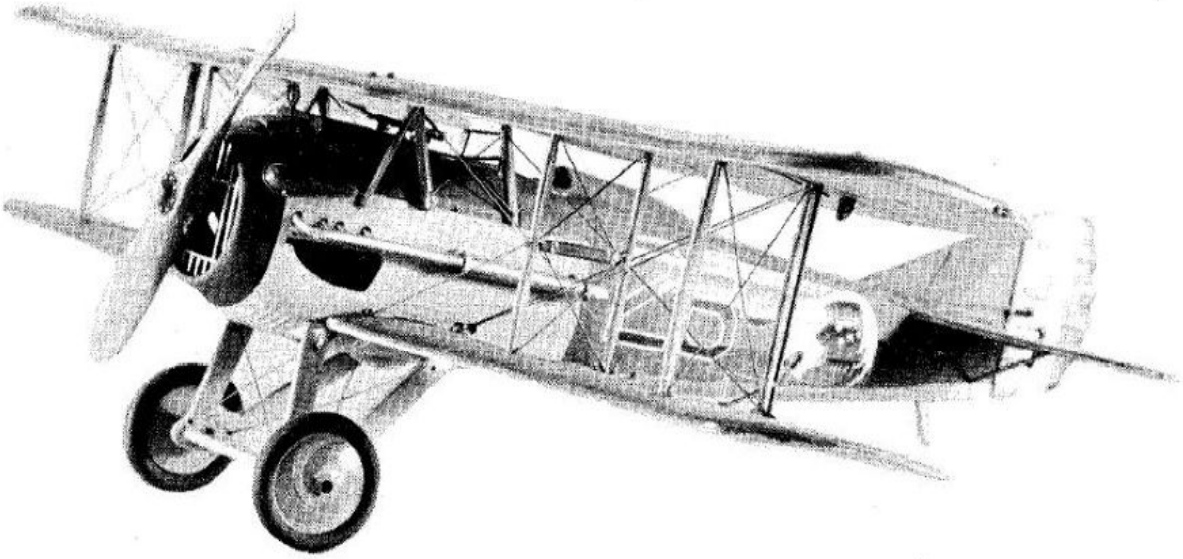
PANZERKAMPFWAGEN V by Uwe Feist and Walter J. Spielberger	$3.95

AERO ARMOUR

Vol. 1—TIGER TANKS.
Vol. 3—STURMARTILLERIE, ASSAULT GUNS & HUNTING PANTHER.
Vol. 4—STURMARTILLERIE, S.P. GUNS & FLAK TANKS.
Vol. 6—ARMOUR ON THE EASTERN FRONT. $3.25

BEAUMONT PUBLICATIONS

No. 43 SQUADRON R.A.F., A HISTORY (A Battle of Britain Squadron), 336 pages, many photos of Hurricanes, etc.	$5.95
CAMOUFLAGE & MARKINGS, U.S. 15th AIR FORCE	$1.95



SUPER SPAD!

A COCKPIT-CONTROLLED VERSION OF FRANK LUKE'S SPAD XIII

by DEREK BROWN

1. The aircraft.

The Spad XIII was modified by Becheran from his earlier design for the Spad VII by the Societe Pour L'Aviation et ses Derivees in 1916. Powered by a 220hp Hispano Suiza 8 BA engine and carrying twin Vickers machine guns, the prototype flew in April 1917 and immediately went into production, replacing the Nieuport 17 and 28 and the Spad VII as soon as deliveries permitted.

Over 8000 Spad XIIIs were built, equipping more than 80 squadrons of the Aviation Militaire, the RFC and the AEF. Some were supplied to the Italian Air Force, but the Italian pilots found it a tricky aircraft to handle and preferred to retain the current Hanriots.

Despite its difficult flying characteristics it was an excellent fighting aircraft and several subsequent modifications in both engine and armament made little improvement.

2. The kit.

Revell have produced a first-class kit. The dimensions (span 11 and 11/16ths, and length of 9in) allow sufficient room to achieve full control from the cockpit of the flying surfaces. The detailing is good and provided that one approaches the various tasks in the correct order there is no real difficulty in building a model with character and added interest. My own proves a useful "conversation Starter" sitting as it does on the bar.

3. The modifications.

In order the obtain movement and control of the tail plane and fin and rudder it is necessary to bear in mind the fact that the fuselage will remain in two halves during most of the building work.

To commence, the rudder must be cut from the fin and hinges inserted. This is quite a simple matter if care is exercised.

The separation can be made with a sharp knife and the opposing edges rounded and the two edges drilled to take strong button thread soaked in polystyrene cement. At

the same time a cut-out is made in the fin for the control horn (a). (See Fig. 1.)

A small hole is also drilled in the fin at (b) for a rigging wire. Push the thread into the holes in the fin first and when dry cut off leaving ¼in of thread to fit into the holes in the rudder. Re-cement the pieces of thread and offer up the rudder. Leave to dry then check movement.

4. The tailplane.

Separate the elevators from the tailplane as with the fin and rudder. Locate and cut out the holes for the elevator control horns. Hinge with strips of nylon cemented to the underside of the tailplane and elevator (Fig. 2).

5. The control horns.

From scrap sheet plastic 1/16th thick cut and file three control horns ¼in in length and two more 5/16in in length. Cement the three shorter ones into the cut-outs made in the tail control surfaces (Fig. 3).

At this stage the fin and rudder should be painted and if decals are used they should be applied.

6. The fuselage.

The fuselage must now be drilled for the control wires (see positioning in Fig. 4). Drill all holes at 45 degrees to surface for easy entry of wires (Fig. 4). Repeat for left half of fuselage.

The right and left engine and seat bearers must now be modified. Drill a hole 5/32in in both and left and right bearers positioned ⅛in in front of the seat position (see Fig. 5).

Apply a little Vaseline to the inside edge of the hole. At this stage it is advisable to enlarge the cut-outs for the rudder bar to allow greater movement in the converted model. From the plastic "tree" holding the various mouldings cut a piece ¾in long. At the centre of this piece drill a hole 3/64in (see Fig. 6).

7. The control column.

The control column is made from a single piece of 3/64in wire 4in long bent to shape as shown, and bound with thread on the upper half. Two elevator cranks are cut from scrap plastic and drilled for control wires as the diagram shows.

At this stage cement seat to the right engine bearer. Push the central spigot on the control column through the elevator pivot and insert the end of the pivot through the hole in the right engine bearer. Cement one elevator crank to the outside end of the pivot in an upright position.

Slip the left engine bearer over the pivot and cement the seat into position. Cement the left elevator crank to the left end of the pivot and check for free movement (see Fig. 7).

8. The rudder bar.

From another piece of the plastic tree cut a length suitable to replace the rudder bar supplied in the kit. This must be sawn in half along its length and the lower half drilled through 3/64in to take the rudder crank which must be formed from the same size wire as the control column (see Fig. 8).

Into the lower part (b) of the rudder bar a groove should be filed or sawn to take the upper part of the rudder crank. The upper part of the rudder bar (d) should be filed to shape as shown. Drill the fuselage floor 3/64in to take the rudder crank. The lower part of the crank should be formed first.

The upper part passed through the floor and the lower half of the rudder bar before finally bending to shape. Then lay it into the groove in the rudder bar, apply cement and apply top part of rudder bar. Check for free movement.

9. Assembly.

Secure four lengths of heavy gauge button thread 12in long to the right and left elevator cranks. Lay out to the rear. Secure one 15in length of thread to each side of the rudder crank and lay out to rear.

Take the two fuselage halves and feed the control lines through the holes as shown in Fig. 9 (note that the elevator lines must be crossed). At this stage two holes ¼in diameter must be drilled in the fuselage halves opposite the lower part of the control column and a length of thread 24in long secured by its centre to the aileron control hook formed on the lower part of the control column.

Lead this thread out to each side of the fuselage. The fuselage halves may be cemented together. The fin and rudder and the tailplane cemented to the completed fuselage and the engine bearers and seat assembly dropped into place and cemented. Check for free movement of all parts.

10. Ailerons.

The upper wing should be painted and if decals are used these should be applied before separating the ailerons from the wing. After separating, round the opposing edges and drill 3/64in at outer tip and inner edge to allow hinges to be inserted (see Fig. 10).

Mark and cut ¼in x 1/16in slot for control horn. Drill 3/64in hole through wing opposite horn slot on aileron. Drill a further hole at rear edge of the aileron to secure control thread. Insert wire hinge pins into main wing and cement. Slightly ream holes in aileron to allow loose fit of hinge pins. Do not cement. Fit the control horns and cement in place.

11. Rigging the controls.

Completely finish the model in the normal way making sure that all control threads are always free. Use small bulldog clips or clothes pegs to hold the control surfaces in a neutral position and ensure that the control column and rudder bar are centred. Then tie off the tail control horns.

Before cutting off spare thread it is advisable to check that tension and movement are correct. To complete aileron control, lead the two aileron control threads directly to the holes drilled in the wing over the aileron control horn through the hole at trailing edge of aileron and secure beneath. ●

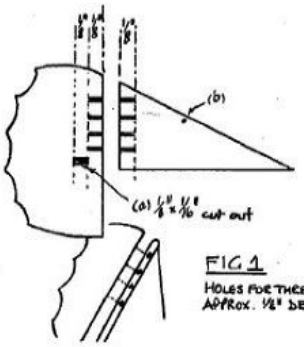


FIG 1

HOLES FOR THREAD HINGES APPROX. ½" DEEP

SEE ALSO PAGE 41 FOR FURTHER PHOTO

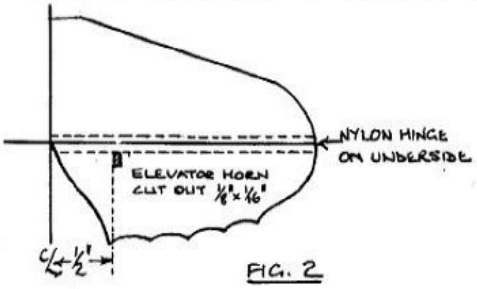


FIG. 2

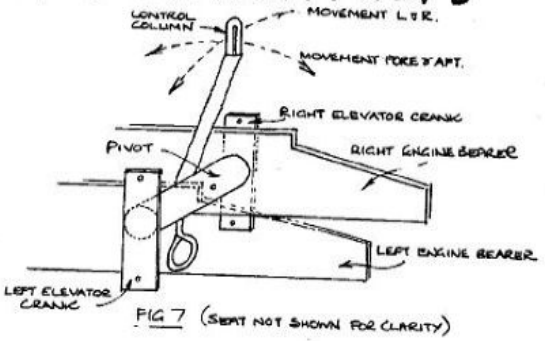
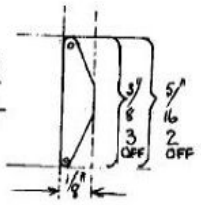


FIG 7 (SEAT NOT SHOWN FOR CLARITY)

FIG 3

CONTROL HORNS.



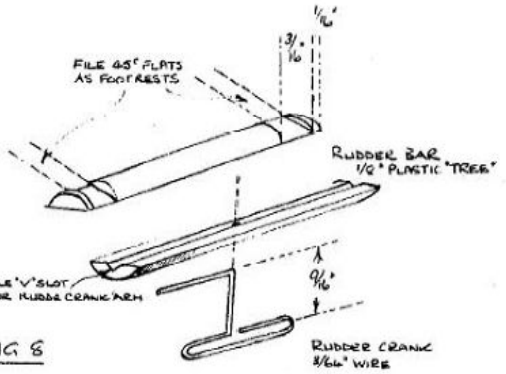
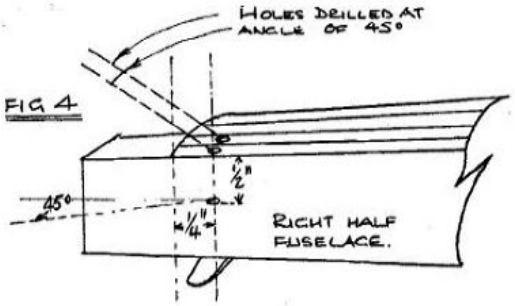


FIG 8

FIG 4



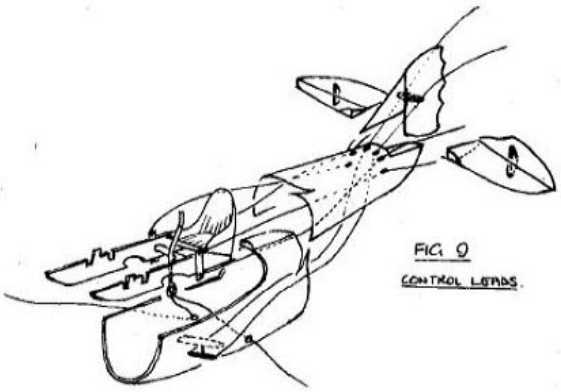


FIG 9

CONTROL LEADS.

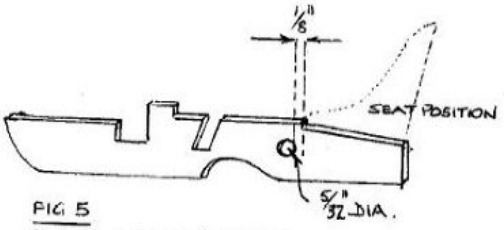


FIG 5

ENGINE & SEAT BEARERS

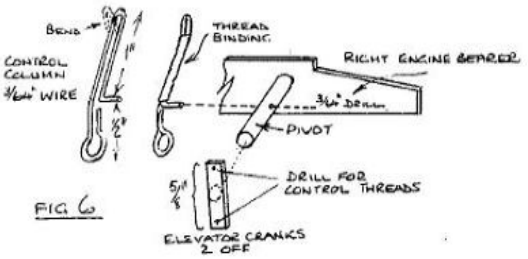


FIG 6

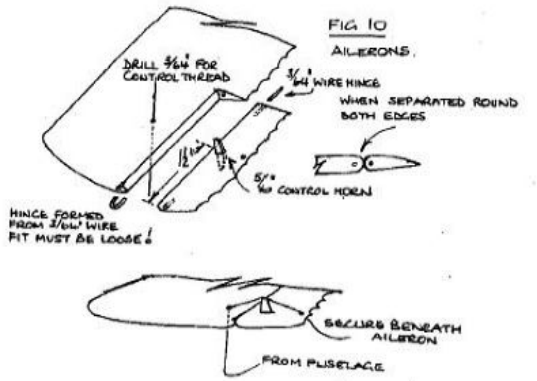


FIG 10

AILERONS.

'BATTLE' CLASS DESTROYER CONVERSION

by CLIVE HEATH

For our warship conversion in this issue, we have chosen the 'Battle' class destroyer, HMS Trafalgar. This is a Frog kit and is a model built to a considerably larger scale than our previous conversions. Referred to by Frog as a 'super kit', the model is 13½in in length.

BATTLE CLASS destroyers were built in Britain towards the end of World War II with an eye to operations in the Pacific area against Japanese forces. As a result of this they carried particularly heavy anti-aircraft armament.

In actual fact, very few were commissioned before Japanese capitulation, the majority being completed for the British Fleet between 1945-47. Two were laid down for the RAN in Australian shipyards in 1946, these were to become HMAS Tobruk and HMAS Anzac, and it is with the latter ship that we are concerned.

Anzac, completed at the William Town Dockyard, Victoria, in 1951, was converted in the mid-sixties to a training ship and now serves in this capacity in the RAN.

Working from bow to stern, the basic changes to be made are as follows: A turret (part 29) should be modified or replaced to give a much squarer effect. The dimensions are the same, but the structure is box-like with only slight rounding of the edges and corners. Guns are the same.

B turret should be eliminated completely, together with the single 40mm gun to the rear (parts 20 and 30). In place of these pieces build up a deckhouse extending almost back to bridge (part 5). Dimensions should be, length 1-5/16in, height and width the same as turret eliminated.

Note that the deckhouse has a semi-circular front and thus, with a little filing and the filling of the gun slots, the turret can be used as the front portion of the deckhouse.

Eliminate all radar equipment from the bridge (parts 6 and 7), also cutting away the stub on which these are mounted.

The mast is basically the same but with minor differences in the radar and radio rigging at the top. It is best to refer to the photos to see this.

Funnel is standard and only requires the addition of a cowl at the top. Plasticard of ⅛in does this nicely.

Superstructure part No. 8 is dispensed with and replaced with a rectangular deckhouse. Length is 15/16in, width 19/32in, height 3/42in (measured from deck level). On this deckhouse mount two single 40mm guns, noting that they are mounted fore and aft and not abeam of one another as originally.

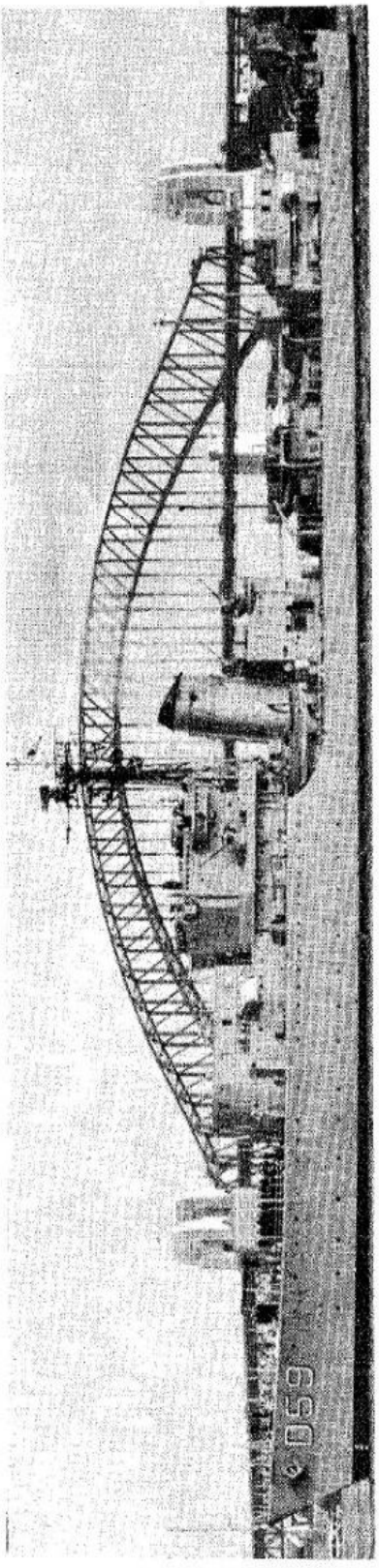
Moving back now to superstructure part No. 8, fit this as per directions but eliminate the two twin 40mm guns and the mounting lugs. Also cut the small raised portion at the front down to the same height as the surrounding shield.

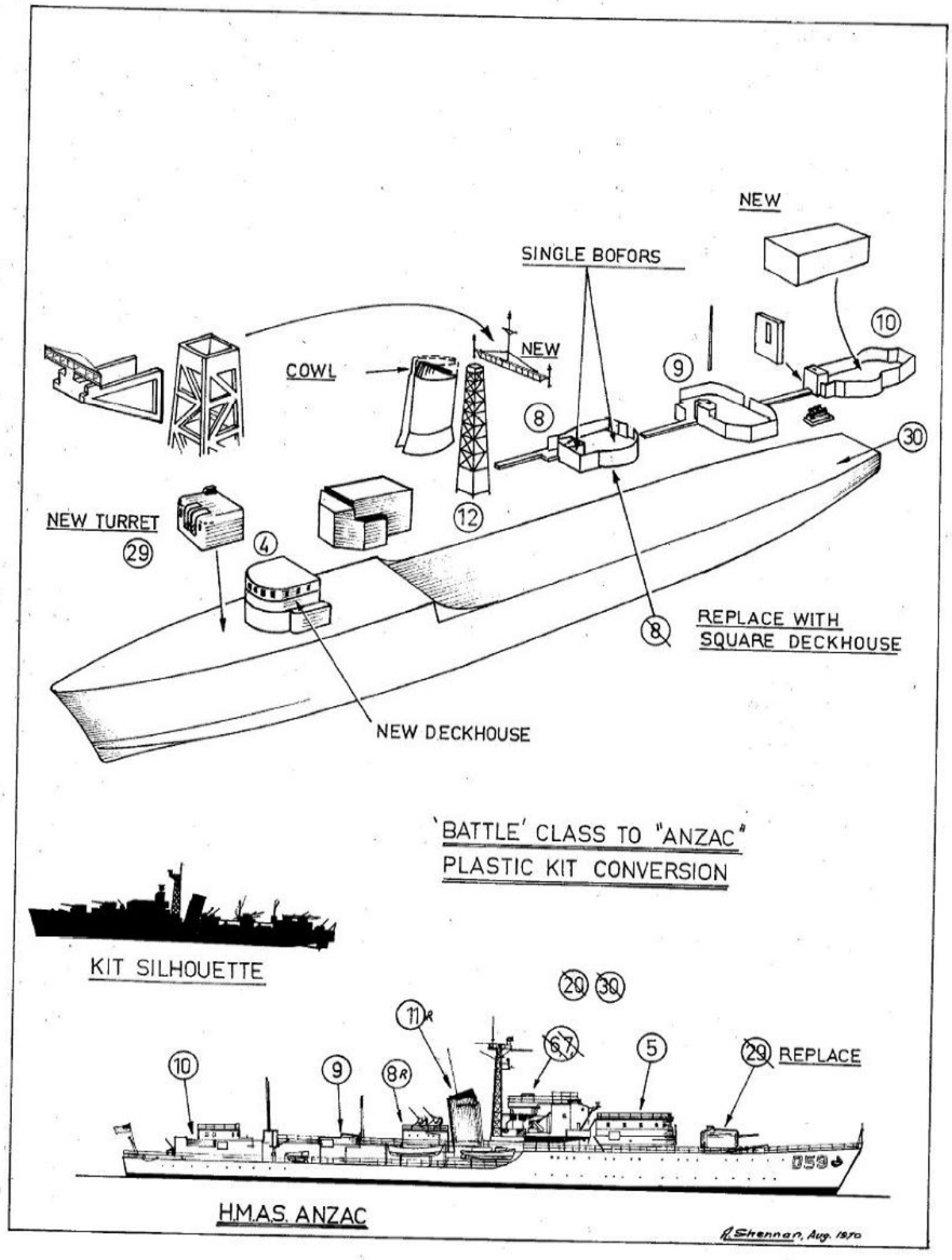
Superstructure part No. 10 is now fitted in place, and as previously the two twin 40mm guns and mountings are removed. In place of them a small deckhouse is built, being of rectangular shape and 5/16in high (measured from the deck of part 10). Length is ⅛in and width 5/16in.

The aft single 40mm gun and the depth charge thrower are mounted as per instructions.

As this kit is of a larger scale than we have been dealing with up till now, many modellers will no doubt wish to carry the mods even further and careful study of the photos will reveal a mass of detail that can well be incorporated. ●

a FROG kit




NEW
SINGLE BOFORS
NEW
COWL
10
9
8
30
12
NEW TURRET
29
4
8
REPLACE WITH
SQUARE DECKHOUSE
NEW DECKHOUSE
'BATTLE' CLASS TO "ANZAC"
PLASTIC KIT CONVERSION
KIT SILHOUETTE
20
30
11R
6,7
5
29
REPLACE
10
9
8R
059
HMAS ANZAC
R. Shennan, Aug. 1970

AUSTRALIAN R/C SPEED RECORD

by BOB YOUNG

IN DECEMBER 1969 at the Australian Nationals I was fortunate enough to participate in a successful attempt to establish an official Australian speed record for R/C aircraft. This was the culmination of a chain of events beginning when Tony Montanari arrived home from Italy with a brand new OPS 60 which he picked up during a visit to the factory.

When you hold one of these motors in your hand, it is hard to stop thinking about speed records. It is an incredible piece of machinery, and we were immediately stirred into action (that in itself speaks volumes).

As there was no official speed record in existence at that time we decided on a four-stage plan, which will, we hope, culminate in a serious attempt at the world speed record.

For our first attempt we decided to use my Class III pattern ship, which is little more than a "60" size pylon racer.

The main aims of Stage I were: (1) To set an official Australian speed record. (2) To develop and test an efficient timing trap. (3) To provide pilot training for the not so simple task of flying at 200 mph at low altitude for 350 metres. (4) To stimulate interest in this type of flying in Australia. To accomplish this, we decided to hold an open speed event at our nationals.

The first major task confronting us was the development of the speed trap. This was a mammoth undertaking, far more complicated than we first realised. I can honestly say that were it not for a very active participation by Kingwoods club (SRCS) this job would never have been completed.

Essentially the system we used is that presented in RCM September 1967, in which two scanning switches are used per stop watch. The first scanner starts the watch, and the second stops the watch. The scanners are set up at the start and finish of the trap. Each scanner switches a micro switch at the 90 degrees position, thus as the aircraft is tracked through the trap the watch starts and stops automatically.

The scanners consist of a tripod mounted gun with a vertical Frame sight. The height of the frame was used to check altitude, as the Australian rules require a definite altitude of not more than 132ft or less than 32ft whilst in the trap. If at any time the aircraft flew out of the frame, the run was declared void.

As two separate timing systems were required (one for each watch) it was obvious that quite a lot of work would be involved.

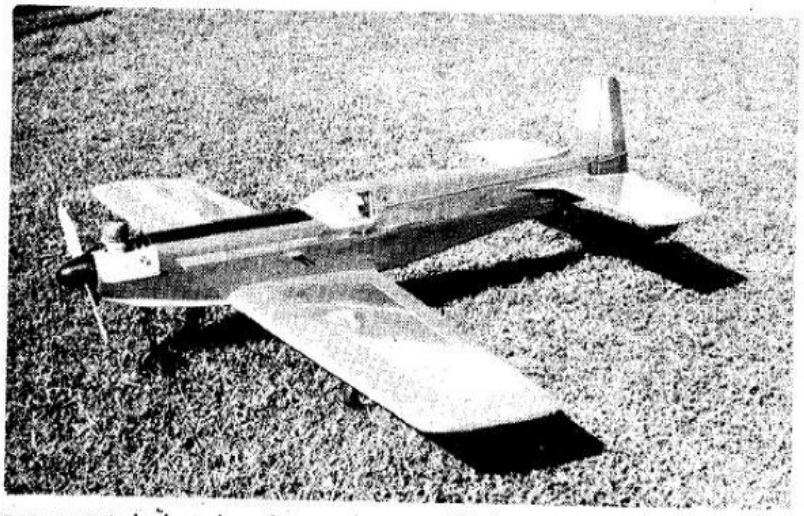
We decided to split up the job, each volunteer doing a certain section. Albert Fisher volunteered to build the scanning guns, Arthur Wild would organise the tripods, which were loaned by Miller Tripods, incidentally—a gesture which we really appreciated, considering the total value ran over $600, and the electronics were to be my responsibility. We originally planned on a complete trial on December 16, we were as usual running late and the test runs did not take place until the following weekend. The first trials of the completed system were a complete flop. We timed one pylon racer at 399 mph downwind and 240 mph upwind. I think something must have gone wrong.

The original system called for the micro switches to operate relays which in turn switched on the stop watches. The watches we used were three second (1/100) faces which required a tremendous amount of switching power. I ordered 12v-6 Watt relay mechanics, thinking that these would be adequate. As it turned out I could not achieve reliable operation under 30v.

On our first runs we were carrying the relay current 100 metres to the micro switch and the voltage drop was so great that we had to use 36 volts to supply enough to operate the relay. There was not a car on the field that day with a battery in it. After clocking the pylon racer at 400 mph it was obvious that some modifications were needed. The problem turned out to be lack of dwell time on the micro switch, which resulted in unreliable triggering. If the aircraft was flown too close to the gun the angular rotation was so great that the relay never had enough time to operate. Just how we ended up with those speeds, however, is a mystery to us, as the main problem was either the watch would not start, or if it started, it would not stop. But on that first run it definitely recorded .99 of a second for 200 yards.

Having decided that we needed a pulse stretcher to deliver a definite timed pulse to operate the relay, we discovered that we had also cured our voltage drop problem, as we no longer needed to carry the relay current over long lines. Instead, we used a one shot multivibrator to supply a 300 millisecond pulse to a power transistor, which in turn drove the relay. This meant that the micro switches were used only to trigger the one shot, hence no current was involved.

On our second day out, things worked beautifully. We took up a completely self-contained unit, consisting of 3 x 10v (1 AH) nicads and a small P/C board holding the two pulse stretchers and relay amplifiers. Our first runs went well. No matter how fast the scanning



gun operated, the relay always triggered. However, by mid-afternoon, things were going poorly. We were still having trouble with unreliable switching. This time it turned out to be that the micro-switches were not being triggered.

Originally we used roller operated switches which were mounted with the rollers vertical. As the wooden fittings loosened off with use, the striker arm was lifting about 1/16th of an inch, when the scanner operator leant on the handles. This was enough to cause the striker to miss the micro-switch completely, thus on several runs we found one or both watches would start and not stop, or vice versa.

By this time we had run out of weekends. The nationals were on the following week. Once again we modified the equipment. This time we laid the micro-switches horizontal. This worked perfectly and during the actual recording runs there was not one case of a micro-switch failing to fire. We did have several cases of lack of co-ordination between scanner operators, but this was soon cleared up as soon as we adopted a definite signalling technique.

On the day, the recorded times all agreed to within the required 2/10ths of a second. In fact several times the watches co-incided, and there were many cases of errors less than 1/10th of a second. This is really remarkable considering that four gun operators were involved.

The plan of the course as laid out at Wallacia is shown in Fig. 2. I will never forget my first glimpse of the course. At Kingswood in practice, we laid out both guns side by side over a 200yd course. When I saw the Wallacia course of 200 metres stretching away into the distance, with the guns laid out at the four corners of the square, we thought that we were about to wire up half of New South Wales. The distance involved staggered us.

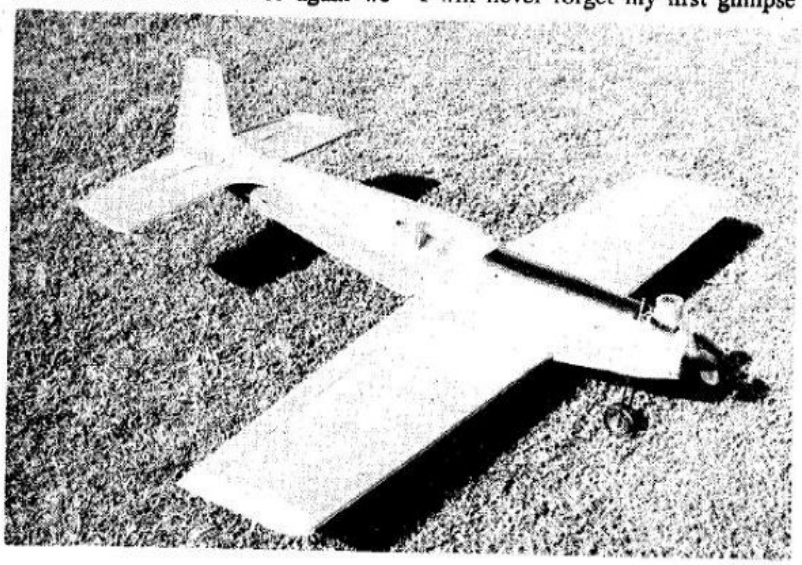
After walking the course umpteen times, we were staggering. However, it was all worthwhile. Everyone involved voted it time well spent. To all of those who helped—people such as Steve Vickers, Norm Smith, Laurie Cantwell and to the dozens who helped on the day—Tony and I can only say "thanks". Without this co-operation, events such as these just simply cannot take place.

Finally, just a word on the aircraft. The model used was one of my own design, intended as a windy weather Class III ship. I designed this after flying in New Zealand winds and watching my Crusader stand still. I decided then and there that wing sections over 15 per cent were useless for all save the calmest days. With this in mind I built up a model of 600 square inches, 60in span, using an NACA 0012 section and weighing 6¼lb in its original form. This model when powered with a worn-out Enya 60 averaged about 70 mph. The following figures are reasonably accurate and provide interesting comparisons.

(1) At 70 mph this model was a fast average multi, able to outpace most standard multi aircraft, except the Rossi powered monsters.

(2) A new OS GP 60 R/C was fitted, the motor cowled, and 8in removed from the wing span. Down-turned wing tips were also added. On an 11 x 8 wood prop and standard fuel the model averaged 90 mph.

(3) On 10 per cent Nitromethane, a 10 x 10 wood prop and with the carburettor bored out, the average speed was between 95-98 mph. At no time did the model



exceed 100 mph, with the U/C fitted.

(4) The final preparation consisted of removing the U/C, rudder servo, rudder pushrod, fittings and sealing up all crevices. The total weight removed was 13oz. These final preparations plus 40 per cent Nito-methane, added over 20 mph to the top speed.

The official two-way average was 119.45 mph. The highest recorded ground speed being 133 mph. I must admit I am extremely impressed with the OS 60 RR. The motor we used was completely standard except for the bored out throat. We did not even polish the interior. The idle on the original is very good as is the starting.

Actually the most fascinating part of the whole project was working up the aircraft. This is something that I have always wanted to do. It gave me some idea of how the same airframe behaves at different airspeeds. In its original form, this model was quite a good pattern model, however, I was inclined to think that it was too small, as in wind gusts it bounced around a fair bit. At 120 mph, the model was extremely smooth even in gusty conditions, despite the reduction of span. As I am not too keen to fly the pattern at this speed, I have decided that my next contest model will run around the 70in span, with the 0012 section. I did not reduce the control throw or area for the speed runs, even so, the model was quite docile and controllable.

One interesting point was the performance of the props used. At 90 mph the 11 x 8 was performing well. At 98 mph the 10 x 10 was too coarse, and tended to wind down immediately the nose was lifted. At 120 mph, however, the 10 x 10 was if anything too fine. The actual prop was a Pepperell toothpick.

The OS 60 did not respond too well to the high percentage of Nitro, which is reasonable as in their instructions OS recommended 5-10 per cent for best results. The rpm on the ground with the 10 x 10 was 13,000, measured with a Heathkit Thumbtack.

All in all, the project was a lot of fun. Tony and I are really looking forward to our next attempt, which will also be a team effort, with Tony as mechanic and myself as pilot.

The speed trials at the nationals aroused a good deal of interest. All agreed that the style of flying was entirely different from anything seen here to date. Unfortunately, because of the last-minute notice, there were only three entries.

Brian Green, of Melbourne, put in a creditable performance, clocking 115 mph on one downwind run. This was with a standard pylon racer on straight fuel. Needless to say, he cleaned up in pylon, setting a new Australian record, at the same time.

The only other entrant was Ken Jack of Sydney. Ken was unlucky enough to have fuel problems, which put him out of the event. We have called another attempt to take place at our State championships in March. It will be interesting to see the results.

Specifications: Silvertone Mark II Digital Proportional on aileron elevator throttle. Motor OSH 60 RC GP. ●

SAGE TYPE TWO

by R.F. Cooper

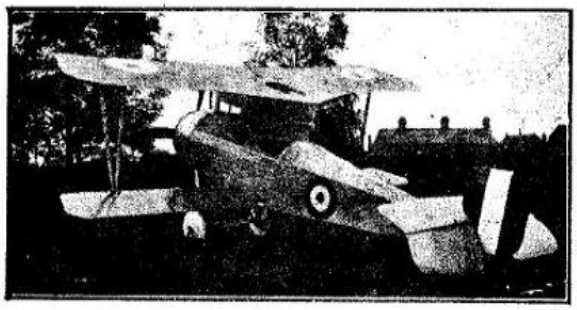
MESSRS Frederick Sage and Co Ltd made their entry into the world of aviation in 1915, when, along with many other woodworking firms pressed into service during the war years, they were awarded a contract to build Short seaplanes. In 1916, the services of Mr W. Tinson were engaged as designer, and the firm's first design was initiated. It never progressed beyond the design stage, and was scrapped.

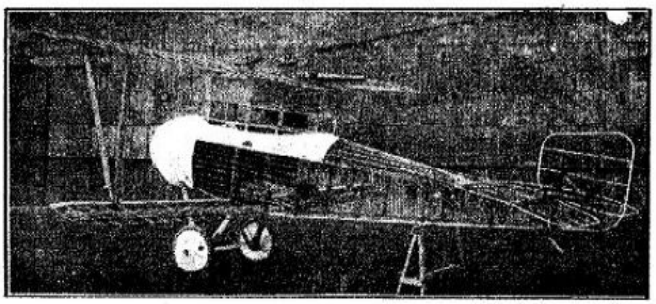
The Sage Type 2 was designed with the specific view of overcoming the difficulty then being experienced as regards the inability of British designers to perfect a workable synchronising gear for their aircrafts' forward firing armament. Realising the discomfort suffered by an observer standing up in the slipstream to fire his weapons over the propeller arc, provision was made for sheltering him inside a fully enclosed cockpit.

A small machine, the Type 2 belonged in the scout class as regards dimensions, though it was in fact a two-seater. The top plane was mounted atop the cabin, and formed the roof of the streamlined enclosure for the crew. Standing erect, the gunner could just see over the top plane, where his weapon was mounted, and thus had an uninterrupted field of all-round vision.

In order to provide the necessary protection and enclosure for the crew the fuselage was deeper than would otherwise have been necessary, filling the gap between the wings completely. However, in spite of the large side area thus presented, records indicate that the machine was quite easy to handle, and was fairly stable.

During a trial flight, the rudder post failed, with the result that the aircraft became unmanageable, and on landing, crashed into a tree, causing serious structural damage to the wings. It was not perpetuated, possibly because by then, synchronised gun gears were being found to work quite well in practice. •

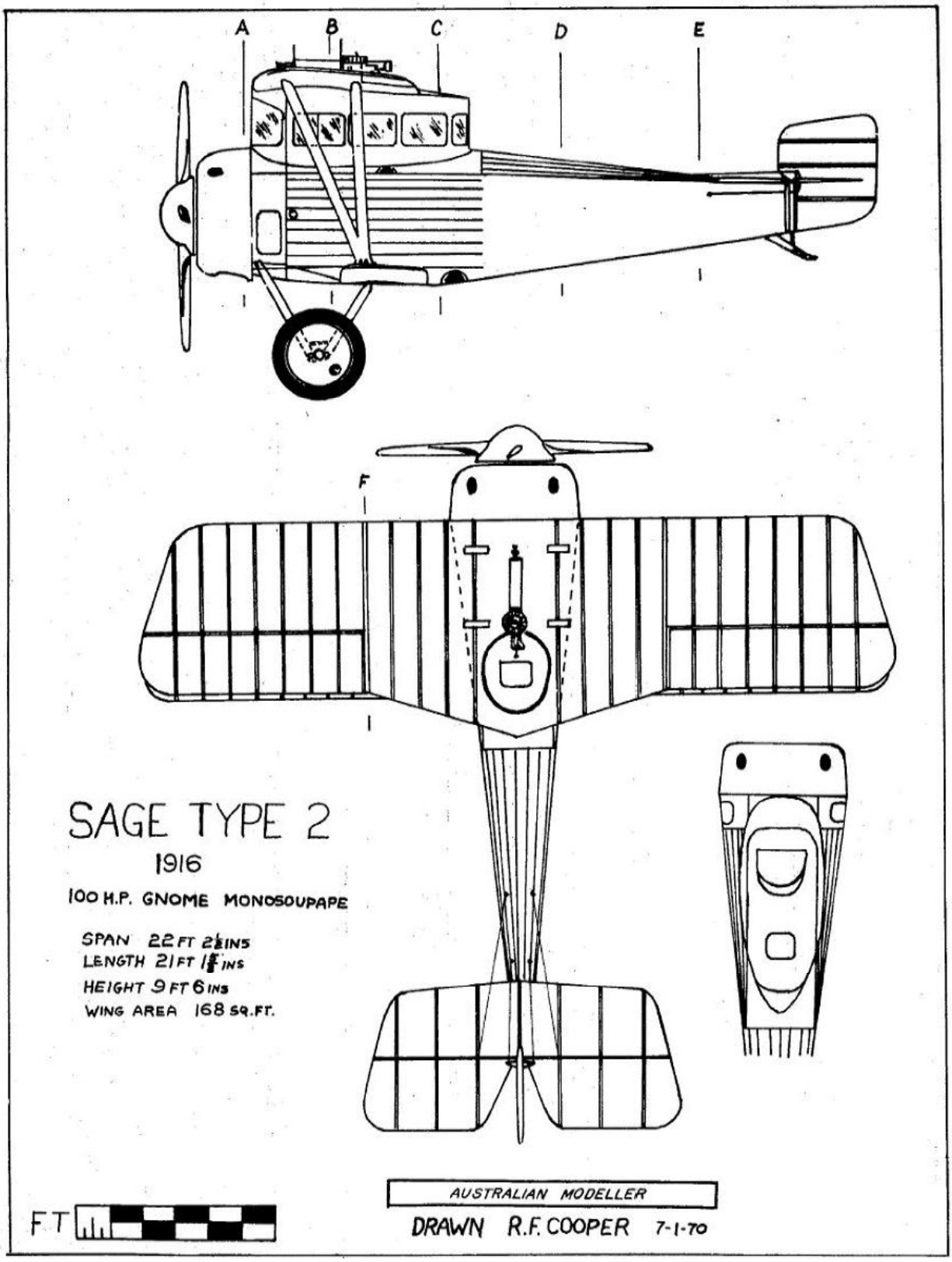


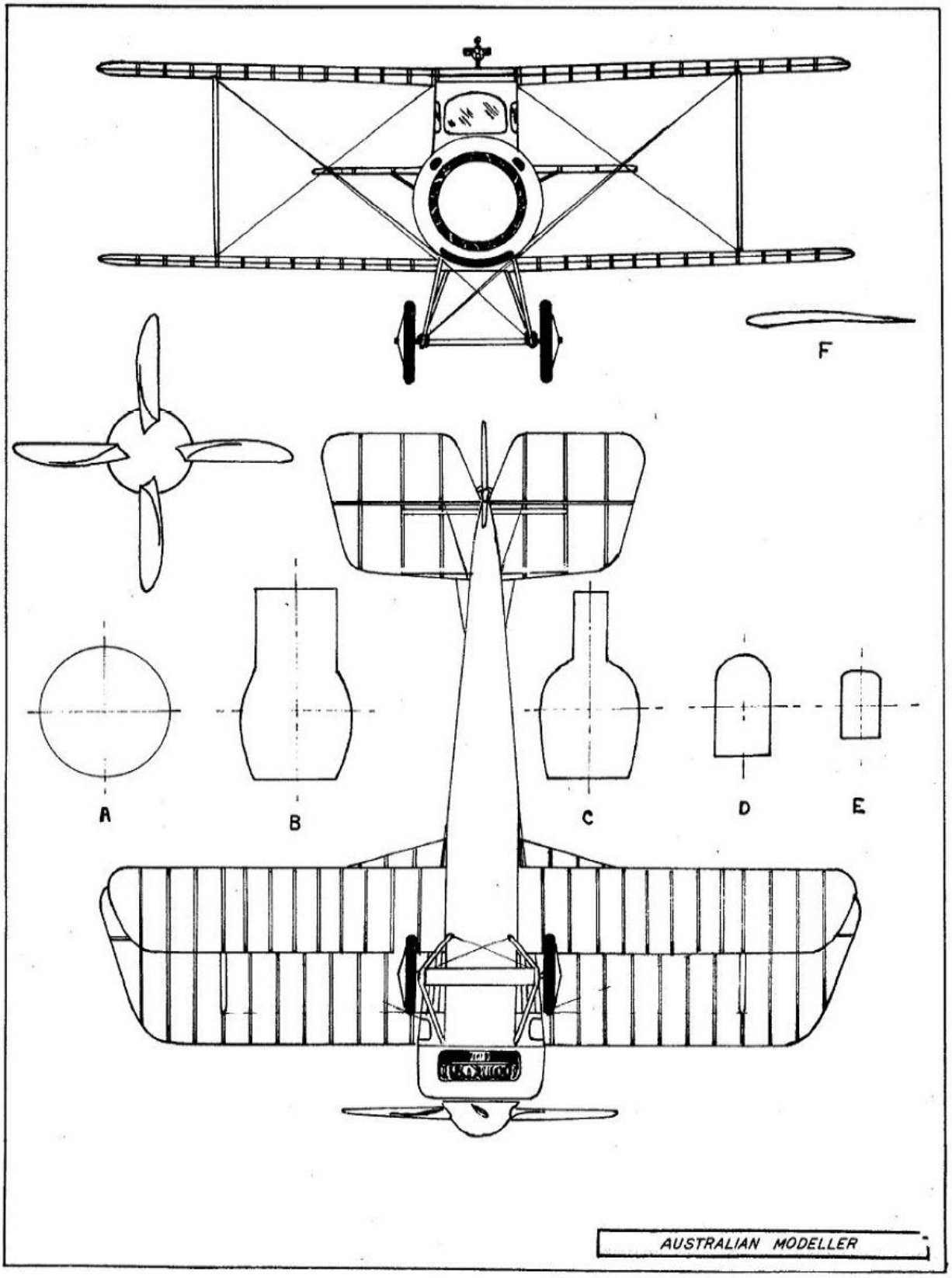


TWO VIEWS OF THE SAGE TYPE 2

In the photograph showing the machine uncovered the gunner may be seen standing up taking aim with a machine gun.

PLANS OVERLEAF


A
B
C
D
E
F
SAGE TYPE 2
1916
100 H.P. GNOME MONOSOUPAPE
SPAN 22 FT 2½ INS
LENGTH 21 FT 1⅝ INS
HEIGHT 9 FT 6 INS
WING AREA 168 SQ.FT.
FT
AUSTRALIAN MODELLER
DRAWN R.F. COOPER 7-1-70


F
A
B
C
D
E

SCRATCH BUILDING ...NAVAL VESSELS

by N. FORRESTER

MANY potential model builders have been deterred from their ambition because they aimed a little high in their first project and became discouraged when the task seemed a little beyond them.

What is required for the newcomer to scratch building-is a model with few real complications, but yet possessing character enough to catch the eye.

The group of World War I destroyers were created for my own amusement during a short spell away from model aircraft. However, I have found them ideal as a "first subject" for young or older modellers.

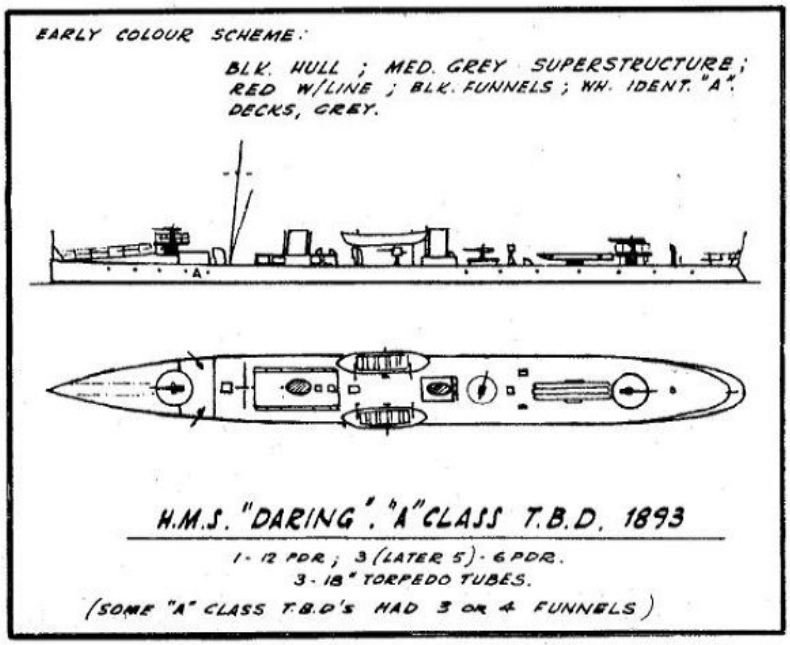
With practice, I think the reader will find, as I have found, that scratch building is no harder than kit building, and is much more interesting.

Let us start, then, with one of these destroyers. The 'H' type of 1910 will do nicely, containing few difficult features. The scale is 50ft to 1in.

For the hull, take a piece of clear pine (not too soft) 7in long, exactly 17/32in wide, by just a little over ⅛in thick. From it cut one 5in and one 1¼in length. Glue these together as shown on the detail sheet to form the hull block. Araldite is an excellent adhesive, and is used throughout all the following operations.

Trace from the plan a thin card template and use this for marking the shape of bow and stern sections (refer detail diagram). It is a good plan to use card templates wherever possible in modelling. It is quick and exact.

Shape the bow and stern sections with a sharp knife, and file down the hull to obtain the correct height above the waterline. Note that there is a small but important reduction of freeboard towards the stern. Sand the hull smooth.

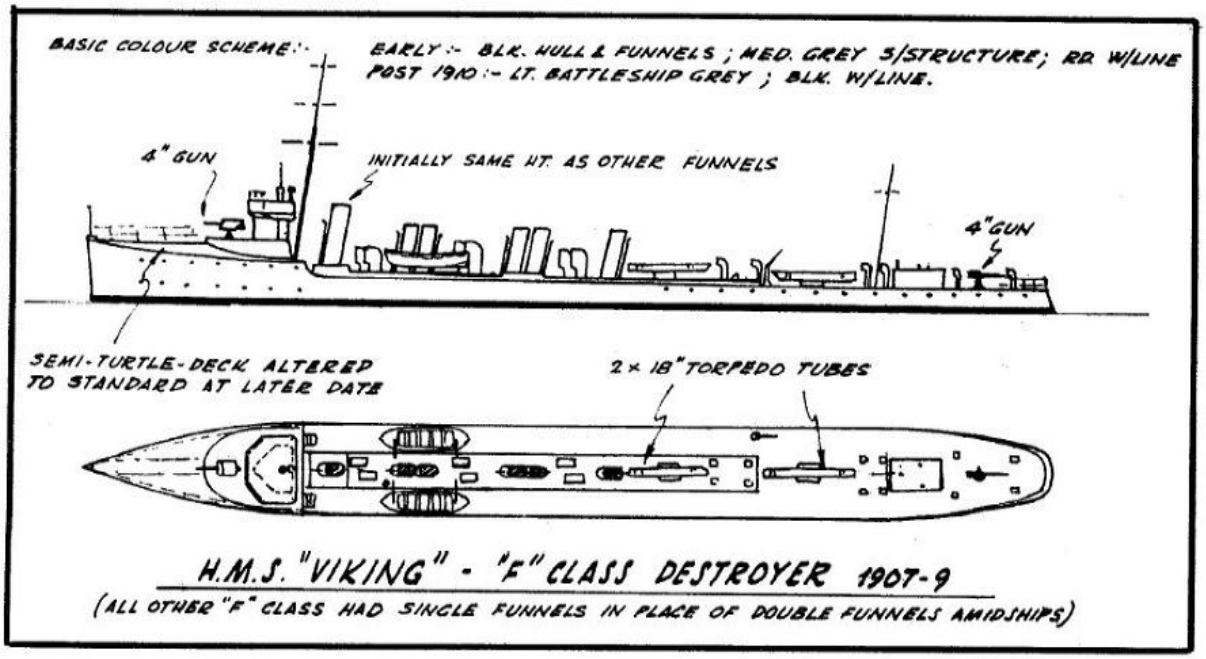


With a hard (4H or 5H) pencil sharpened to a chisel point, rule lines to simulate the deck planking. Lines should be fine and as close as practicable — between 1/64in and 1/32in is suggested. Give the deck several coats of Humbrol clear matt varnish, the raised forward deck and hull sides several coats of Humbrol light grey. Sand between coats.

Cut the funnels and bridge lower section from pine. The funnels can be shaped to fit into locating holes drilled in the deck, or located with a wire pin before fixing with Araldite. Undercoat these items with matt grey. The steam pipes adjacent to the funnels are of 25swg piano wire, sharpened and pushed into the deck.

The torpedo tubes are of 1/16in diameter aluminium or brass wire or tubing, with a base of 1mm ply wood or aluminium sheet. The four engine room vents may be cut from 1/16in ply or plastic, or filed from 1/16in aluminium sheet. Holes may be drilled to take the vents (1/16in and No. 60 drills, in a pin vyce or a dowel handle will be found a useful implement here). The aft companionway and vents are of scrap wood.

The bidge deck and 4in gun shields are made of thin aluminium or tinplate (see detail sheet). Aluminium can be obtained from a variety of domestic sources—soft drink cans, cigar cases, etc.



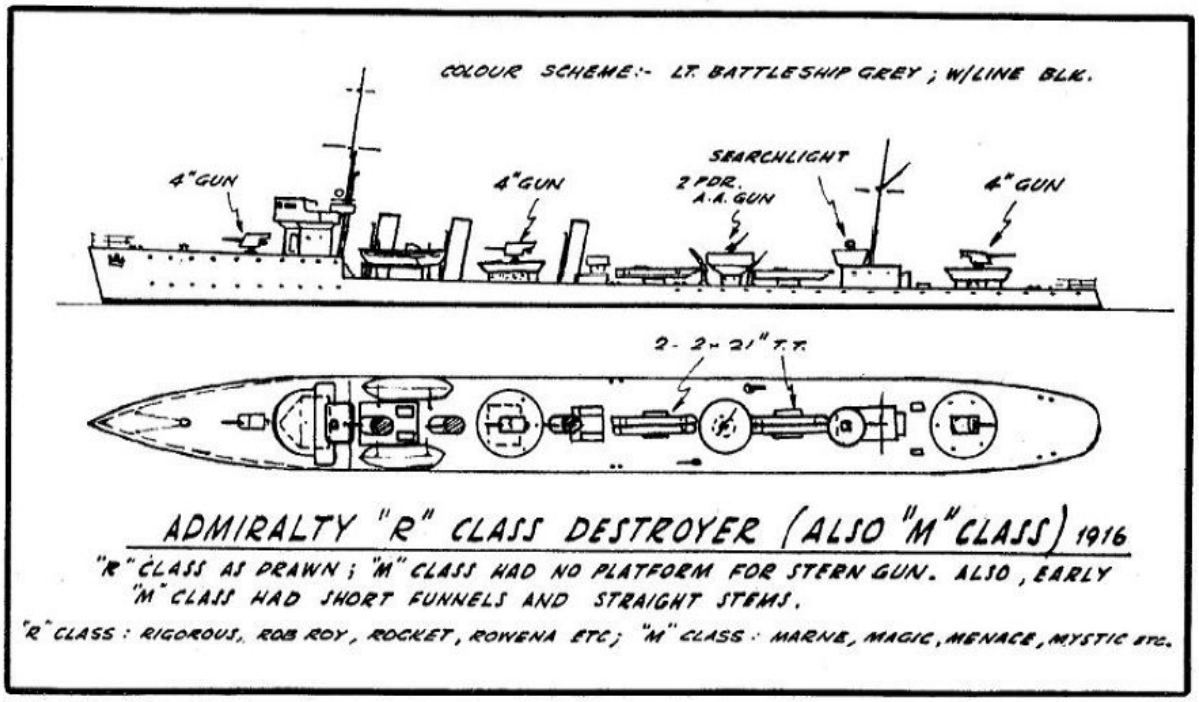
The searchlight platform on my model was made by Araldite a brass ring sawn from a .22 cartridge case to a small dowel. When dry the platform is shaped with knife and file as shown on the detail sheet and plan. The searchlight is a short length of 1/16in diameter aluminium supported on a pin from which almost all the head has been filed.

Masts are of 24swg piano wire slightly tapered at the top. Cross trees of 24 or 25 swg piano wire are bound and Araldited to the mast. Very fine tinned copper wire for binding can be found in multi-strand cable (see detail sheet).

Guns are bent from wire (see detail). The anchor capstan is a pin-head.

Paint the hull sides and superstructure matt mid grey (North Sea grey) with details and waterline black.

A display stand can be easily made using a piece of scrap hard-

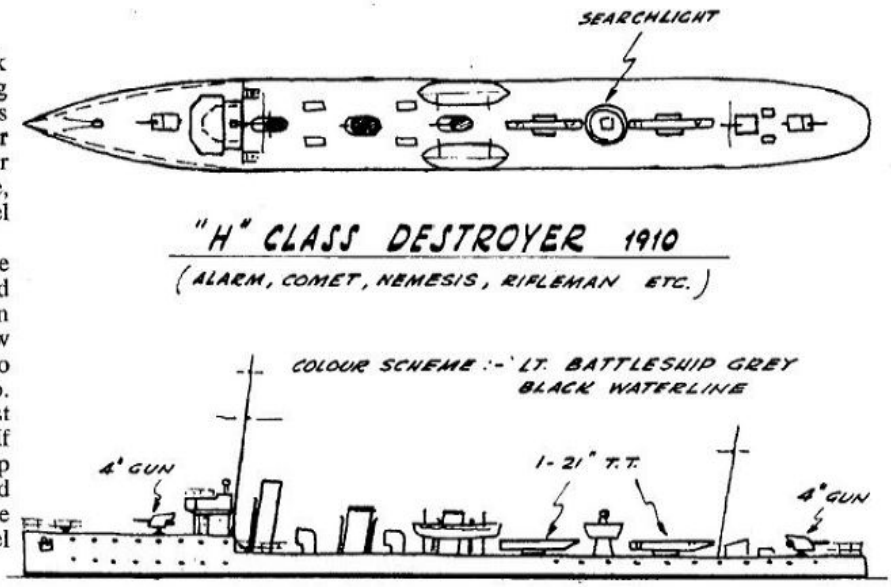


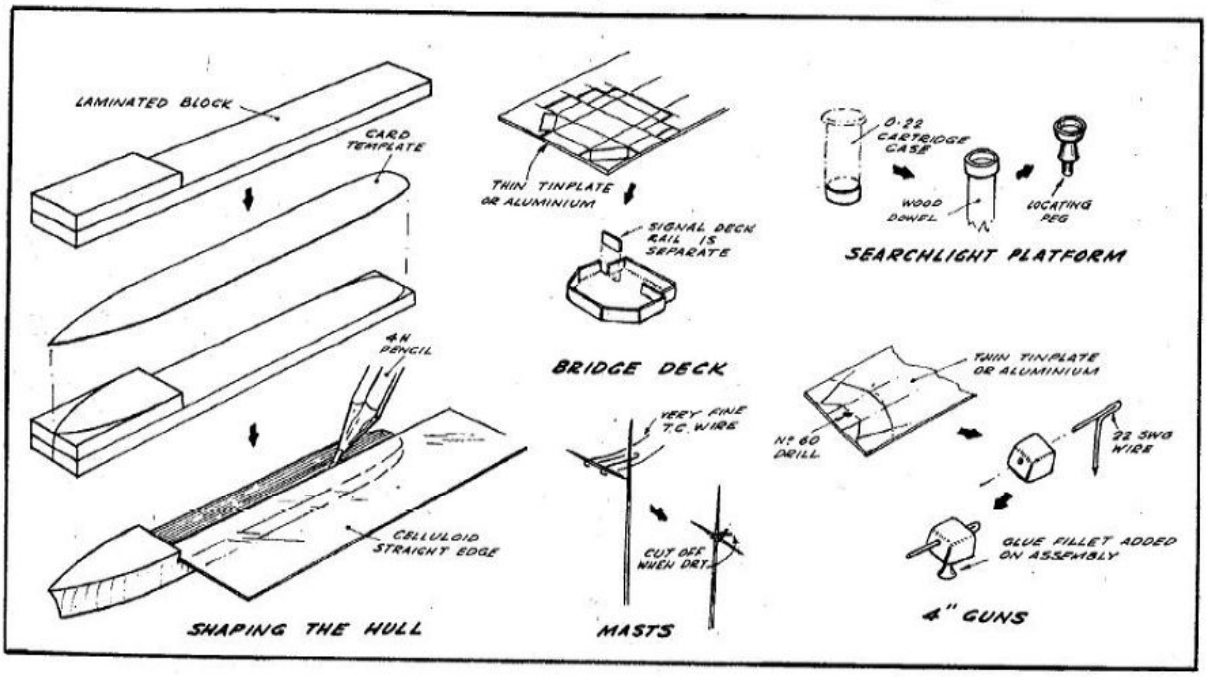
SCRATCH BUILDING

board. Bevel the edges and mark the position of the model. Using any plastic compound such as plastic wood, Polyfilla, plaster, or equivalent. Apply with knife or spatula to simulate the sea surface, leaving the space under the model flat.

A bow wave and wake can be included if desired. Undercoat and paint gloss blue-green, pale green in the wake, and with white bow wave and wave caps. Reference to color photos or paintings will help.

I hope you will enjoy your first excursion into scratch building. If you would like to make more ship models, I can heartily recommend the series of drawings, Marine Miniatures, published in the Model Maker magazine. ●





Pay a dollar less for a $3.00 book?

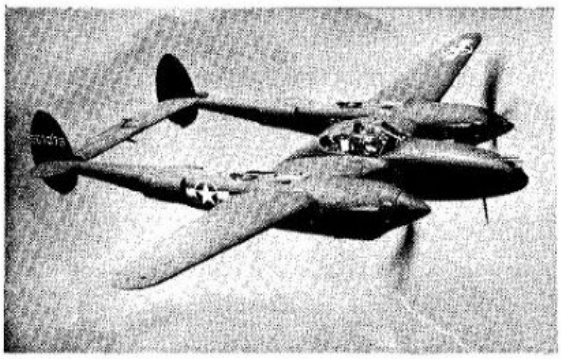
In these days of rising costs and high prices, it is unusual when ANYTHING goes DOWN in price! YET, Historian Publishers have managed to REDUCE the price of their Aviation and Marine Technical Books by $1.00 through volume production! As well, numerous additions and improvements have been made, including additional text pages, MORE COLOUR, MORE photos and improved quality.

HISTORIAN PUBLISHERS PRESENT

Their new series of Technical Manuals to be published regularly. — Just published! Not just a reprint, but a completely redesigned book.

THE LOCKHEED P.38 LIGHTNING

A HISTORY by Anthony Shennan



Now a highly accurate technical manual with over 120 superb photographs including pilots and crews • 17-inch span cutaway • complete technical specifications and data • design and development story • operational history • LARGE 1/3-in. = 1 foot scale SUPER-DETAILED drawings by A. Shennan • 40 8½" x 11" pages • COLOUR camouflage and markings drawings • semi-stiff card covers • printed on fine quality art paper with fold-in plan and colour cutaway on same grade paper.

MORE FOR YOUR MONEY
PHENOMENAL VALUE AT **$1.95**

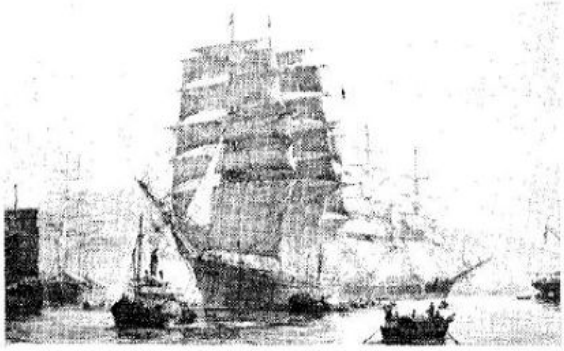
Plus Postage and Packing

JUST PUBLISHED!

Revised and improved SECOND EDITION of the fascinating history of a famous tea and wool clipper and the tough men who sailed her to immortality. These were called "The Good Old Days" best enjoyed from your armchair today while reading about the great . . .

THERMOPYLAE

AND THE AGE OF CLIPPERS by John Crosse



• Colour cover • colour paintings • colour photos • colour centre spread painting • rare photos • sail plan • route map • 36 pages • semi-stiff covers • quality art paper • 11,000 words of text.

TRULY A COLLECTOR'S ITEM
AND ENTERTAINING READING AS WELL!

ONLY **$1.95**

Plus Postage and Packing

HISTORIAN QUALITY BOOKS AT THE PRICES YOU CAN AFFORD. SEE OUR ADVERTISEMENT IN THIS ISSUE FOR OTHER BOOKS.

HISTORIAN PUBLISHERS, AUSTRALIA, 3 GRANDVIEW DRIVE
CAMPBELLTOWN NSW AUSTRALIA, P.O. BOX 201 CAMPBELLTOWN NSW 2560

Please send me ☐ copies of THERMOPYLAE
☐ copies of P.38 LIGHTNING . . . . . CHO/MO

I enclose the sum of . . . . . including 20c for postage and packing.

Mr. . . . . City . . . . .

Street . . . . . Post Code . . . . .

State . . . . . Country . . . . .

by **BILL RUXTON**

CLERGET 9R ROTARY ENGINE

OVER a period of about eight months, this model involved some 330 hours work for a total cost of a little over $3.00.

The 1/6 scale drawings were first prepared, using all available photographs, the W. Wylam scale plans, and finally from inspection of the Clerget engine housed in the Camden Aviation Museum.

The central crankcase is the circular plastic dispenser originally housing a roll of Durex tape. This was packed out to a thickness of half an inch with balsa, and the remainder of the crankcase carved from sheets of half inch very hard balsa, and faced with 20 thou sheet plastic. Cylinder bases were carved from balsa also, and faired into the circular crank case with body building putty. The entire crankcase was then treated to seven or eight coats of dope, and finally two coats of paint.

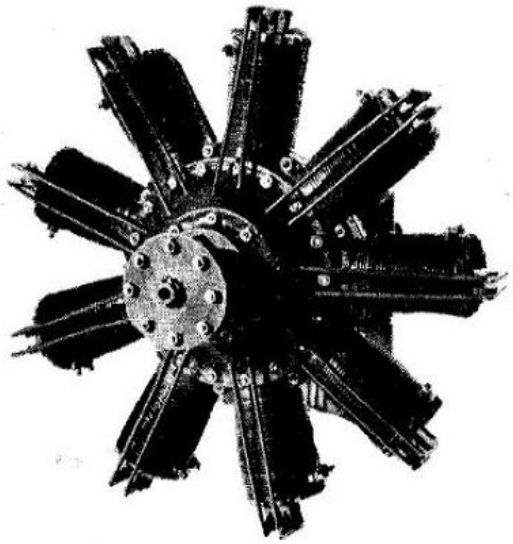
Each cylinder was built up of 27 circular cooling fins of 10 thou plastic sheet, with 27 'spacers' of 20 thou sheet. Each disc is drilled centrally and slipped over a one-eighth inch central rod to assist in accuracy of assembly. All cylinder head fins and other details were built up from scrap plastic sheet.

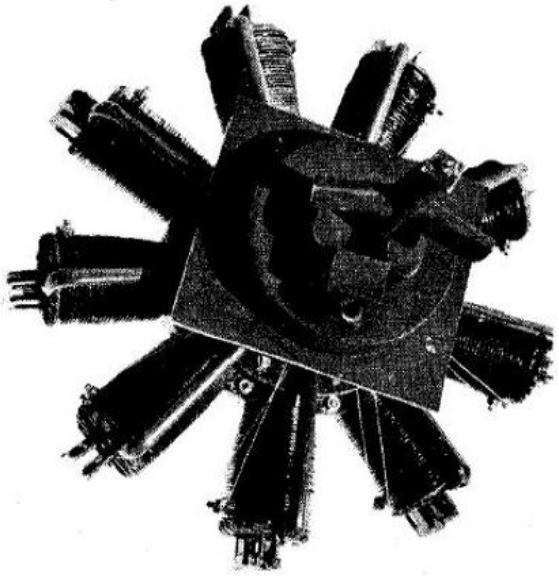
Sprue provided the material for the paired push-rods at the front, and the intake pipe at the rear of each cylinder, all bending and stretching being done over a candle flame.

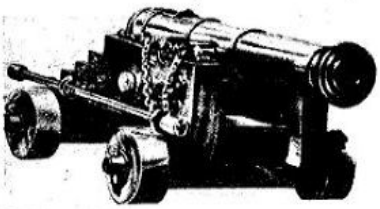
Prop boss is sheet plastic and eight b.a. bolts and nuts, the frontal securing nut being cut from the screw-top portion of an old ball-point biro case.

Finally, the crankcase was drilled out and the six b.a. cylinder halves retaining bolts cemented in—these, incidentally, proved the most expensive item, costing more than all the other necessary materials combined. After a lot of trouble, I finally located them at McPherson's of Auburn, New South Wales.

Carburettor, magneto, and other rearward detail were all built up from scrap plastic, while the 18 spark plugs are easily made by screwing a piece of plastic sprue into an eight b.a. nut. For mounting on to a backplate for display, I drilled the crankcase out to allow a quarter-inch steel rod to be used allowing the engine to rotate on its horizontal axis, as did its full sized counterpart. ●







SHIPS GUNS

by **BILL RUXTON**

MODELS of these guns are quite attractive in their own right, as well as being necessary pieces aboard model ships, and provide a good opportunity for neat craftsmanship in either wood or metal.

Prototypes of these guns were the natural dull black of cast iron, while carriages were usually untreated wood, which darkened with age. During the 18th century, it became usual to have carriages painted red, as was the interior color of many other parts of the ship. However, a natural finish is acceptable for this period as well.

32-Pounder Deck Canon

Most difficult part of the model will obviously be the barrel, which is best turned up on a lathe. In the absence of the latter, however, it will be necessary either to carve from wood, or laminate from paper wrapped round a dowel mandrel, in both cases the reinforcing rings being added later.

If paper is used, it will be important to wrap it onto the mandrel carefully to avoid wrinkles. The completed barrel is then coated with thin liquid glue, rubbed well down, and then coated with shellac or similar mixture. Rings are added by rolling on thin strips of paper, and two or three coats of matt black used to simulate the metal finish.

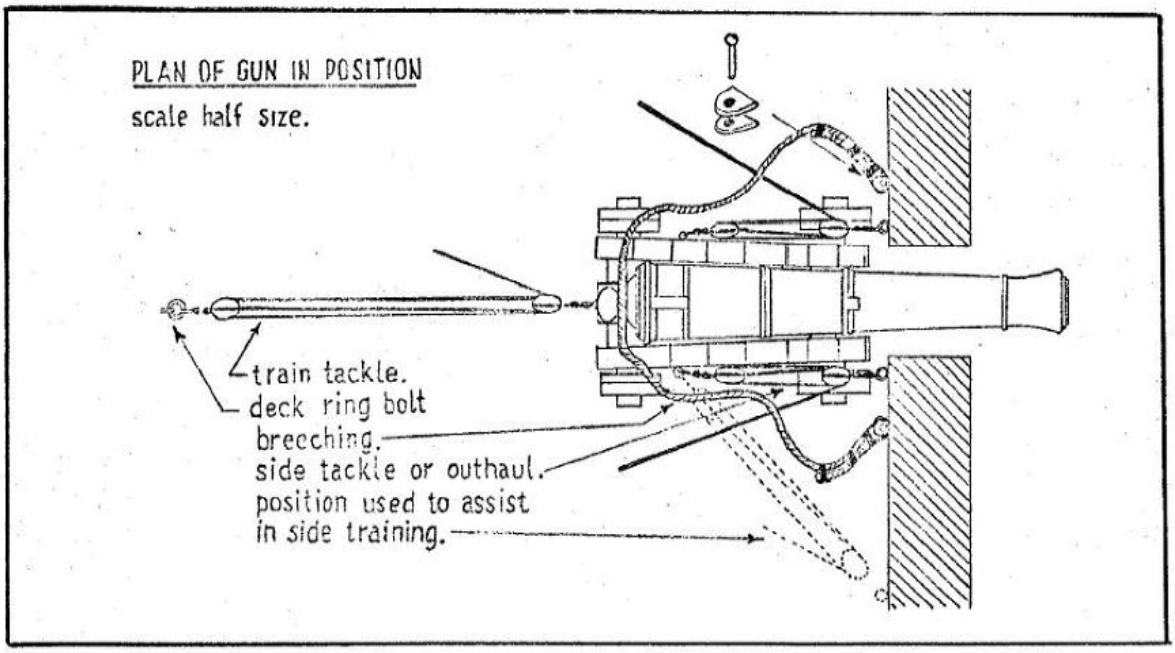
The gun carriage is quite straightforward, the cheeks, transom and axles all being cut from the same thickness material. which is, incidentally, equal to the bore of the gun. The barrel trunnion is also the same thickness material. (Note that the trunnion is offset from centreline by half the diameter of the bore.)

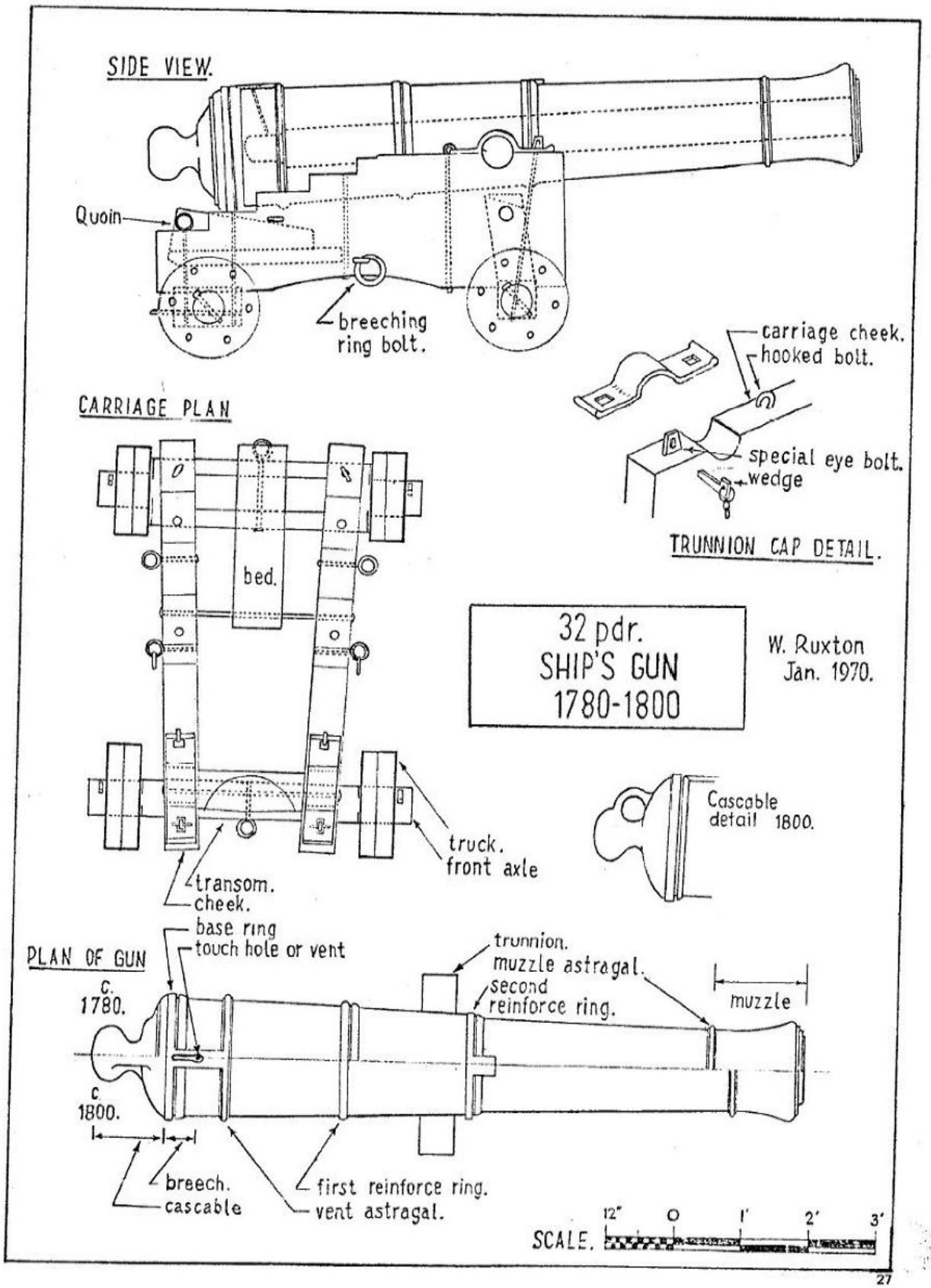
Cheeks are first cut to size and drilled out for the various bolts. It is not necessary that the bolts carry through and can be short lengths merely let into top and bottom of the cheeks, care being taken to line up correctly on both sides. The rivets are easily made from pin heads Araldited on the shanks before being pushed home.

Eye bolts are bent up from wire, using a mandrel the size of the hole. On larger scales, the loop in the wire will need to be completed with solder to emulate the cast bolt. The transom is carefully shaped to fit the angle of the cheeks and axle, while the axle ends themselves may either be shaped, or dowel ends let into the axle proper.

Wheels are made of two discs each, grain opposed, bolted as shown in the drawing. The wheels on some existing guns are one piece affairs, but these are probably recent additions for display purposes only, being most likely to have split if used under the trying service conditions of the time.

The trunnion bracket is shaped from metal or sheet plastic. Holes for the holding down hook are filed square. The special eye bolt and taper wedge are filed to shape and the wedge drilled for a short length of chain which is attached to the carriage cheeks. ●




SIDE VIEW.
Quoin
breeching ring bolt.
carriage cheek.
hooked bolt.
special eye bolt.
wedge
TRUNNION CAP DETAIL.
CARRIAGE PLAN
bed.
truck.
front axle
transom.
cheek.
32 pdr.
SHIP'S GUN
1780-1800
W. Ruxton
Jan. 1970.
Cascable
detail 1800.
PLAN OF GUN
base ring
touch hole or vent
trunnion.
muzzle astragal.
second
reinforce ring.
muzzle
c.
1780.
c.
1800.
breech.
cascable
first reinforce ring.
vent astragal.
SCALE.
12"
0
1'
2'
3'

AUSTRALIA'S LOWEST PRICES WITH *PROVEN* RELIABILITY

"FUTABA" SINGLE CHANNEL STARTS AT $45.90

CHECK THE POINTS

1. Lowest Price — Compare 4 Channel Complete, Ready to Fly ..... $349.
2. Tested, Approved and Recommended by American R.C. Modeller and English R.C.M. & E.
3. The Highest Transmitter Output — 990 MW — to Completely Minimise Interference.
4. Unique Control Sticks with Progressive Spring Tension for "Positive Feel" at All Times.
5. Stabilised Airborne Voltage Supply for Positive Resolution and Power.
6. Functional Trims with 20% Additional Movement Allow "Complete" In-Flight Adjustment.

COMPONENT PRICES

FP - T4	TRANSMITTER	**$140.00**
FP - R4	RECEIVER	**44.50**
FP - S2	SERVO	**36.50**
RN - 4	RECEIVER NICADS WITH SWITCH HARNESS	**18.50**
NC - 2	220-240V DUAL OUTPUT BATTERY CHARGER	**15.00**

FLASH: Complete Airborn Pack for Kraft, Logictrol, Classic etc. ONLY $209

SERVICE FEATURES

(a) Changeover Servo Service at Nominal Cost.

(b) You Stay in the Air with PROMPT Repair Service by Factory Directed Technicians.

(c) Low Price Replacement Components are Available Ex-Stock.

FOR ENQUIRIES REGARDING SALES AND SERVICE, CONTACT:

FUTABA **SALES AUSTRALIA**

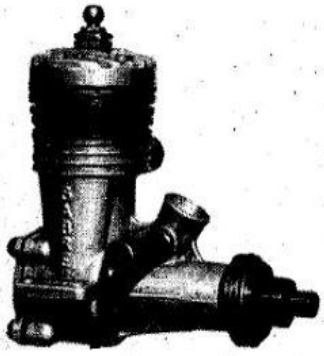
39 MYRTLE STREET, GLEN WAVERLEY, VIC., 3150
PHONE 560 6522

AUSTRALIAN PRODUCTION MOTORS

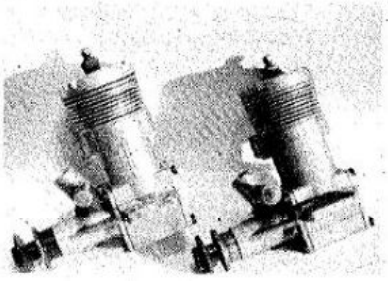
LAST ISSUE told the story of the early GB's. These were to be followed by the Sabre. Gordon Burford will neither confirm nor deny that the name came from South Australian Burford Reciprocating Engine, so this story may be apocryphal. Anyway, names of hand weapons, poisonous reptiles, meteorological disasters, and various other of nature's villains and villainies have always been the most popular in both modelling and full-size practice so let it be left at Sabre as in Javelin, Cutlass, Rapier, etc.

The copy containing the name Sabre was sent to press in October 1950 and first appeared nation-wide in the November-December 1950 issue of Australian Model Hobbies.

The first Sabre is shown in picture 1 with KLG hard top plug as supplied. This version came in 29 and 35 size, although 35 production was limited to less than 100. Ivor Stowe does not have a 35 and is interested in obtaining one.

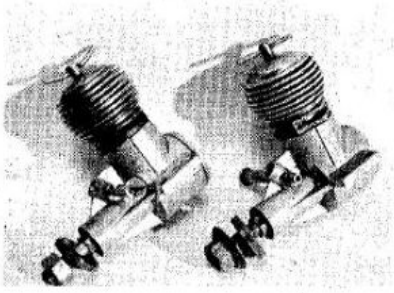


Marques appeared in quick succession thereafter, with frequent changes both externally and internally. Several capacities were designed at roughly the same time and clear dates of release are not known, but almost certainly the next production was the Sabre 49. Mal Sharpe, placed second in the Christmas 1951 Nationals at Camden using one of these in C Team Speed, which in those days was a big event with Anderson Spitfires, McCoy 60's and Hearns Tempests being the most popular. Photo No. 2 shows the first (in late 1950) version with no name and the later one with name which arrived in mid-1951.



The die casting on the first was in Burf's words "bloody rough", so that it has a sand cast appearance. Both versions had two rings with porting a la ETA or McCoy. After prolonged use the piston rings would distort the cylinder at the exhaust port position. There would come the inevitable day when the distortion was great enough to form a virtual lip and suddenly, no rings! It must be pointed out that this occurred only after literally hundreds of flying hours. Other ringed motors just weren't used to thrash round the local park.

Barry Lange, then of the Murwillumbah club, recalls how they would re-hone the bore, make up brass rings and carry on again. If you came across one with the exhaust on the port side don't think you've discovered Mk. 111—it's just that the last guy who owned it has put it together the other way. Gordon Burford guesstimates about 100 without names and another 700 with names—a big run for a motor retailing at a week and a half's basic wage.

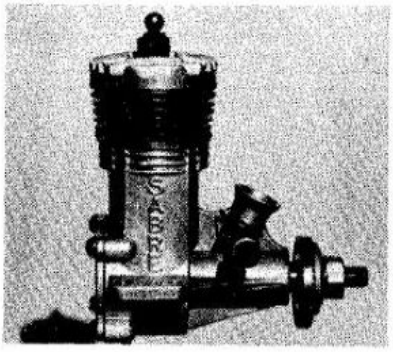


Soon after this appeared a very limited number of Sabre 150 diesels. These were finished just in time for Gordon Burford to take them with him to the 1951 Nationals. He thinks the total production was 12 and that nine were sold to competing modellers. Basil Healey bought one and put it on his first-ever Stomper and lost it at the Toowoomba 1953 Nationals. Information or photo of any of the remaining 11 will be greatly appreciated at Australian Modeller.

The next production to be released was almost certainly the Sabre 2.5 diesel which was an improved version of the previous GB 2.5. The Mk. I was available by about mid-1952. There were various modifications sufficient to justify the title Mk. II or perhaps III and IV as well but only one crankcase mould is so far known. These 2.5s continued in production until 1955. One of them achieved 98 mph at the 1955 MFC of A

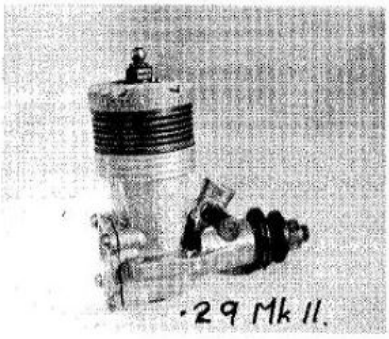
championships, a quite creditable effort for a 2.5 in those days.

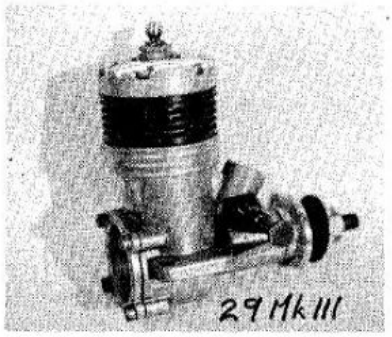
Photo No. 4 shows the most financially successful Sabre of all—the 19, which is a copy with modifications of the K&B 19. The original was imported by a very famous modeller of the day, Jack Dunkerton who, with Wally Judd, organised and managed almost as a dual effort the 1951 Camden Nationals previously referred to and still the largest Nationals ever held, as far as entries go, with over 1,200.



Jack sent the K&B to Gordon who borrowed and modified. The Sabre 19 stood tremendous abuse, ran like a motor should, and sold more than 1,200—the largest Burford run before or since without changes. Some modellers still have Sabre 19's and are still using them 17 years later. This borrowing of ideas was common all over the world and K&B had many good ideas. As an example of this borrowing, many K&B 20 owners were happy to discover that the reciprocating parts would drop into a Frog 500 crankcase. There were some Frog 500's that went very quick after that.

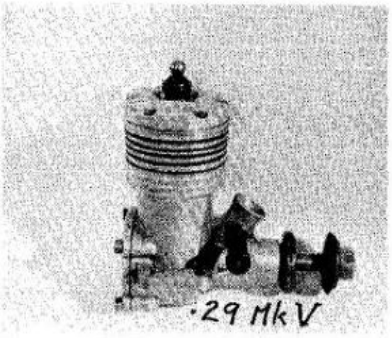
Ivor Stowe has a superb example of this borrowing—two ED Bees almost identical, but one has OS on it. We'll publish the photo in a later issue if you'd like to see it. (Write in and give us your ideas.) The Sabre 19 was also to survive into the Glo Chief era with gold anodised head, but by then some of the magic had gone with other motors more freely available and no recognised competitions for what was once THE competition—A Class.





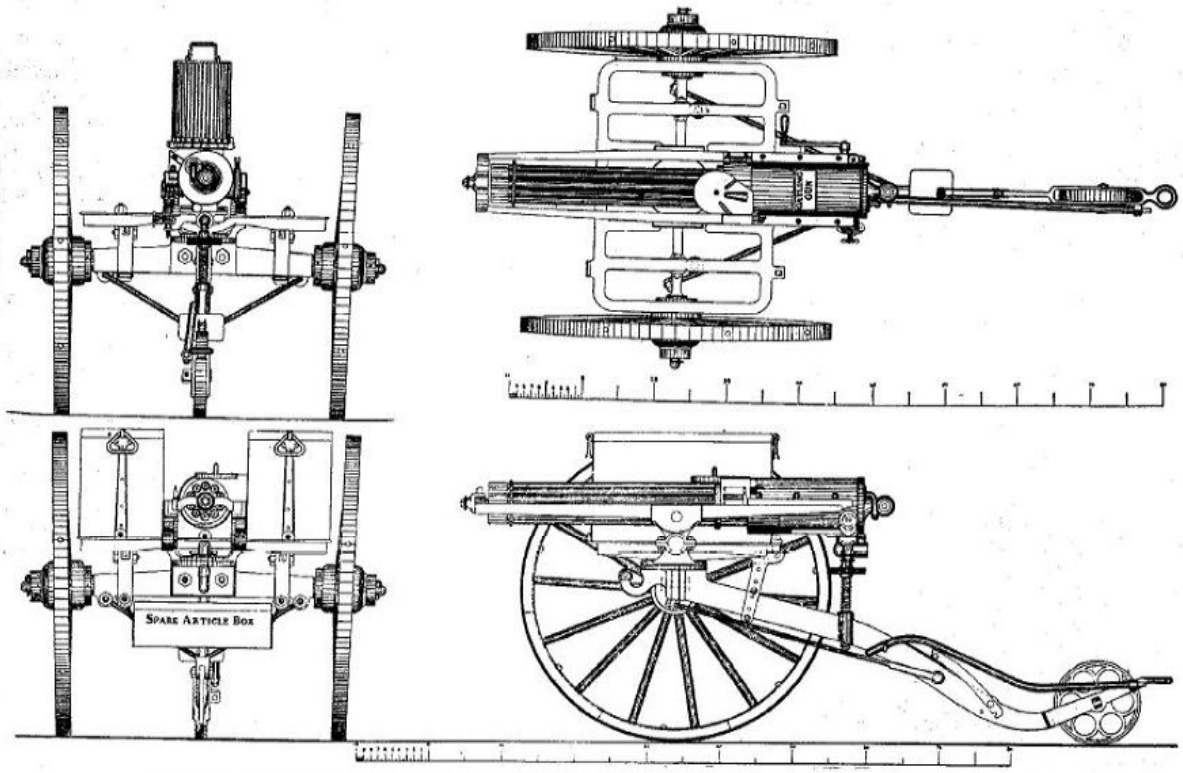
Some modellers still remember Jack Finneran's first ever 120-plus with a 19, not a Sabre unfortunately —but the 19 class was perhaps the biggest class of all then, replacing the 29's which had in turn replaced the 60's. In the 1970's more than half of the world's total production of motors will probably be 049's, which is where the reduction will undoubtedly stop.

So the A Class died and the 19 motors died too, to flare up again ephemerally as Radio Motors and Combat Motors, but soon to die again. Certainly OS, Enya and K&B still make them and boat lovers use them and some radio flyers find them handy but competition work these days is almost all 2.5's, or 60's. A wild exaggeration? It's a safe bet that more than 80 per cent of all international competition aircraft use only these two sizes.



The next Sabre released is a matter for argument, and this is where your purchase date can help. Photo 5 shows the Mk. II Sabre 29 and 35 series with six head screws, only two of which (fore and aft) held the liner in. This version has a clearly visible V shape externally on the transfer bulge. Mk. III is shown in Photo 6 with clearly visible parallel limits to the transfer port. It is reported that some of this type exist with Sabre on them but Australian Modeller has yet to see one. No. 7 is a Mk. V (29 or 35) with drop-in liner and fins integral with crank-case as for Fox.

So there they are—a full range of Sabre motors to suit the Australian market—2.5, 19, 20, 35 and 49—and then the axe fell as far as the name Sabre went, and that's the subject of next issue's thrilling episode. ●



THE GATLING GUN—UNITED STATES—1866-1911

Maurice Mitchell's

CRUSADER

TOWARDS the end of each year prior to the Nationals, and after completion of my control-line scale entry, I usually start turning over in mind a suitable subject for the following year—even before the current model has proved itself or not. I suppose this thought stems from the fact that the list of desirable subjects one would wish to build is generally too lengthy for the available time at one's disposal —taking into account the odious task of having to earn one's living meanwhile.

Whittling the list down to one subject, which is generally all that can be safely managed in the available time, assessing it against other subjects which have desirable features, and yet leaving you fully satisfied in your mind that this is to be 'one', is no easy task, and could well run in time into several weeks (or months). Once settled in your mind, details of construction and operation of working features have to be worked out before putting pencil to drafting paper and could well occupy further considerable time.

I generally try to fully complete the full-size working drawings, showing every possible detail and inking it in as a complete set. I find the task of building a lot easier coupled with the satisfaction of finding the pieces going together as they should.

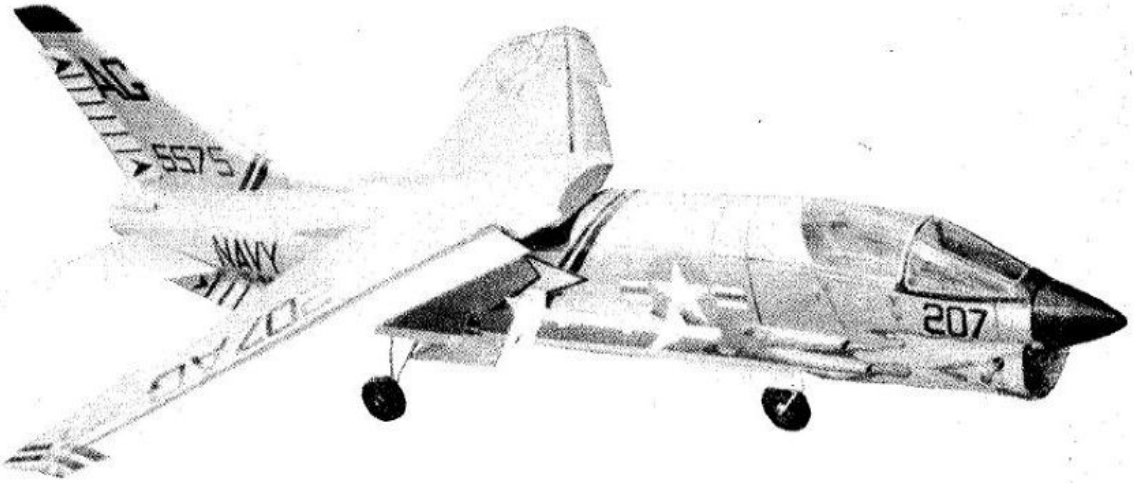
The idea behind the choice for the Crusader for last year's Nats came from the thought to attempt something really different. After a taste of reasonable success with retract gear and flaps on the Marauder of the previous year, these features were a must on the next subject and any further working features which could be added.

The Crusader was a natural in a number of these respects but there remained other aerodynamic uncertainties which had to be proven. The full-size aircraft featured retracting tricycle landing gear, variable incidence wing coupled with droop leading edge and trailing edge for slow speed carrier deck landing. It incorporated a deep air intake scoop under the nose sufficiently large to house an inverted engine, and although to the purist the idea of flying a scale jet aircraft with a propellor in the nose may seen obnoxious, in fact when the model is in flight it is not conspicuous even to the point of not being visible at all. After all, this sort of thing is done in R/C flying and is getting popular. Some of the more advanced scale-like jet-looking stunt jobs feature this method.

Coupled with heavy sweep-back to the wings and with a heavy motor in the nose, does bring with it serious problems of balance to get the CG in the right place. It is not always possible to house the electric motor and gear train which drive the operating features in the rear of the model, so, in the case of the Crusader, I found it necessary to stuff all the batteries into the rear efflux orifice of the tail pipe. They were not noticeable there, they were easily removable for battery change and, more important, brought the trim of the model where it should be.

Vital statistics of the model are: Span, 31½in; length, 48in; and built to a scale of 57/64in to 1ft. An odd scale, yes, but that's how it worked out to give just the right size to the air intake to completely house the motor without even a plug projecting below the cowling. Weight worked out at a sneeze over 5lb, which I thought a little high for the available wing area but proved otherwise in flight. Construction was largely ply and ⅛in balsa wood planking with a heavy ply-keel and ply rear formers. Final covering was 'aluminium' Monokote laid on in exact panel size to the full-scale craft. The rather gaudy paint job was taken from the frontspiece to the appropriate Profile Publication.

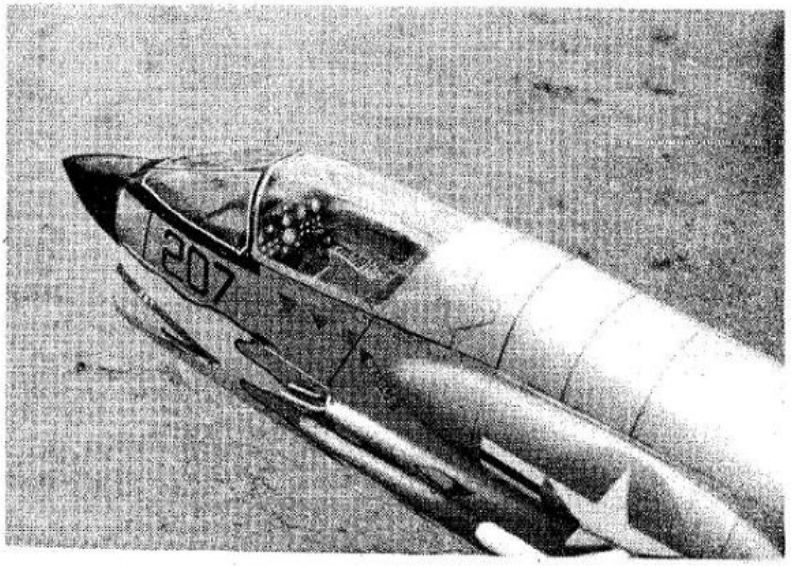
The model featured Robert's control for throttle operation and a pull of the third line beyond full open throttle position triggered a micro-switch which set off the undercarriage operation followed by the variable incidence wing to high speed cleaned-up state. Leading and trailing edge flaps automatically aligning themselves to the wing setting. With the model



cleaned up it really grooved in flight but difficulty was met in the slow landing configuration due to the high-lift setting to the wing and the approach upwind and downwind on each side of the circle, resulting in 'hunting' of the model—not a desirable attitude for a smooth landing. Retraction of the main gear and wing/flap operation was similar to that incorporated in the Marauder and consisted of a 3-volt electric motor driving a cut down clock gear train giving an 800 to 1 reduction, the winding key stem being the output arm.

The main gear pillars held an additional 'perspex' circular plate on which were affixed copper wiper plates with suitable gaps to give cut-off to the five copper wiper arms which picked up the current once triggered by the aforesaid micro-switch. These ensured correct 180 degree cycle and sequence operation to the wing motor drive. The gear was locked down in the fully down and up position by the over-the-ninety degree method of lever and loop operation formed in 12 gauge wire with silver-solder joints.

On the whole a worthwhile challenge and with reasonable success. It gave me great satisfaction and is one more subject scored off the list. What next? Who knows, at this time of writing but I again feel certain it will be something different although probably of a more proven and safer configuration—but time will tell. I like a challenge, isn't that how the hobby progresses? ●



FIAT CR.42 FALCO

The Battle of Britain was supposed to be over and the war had entered a new phase when the Regia Aeronautica made its first attacks on Britain in daylight. Nevertheless, worthy of description is the Fiat CR.42 **Falco** (Falcon), the Italian warplane that went down in history as the only enemy fighter to fly over England in World War II.

Triumphant at their successes in the French campaign where the Falco's had performed creditably against the Dewoitine D520's, the Regia Aeronautics was persuaded that it was almost unbeatable. Thus it was that in September 1940 the decision was made to send a special contingent of the Italian Air Force to assist the Luftwaffe in the Battle of Britain. In this, the Fiat CR.42 just scrapes home as a legitimate participant, for it is recorded that Falco's escorted the Fiat BR.20's in an attack on Ramsgate on the night of October 29th. The fighting force was selected from bomber, reconnaissance and fighter units. Those selected were the 56 **Stormo** consisting of 18 **Gruppo** (seconded from 3 **Stormo**) flying CR.42s; the 200 **Gruppo** of 51 **Stormo** flying Fiat G.50's, with one squadron (five aircraft) of Cant Z 1007 Bis medium bombers and two **Stormi** of twin-engined Fiat BR.20's. The contingent moved to Belgium, dispersed at Maldeghem, Ursel, Chievres, Melsbroek on October 22. This force was known as the **Corpo Aereo Italiano** (CAI). Numerous difficulties were encountered in co-operating with the units of **Luftflotte** 2. The CR.42's had difficulty in keeping up with the Bf 109's and direct communication in the air was poor since the Germans, like the British were using Very High Frequency (VHF) radios while the Italians did not carry such equipment.

Some night bombing raids were carried out by BR.20's during October, sixteen bombers raiding Harwich on October 25 and an attempt was made on Ramsgate on October 29 with BR.20's and CR.42's. It was then decided to commit the Italians to daylight sweeps. On November 11th, Harwich witnessed the strange sight of 22 biplane fighters and 10 bombers coming over the Thames Estuary. The ack-ack guns around the Estuary opened fire, apparently to no effect, but the Hurricanes of No. 46 and 257 Squadrons from No. 11 Group intercepted with success. Only one Hurricane was damaged and this through collision with the upper mainplane of a CR.42. A second raid was made on Margate and Folkestone on November 23rd, 29 CR.42's participating, losing two of their number. The victory claims of both sides were grossly inflated, the Italians claiming nine 'probables' for the loss of three of their fighters for the first raid and two losses for the second. Post-war assessment of RAF records indicate that no British fighters were lost but that three Falco's and three bombers were forced down on November 11th. It is interesting to note that recent journalistic sources in Italy are still claiming the nine, but this time as 'destroyed' with probables as well! It is now known that two of the fighters were forced to land through mechanical failure, one having broken an oil line on the way to Harwich and the other, having encountered a propeller pitch change mechanism failure. Whether the latter was occasioned by hits from Hurricanes is not known, but this CR.42, flown by **Sergente Pilota** Antonio Lazzari had bullet holes in the tail at least when it force-landed.

The true scores and the records of sorties flown, show that the CR.42's while outclassed by the Hurricanes, did very well, no doubt because of their superlative manoeuvrability. The Falco's flew no more daylight sorties after November 23rd; and were withdrawn to the Mediterranean area two **squadrigli** 352 and 353 of 20 **Gruppo** remaining in Belgium until April 1941 when they too were withdrawn. A total of 1700 sorties were flown by the Italians up to April, for the loss of twenty pilots and crews. Of these sorties, some 454 offensive sorties were flown by CR.42's and G.50's. The CR.42 remained in service with the Regia Aeronautica in the Middle East, North Africa and participated in the assault on Malta, being seriously outclassed by both the Hurricanes and Tomahawks then in use by the British forces. Other campaigns in which the Falco's participated were Greece and Crete, where they performed well escorting Ju 87 Stukas. They were eventually replaced by G.50's.

The night fighter version of the Falco, proved relatively successful in North Africa and later defended the Italian industries in northern Italy from raiding British bombers.

DEVELOPMENT

An anacronism in 1939, the year of the single-engine monoplane fighter, the prototype Fiat CR.42 first flew early in that year. Comparable to the English Gloster Gladiator, which it eventually met in combat and over which it was often found to be superior, the CR.42 was perhaps a fighter that should never have been. Nevertheless, being the CR.42 was a fine machine in its class, being a development of e successful CR.33, 40 and 41 formula of Ing. Celestine Rosatelli Chief Engineer of Fiat. Its lineage can be traced back to the CR.20 and CR.30 of 1923.

In September 1939 the Falco was in service with three **Stormi** (that is, a fighter **Stormo** of two **Gruppi**, each **Gruppi** being composed of three **Squadriglie** of twelve aircraft each. Thus three **Stormi** equals 216 aircraft). On the entry of Italy into the war, these **Stormi** were based in northern Italy, southern Italy, in the western part of Libya and at Benina to the east of Libya. Two **Squadriglie** were also in Italian East Africa for a total of 330 aircraft, 290 in service and 40 in readiness and 40 reserves in depots

The CR.42 went into action against the l'Armeo de l'Air in Cote d'Azur and the Southern Provinces, where determined spirited opposition was put by the Dewoitine D 520's and the Bloch 152's. Losses on both sides were quite low and few machines were shot down on either side. Other CR.42's were active in raids on Tunisian airfields where little opposition was met. Thus the stage was set for the Italians' entry into the Battle of Britain.

A total of 11,781 CR.42's were built up to the end of 1942 and a number of these went to foreign powers, such as Hungary 50, Sweden 72, Belgium 34.

$ 250 CASH

Plus kits, motors, etc., in our

CONTEST

Build a display model of the

BEECHCRAFT AIR AMBULANCE

FULL DETAILS AND SUPER PLANS IN OUR NEXT ISSUE

HELP THE NSW AIR AMBULANCE SERVICE

GREENACRE HOBBY STORE

The Radio-Control Specialists

We know that you will want to install radio control equipment in your model and we will assist you to select the most suitable gear from our large range of systems.

Some Selections —

FUTABA TX & RX	$ 39.50
OS PIXIE TX & RX	$ 45.90
RECEIVER ONLY	$ 17.60
SILVERTONE TX Only	$ 44.50
FUTABA SUPERHET RX Only	$ 41.95
SINGLE CHANNEL ESCAPEMENTS from	$ 3.98
SINGLE CHANNEL RUDDER SERVOS from	$ 10.95
SINGLE CHANNEL ENGINE SERVOS from	$ 8.95
Complete radio outfit from engine and rudder ready to install	$ 69.95
SCOOP!!!!!! while they last COMPLETE RADIO OUTFIT 'SUPERHET' ready to install with wiring harness	$ 89.95
ELECTRONIC STICK CONTROLLED TRANSMITTER SUPERHET RX. 2 SERVOS prewired	$119.50
O.S. 12 CHANNEL REED TX. RX and servo brick for 8 controls, extra servos can be added — ideal for boats.	$285.00
Do you wish to fly proportional radio? We have a limited number of BRAND NEW full house, digital proportional systems, complete with nicads and 4 servos.	$349.00

NOTE: (these are **not** kits)
THIS IS VALUE — ACT NOW.

We stock a comprehensive range of imported and local engines, accessories and kits for boats and aeroplanes. Quick links, aileron horns, aileron cranks, bell cranks, wheels, undercarts, nose gear, wheel brakes, engine mount plates, battery boxes, radio hook-up wire, marine accessories, balsa, solarfilm, props, fibreglass kits, etc., Electric fuel pumps, flexible pushrods, clunk tanks, nylon hinges, metal hinges, push rod exit guides, rudder horns.

TRY THESE SPECIALS.

PACKAGE NO. 2. — Radio controlled aircraft kit, engine, radio TX—Rx, escapement, etc. ..... $ 56.00

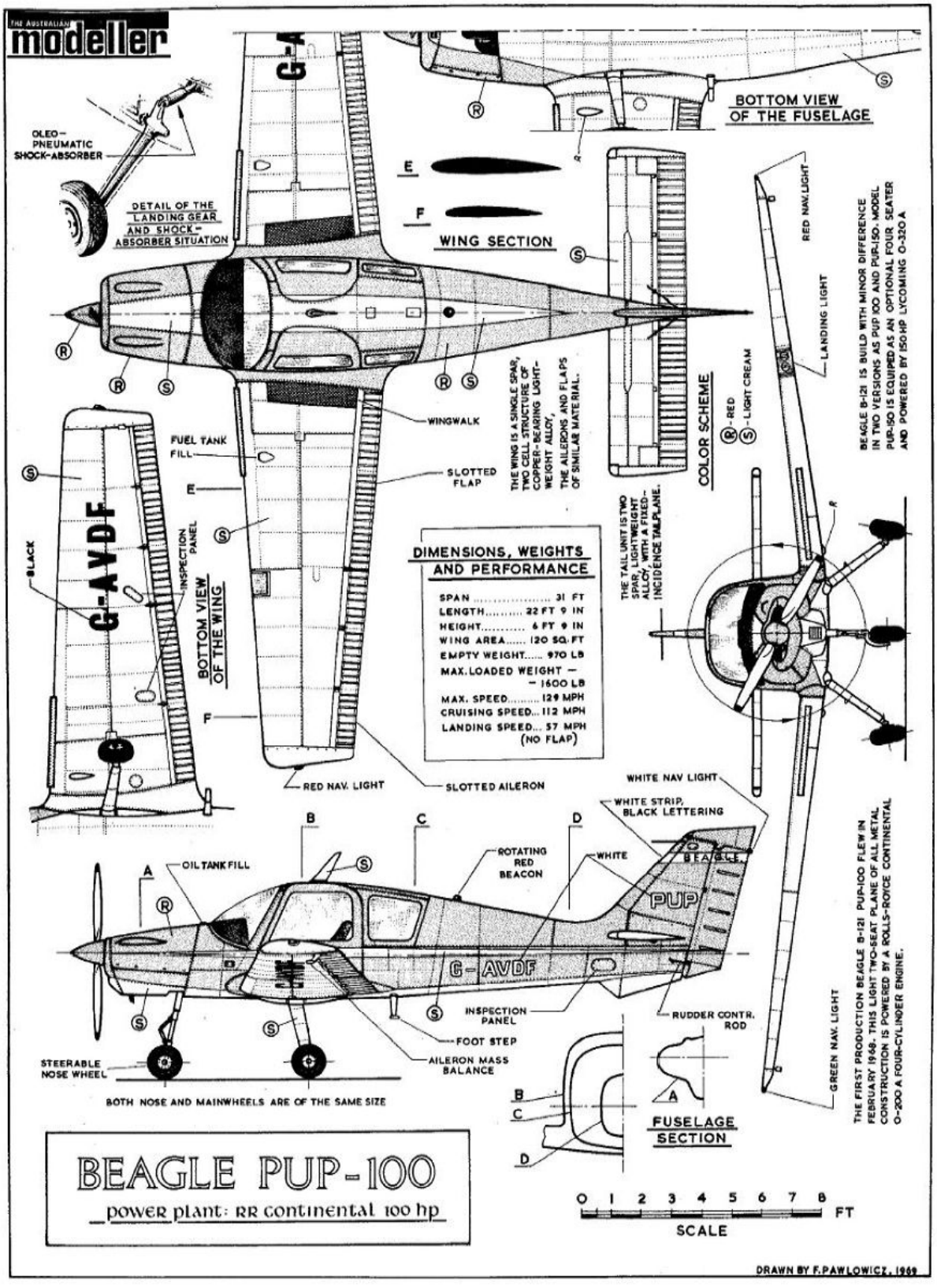
PACKAGE NO. 10.
Radio controlled boat kit, motor, with radio. ... $ 52.00
We stock some control line equipment TRIANG — LIMA — SEKUSUI, trains available.

LAYBY — TIME PAYMENT — TRADE-INS, can be arranged on most major items.

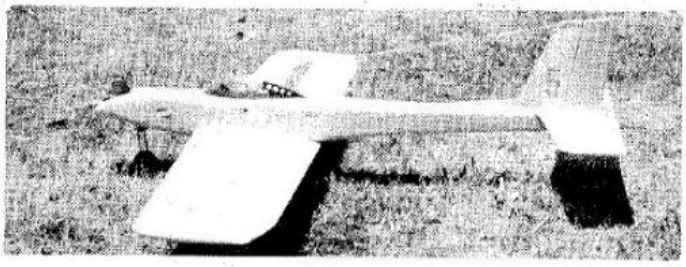
TRY OUR MAIL ORDER SYSTEM. P.O. BOX 107, GREENACRE. N.S.W. 2190.

SEND FOR FREE PRICE LIST WHICH LISTS MOST OF OUR LINES, OR CALL AT

GREENACRE HOBBY STORE,
10 Rosedale Avenue,
GREENACRE, NSW, 2190.
GREGORIES MAP NO. 54 — J3.


THE AUSTRALIAN modeller
OLEO-PNEUMATIC SHOCK-ABSORBER
DETAIL OF THE LANDING GEAR AND SHOCK-ABSORBER SITUATION
BOTTOM VIEW OF THE FUSELAGE
WING SECTION
E
F
WINGWALK
FUEL TANK FILL
SLOTTED FLAP
THE WING IS A SINGLE SPAR, TWO CELL STRUCTURE OF COPPER-BEARING LIGHT-WEIGHT ALLOY, THE AILERONS AND FLAPS OF SIMILAR MATERIAL.
COLOR SCHEME
R - RED
S - LIGHT CREAM
RED NAV. LIGHT
LANDING LIGHT
BEAGLE B-121 IS BUILD WITH MINOR DIFFERENCE IN TWO VERSIONS AS PUP 100 AND PUP-150. MODEL PUP-150 IS EQUIPED AS AN OPTIONAL FOUR SEATER AND POWERED BY 150 HP LYCOMING O-320 A
THE TAIL UNIT IS TWO SPAR, LIGHTWEIGHT ALLOY, WITH A FIXED-INCIDENCE TAILPLANE.
BLACK
G-AVDF
INSPECTION PANEL
BOTTOM VIEW OF THE WING
DIMENSIONS, WEIGHTS AND PERFORMANCE
SPAN ..... 31 FT
LENGTH..... 22 FT 9 IN
HEIGHT..... 6 FT 9 IN
WING AREA..... 120 SQ. FT
EMPTY WEIGHT..... 970 LB
MAX. LOADED WEIGHT — 1600 LB
MAX. SPEED..... 129 MPH
CRUISING SPEED... 112 MPH
LANDING SPEED... 57 MPH (NO FLAP)
RED NAV. LIGHT
SLOTTED AILERON
WHITE NAV LIGHT
WHITE STRIP, BLACK LETTERING
ROTATING RED BEACON
WHITE
OIL TANK FILL
BEAGLE
PUP
G-AVDF
INSPECTION PANEL
RUDDER CONTR. ROD
FOOT STEP
AILERON MASS BALANCE
STEERABLE NOSE WHEEL
BOTH NOSE AND MAINWHEELS ARE OF THE SAME SIZE
GREEN NAV. LIGHT
THE FIRST PRODUCTION BEAGLE B-121 PUP-100 FLEW IN FEBRUARY 1968. THIS LIGHT TWO-SEAT PLANE OF ALL METAL CONSTRUCTION IS POWERED BY A ROLLS-ROYCE CONTINENTAL O-200 A FOUR-CYLINDER ENGINE.
FUSELAGE SECTION
BEAGLE PUP-100
power plant: RR continental 100 hp
0 1 2 3 4 5 6 7 8 FT
SCALE
DRAWN BY F.PAWLOWICZ, 1969

23RD NATIONALS



Results

Wakefield: B. Beashel NSW 1, A. Butler NSW 2, C. Cox NSW 3.

Junior Rubber: M. Staples NSW 1, C. Hudson 2, B. Rayner 3.

Coup d'Hiver: R. Butler NSW 1, B. Beashel NSW 2, D. Hegarty NSW 3.

Class 1 Power: R. Lloyd Vic 1, R. Nyberg Vic 2, R. Summersby NSW 3.

Proto Speed: W. Logan NSW 1, M. Bell NSW 2, P. Tilley NSW 3.

Night Scramble: A. Holmes NSW 1, J. Birkin Vic 2, S. Sherlock NSW 3.

Novice Class III Radio: J. Lysaght NSW 1, B. Green Vic 2, K. Jack 3.

FAI Speed: J. Finneran NSW 1, R. Lee NSW 2, W. Logan NSW 3.

Class II Speed: A. Kerr NSW 1, L. Buck SA 2, R. Carey Vic 3.

Class III Speed: C. McGee NSW 1, P. Tilley NSW 2, L. Armour WA 3.

½A Team Race: R. Wilson Vic 1, R. Bourke NSW 2, R. Munro NSW 3.

FAI Team Race: K. House WA 1, P. Tilley NSW 2, R. Lee NSW 3.

A2 Sailplane: R. Allamby NSW 1, R. Neville A.C.T. 2, R. Summersby NSW 3.

A1 Sailplane: B. Lee NSW 1, J. Borril NSW 2, A. Holmes NSW 3.

Jnr. A1 Sailplane: T. Court NSW 1, L. Everingham Qld 2, M. O'Reilly SA 3.

Open Power: R. Lloyd Vic 1, S. Sherlock NSW 2, J. Borril NSW 3.

FAI Power: R. Summersby NSW 1, M. Pettigrew NSW 2, R. Lloyd Vic 3.

2½cc Rat Race: Bourne/Bourne Vic 1, Ratten/Ratten Vic 2, Lee/Kerr NSW 3.

Jnr. 2½cc Rat Race: L. Hall NSW 1, P. Wilson NSW 2, R. Phippen NSW 3.

Class II Team Race: P. Tilley NSW 1, A. Kerr NSW 2, W. Logan NSW 3.

Radio Control Scale: R. Woodcock NSW 1, R. Martin NSW 2, R. Wallace NSW 3.

Control Line Scale: M. Newnham Qld 1, E. Holden NSW 2, M. Mitchell A.C.T. 3.

Free Flight Scale: M. Mitchell A.C.T. 1, L. Dippel NSW 2, P. Jackman NSW 3.

FAI Combat: R. Summersby NSW 1, B. Rowney WA 2, S. Sherlock NSW 3.

Jnr. FAI Combat: S. Ratten Vic 1, R. Wilson NSW 2, P. Phippen NSW 3.

Control Line Stunt: D. Hanna NSW 1, W. Sutton NSW 2, R. Towell NSW 3.

Jnr. Stunt: J. O'Donnel NSW 1, K. Liiband NSW 2, D. Harvison NSW 3.

Chuck Glider: R. Murray A.C.T. 1, V. Cavenagh NSW 2, B. Healey NSW 3.

Jnr. Chuck Glider: M. Jones A.C.T. 1, R. Rayner NSW 2, J. O'Donnel NSW 3.

Old-timers' Event: R. Lloyd Vic 1, A. Holmes NSW 2, R. Darr NSW 3.

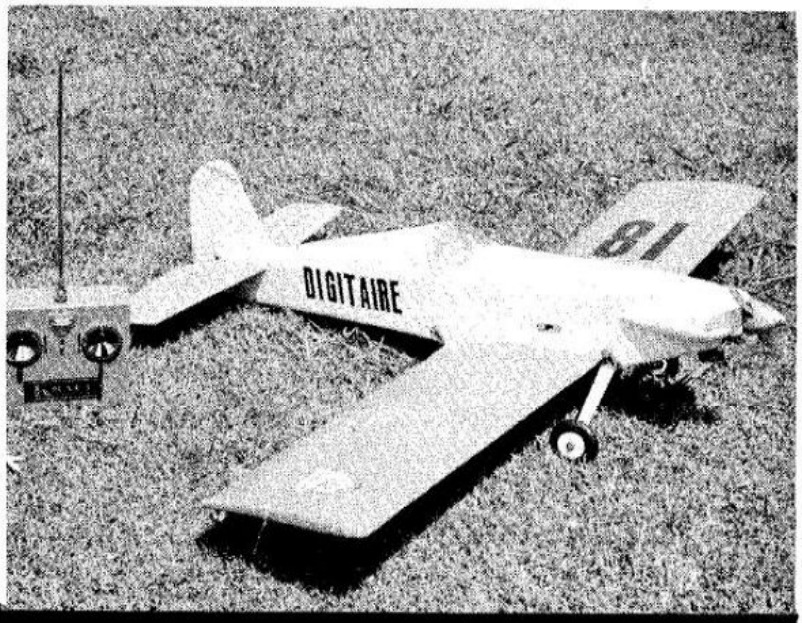
Class III Radio: J. McCrane Vic 1, T. Prosser 2, A. Turton NSW 3.

Pylon Race: B. Green Vic 1, B. Healy NSW 2, D. Murray A.C.T. 3.

Open Combat: R. Summersby NSW 1, M. Bell NSW 2, T. Georgiardis Vic 3.

Scramble: S. Sherlock NSW 1, D. Hegarty NSW 2, L. Follett Vic 3. ●

—NATIONALS

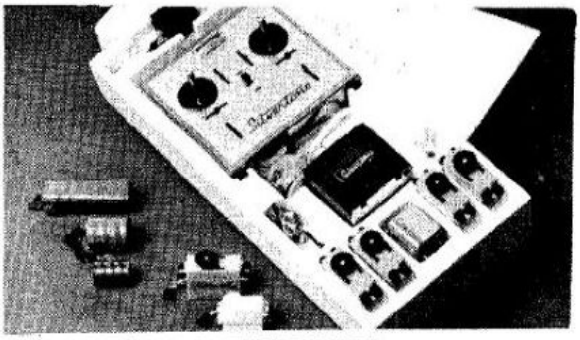


NOW AVAILABLE

The all new lightweight digital system

SILVERTONE MARK V11

Definitely the most advanced system available in Australia at the present moment.



SILVERTONE ELECTRONICS
727 Princes Highway, Tempe,
NSW, Australia 2044.

PHONE 55-2101

Check these features—

- ☆ LATEST ORBIT STICK ASSEMBLIES.
- ☆ RETAINS THE OLD HIGH POWER TX.
- ☆ NEW SLIMLINE TX CASE.
- ☆ DOUBLE TUNED RX FRONT END.
- ☆ ULTRA SMALL RX (1.55in x 1.25in x 1.1in) WEIGHT 20oz.
- ☆ EXTREMELY HIGH NOISE REJECTION
- ☆ ABSOLUTELY GLITCH FREE OPERATION.
- ☆ CHOICE OF ORBIT P.S.-3 OR P.S.-4 SERVOS.
- ☆ P.S.-3 SERVO 2.1in x 1.6in x .9in, WEIGHT 2oz.
- ☆ P.S.-4 SERVO 1.5in x 1.4in x 75in, WEIGHT 1½oz.

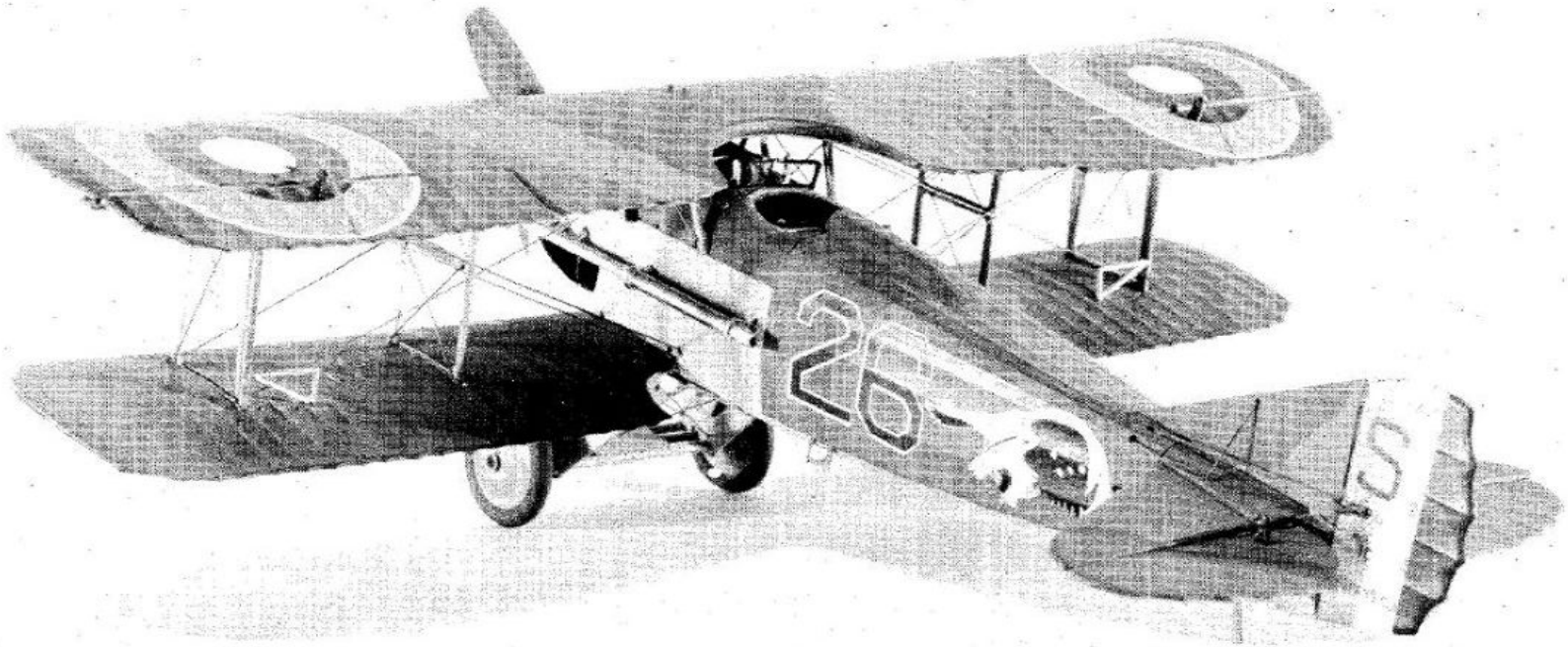
Total flying weight of complete system in lightweight form, 11½oz.

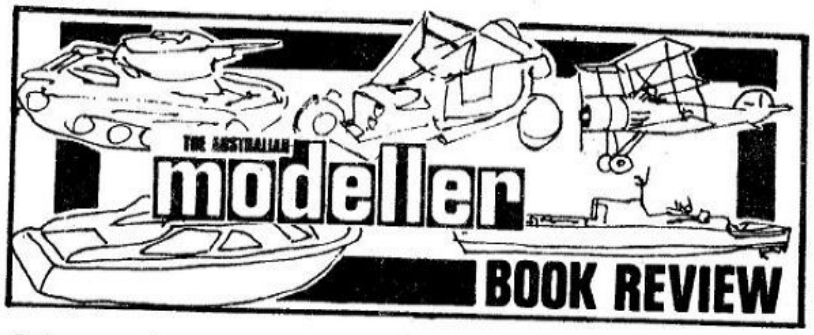
Complete system ready wired including Charger, Ni-cads, TX, RX, 4 P.S.—4 Servos and Switch Harness. **ONLY $419.00** (4 Channel).

2-3-4-5-6 Channel Systems available. All systems expandable to 6 Channels when required.

LATEST PRICE LIST NOW AVAILABLE

EXPORT BUYERS ARE EXEMPT N.S.W. SALES TAX WHICH ON THE ABOVE PRICE AMOUNTS TO $46.50, THUS MAKING THE EXPORT PRICE OF A 4cN 4x P.S.-4 SET $373.50.


26



Railways at the turn of the Century, by O. S. Nock. 192 colour illustrations, Blandford Press, $4.25

Just released, this first volume is a projected chronological series by veteran railway writer, O. S. Nock, covers locomotives and rolling stock of the world at the turn of the century.

Superb colour illustrations depict not only the British and European railway scene but also the lines of Africa, America, India, China, etc. Of interest to Australasian readers are the paintings and authorative notes on N.S.W., Victoria and New Zealand locomotives. In the case of N.S.W. some of these engines are still giving service in these last days of steam.

A valuable reference book for any railway modeller or enthusiast.

(Our copy from Swains, George St., Sydney – C.G.H.)

The Art Chester Story, by J. W. Caler and John Underwood, $3.00

Art Chester learnt to fly in 1921 and by the start of WW 11 was one of the best known of the U.S. racing pilots. Chester designed and built his own successful racing machines, among them the Goon, the Jeep and Swee' pea. Chester was killed in Swee' pea 11 at San Diego during a race when he hit Steve Wittman's slipstream on a plylon turn and dived in. Lots of photos in this book include good construction shots of racers, and plans by Australian Harry Robinson of four aircraft.

The Fiat Fighters 1930 – 1945, by Piero Vergnano, $3.00

This book is exceptionally interesting for the many biplane fighters in the first half of the 64 pages, from the Fiat CR.30 to the CR.42 B. There is also info. on the use of the Cr.32 in the Spanish Civil War, a conflict on which little has been written dealing with the air war. There are plenty of photos, cockpit shots as well, 3-view drawings of the machines and text in both English and Italian.

You have probably read that modellers have never been so well catered for. The youngsters might query this, but to us oldies the stuff on the shelves today is a dream come true. All you need is the dough to buy it. Whether you have the hoot or not, here's a selection of books that will interest the modeller and information collector.

43 Squadron, by John Beedle, $5.95

Formed in 1916, 43 Squadron flew F.K. 8s, R.E.s, and Sopwith 1½ Strutters, going on to Snipe, Siskin, Gamecock and Fury in the years between the wars. Equipped with Hurricanes at the start of WW 11, they fought through the Battles of Britain, moving to Algeria in 1942 on Hurricane 11's. These gave way to various marks of Spitfires to the Mk. IX. Later aircraft included Meteor, Vampire and Hunter. All these machines are fully covered in text and photos, while Appendices give serials, codes and markings, in 336 pages.

15th Air Force Combat Markings 1943–45, $1.95

Colour drawings give tail and group markings, general colouring notes cover all fighter and bomber units of the 15th. Also shown is a daily record of 1944 operations; and a breakdown of 15th Air Force into Wings, Groups and Squadrons. This is a reference that will be most helpful to the modeller interested in WW 11 in Europe.

Veteran and Vintage aircraft, by L. Hunt, $3.00

This hard-covered book covers in 160 pages, some 3350 aircraft still in existence, many still flying, from the days gone by. There are 500 photos, covering 1.025 types from 66 countries. So much for the figures. Open at any page, say 46. Here are the Lancaster, Supermarine S6-B, Comper Swift, Vampire and Rapide. Through the book you will find many rare aircraft, with fairly good Australian and N.Z. sections, though these could have been enlarged. All the same, good value for the money.

The Narrow Margin, Wood and Dempster, 360 pages, $3.95

When THE NARROW MARGIN was published in 1961 it was generally conceded that Derek Wood and Derek Dempster had written the best book of all time on the Battle of Britain. The people who filmed The Battle of Britain thought so too, they based their script on it. The book detailed the events that led up to the Battle and gave a day-by-day description of the fight. Now with additional material that has come to light, this edition has been completely revised and contains over 200 excellent photos, many of them previously unpublished. Too, the large 7in. x 9½in. format affords ample space to display these illustrations in 360 pages.

As well as covering the growth of the RAF and the Luftwaffe, the book Probes deeply into the causes and progress of the Battle, giving conclusions that in some cases can be classed as controversial. This is highlighted in the Foreward by Air Chief Marshall The Lord Dowding, who says "the authors have hit off most accurately the attitude that was mine, as the Commander-on-Chief of Fighter Command at the time . . ."

From the daily accounts of the Battle from July 10, 1940 to October 31, 1940, the book carries on with 24 Appendices, the first of which is 24 pages of plans and specs on aircraft of the period. Then follows Fighter and Bomber Command Order of Battle, Squadrons, flights and Units that took part in the Battle, aircraft losses both British and German, production figures ending with a list of aircrew who flew under Fighter Command operational control during the Battle of Britain. The actual Battle period is divided into four, with Order of Battle for RAF and Luftwaffe at the start of each section, this in addition to the material in the Appendices. Many of the photos are from German sources and include target maps of Biggin Hill and the radar site at Ventnor, on the Isle of Wight, the only radar station to be put out of action for any length of time.

Well set out, with an easy reading style, stacks of photos and maps, this book at $3.95 is absolutely necessary for the aircraft and military fan. You can get your copy from Historian Publishers

ANNOUNCING . . .

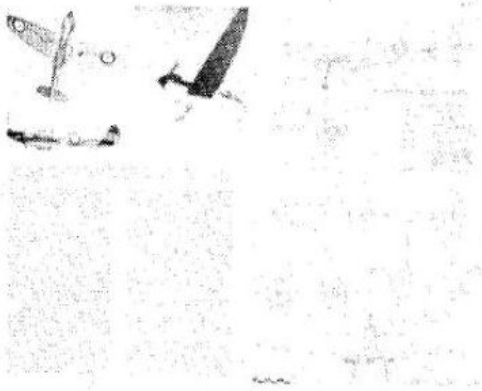
TWO MORE NEW **KOOKABURRA** COLOR BOOKS

TECHNICALLY ACCURATE TO THE LAST DETAIL!

1. COMBAT AIRCRAFT OF THE BATTLE OF BRITAIN

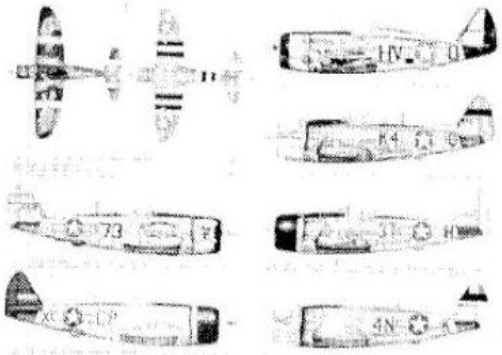
Noel and Anthony Shennan

- ☆ Accurate scale views of the 10 principal types — indispensable for modellers.
- ☆ 51 unusual black and white photographs.
- ☆ Four pages of color illustrations.
- ☆ Crammed with accurate camouflage and markings information.
- ☆ Printed on high quality art paper with semi-stiff high-gloss covers, 28 pages, $9\frac{3}{4}'' \times 6\frac{1}{2}''$.



Only $1.25 **See review this issue.**

2. P-47 Thunderbolt Described Part 2



Geoff Duval

- ☆ 50 extremely rare photographs, many of aces' aircraft.
- ☆ 13 pages of camouflage and markings information!
- ☆ Accurate scale drawings of all bubble-canopy versions.
- ☆ Full cockpit details.
- ☆ Six pages of color drawings and rare color photographs.

Don't miss it! Now on sale.

Only $1.25

ORDER FORM

Boomerang
Lightning
Whirlwind
Markings of the Aces, US Navy*
Albatros Scouts described
Warplanes of the RAAF
Me 262, Described Part 1
Me 262, Described Part 2

* Book features color.

TITLES AVAILABLE

Fw 190 Part 1 (revised)*
Fw 190 and Ta 152 Part 2*
P-47 Thunderbolt Part 1*
P-47 Thunderbolt Part 2* (March)
Combat Aircraft of the Battle of Britain*

All $1.25, incl. postage.

To the Publishers:
Kookaburra Technical Publications, 81 Potter St, Dandenong, 3175, Vic.

Please send me by return post the books I have ticked.

Name .....

Address .....

.....

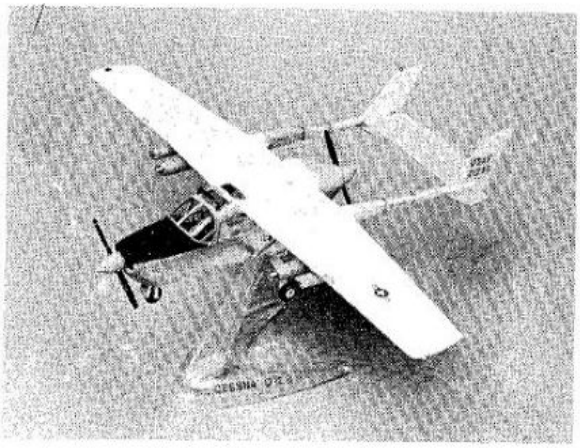
Amount enclosed $.....

KOOKABURRA SETS THE STANDARD!

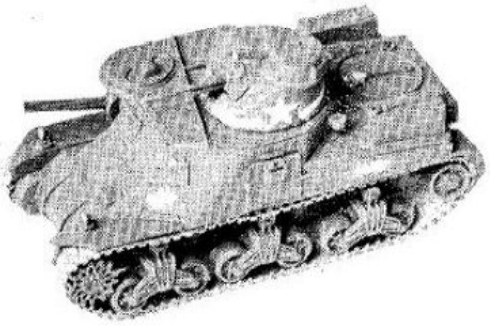
NEWS FROM AIRFIX

- ★ CARS
- ★ AIRCRAFT
- ★ SHIPS
- ★ HISTORICAL FIGURES
- ★ ARMOURED VEHICLES

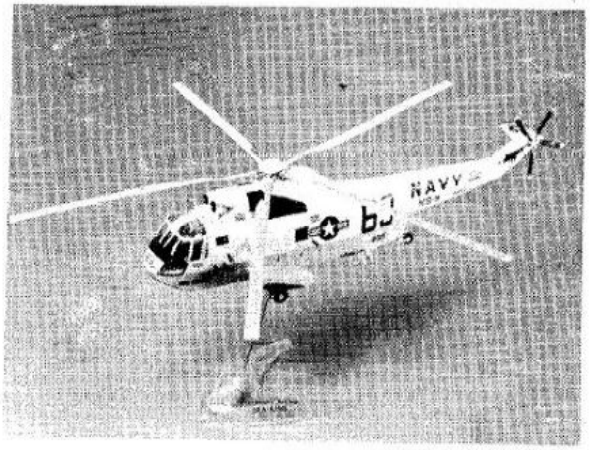
THE WORLD'S GREATEST VALUE IN CONSTRUCTION KITS



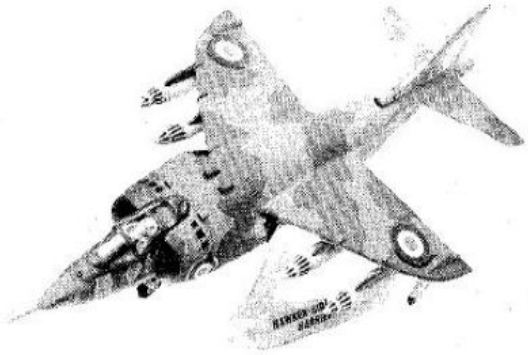
Aircraft Series 1—A. 1/72 scale. CESSNA 0—2.
A light aircraft selected by the U.S. Air Force for forward observation and reconnaisance duties. 62 parts with optional armament give fine value. Kit No: 133. Price only 65c.



Fighting Vehicles Series 1—B. 00 scale. LEE GRANT TANK.
Used by the British in the Western Desert to combat Heavy German armour. A finely detailed model from 63 parts. Kit No: A17V. Price only 72c.



Aircraft Series 3. 1/72 scale. SEA KING. HELICOPTER.
The Air Sea Rescue aircraft used in the American space programme and in world-wide production. 107 parts. Kit No: 390. Price only $1.65.



Aircraft Series 2. 1/72 scale. HAWKER SIDDLEY HARRIER.
The first vertical take off combat aircraft to go into active service is beautifully reproduced in this kit. 96 parts. Kit No: 266. Price only $1.10.