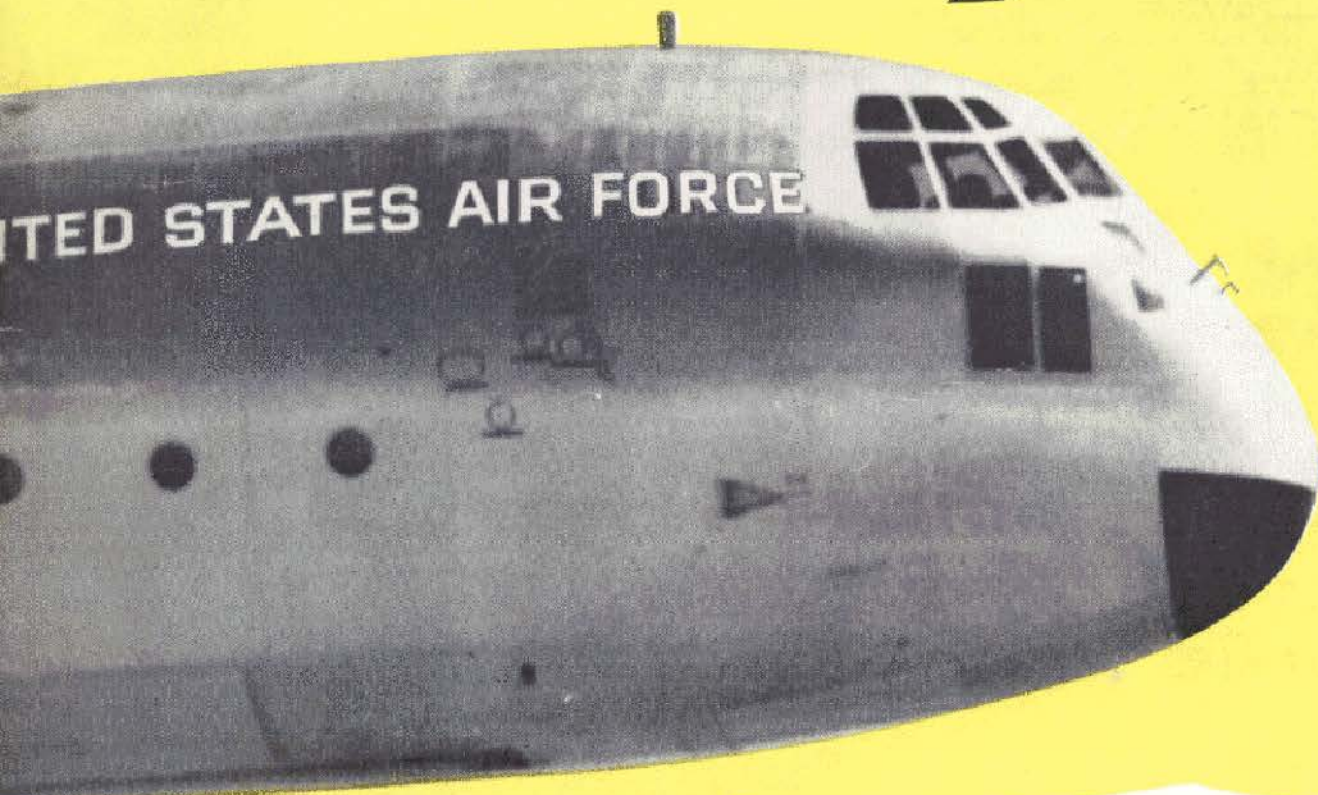


# MODEL AIRCRAFT



**V'6**  
NOVEMBER  
1958





# Still the Best

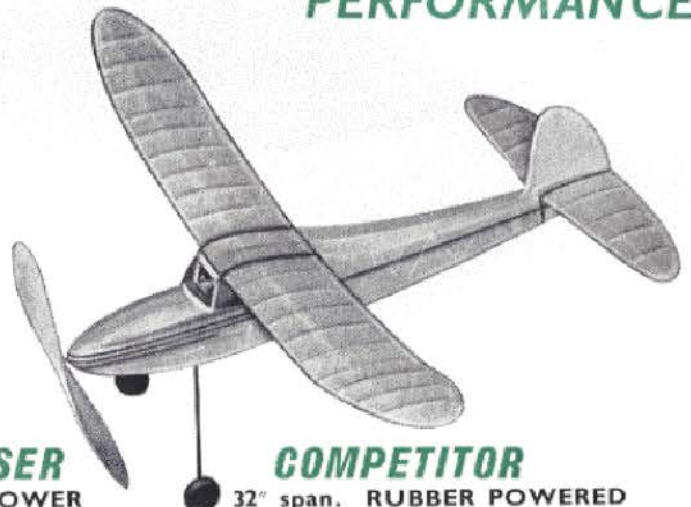
FOR DESIGN,  
VALUE, AND  
PERFORMANCE

When you buy a Keilkraft kit you are getting the best possible value for your money. The low prices of KK products are only possible because of their terrific turn-over, and are not obtained by sacrificing either the quality or quantity of kit contents.



**PIPER SUPER CRUISER**  
40" span. DIESEL OR RUBBER POWER

The most accurate and detailed scale model of this famous plane that money can buy. A model that you'll be proud to own. **22/-**



**COMPETITOR**  
32" span. RUBBER POWERED

Many novel constructional methods are featured in this elegant model—among them, sheet nose longerons to simplify building and "W" bracing to prevent fuselage twist under power. Performance is outstanding and the kit contains ample strip and sheet, 12 in. airscrew, wheels, cement, tissue, celluloid, wire, bushes. **8/6**

## PIRATE

34" span. DIESEL POWERED

Just the design for the small diesel owner, the PIRATE kit is suitable for the E.D. .46, Dart .5, Frog "50," Mills .75, E.D. Bee and other powerplants up to 1 c.c. Performance is in the contest class and the design has long been a favourite with F/F fans. **14/3**



There are over 100 designs in the KK range

## PHANTOM MITE

16" span. CONTROL LINE TRAINER

Still the most popular beginner's C/L trainer, the PHANTOM MITE features all-sheet construction for long life and easy repairs. Among the prefabricated components are the wing panels, tailplane, fin and fuselage sides. Suitable for diesels .75 to 1 c.c. **13/6**



## ACE

30" span. RUBBER POWERED

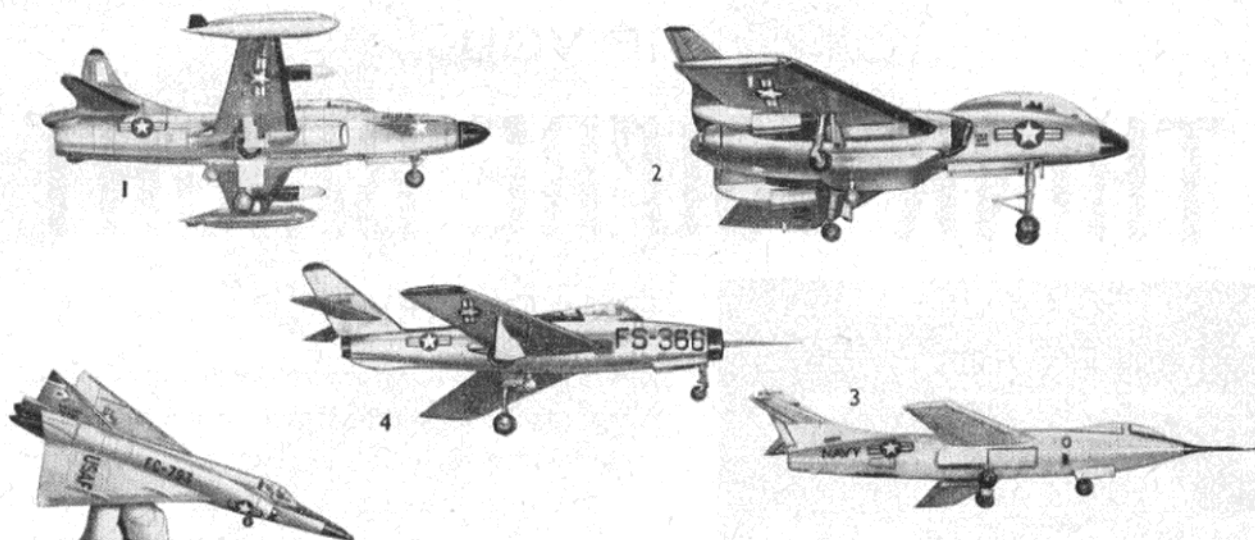
A very sleek cabin model with distinctive flying surface outlines. Construction is ultra-simple and the number of cut-out sheet parts have been kept to a minimum. Weighs only 4 ounces. **6/-**

**BUY KEILKRAFT  
AT YOUR LOCAL  
MODEL SHOP**

If no model shop convenient, order direct from KEILKRAFT. Please add 6d. extra packing and postage.



Manufactured by E. KEIL & CO. LTD., WICKFORD, Essex Tel: Wickford 2316



# FIGHTERS!

add the new Convair F-102A to your collection of models built from  
**REVELL AUTHENTIC KITS**

Build up your Revell air power with the Convair F-102A. (7/11).

This supersonic interceptor, with guided missile armament,  
has been precisely scaled down by Revell  
from official blueprints.

It's so real — you can even see  
the perfectly sculptured pilot's figure!  
It's REVELL!

### Got all of these?

- Cougar F9F-8 6/11
- Airacobra P-39 7/11
- Scorpion F-89D 7/11
- (Illustrated)
- 1 Starfire F94C 6/11
- 2 Cutlass FJU3 7/11
- 3 Skyrocket D-558-2 6/11
- 4 Thunderstreak F84F 6/11



Manufactured in Great Britain



Please send me 16-page Revell Collector's Catalogue. I enclose 6d in stamps.

Name .....

Address .....

B.39

REVELL (Great Britain) LTD. Dept. C.  
Maidstone House 25/27 Berners Street London W1

# IF YOU THINK YOU'RE BRIGHT



## READ THIS

How's this for a life when you're young? Join an Army Apprentices School and you get first-class technical training (can be electronics or any of 40 T.U.C.-recognised trades). In the picture, an apprentice is servicing a radar presentation unit. You can earn while you learn. Board, lodging and uniform are free, and you get *two months'* paid holiday every year. Later you earn good money as a key technician in the New Army. It's a real man's life with a bunch of chaps your own age and the finest chances for sport in the world. These sprint cyclists are Army Apprentices. You could be setting the pace with them.



**IF YOU'RE  
14½-16½ POST  
THIS TODAY**

To the War Office (MP6) London, S.W.1

*Please send me details about the Army Apprentices School  
(with no obligation on my part)*

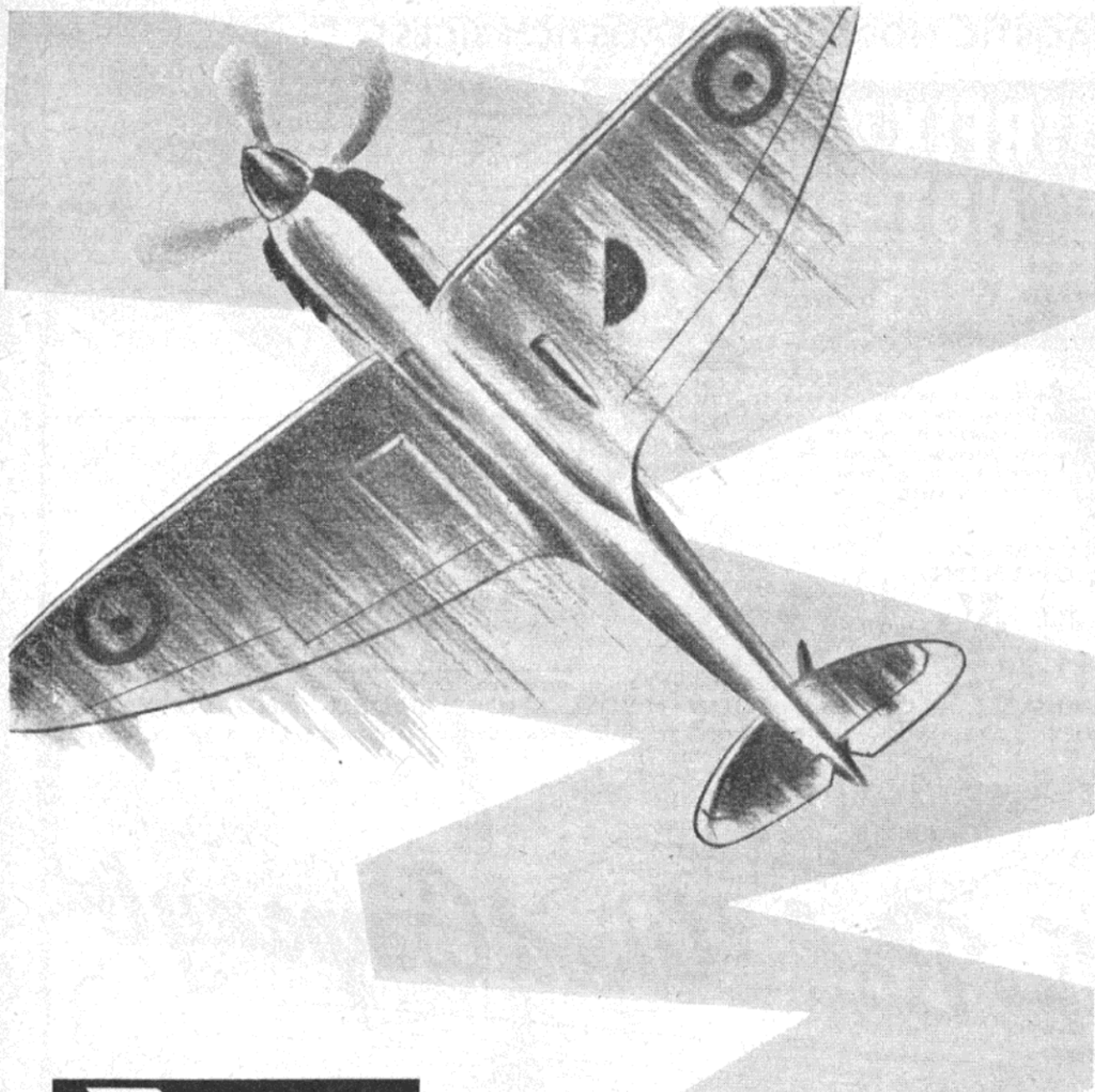
NAME \_\_\_\_\_ AGE \_\_\_\_\_

ADDRESS \_\_\_\_\_

TOWN \_\_\_\_\_ COUNTY \_\_\_\_\_

*Applications for the next Entry Examinations must be in by Jan. 13th, 1959.*

AAA/MAC

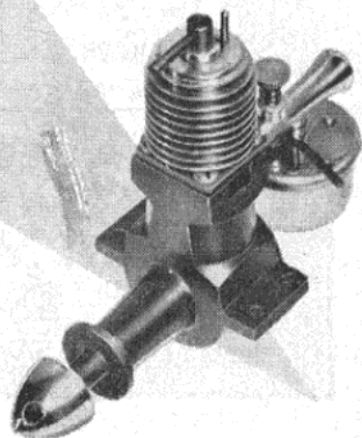


**for safety**

We all know of the extensive safety tests imposed on full-size aircraft . . . but how many model 'planes have crashed merely through engine failure at a critical moment ! If you have spent time and effort building a good model, you deserve to treat yourself to a reliable engine. It will safeguard the 'plane and allow you to enjoy carefree flying.

You are safe with a Mills in other ways as well. These engines are built to last. You will save expense from the day you buy one and find it the cheapest engine you have ever had.

**P.75** without cut-out 59/8  
**S.75** with fuel cut-out 65/7  
**I.3** with fuel cut-out 89/5  
 Prices include Purchase Tax



**MILLS BROS (MODEL ENGINEERS) LTD., 143 Goldsworth Road, Woking, Surrey.**

**It pays to say you saw it in MODEL AIRCRAFT**

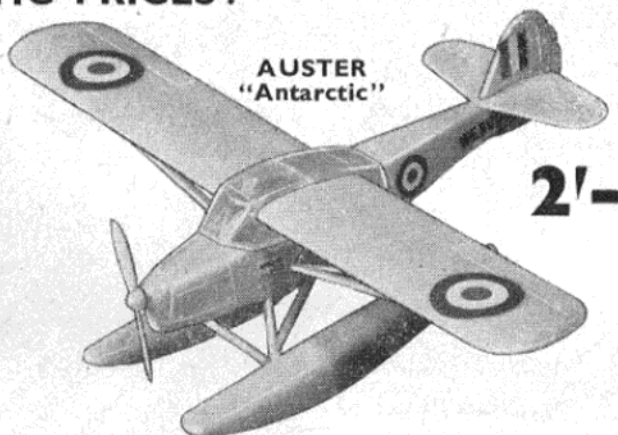
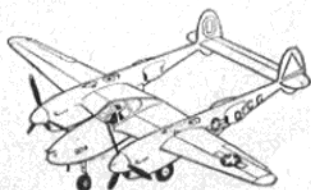
**REALISTIC MODELS AT REALISTIC PRICES!**

**AIRFIX 1/72 SCALE  
CONSTRUCTION  
KITS**

**2/-  
AND  
3/- EACH**

Realistic models of aircraft that have made flying history. Moulded in high impact plastic, complete with illustrated easy-to-assemble instructions, authentic marking transfers and display stands. Undoubtedly the finest value in kits today!

**LOCKHEED  
LIGHTNING**  
(No. 2  
SERIES) **3/-**



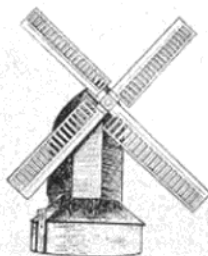
**AUSTER  
"Antarctic"**

**2/-**

**AIRFIX OO SCALE  
TRACKSIDE SERIES**

This Windmill is one of the latest in this amazing series which includes a Signal Box, Booking Hall, Platform and a variety of houses and shops that will add realism and authenticity to any scenic layout. Terrific value from 2/- each!

**WINDMILL**  
(No. 2  
SERIES) **3/-**



*New models in each series introduced every month. Ask your dealer for the latest Airfix list.*

**AVAILABLE FROM ALL GOOD MODEL SHOPS, STORES AND TOY SHOPS**  
TRADE ENQUIRIES ONLY: AIRFIX PRODUCTS LTD., Haldane Place, Garratt Lane, London, S.W.18. Tel. VANdyke 7575

**The Balsa Wood Company Ltd.**



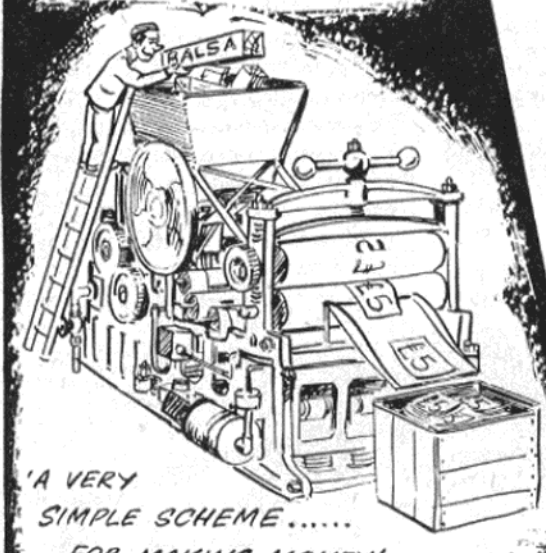
**AFRICA HOUSE  
KINGSWAY  
LONDON W.C.2.**

Telephone : HOLBORN 7053  
Telegrams : BALSAWUD LONDON

**\*WE IMPORT ONLY THE VERY  
FINEST SELECTED Balsa  
WOOD FOR THE MODEL  
MANUFACTURING TRADE**



'SO MANY SCHEMES COMING OUT FOR BANKS LENDING MONEY'



'A VERY SIMPLE SCHEME..... FOR MAKING MONEY'

**SOLARBO LTD** · COMMERCE WAY · LANCING · SUSSEX  
 Telephone: LANCING 2866-7  
 Telegrams: SOLARBO WORTHING  
 DIRECTORS: J. V. PATERSON A.M.I.C.E. · P. T. FULLER · W. H. PELMORF

There are so many schemes coming out now for Banks lending people money without security in order to purchase motors cars and things like that, that I am thinking of starting up one of my own - in reverse.

In a growing business like this, we are always needing money for expansion and I am thinking of offering 7% interest for any money which people care to lend me.

To my mind this is a very simple scheme and offers enormous possibilities for making money.

We'll say that each of you wants to buy a refrigerator and you really have the money to do it but you go along to the Bank and say that you want to borrow £25 towards it. Now on one scheme that has come out you can borrow this at 5% so you will then pass it over to me and I will pay you 7%, so that you made a cool profit of 2% on somebody else's money all the time.

Of course, there must be limitations on the number of £25 units that I can take at these highly remunerative terms, and therefore, I can only say that lists will open at 10 o'clock on the Monday following the publication of this Journal and close when the first £100,000 has been subscribed.

I only hope that I will be able to announce, as they do in the Financial Press, that the offer has been heavily over-subscribed and that for every £1,000 offered, I can only take £100, but I shall, as usual, try and see that the small man is well looked after.

*J. V. Paterson*



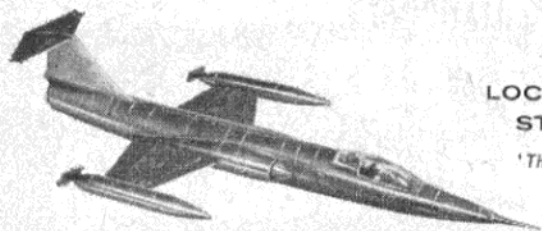
**BALSA TIPS . . . No. 17**

Many expert aeromodellers prefer to cut longeron lengths from sheet balsa for close matching. Cut a single test strip first, to check (strip generally seems softer than the sheet from which it is cut). Then, for perfect matching, mark one end of the sheet and cut four lengths. The marks enable you to line the longerons up 'end for end.'

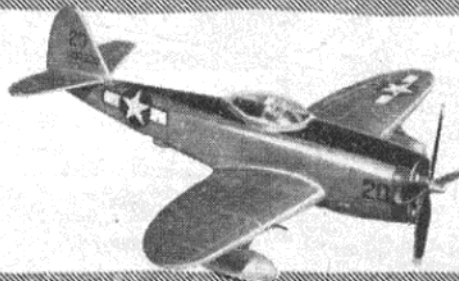
**THE BEST TIP OF ALL ALWAYS ASK FOR SOLARBO BALSA**

**SOLARBO** LTD · COMMERCE WAY · LANCING · ENGLAND  
 Phone: LANCING 2866-7-8      Grams: SOLARBO, WORTHING

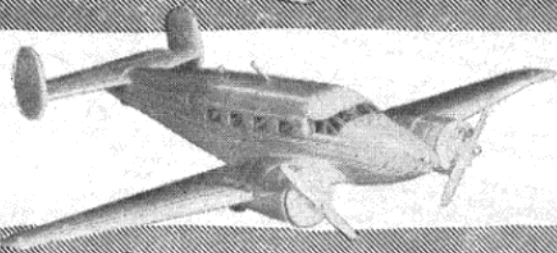
**ALL AUTHENTIC SCALE MODELS**



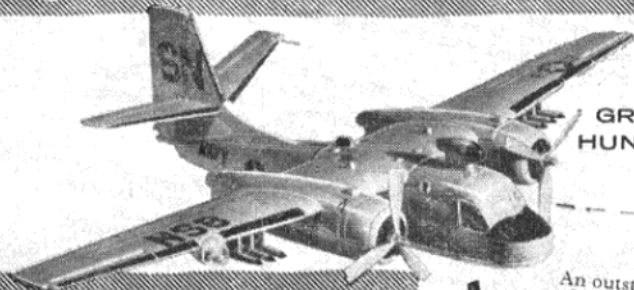
**LOCKHEED F-104-A  
STARFIGHTER 5/-**  
*'The missile with a man in it'*



**REPUBLIC P47  
THUNDERBOLT 5/-**  
*An outstanding fighter-bomber  
of World War II*



**BEECHCRAFT  
SUPER 18 3/6**  
*Private transport plane*



**GRUMMAN S2F  
HUNTER KILLER**  
*An all-weather  
submarine chaser*

*Construct your own  
air fleet!*

**SUPERB  
COMET  
AIRCRAFT  
KITS**

OF MILITARY  
CIVIL AND  
PRIVATE TYPES

Exciting, true-to-scale,  
authentic-in-every-detail models  
to give added zest to your hobby.  
In precision-moulded plastic,  
these easily constructed COMET  
aircraft kits enable you to  
exercise your skill, and result  
in models you'll be proud to own—  
and show.

*Coming shortly*—a superb, new range  
of aircraft models at 9/- each.



An outstanding range of seven model  
planes is available in a 2/6 series.  
The individual box illustrated shows  
the latest model in the range—  
the Boeing 707.

ALL COMET AIRCRAFT KITS  
are individually boxed and are complete with  
cement, transfers to give a final touch of realism,  
and detailed instruction sheets.



**OTHER AUTHENTIC  
MODELS IN THE  
3/6 RANGE:**



BOEING B-52 STRATO-FORTRESS



DOUGLAS B-66



BOEING B-47 STRATOJET



AERO COMMANDER 680



CESSNA 310



PIPER APACHE

*from toy and model shops all over the country!*







Editor  
R. WESSON

Assistant Editor  
N. J. BUTCHER

Consulting Editor  
A. F. HOULBERG

Advertisement Manager  
A. R. MILLER



NOVEMBER 1958

Vol. 17

No. 209

## CONTENTS

### Regular Features

HERE AND THERE	351
ENGINE TESTS	
MVVS & D.C. Spitfire	353
AVIATION NEWSPAGE	362
TOPICAL TWISTS	371
LETTERS	381
PHOTONEWS	383
CLUBS	384

### Special Features

R.A.F. CHAMPIONSHIPS	357
COMBAT FLYING	358
TESTING THE AIRTRON	364
PERCIVAL PROCTOR	365
C/L INTERNATIONAL	368
WORLD R/C CHAMPS.	372
ROVING REPORT	376
LATEST ENGINE NEWS	378

### Plans

BLACK GHOST	360
NIPPER	374



The official Journal of the  
SOCIETY OF MODEL  
AERONAUTICAL  
ENGINEERS



Published on the 20th of each  
month prior to date of issue by  
PERCIVAL MARSHALL & CO. LTD.  
19-20 NOEL ST., LONDON, W.1.

Telephone: GERrard 8811

Annual Subscription 22s.  
post paid. (U.S.A. and  
Canada \$3.)



## A British Speed Team

THERE are several lessons to be learned from the recent International Control-Line meeting at Brussels, and steps are already in hand to implement them, particularly by certain speed fliers.

In the past Ray Gibbs, using Fred Carter's engines, has done more than anyone to uphold British prestige at C/L meetings, but it has long been obvious that to secure the important team, as well as the individual awards, rather more than his "lone wolf" activity is needed.

To this end a group of three well-known C/L fliers have got together to form a speed team (with the emphasis on *team*) and to evolve a "group" design. Fred Carter and Ron Checksfield are co-operating on

the engine side (and when it comes to producing a specialised power unit for specialised use, we know that these two are the peers of anyone in the world), so with Gadget in an individual role, this country should at last be able to offer an effective challenge to the supremacy of the state-sponsored Iron Curtain countries, in the team as well as the individual contests.

On the design side we understand that a delta layout, such as was used so effectively by the Czechs and Hungarians in Brussels, is receiving serious consideration and it is interesting to reflect that the idea of using this planform was mooted by several people when the F.A.I. rules first came out, but no one had the courage to make such a radical departure from the orthodox—now we shall see.

Finally, our congratulations to a person who does not need any lessons in his particular branch of contest flying—Dick Edmunds, whose fine win in the team race at Brussels proves what we have all known for a long time—when it comes to "A" team racing Dick is the boy to teach everyone a lesson.

Top Czech speed man at the recent Criterium of Europe was J. Koci who flew the delta model which is here being examined by team mate J. Sladky (right).



## Aircraft and Art

WHEN admiring the superb aircraft paintings displayed on the MODEL AIRCRAFT stand at our recent exhibition, few modellers realised that the artist responsible was the same P. E. Norman that can be seen at most rallies, shirtless, and hurling a wide variety of scale models into the air, at a very rapid rate.

However, it was so, and altogether P.E. has completed 30 such paintings, which cover aviation from about

1917 to the present day. The complete collection has already been on show at numerous R.A.F. stations, and as a member of the Society of Aviation Artists, P.E. had six of his paintings included in the Society's fifth annual exhibition held at the Guildhall Art Gallery last month.

When one takes into consideration that in addition to aeromodelling he also sculpts, models in paper, and makes very fine violins—to name but a few of his diverse activities—we can only assume that he has found how to cram more than 24 hours into one day!

## Models only

UTOPIA! would be the cry of modellers in Great Britain if they could erect a notice like that shown in the photo below (reproduced



from the American journal *Model Aviation*). Admittedly it took the Dayton Buzzards M.F.C. 10 years of plugging to persuade the authorities

## RESULTS OF TAILLESS INTERNATIONAL CONTEST, TERLET, HOLLAND

		Team Glider			
		Germany	1,701		
		Holland	1,268		
		Great Britain	871		
		Individual glider		Rubber	
1. Zwilling	Germany	662	1. Schubert	Germany	605
2. Waldhauser	Germany	626	2. Scheyde	Holland	429
3. Osborne	Holland	476	3. Marshall	Great Britain	385
7. Hedgeman	Great Britain	331	Power		
10. Marshall	Great Britain	296	1. Klinger	Germany	350
11. Smith	Great Britain	244	2. Hedgeman	Great Britain	223
12. Wilkins	Great Britain	230	3. Wassenaar	Holland	213

that model flying is a constructive, healthy hobby, that enables youngsters (and oldsters) to use their brains and ingenuity in an original manner that should be encouraged, for as has often been stated "today's aeromodellers are tomorrow's full size technicians."

The Dayton site has three 80 ft. radius circles, plus two big parking areas, while there is room to add another circle and additional parking ground if conditions warrant it.

We hope this success story will encourage clubs—and particularly the S.M.A.E.—to keep plugging away at the authorities in an effort to secure similar facilities over here, although the record to date of restrictions and lost aerodromes is hardly any incentive.

## C/L Pylon

FOLLOWING our announcement in the last issue that the MODEL AIRCRAFT C/L pylon would be loaned to clubs for their own exhibitions, we have already received numerous requests for it!

As far as possible we will try and meet all of these but if dates do clash

and we have to disappoint you, please don't blame us too much.

Incidentally, although we don't mind which part of the country the pylon goes to, we cannot under any circumstances send it—it must be collected from and returned to the MODEL AIRCRAFT Offices, at 19-20, Noel Street, London, W.1.

## New appointment for Mr. E. F. H. Cosh

AFTER nearly twelve years' association with MODEL AIRCRAFT, Mr. E. F. H. Cosh has resigned his position of Managing Editor, to take up the post of General Manager to E. Keil and Company Ltd., of Wickford, Essex.

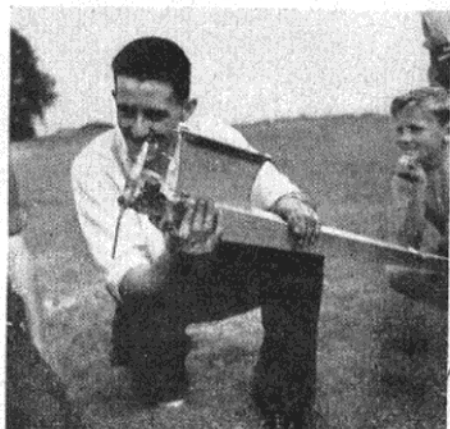
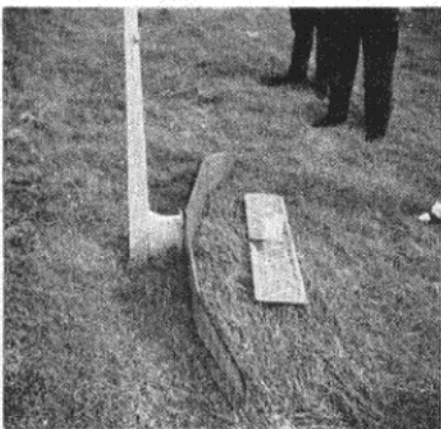
Eddie, as he is known throughout the movement, has been actively interested in aeromodelling for 25 years. He is a Fellow of the S.M.A.E., and at various times has held executive positions on their Council.

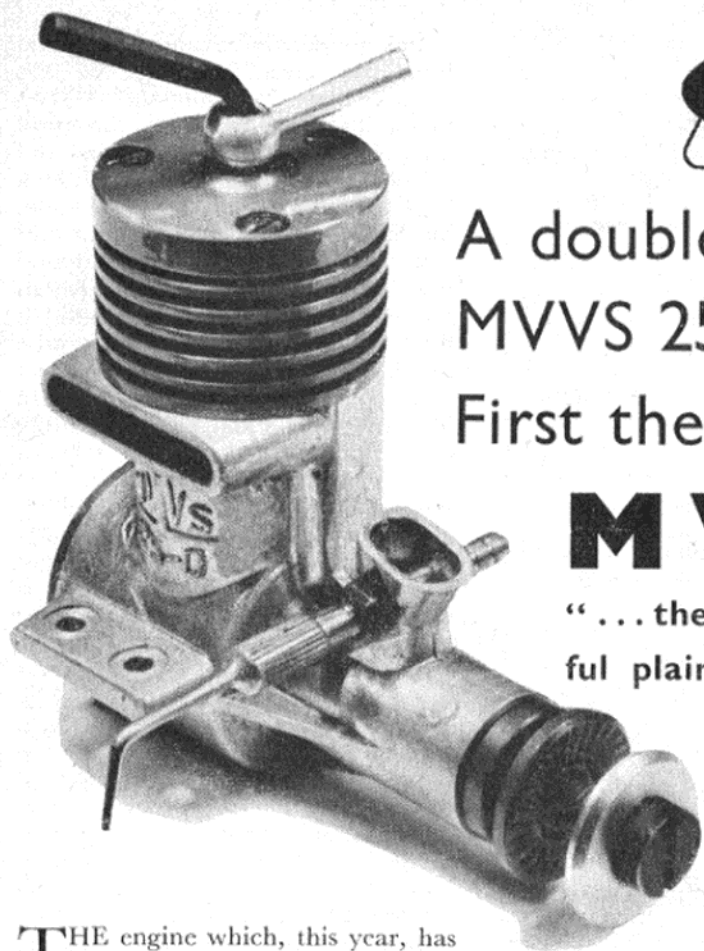
On the trade side, when the Federation of Model Aeronautical Manufacturers and Wholesalers was formed he was elected Chairman—a position he still holds.

We wish him every success in his new appointment.

## What goes up must come . . .

We've often seen power models stack in, but although the resultant wreckage is usually greater than in the photos below, this is probably because the ground is not always so soft. Soft enough, in fact, for Cpl. Tech. Munroe's model to bury itself to its pylon and then be lovingly "unearthed" almost undamaged. The incident occurred at the recent R.A.F. Championships.





## A double test featuring the MVVS 25-D and D-C Spitfire II First the —

# MVVS 25-D

“... the most powerful plain bearing 2.5 c.c. diesel yet produced.”

THE engine which, this year, has aroused most speculation among International class F/F power and team-racing enthusiasts is the Czechoslovakian MVVS 25-D diesel. It has been recognised as a potential rival to the British Oliver Tiger and, in consequence, a first-hand report on the engine has been eagerly awaited.

As regular readers will be aware, MODEL AIRCRAFT has been fortunate enough to secure one of the latest versions of this very interesting engine. It was seen by a large number of modellers at the recent MODEL AIRCRAFT Exhibition and a description of the motor, together with a brief account of its development, via the MVVS 2.5/1956 and 2.5/1958 models, was contained in last month's issue.

To recapitulate, the MVVS 25-D is a loop-scavenged, shaft valve engine, very similar in general design to the 2.5 c.c. Japanese Enya 15-D which first appeared two years ago and which subsequently attracted considerable attention by its outstanding performance, as recorded in our Engine Test report in the April 1957 issue of M.A. The 25-D features the divided transfer passage of the 15-D, also, in modified form, its cutaway piston skirt and a

number of other details. It takes development a stage further in its use of an elongated induction port and in having a unique oblique transfer port that apparently seeks to control the path of the ingoing charge, by opening earlier and closing later the outside edges of the port.

The MVVS 2.5/1958, of which about 100 examples were built, earlier this year, solely for leading Czech modellers to use in competition, was, of course, a twin ball-bearing engine, but the 25-D “production” model has a revised crankcase design with a plain bearing, bronze bushed at the inner end. We were told that the reason for adopting a plain bearing on the latest model was because of a shortage of suitable ball-bearings. The price of the engine remains unaltered.

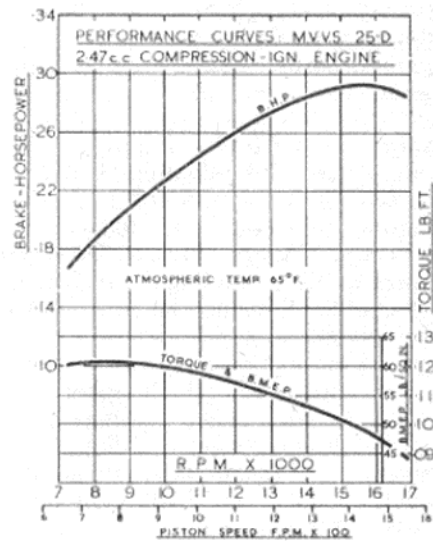
In addition to its main bearing, the new MVVS differs in a number of details. Changes have been made to ease the flow of the charge from crankcase to transfer port by modifying the shape of the transfer passages and by cutting away the skirt of the piston—*à la* Enya—but leaving a middle section intact, presumably to reduce the risk of slap. As a result of this, it is possible to

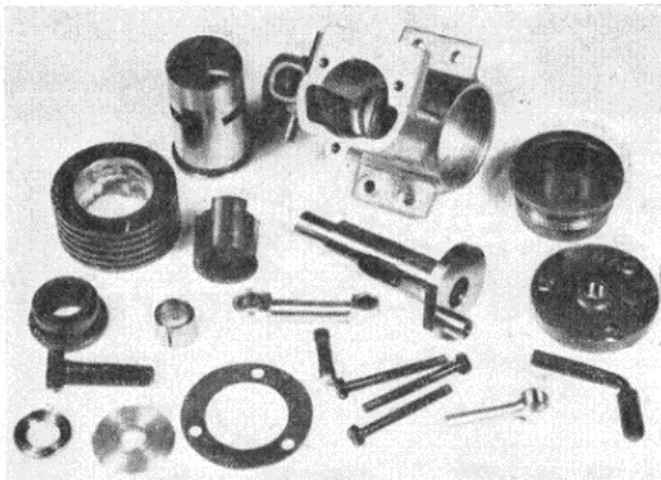
shorten the connecting rod and lower the ports and thus reduce the entire height of the engine, which, in fact, appears to have been done, as the 25-D is about  $\frac{3}{16}$  in. lower than the 2.5/1958.

Slight modifications have also been made to the crankshaft and a narrower port is now used—adopted, perhaps, as a result of shaft breakages, which, we understand, were not unknown with the earlier series.

A by-product of these various modifications, incidentally, is a reduction in the weight of the engine, which has now gone down from 5 oz. to 4.7 oz.

The future of the MVVS 25-D is, it seems, rather uncertain. A further 100 of these engines have now been made, but our latest information from Czechoslovakia suggests that no more will be built this year as the MVVS Centre is at present engaged on the development of stunt and speed engines for the 1959-60 international events. Whether further





The MVVS in pieces. A study of this photograph will reveal many of the interesting features of this design, which in spite of being plain bearing is equal in performance to many ball bearing motors.

batches of the 25-D will be made next year, or whether it will, instead, give place to a further improved model at a later date, remains to be seen.

### Specification

Type: Single cylinder, air-cooled, loop-scavenged two-stroke cycle, compression ignition. Crankshaft type rotary valve induction. No sub-piston supplementary air induction. Domed crown piston with matching contra-piston.

Bore: 15 mm. (0.5905 in.).

Stroke: 14 mm. (0.5112 in.).

Swept Volume: 2.474 c.c. (0.151 cu. in.).

Stroke/Bore Ratio: 0.933 : 1.

Weight: 4.7 oz.

### General Structural Data

Pressure die cast aluminium alloy crankcase and main bearing housing, with integral exhaust and transfer ducts, air intake and beam mounting lugs. Screw-in machined alloy rear cover, anodised red. Counter-balanced crankshaft with 10 mm. dia. journal and 5 mm. dia. hollow crankpin and running in plain bearing, bronze bushed behind the intake aperture. Fully machined aluminium alloy connecting rod with bronze big-end bush. Lapped piston with 4 mm. fully-floating gudgeon pin having aluminium end pads and running in plain liner flanged at top edge. Flange clamped between separate alloy cooling barrel and detachable alloy cylinder head. Entire cylinder assembly tied to crankcase with three long screws through barrel and head, which latter are anodised red. Alloy locking lever for compression screw. Alloy prop driver on bronze tapered spring collet on front of shaft. Separate 5 mm. prop stud screwing into front

of shaft. Brass needle-valve assembly with spring ratchet device.

### Test Engine Data

Running time prior to test: see text.

Fuel used: 40 per cent. "pink" paraffin (kerosene), 30 per cent. I.C.I. technical ether, 28 per cent. Duckham's racing castor oil, 2 per cent. amyl-nitrate.

### Performance

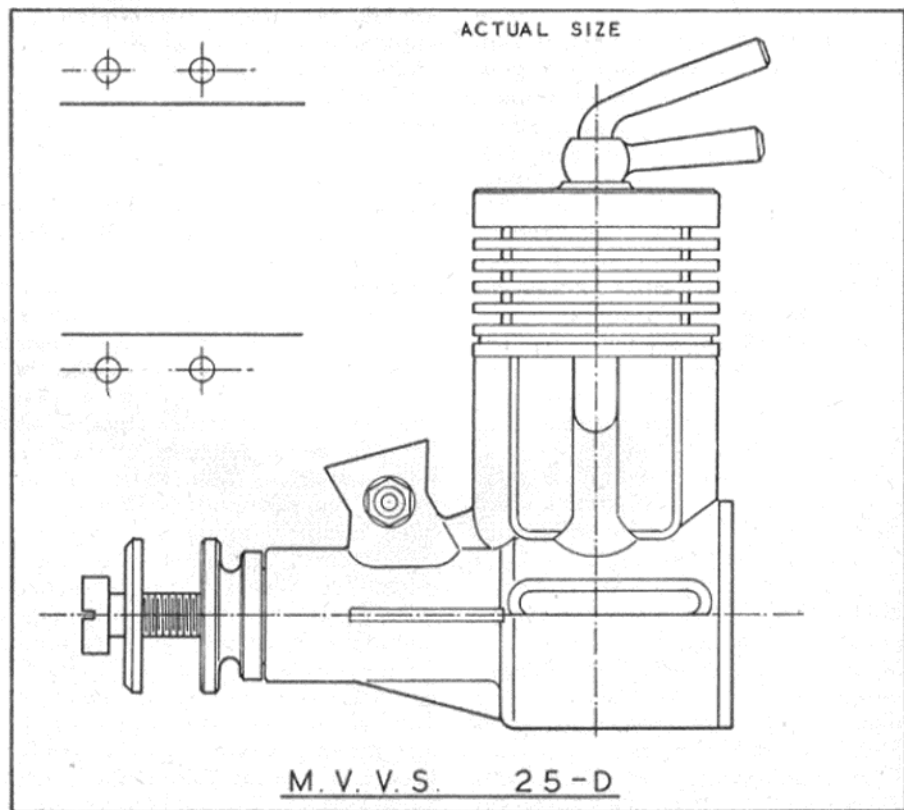
It was not known how much running the engine had received prior to its arrival in this country, but a nominal running-in period of 30 minutes was given, from which all indications were it was fit for test.

Precise recommendations as to fuel were not given, although it was known that the previous MVVS motor had been run on a variety of mixtures, using both kerosene and diesel fuel-oil and usually with a little less ether than is commonly used for high performance diesels in this country. Actually, we soon found that the 25-D was not at all fussy as regards fuel and did not demand a fuel having an extra high cetane number (i.e. large nitrate or nitrite content) to avoid misfiring at ultra high r.p.m. We did, in fact, run the engine up to 15,000 r.p.m. on a standard commercial fuel (the new Keilkraft mix) without difficulty.

The 25-D responds to orthodox starting procedure and does not require port priming, although it is helpful, especially when the motor is loaded for the lower speeds, to open the needle-valve a little beyond the normal running settings.

The MVVS is most definitely a high-speed unit and, unlike the Oliver, clearly shows its dislike of being loaded for speeds below about 11,000 r.p.m. At these lower speeds, there is a good deal of vibration which, however, entirely disappears on, for example, a 9/4 P.A.W. prop, where the static revs are around the 11,700 mark.

Despite the 25-D's preference for light loads and high speeds, peak



torque is not developed at above-average revolutions. Maximum torque, on test, occurred at approximately 9,000 r.p.m. and then fell off steadily as speed was increased. The actual maximum figure realised, 0.122 lb. ft., is equivalent to a brake mean effective pressure of 61 lb./sq. in.—a very good figure indeed. B.m.e.p. did not drop below the 50 lb./sq. in. mark until 15,000 r.p.m. were exceeded, with the result that the 25-D closely approached the 0.30 b.h.p. mark, the actual figure recorded being approx. 0.295 at between 15,500 and 16,000 r.p.m.—which, incidentally, is one of the highest peaking speeds of any 2.5 c.c. diesel yet tested.

At these speeds the engine is very

steady and smooth running. Its characteristics are, in fact, such as to encourage one to use its high speed performance to the full: it remains easy to start on, for example, an 8/4 prop (upwards of 14,500 r.p.m. according to blade) and it also appears to be quite economical on fuel.

One unusual feature of the engine was the very easy fit of the contra-piston. Very little resistance is felt at the compression screw and, at high speeds, one could hold the compression screw and actually feel the contra-piston hammering against it. This made the use of the separate locking lever essential to prevent the adjustment from running back. One can, of course, speculate on the

possible theories behind this characteristic, but it seems more likely that it is, in fact, merely incidental.

In all, the MVVS 25-D is an impressive engine and, on the basis of our test on a single example, plus the undoubted high performance of the earlier examples as used by leading Czech F/F and team-race exponents, it seems safe to rate it as one of the top three or four 2.5 c.c. engines available anywhere in the world today.

It is certainly the most powerful plain bearing 2.5 c.c. diesel yet produced.

*Power/Weight Ratio* (as tested): 1.00 b.h.p./lb.

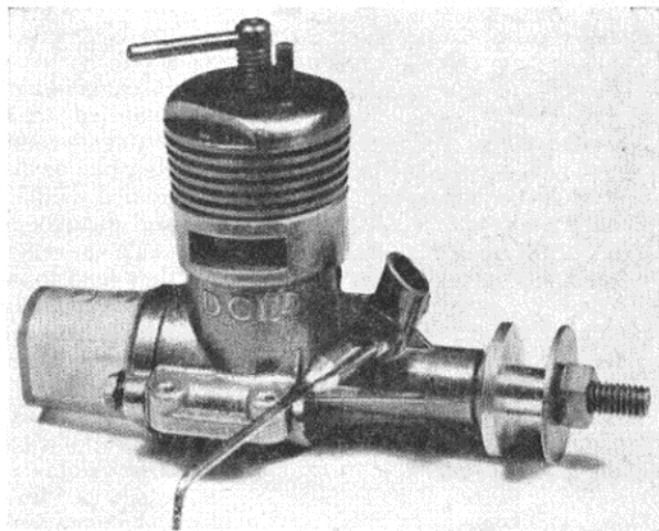
*Specific Output* (as tested): 119 b.h.p./litre.

## ... and now the D-C SPITFIRE Mk. II 1.0 c.c. DIESEL ENGINE

DAVIES CHARLTON'S Mark II Spitfire 1 c.c. diesel supercedes the original model Allbon Spitfire introduced early in 1953. Although it has the same bore and stroke, however, it inherits little from its predecessors save one desirable characteristic: easy starting. The Mk. I Spitfire was a good engine; one that could be confidently recommended to a raw beginner and we were sorry to see it go, but it must be admitted that the new model seems equally as good—added to which it is a good deal cheaper and should also have greater resistance to crash damage.

Just as the earlier Spitfire was, in

“... well made, strong and pleasingly finished... be relied upon to give good service.”



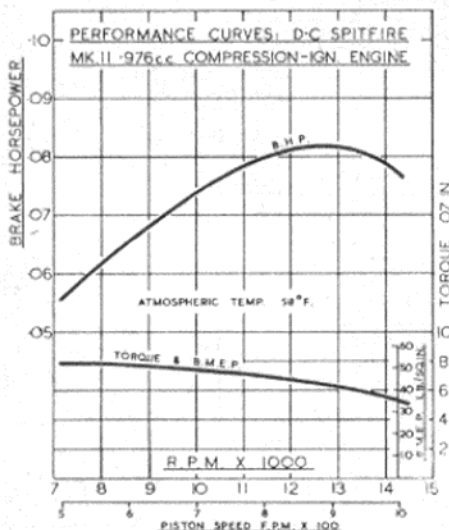
effect, a sleeved down version of the then highly popular 1.49 c.c. Javelin, the new engine is based on the Sabre 1.49 which replaced the Javelin nearly three years ago. Once again, the smaller capacity has been obtained by reducing the diameter of the cylinder bore by 0.10 in.

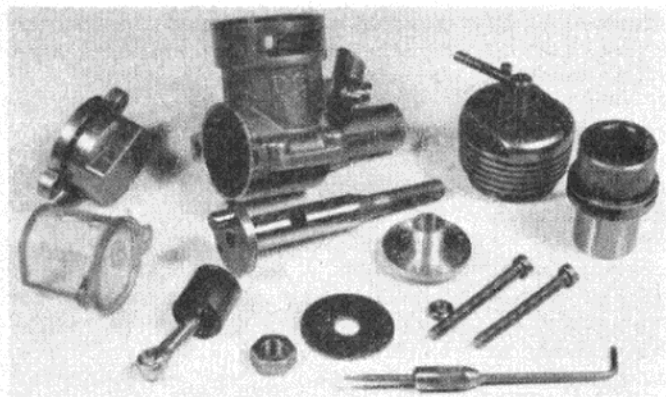
The Spitfire II uses many of the basic parts of the Sabre, is virtually identical in respect of the bottom components and thus its installation is interchangeable with the larger engine. In external appearance the engine differs in having a different type of prop driver, a hexagon nut and steel washer instead of the Sabre's spinner-nut, a revised compression lever with stop pin to assist beginners, and a green, instead of red, anodised cylinder barrel.

The engine is assembled around a neat pressure die-casting comprising crankcase, main bearing and lower part of the cylinder casing. It

has strong, deep-section beam mounting lugs, through which two long screws are passed to retain the back-plate. These screws are also used to mount the detachable plastic fuel tank, or they can be replaced by longer ones to enable the engine to be bulkhead mounted. As is common practice with small engines, the main bearing is not bushed, the crank-shaft running in the crankcase material.

A normal type of plain, flanged cylinder sleeve is used. Assembly is very simple, the flange, at exhaust level, dropping onto an annular seating inside the main casting and being retained by the one-piece cylinder barrel which drops over the liner and screws into the top of the casting. As is frequently the practice of this manufacturer, no attempt has been made to maintain close contact between cylinder liner walls and cooling barrel, but the liner is quite thick and no trouble with overheating is experienced.





The component parts of the Davis Charlton Spitfire Mk. II can be clearly seen in this photograph.

The Spitfire II is well made, strong and pleasingly finished. It can, undoubtedly, be relied upon to give good service to newcomers to the hobby (for whom it is primarily intended) or to the established modeller who wants an easy handling small engine for general purpose flying.

#### Specification

Type: Single cylinder, air-cooled, reverse-flow scavenged two-stroke cycle, compression-ignition. Shaft type rotary-valve induction. No sub-piston supplementary air induction. Conical top piston with matching contra-piston.

Bore: 0.425 in. Stroke: 0.420 in. Swept Volume: 0.0596 cu. in. (0.976 c.c.).

Stroke/Bore Ratio: 0.984 : 1.

Weight: 3.2 oz.

#### General Structural Data

Tumble finished pressure die-cast LM.2 aluminium alloy crankcase and main bearing with detachable rear cover. Full disc, non-counterbalanced crankshaft of nickel-chrome steel, heat treated, running in plain bearing. Forged Hiduminium RR.56 alloy connecting rod. Ground and lapped Mechanite piston running in hardened steel, radially ported, cylinder liner. Machined and colour anodised cylinder barrel and head, with compression stop. Alloy prop driver fitted to taper on shaft. Brass spray-bar assembly, angled back 15 deg. Combined beam and two point bulkhead mounting lugs. Detachable transparent plastic fuel tank.

#### Test Engine Data

- Running time prior to test: 2 hours.
- Fuel used: Mercury No. 8.

#### Performance

Stop pins, and similar devices to limit compression-lever rotation, used to be quite common in the early days

of diesels. They are a sensible precaution on a beginner's engine, firstly, because they reduce the risk of damage to con-rod, gudgeon-pin, or crankpin, through attempts by the uninitiated to start the engine on too high a compression setting, and, secondly, because they minimise the extent to which the beginner can get muddled in finding the correct setting—especially if he, or someone else, has, as often happens, previously fiddled with the compression screw and disturbed the factory setting.

Their only disadvantage is that they tend to limit the extent to which the engine can be controlled on the largest and smallest props that it is capable of turning. In the case of beginners' engines, however, this is not important as the prop sizes generally used will be within fairly close limits—normally 9 to 7 in. dia. and 3 to 6 in. pitch with the Spitfire.

As remarked earlier, the Spitfire II is an easy starting engine and its general handling characteristics are

In the Christmas issue on sale on the 20th of next month our Engine Test will feature the

**Cox  
PEE WEE**

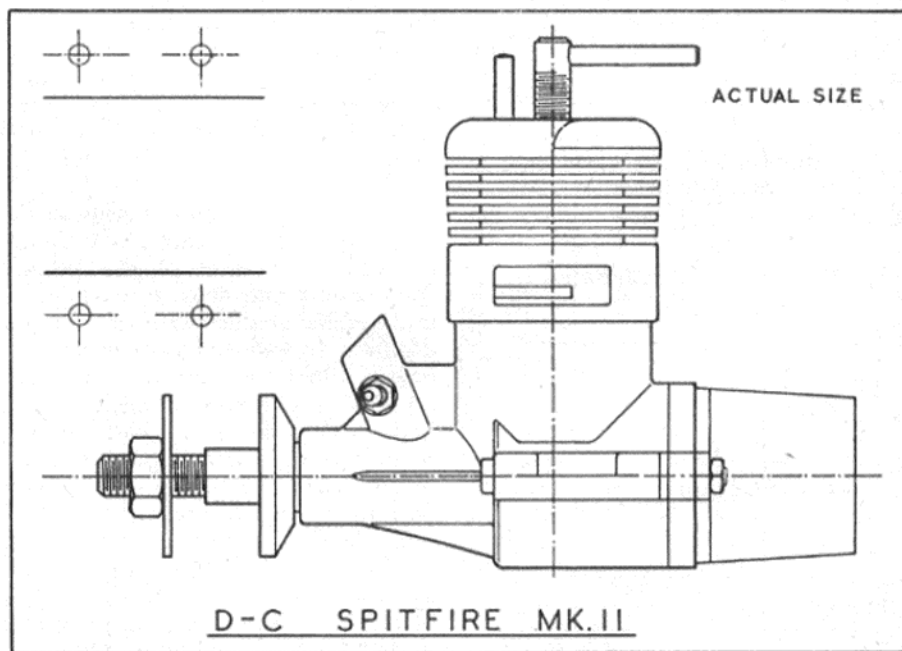
.35 c.c. Glo-plug engine

without vice. On test, we found the controls easy to adjust and non-critical. The rearwards-inclined needle-valve is helpful in keeping the fingers at a safe distance from the prop.

Power output was fractionally below that of the Spitfire I tested earlier, but was, nevertheless, quite good for an engine of this type and the specific performance expressed in b.h.p./litre and b.m.e.p. was, in fact, slightly above that obtained from our test of the Sabre. The engine delivered a maximum of just under 8 oz. in. torque (equivalent to a b.m.e.p. of approx. 53 lb./sq. in.) at 8,000 r.p.m. and the peak b.h.p. was 0.082 at approx. 12,600 r.p.m.

Power/Weight Ratio (as tested): 0.41 b.h.p./lb.

Specific Output (as tested): 82 b.h.p./litre.



# R.A.F. MODEL AIRCRAFT ASSOCIATION CHAMPIONSHIPS

IN his address at the prize giving, Air Vice-Marshal G. B. Beardsworth, C.B., attributed the smallness of the entry at this year's championships to operational movements of personnel, but if fewer in numbers, the entries certainly made up for it in quality. No less than 16 events were run over the two-day meeting held at R.A.F. Debden, and for once the weather was excellent—no less than five were in the fly-off of the Open Rubber.

The *Victor Ludorum* was again Cpl. Tech. Irvine and the placings in the Command Championships were as follows:—

(1) Flying Training 152 pts., (2) Technical Training 136, (3) Fighter 107, (4) Bomber 97, (5) Maintenance 88, (6) No. 90 Group 67, (7) Transport 40, (8) Home 33, (9) Coastal 2.

1. Flt. Lt. Andrew of Flying Training Command came first in the Radio and won the "Malta Cup."

2. L.A.C. Robinson's "Zephyr" (M.A. plan 232) on this occasion Webra powered, came first in the Combat. His opponent, S.A.C. Lambert, threw a crankshaft in the final.

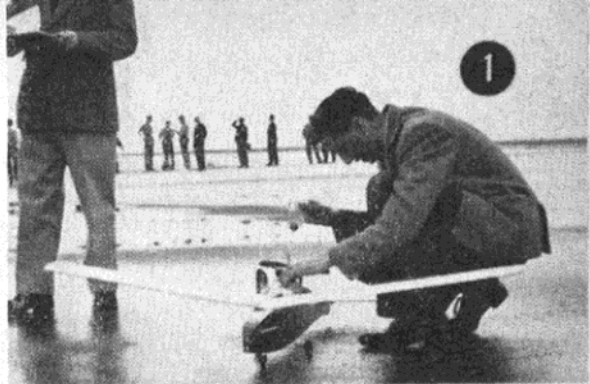
3. Sgt. Reynolds came second in the Unorthodox event with this 8 ft. span flying wing, which in its original form spanned 11 ft. 6 in.

4. This "Lysander" was among the better F/F scale entries, but its first qualifying flight ended with a damaged wing strut—fortunately repairable.

5. L.A.A. Vickman of Technical Training Command came third with his tail-first job in the Unorthodox.

6. Cpl. Godfrey's latest, a C/L version of the Douglas "Havoc" powered by two Frog 500s.

7. In our opinion the Open Rubber was the most interesting comp of the lot, there being no less than five for the fly-off on the Sunday afternoon. Cpl. "Brush" Johnson, seen here putting on the last few turns, came third.





# There's more to **COMBAT** **FLYING**

than just patching up an old stunt ship—it's the calculated approach that gives consistent wins says expert **MAC GRIMMETT**

"ANYONE can fly combat, just patch up that old stunt ship, hope for the best, and you may come out the winner." That may have been the general theme a few years back, but it is certainly not the recipe for success today, at least as far as competitive combat flying is concerned.

Today, you not only need the right model for the job, but also a quick thinking and skilful pilot on the control handle. He (or she), must also possess the following attributes: contortionist, acrobat, marathon runner, conjurer and striptease artiste, besides keeping in a peaceful frame of mind whilst being: bawled at, waved at, glared at, kicked, knocked, tripped, pushed, nudged, shoved and, if you wear specs., breathed over! (Who says there is no variety in combat flying?)

To be a fairly successful combat pilot one must not necessarily be able to do "the book" as so many people seem to think. Essential manoeuvres—if you are to make a fight of it—are loops, horizontal eights and the ability to keep reasonable control whilst flying inverted. If you really wish to stick your neck out, you may care to chance bunts, figure of 'S,' overhead eights and double wingovers, etc., but please do not forget that you are not alone in the circle; if you do, you will soon be reminded of it in more ways (or pieces) than one.

The ability to think and act quickly is naturally a great help—you must be able to keep your eye on your opponent's model and at the same time fly your own under complete control, ready to make any manoeuvre necessary to put you, or keep you, on top. Also remember that

the best method of defence is attack.

Although combat flying is hectic to say the least, the more you keep in a relaxed state of mind the easier it becomes to anticipate your opponent's next move. The best way to achieve this is to enter the circle with the foremost idea of giving your opponent the best possible "run for his money," yet at the same time getting plenty of fun and enjoyment out of it yourself. Never, never, enter the circle with the sole idea of winning at any cost, otherwise it's more than possible that you will come out again with a face longer than the lines you're flying on!

Although contest flying improves your combat technique, it's sometimes the most heartbreaking and expensive way of learning. So if you are a member of a club it is best to get the boys together and organise friendly jousts among each other, and a great deal can be learnt this way. By working out special manoeuvres beforehand and trying them out on your fellow fliers—warning them of your intended manoeuvres if you wish—you thus give them the chance to see if they are capable of taking suitable avoiding action.

By interchanging the many varied approaches to attack and defence, one soon learns to recognise which type of manoeuvres favours one's specific style of flying. Then the fun really starts, but with less damage and expense entailed.

One can then enter competitive flying with far more confidence and skill, which contribute greatly to final success.

To ensure reliability in the air, each combat pilot must have a reliable ground crew, whose job it is to effect minor repairs or replace-

ments quickly and efficiently should they be necessary. The ground crew should follow the flying closely and be ready to make split second decisions when incidents occur, as they do in most jousts. A suitable tool kit for dealing with the majority of these incidents should be as follows:

- 1—Spare pair of wings (if of detachable type).
- 2—Spanner (prop changing).
- 3—Elastic bands (for holding wings on, etc.).
- 4—Pins (for sticking in anything, including opposing pit crew when no one is looking!).
- 5—Nylon prop (8 × 6 is very popular).
- 6—Cement (rips in tissue or silk, no time to make structural repairs though).
- 7—Set of lines.
- 8—Squeeze bottle containing fuel (for priming only, as model should carry more than enough to get through a 5 min. joust).

Of course, there can be an endless number of spares if one wishes to lug a handcart around the circle, but the items mentioned are considered ample by most standards.

Regarding reliable power units for combat, by far the best are the ball-bearing 2.5 c.c. diesel units. On the whole they start easily and once tuned can be forgotten. Remember, an unreliable motor could be the cause of a write-off to both models in the air, so it is well worth the little extra cost initially when choosing your unit. Under no circumstances would I consider glomotors. Briefly they are just not suitable for small capacity (under 5 c.c.) combat, and besides being capable of temperament, they



are not easy to obtain in any quantity (at least in this country), thus making the obtaining of spares either long-winded or impossible.

Other items to which thought should be given are lines and control handles. Almost every flier is individual where the latter is concerned; personally I prefer the very lightweight type of handle—my own are hand-made from  $\frac{1}{4}$  in. ply, with holes 3 in. apart and bushed with copper tube to prevent the wire from fraying the wood. Using this type of handle you get the feel of the model much better and learn its individual characteristics much quicker, thus improving your all-round flying; in fact, my stunt ships last much longer due to this fact alone.

Control wire can be either single strand or lightweight cable. The cable type lasts longer and will take more punishment overall but it can drop your flying speed by as much as 5 m.p.h. due to drag. On the other hand, the single strand keeps cleaner but will not take a great deal of rough usage; also it does not give any appreciable feel of drag, which also gives a little extra confidence, especially on windy days. Single strand wire should be about 33 S.W.G. with a medium flexibility between soft and springy. If it is too soft it will break under flying stresses, if too springy it will curl or kink easily due to consecutive manoeuvres. Word of warning! Never use soldered joints on single or multi-strand control-line wire; if it is bound well at each end it will never come adrift.

When about to fly in a heat, try to weigh-up what type of opposition you are up against—notice your opponent's pit crew, type of model, power unit and propeller combination, lines, etc.; you can gather quite a lot of information as to their efficiency and reliability this way. If you are unfortunate enough to be last away after the whistle make sure that your pit man launches your model just as your opponent's model is about to overtake—this at least gives one time to gather both speed and wits. If you do not possess as much speed as your opponent, do not get alarmed, but endeavour to climb high and each time trouble comes along, dive to give extra speed and go inverted for a few laps. However, do not forget to watch for your opponent, who may be coming to meet you this time on the same level!

Beware of that low flying penalty;

it may be good fun to see who can force whom the lowest, but it is disappointing to get eliminated this way. As long as your model can change direction fairly quickly, speed is of no consequence. A fast, highly sensitive model is not much use in combat, as by the time you have decided on that surprise manoeuvre you have also gone past your opponent's streamer and model (and to your surprise) he has very likely cut your own streamer due to a little flick of up-elevator on his part. Some of the best combat jousts I have ever witnessed have been between models flying at 45-55 m.p.h. simply because both pilots have had plenty of time to plan their attacks, besides keeping that friendly eye on the opposition. This type of joust also keeps the general public on their toes, and we must not disappoint them, ever.

Incidents among pilots are, on the whole, few and far between. You do get the type with the tall hat (full of feathers) or the wandering hands (presumably held out to give balance whilst doing tricky manoeuvres) who endeavour to catch your lines, giving full up or down, which could lead to something quite unexpected. The only solution is, push the hat over their eyes, or hold hands indefinitely. I have had bods try to give me unexpected pick-'a-backs and also to do somersaults and leap frog with them, but I am sure it was all meant in good fun.

Quickly a word about the tailless or flying wing type of model in relation to its use in combat flying. Personally, I do not think the wing has a secure future in this type of flying. Certainly successes have been gained by wings but by individuals who have developed them through many stages, until they themselves have developed the knack of controlling them reasonably well. Of course, they are not to be ignored, as they do offer a fascinating challenge to ingenuity and skill, besides being inexpensive, simple to construct and quick to build.

Here, then, are my ideas on what goes to make a good combat ship. From the design side we want a final product which embodies the following:

(a) *Strength*. This can be gained by careful attention to stress points during design and also to careful

selection of materials to be used for same.

(b) *Simplicity*. A combat ship is only as strong as its weakest part, therefore the less construction the better; not only is there less to break but also less to repair.

(c) *Manoeuvrability*. Gained not only by good design layout but also light weight, which gives acceleration.

(d) *Flexibility*. This must be embodied in a combat ship due to its inevitable contact with other models, terra-firma and even opposing pit crews. If the model is rock solid something must break in the event of collision. By far the best and most convenient method of obtaining flexibility is to make the wings detachable by the elastic band method. Other added advantages of this idea are plain to see.

(e) *Appearance*. It is sometimes very difficult, if not impossible, to make a specific contest model look like a real aeroplane, but in the combat model we have no excuses. Models can be made to look presentable to the general onlooker. We know that the great skill and daring needed in combat flying has great spectator appeal (although some people do not care to admit it), so a little more realism on the part of future designer/builders of combat models would further deepen the ranks of onlookers, which could only benefit our modelling movement as a whole.

To conclude, here are the building notes and plans of my own extremely successful combat model, the *Black Ghost*. Although this design has won all the major combat awards in this country over the past few seasons, it is not a design which has been victorious in the hands of one individual alone. It has been flown by several of my



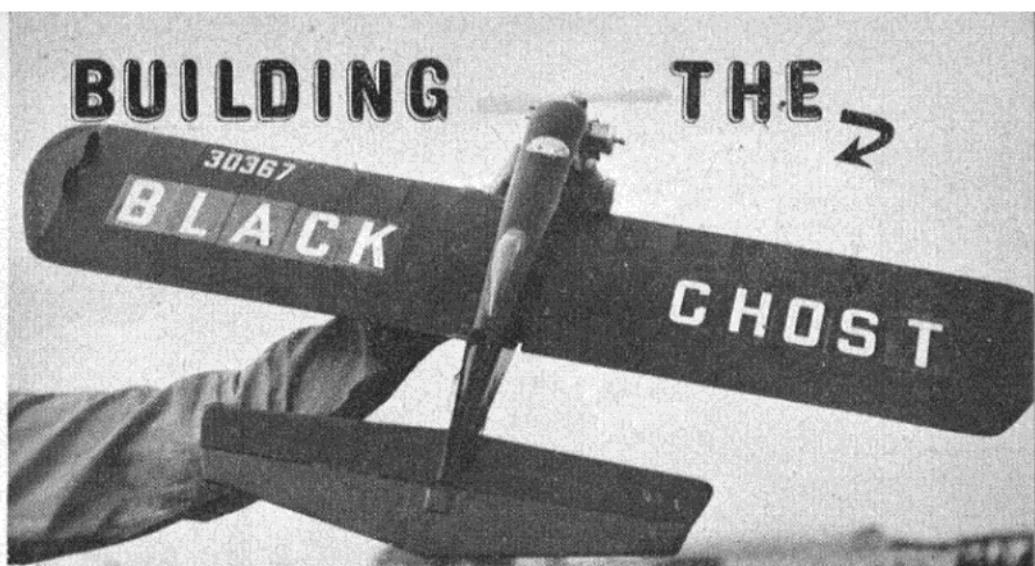
If you are last up, wait until your opponent is overhead before launching says Mac—and that's exactly what this competitor at the R.A.F. Championships is doing!



fellow clubmen with equal success, thus making the West Bromwich M.A.C. the most successful combat club to date.

In presenting the *Black Ghost*, we feel that the long awaited need for a really first class and well proven combat ship has been fulfilled. The ship will prove an asset to both beginner and expert alike, being capable of both easy handling qualities for the former and the ability to do "the book" (with the natural exception of the triangle manoeuvres) in the hands of the latter. Construction is simple, quick and allows for a very cheap budget (a point to please everyone). So just take a quick look at some of the outstanding successes of this ship as listed below, then get that building board out, and dust the sideboard. . . .

1955. 1st. South Midland Area Rally.  
1st, 2nd & 3rd. Midland Area Rally.  
3rd. Northern Heights Gala.  
1st. All Britain Rally (Westway Trophy).
1956. 1st. Heanor Rally.  
2nd. High Wycombe Rally.  
1st & 3rd. South Midland Area Rally.  
1st, 2nd & 3rd. Midland C/L Gala.  
Equal 2nd. All Britain Rally.  
3rd. Midland Area Rally.  
3rd. Woodford Rally.
1957. 1st, 2nd & 3rd. North Western Area Rally.  
1st. Midland Area Rally.  
1st. South Midland Area Rally.  
1st & 3rd. Northern Heights Gala (Keil Kraft Combat Trophy).
1958. 2nd. Midland Area Rally.  
1st. British Nationals.  
2nd. Northern Heights (Combat organised by Bristol M.A.C.).



### Wing

Cut out all the ribs, gussets, the two  $\frac{1}{4}$  in. sheet tips and notch the trailing edge as per plan. Lay the bottom main spar on the plan and cement the ribs in position. Add the top spar, leading edge and trailing edge in that order. When well set, lift from plan and add tips, gussets, weight box and weight, then box-in the centre section spars with  $\frac{1}{16}$  in. sheet. Add the tip fairing pieces, sheet the centre section top and bottom, then tape the leading and trailing edges as shown. Finally, cover with heavyweight tissue or silk, give two coats of clear dope and one of coloured if desired, do not forget to well cement the lead-out guide in, over the main spar and along the rib. Fuel proof when all is set hard.

### Tailplane and Fin

Cut the tailplane and fin from  $\frac{1}{8}$  in. sheet. Hinge the tailplane, cut slot for horn and glue same in place. Sand to a smooth finish.

### Fuselage

First make the fuel tank from shim brass or tin. Cut out formers 1, 2 and 3, plus the bearers trimmed to the correct length. Assemble formers 1 and 2 (using a good hard setting cement), onto the bottom bearer,

place the tank in position, then glue other bearer in place, line up square and leave to set.

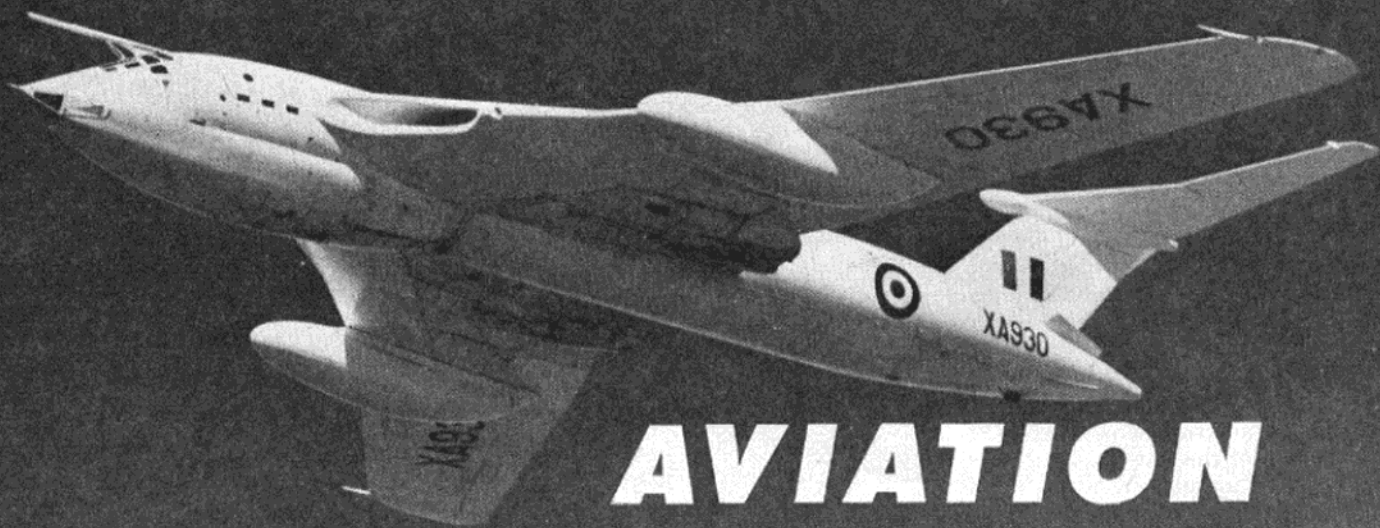
Cut out the two sides as per plan and the bellcrank mount. Next, cement the sides to the bearer and former assembly, add the bellcrank mount (by slotting it into the fuselage sides) and former 3, pull in the fuselage sides at the rear and cement together. Fill in between bearers, top and bottom with scrap  $\frac{1}{8}$  in. sheet and leave the whole assembly to dry.

Mount the bellcrank, complete with leadout wires and pushrod, slipping the latter through the elevator horn before cementing the tailplane onto the ledge at the rear of the fuselage. Trim the fuselage top block roughly to plan-view then cement in place. Add the bottom block to the fuselage and sheet in the wing mount and rear fuselage, then glue the two  $\frac{1}{4}$  in. dowels into their respective holes.

When dry carve and sand all blocks to the proper contour, trim and sand the sheeted parts, and add the fin. Finally tape all parts shown, tissue cover the whole structure, including the tailplane and fin, give two coats of clear dope, add canopy etc., and give one coat of colour dope (if desired) and one of proofer.

### JUST AS A REMINDER HERE ARE THE OFFICIAL RULES FOR COMBAT FLYING

- A combat event shall consist of two models flown at the same time in the same circle for a predetermined time, the object being to cut a streamer attached to the tail of the opponent's model, points being scored for each cut. The winner shall be the competitor with the most points at the conclusion of the combat period.
- The S.M.A.E. general competition rules shall apply as appropriate.
- The contest shall be run by one Referee with a whistle and a stop-watch, together with one Scorer per contestant who shall also be equipped with a stop-watch and appropriate means of recording the number of cuts.
- The model shall conform to the following specification:—
  - Models shall be fully aerobatic.
  - Maximum engine capacity shall be 3.5 c.c.
  - Line length from the grip of the control handle to the centre of the model shall be 50 ft. plus or minus 6 in.
  - The streamers shall be 10 ft. long and 1 1/2 in. wide, securely attached to the rear of the fuselage or fin by 60 in. of strong thread.
  - The model shall not be fitted with any artificial aid calculated to assist the cutting of the streamers.
  - The combat period shall be of 5 min. duration and shall commence from the giving of the starting signal by the referee.
  - Any pilot whose model is not airborne within 2 min. of the starting signal shall be eliminated.
  - Each contestant shall be permitted a maximum of two models in the event, but only one model shall be used in any one flight.
  - The following shall be the method of scoring:—
    - Scoring shall commence immediately the starting signal is given.
    - A penalty of 1 point shall be incurred for every full period of 15 sec. that a model is not airborne during the combat period.
    - Five points shall be awarded for each single cut of the opponent's streamer, only cuts by the airscrew count.
  - Flights shall be declared unofficial if:—
    - There is a mid-air collision and neither contestant is disqualified.
    - If a streamer becomes accidentally detached from a model, i.e. is not cut by an opponent.
 In the event of an unofficial flight, the heat shall be re-flown.
  - In the event of a tie, the heat shall be immediately re-flown.
  - A contestant shall be disqualified from the contest if:—
    - He flies two or more consecutive laps at a height of less than 6 ft.
    - If he deliberately attacks another model as distinct from its streamer.



J. W. R. Taylor's

# AVIATION NEWSPAGE

**KNOBS, BUMPS AND WOTNOTS** continue to sprout on operational aircraft even in this jet age, and Handley Page's *Victor* bomber arrived at Farnborough this year with as pretty a profusion of protuberances as any solid modeller could wish for.

On second thoughts, "pretty" is probably the wrong word for the flight refuelling probe projecting forward above the flight deck; but Bomber Command crews will welcome the extra range offered by this innovation, plus the world's biggest underwing drop tanks, each of around 1,500 gallons capacity.

Already voted the bomber most likely to get through to a target and back, because of its Mach 0.95 speed at well over 50,000 ft., the *Victor* now gains almost unlimited range. Service models may not be called upon to lob their H-bombs with the remarkable half-loop and roll-off-the-top technique demonstrated by lightly-loaded V-bombers at Farnborough; but the crews of the first squadrons—Nos. 10 and 15 and a reconnaissance unit at Wyton—claim they can outfly and outmanoeuvre any fighter in service.

**TOO LIGHT** was the verdict on the 265 lb. parasol-wing *Skeeto* built and flown by Ray Stits, whose designs for

amateur builders are among the most popular in the world. Attempting to find the answer to the hard-up pilot's prayers, he aimed for a wing loading of 3-4 lb./sq. ft., but had difficulty in finding a low-cost lightweight power plant.

Winding up with a 25 h.p. Evinrude outboard motor-boat engine, Stits found that take-off sounded like that of a B-36 at full throttle, but that there was insufficient margin between the cruising speed and 18 m.p.h. stalling speed in gusty conditions for carefree piloting, although a stall resulted in nothing worse than a gentle "ballooning" loss of height. (Photo below.)

*Although an old timer this N.A. O-47A is probably the world's fastest crop-duster! Its original top speed was 227 m.p.h., and cruising speed 205.*

Turns were made by using a lot of rudder and a little aileron, rather than by waiting for the ailerons to produce results at 25-30 m.p.h., all of which was quite entertaining and safe; but Stits regards ultra-ultra-lights as impractical and *Skeeto* has now been dismantled.

**THIS MONTH'S RARE BIRD** is a North American O-47A, registered N4725V and believed to be the only aircraft of its type still flying. Altogether 239 of these three-seat observation machines, with 975-1,060 h.p. Wright R-1820 engines were built for the U.S.A.A.F. between 1937 and 1939. At one time a few were operating in South American countries. The survivor, painted in medium green



and orange, belongs to Adams Aircraft of Sacramento, California, who are having it converted for crop dusting.

**KEEPING DOWN WITH THE JONESES** is the way Vickers describe the possibilities for low-fare operation offered by their forthcoming turboprop *Vanguard*. With PanAm's Boeing 707-120 banned for take-off from New York at more than 190,000 lb. of its specified 247,000 lb. A.U.W. at the time of writing, so that it can climb quickly enough to make the noise level acceptable, the advantages of Britain's short take-off, quiet turboprop and jet transports are becoming increasingly apparent.

This implies no criticism of the big jets, which will revolutionise air travel and make a lot of money when they can be operated at full capacity.



# George Meyers

## Lil' Toot

THIS trim little white-and-red single-seat biplane won its designer, George Meyer, the *Mechanix Illustrated* Trophy for outstanding achievement in the field of home-built aircraft during the 1957 get-together of the U.S. Experimental Aircraft Association.

Meyer started work on the project five years earlier. As soon as he had produced the design drawings, he built a 1/24 scale all-metal model, using exactly the same type of construction as in the full-size job, except for the wings. In the model these have metal ribs and spars with silk covering, whereas *Little Toot* itself has wooden wings with fabric covering.

He even fitted a scale replica of



Only in a ground view such as this do the modest proportions of "Lil' Toot" become apparent—from an aerial shot (below) you would never guess!

the 90 h.p. Continental engine, and found the result so helpful that he believes all home builders should work out details of their designs in model form before cutting wood and metal on the prototype. Certainly it paid dividends with *Little Toot*, which behaved perfectly from the moment it left the ground. Meyer simply rigged it, flew it, bent the rudder tab over a little before the second flight, and has changed nothing since.

The prototype has a tubular-truss forward fuselage, with metal cowling, and a metal monocoque from the cockpit aft. Wings are of two-spar spruce construction, with NACA 2212 aerofoil and four flying wires and two landing wires each side. The main undercarriage has Cessna

spring steel cantilever legs and spats, and the tailwheel is steerable. Ailerons are fitted to the lower wings only—and that's about all there is to say about *Little Toot's* structure, except that it is stressed throughout for 10G loading, which produces a rare blend of easy-to-fly fully-aerobatic airplane, with a top speed of 127 m.p.h.

According to its designer, *Little Toot* has very good stall characteristics, breaking clean with plenty of warning, and resumes flying as soon as pressure is released. It has been held in sustained spins, and recovery is very rapid. It stalls at 55 m.p.h., lands at the same speed and has no vices.

To make construction easier for less-skilful amateurs, Meyer has designed alternative methods of building many components. There is, for example, a simple tubular-truss rear fuselage with plywood bulkheads, wooden stringers and fabric covering. Stick-and-gusset wing ribs can be used instead of the original type with plywood web and spruce cap strip.

Sets of plans, made up of 11 large sheets, give full details of both methods of construction; with all bulkheads, ribs and fittings drawn full-size so that they can be used as templates. In fact, for anyone with \$50 for the plans, access to a four-cylinder engine of between 90 and 150 h.p., and the time and ability to build it, *Little Toot* is probably the most exciting thing in the air today.

Wing span: 19 ft. Length: 16 ft. 6 in. Height: 7 ft. Wing area: 123 sq. ft. Weight empty: 914 lb., loaded: 1,230 lb. Max speed: 127 m.p.h. Cruising speed: 110 m.p.h. Rate-of-climb: 1,000 ft./min.



# ON TEST

## The E.D. AIRTROL Hard Valve Receiver

We believe that the best way to test any radio equipment is for an ordinary radio flier to use it under every-day conditions. ERIC FEARNLEY put the Airtrol through its paces in his well-proved Aeronca Grasshopper and other designs; and the results? Well, read for yourself!

THE only real way to find out if radio equipment is good is to test it under actual flying conditions, and when E.D.s sent me a pre-production Airtrol receiver it was subjected to three months' hard flying before judgment was pronounced.

My first test was to instal the Airtrol set in place of the Transistrol in the well-tried Aeronca Grasshopper model (see May, 1958, issue). On the bench the set showed a very good performance. The DL66 hard valve has 3,000 hours (crashes apart!) and the poorer output of this valve is boosted by two transistors against the single one in the Transistrol, resulting in a rise from 0.6 m.a. idling current to 4 or 5 m.a. in signal, depending on the h.t. battery fitted.

The Airtrol flew the Aeronca perfectly on its first attempt, and this is the first receiver I have been able to instal without getting initial teething troubles.

When more flying time had been built up it was soon found that the characteristics of the Airtrol are entirely different to the Transistrol, despite its similar appearance. The standing current is not fixed, but must be adjusted very carefully with the potentiometer on the top of the set. The range of the resistance would appear rather too high, which in practical terms means that the adjustment of the pot. of about  $\frac{1}{4}$  in. raises the standing current from 0.5 to 2 or 3 m.a., cutting in the relay, and locking on the rudder. With this disconcerting fact in my mind the test meter was inserted before each flight, though battery age does not seem to have a startling effect on the steady reading obtained. What is important, however is the aerial load. Unlike the Transistrol, if the aerial lead is removed, the current will jump up, and if the aerial position changes, big differences in idling current become evident. The instructions do not place much stress on this, with the result that I had a locked-on rudder

before I found out this fact. When we bear in mind the fact that if the standing current is set below 0.5 m.a. the range of the receiver becomes poorer until at about 0.3 m.a., when it is almost non-existent; it will be appreciated that the ideal setting of 0.6-0.75 m.a. calls for full stability in the wire up. Unless the aerial is fixed in a firm position (at right angles to the general wiring—say straight out of the fuselage and along the wing and pulled taut with a rubber band) it will be found that the idling current may tend to rise slightly after repeated signals until it reaches danger point.

Provided the aerial is fitted as described, a good sensitive meter used to set the idling current at about 0.6 m.a., and the relay set to go in approx. 2.2 m.a., and fall out not less than 1.8 m.a., then we have a very reliable set indeed. The range under these conditions is extremely good, and the set completely reliable.

The batteries used are one h.t. of 22½ volts and an l.t. of 1.5. Although the set would work for a short time on one single B122 h.t., it must be remembered that no matter how many transistors or valves we fit to a set, the final function is to operate a relay, which must have a minimum rise of 4 m.a. to be of any practical use at the low 22½ volts used.

With the B110 battery suggested in the instructions (if not obtainable TWO B122 wired parallel), we are safe for about 30 or 40 flights of average duration. At the end of this period the current on signal will rise, flutter, and drop down again. The set was left switched on three hours without any great change in the idling setting, but after a short use in rise they failed completely. If heavy duty is wanted, it is suggested that a 90 volt Batrymax is broken down into four 22½ volt units, which give long service. As far as the l.t. is concerned, it is quite effective until a reading of 1½ volts ON LOAD is

indicated. It does not pay to skimp battery size if reliability is wanted.

I was disappointed to find that the Airtrol has the same relay as the Transistrol. This is a good relay within its capabilities, but trying to put too much through it will result in a stuck armature.

A Rip Max Mactuator was fitted to the plane, and a 6-volt battery fitted by accident instead of the correct 4-4½ volt one. After two flights, the relay stuck with the load of about half an amp. Suppressors were fitted, though the makers do not mention them at all in the instructions. With the correct battery, though, no trouble was experienced.

At the present time the set is flying in a stunt model with a "United Nations" radio set-up, consisting of a Bonner Vari Comp., which serves a Mactuator operating elevators, and an E.D. standard one to work blip control. Add to this an AM-35 engine converted to glow, and we have a strange unit! The Airtrol got its roughest treatment when, after a series of stunts, a dive was started with down elevator. On signalling "up" the model—which was going some—folded up one wing, and the whole lot fluttered down in a spin. The relay was out of adjustment, but otherwise the set was quite undamaged.

Summing up, it can be said that the Airtrol is a worthy companion to the Transistrol, capable of giving an equal performance, with long valve life, and stability. It enables big steps to be made in the search for smaller, lighter, and cheaper radio flying. (My present plane, with multi-control and long life batteries, is under 3½ lb.) Provided that care is taken in fitting the aerial position, the relay cleaned at regular intervals, and fitted with suppressors, and not overloaded (say, 300 m.a. at 4½ volt max.) then the Airtrol will give long life and reliability. When a British manufacturer produces a compound actuator to go with this equipment, it will put multi-control flying within reach of the average radio devotee.



## Nearly Four Hundred

plans are listed in the MODEL AIRCRAFT PLANS CATALOGUE—rubber and power driven models, gliders, solids, control line and free flight, etc. Just send 6d. in stamps to "M.A." Sales Dept., 19-20 Noel St., W.I.



# The Percival **PROCTOR**

## detail plans for scale models

ONE advantage of modelling a civil aircraft is the wide scope with colour schemes, and with the *Proctor* the choice is almost unlimited. Altogether there were five marks, the first of which was a military version of the pre-war *Vega Gull*. Mk. I to III of the R.A.F. version were all



A *Proctor* Mk. IV in the green and brown camouflage of wartime.

basically similar, differing only in internal equipment, but the Mk. IV—the final service version—had a longer and deeper fuselage and was fitted with advanced radio gear in its role of radio trainer. Later, many of these *Proctor* IV's were converted to dual control and used on communications duties.

Naturally enough, the war over, ex-R.A.F. *Proctors* started appearing in civil guise, but the *Proctor* V featured in the plans was produced after the war and is flying in con-

siderable numbers, and constructionally is similar to previous marks.

Incidentally, some *Proctors* remained in R.A.F. service as communications aircraft until 1955, being finished in silver with the usual R.A.F. markings.

There is nothing tricky in the construction of a solid model *Proctor* and the stages are easy to follow. Cutting away the whole of the cockpit area and building the instrument panel as a separate unit makes the job of adding detail so much easier.

Making up the cockpit fittings calls for a pair of tweezers and not a little ingenuity when it comes to finding the most suitable materials,

Heading photo shows G-AGTC which is featured in the plans overleaf.

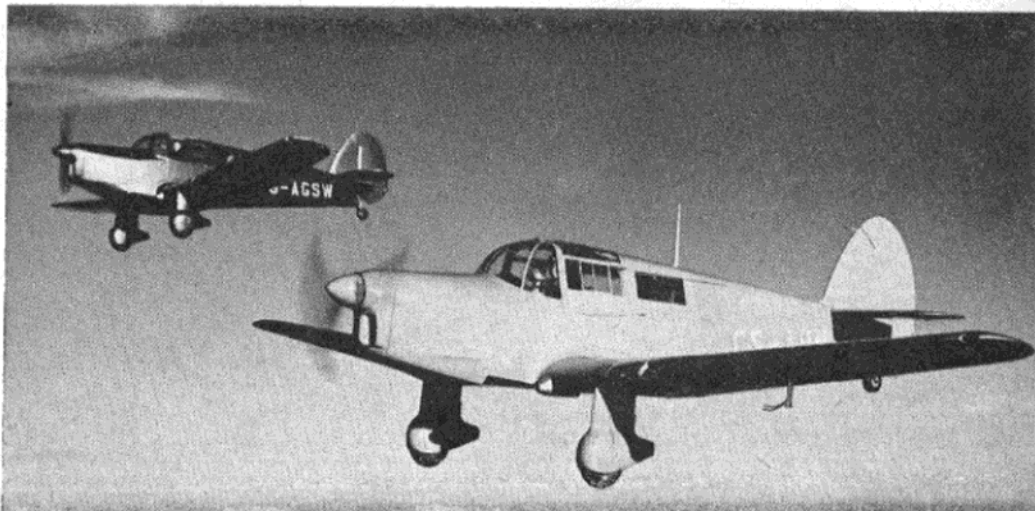
but reference to P. M. H. Lewis's article "Achieve that Life-Size Look" in the April issue will almost certainly help.

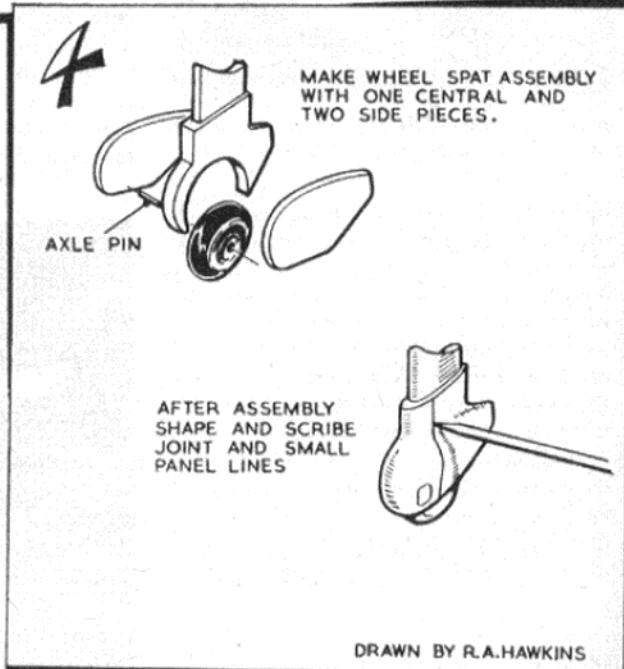
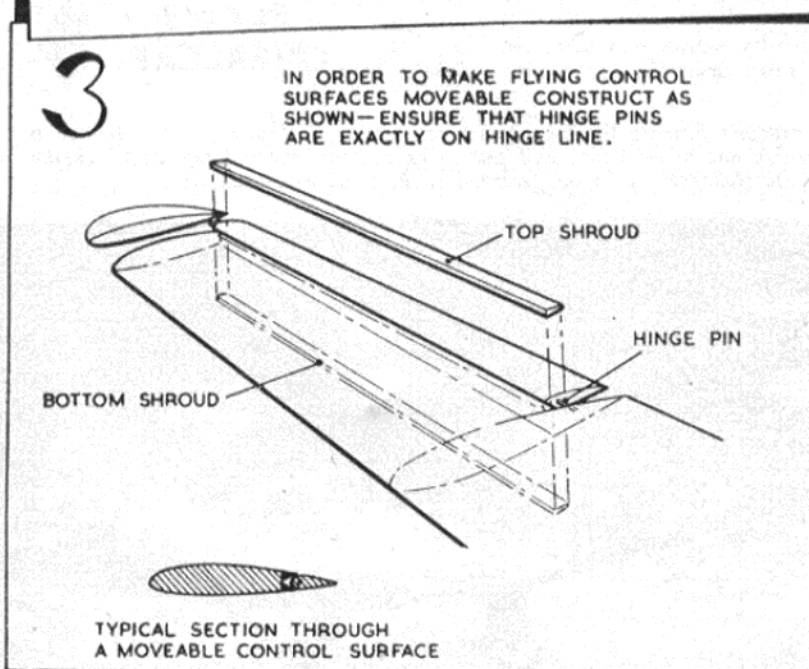
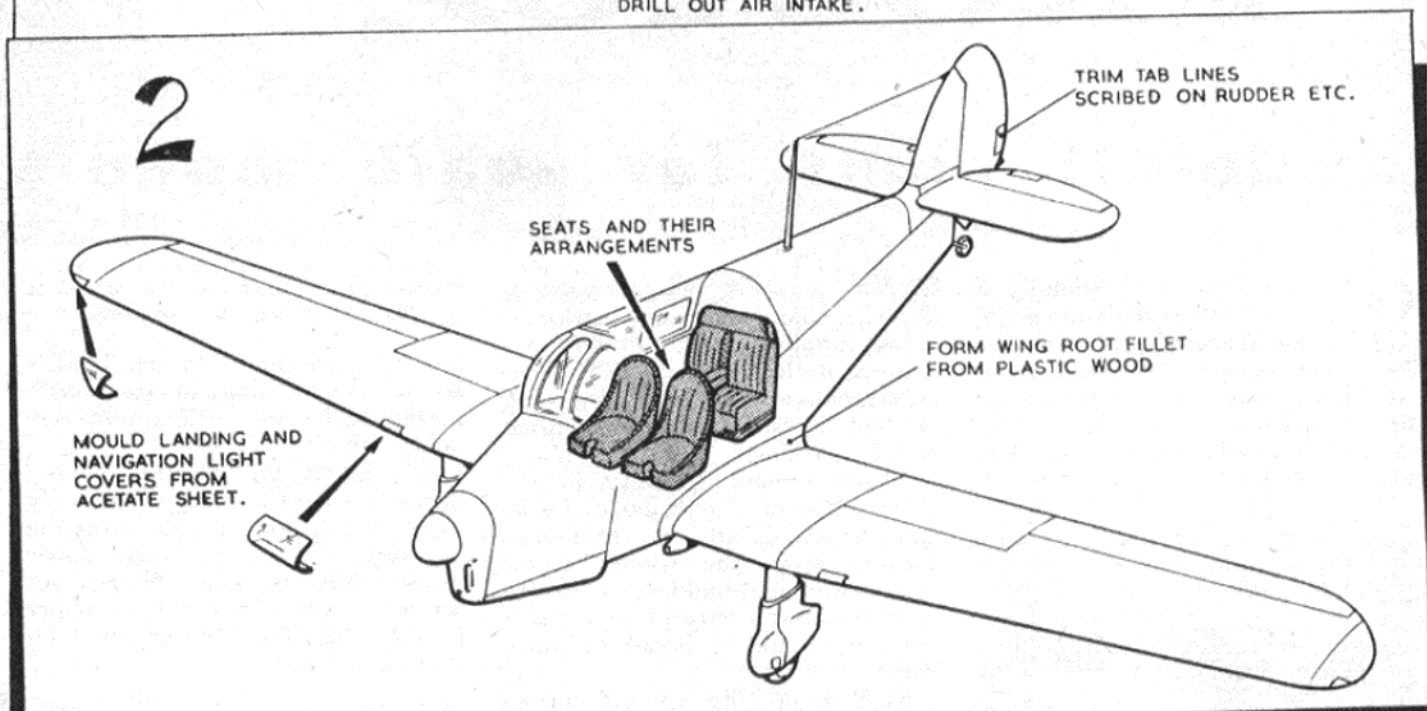
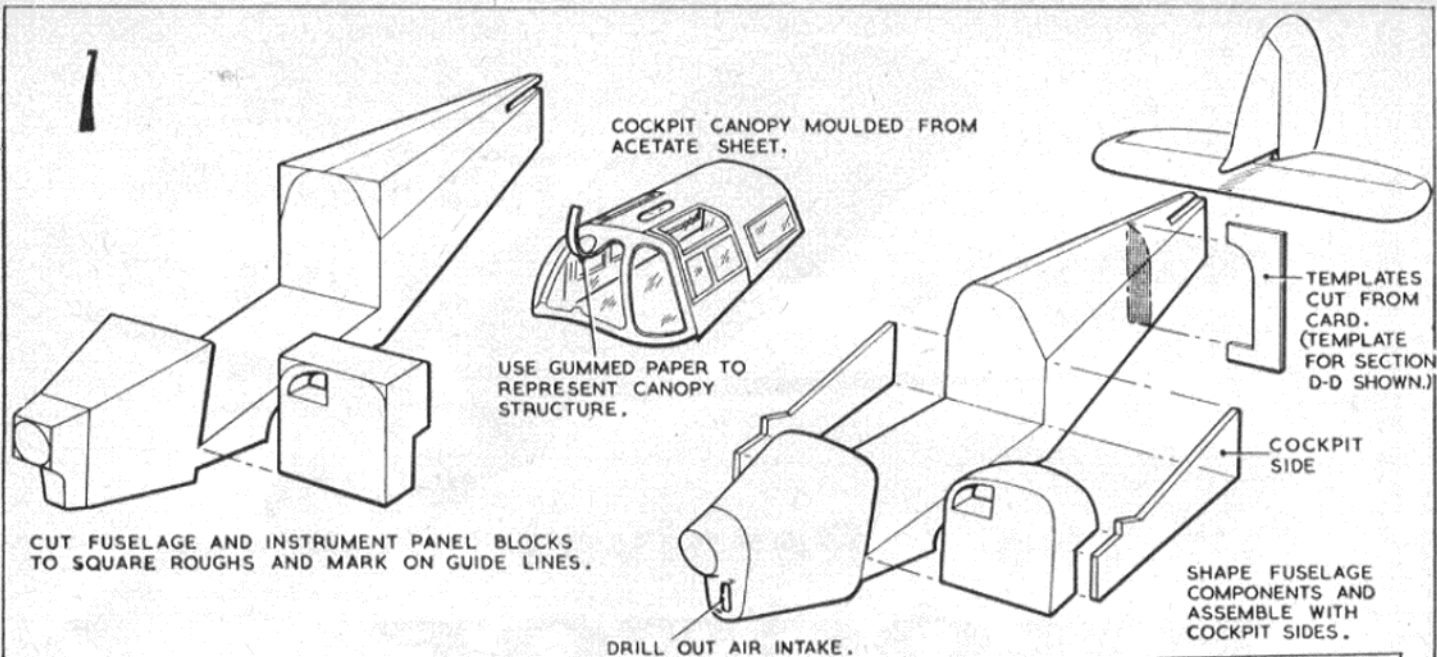
As regards the cockpit canopy, unless you have got an exceptionally steady hand, don't try to ink-in the structure. The gummed paper method may take a little longer, but certainly looks effective if the paper is wafer thin, and is painted *before* sticking down.

**PLANS  
OVERLEAF**

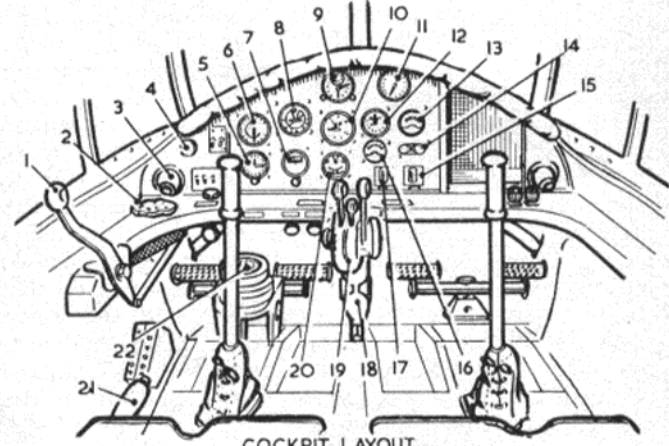
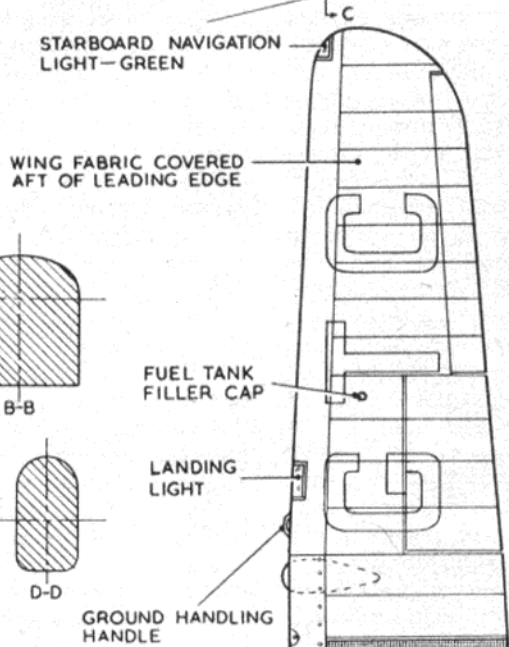
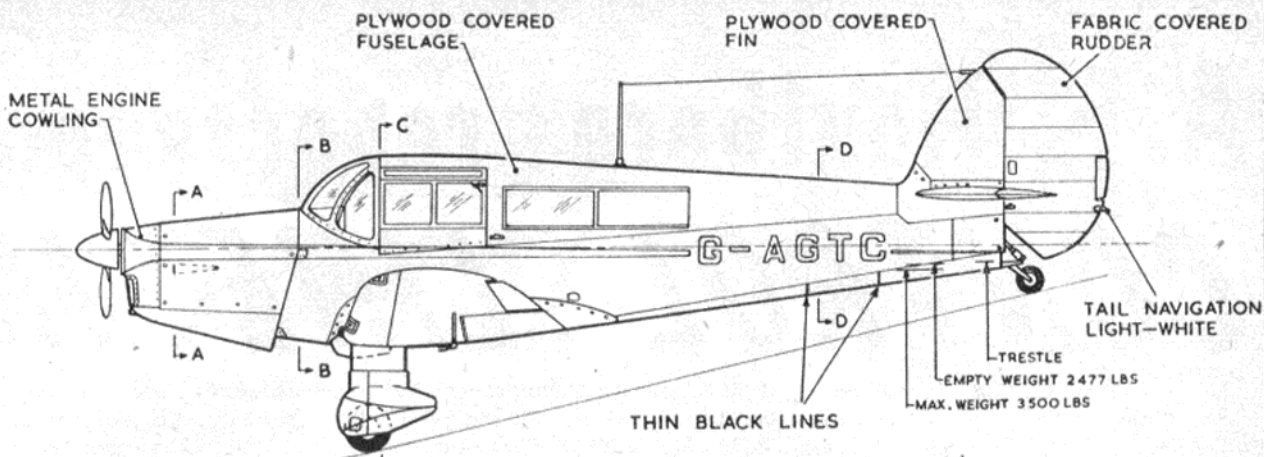


Below: Two *Proctors* formate for the camera of Charles E. Brown. G-AGSW had a turquoise fuselage and silver wings and tail. The *Proctor* in the foreground was the first civil Mk. IV to be exported to Portugal after the war.

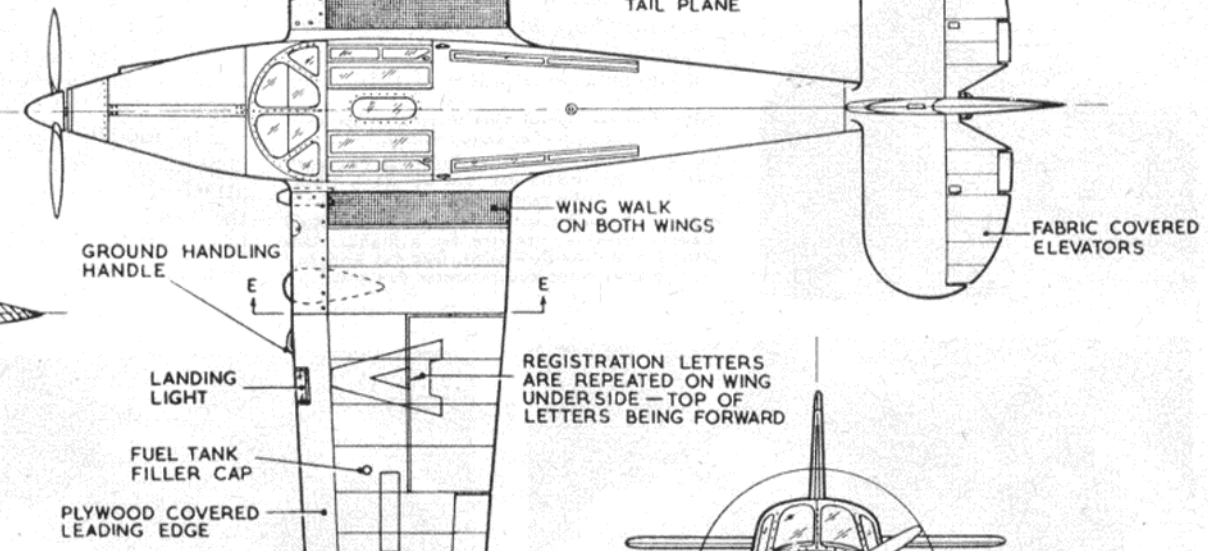
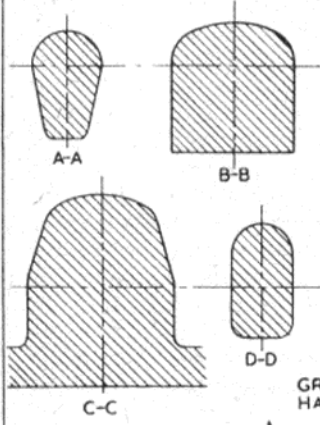




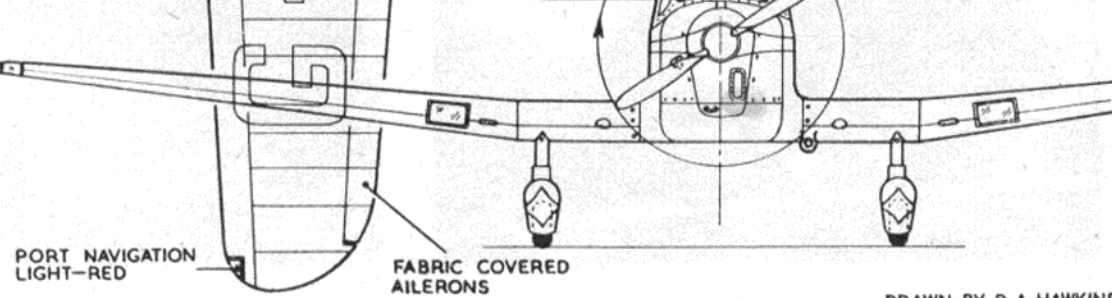




1. THROTTLE LEVER.
2. RUDDER TRIM CONTROL,
3. AIR LOUVRE
4. ENGINE STARTER BUTTON
5. ALTIMETER
6. AIR SPEED INDICATOR
7. DIRECTIONAL GYRO
8. GYRO HORIZON
9. CLOCK
10. CLIMB & DESCENT INDICATOR,
11. TACHOMETER
12. BOOST PRESSURE GAUGE
13. VOLTMETER
14. FUEL CONTENTS METERS
15. VACUUM GAUGE
16. OIL TEMPERATURE GAUGE
17. OIL PRESSURE GAUGE
18. FIRE EXTINGUISHER
19. ENGINE CONTROLS
20. TURN & BANK INDICATOR
21. FLAPS CONTROL LEVER
22. COMPASS



**COLOUR SCHEME G-AGTC**  
 FUSELAGE, FIN & RUDDER ARE TURQUOISE WITH SILVER LETTERS & FUSELAGE FLASH OUTLINED WITH DARK BLUE.  
 WINGS, TAIL PLANE & ELEVATORS ARE SILVER WITH TURQUOISE LETTERS OUTLINED WITH DARK BLUE.  
 WHEEL SPATS ARE SILVER WITH TURQUOISE FLASH OUTLINED WITH DARK BLUE.



DRAWN BY R.A. HAWKINS  
 FT.

# A. F. Houlberg reports on the CONTROL LINE INTE

THE International Championships held at Etterbeek, Brussels, from September 4th to 9th, proved a great success and was attended by 104 competitors from 14 different countries who provided some 150 total entries.

The special C/L arena, inaugurated by the Federation de la Petite Aviation Belge last year, had been further improved and is a monumental work for which our old friend George Lippens is almost entirely responsible. It is undoubtedly the best permanent C/L site existing in the world today, consisting of two first class circuits with adequate competitors' pens, permanent, elevated judges' box, permanent line check inscribed in concrete blocks, and first class P.A. equipment.

With the large entry received a



tight schedule was envisaged, but the organisers did not reckon with the customary wiles of the contest aeromodeller, and it soon became evident that the speed event was dragging behind schedule. This was occasioned by the practice adopted by a number of team managers of timing their entries from the edge of the circuit for four or five laps and, if they considered the speed achieved insufficient, shouting to the pilot to take his hand out of the fork thus converting the flight to an attempt, with the opportunity of a second go. The jury had to take steps at the end of the first round to stop this practice and also to stop blatant examples of whipping by disqualification.

The speed event proved a stern struggle between Hungary and Czechoslovakia, with Hungary winning first and second places—Toth achieving 216 k.p.h., and Beck 214 k.p.h.; the next three places were filled by the Czechs, followed by two Italians and the Russian, Vassilchenko, who performed very consistently.

Our own hope, Ray Gibbs, was

**Left: Russian speed flier Vassilchenko with his orthodox speed design.**

**Lower left: Speed winner Toth, of Hungary starts up his model assisted by Reso Beck, who placed second.**

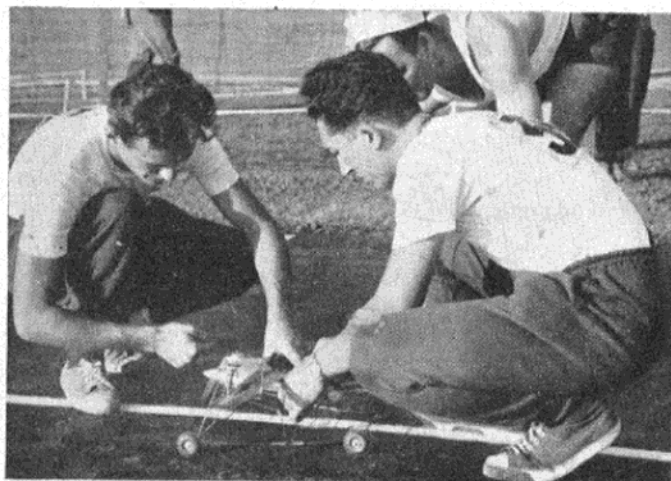
**Right: Zatocil assists team mate Koci (Czechoslovakia) prepare for a flight. Unorthodox deltas flew well, but 1st and 2nd places went to orthodox designs.**

distinctly out of luck and was bursting his fuel containers with heartbreaking regularity. While pen bladder fuel containers may be excellent from an actual speed point of view, they are a distinct drawback from the contest angle when one is working to a time limit. In Gibbs's case, he had so little time to spare that a burst bladder put him out of the round, with the result that he only registered one flight in the whole contest, at 189 k.p.h. to finish 15th. Page and Hall were in similar difficulties and finished in 25th and 26th places.

There was only one actual contestant in the jet speed class, although there were several entries. Here, the Russian Champion, Ivannikov, gave a most consistent and impressive performance increasing his speed on each attempt from 266 k.p.h. to 276 k.p.h.

It is of interest to note that in the evening after the spectators had left, he made an attempt on the speed record using thinner lines than those stipulated for contest purposes and achieved the record speed of 301 k.p.h.

The model, a pulse jet of normal conception, has its metal wings attached direct to the tail pipe and the head is formed into an annular fuel tank. It has, therefore, the cleanest construction so far achieved.



# INTERNATIONAL

## at Brussels



Dick Edmunds looks tense as he warms up for the team race final.

The aerobatics class produced both good models and good flying, J-Gabris of Czechoslovakia proving the eventual winner by a comfortable margin. His performance was consistently good and accurate. Henry Stouffis, last year's winner, fought hard all the way to finish in second place followed by the Hungarian P. Bene.

The best British performance was by Bill Morley, but in face of the strong opposition and the fact that he accidentally omitted a manoeuvre, he could not place better than 14th.

The general standard of aerobatics flying has greatly improved in the last two years, particularly in the Iron Curtain countries; for instance, there were three Hungarians in the first 11 places, and the four Russians placed between 9th and 17th places.

There were five judges for this event, each of a different nationality and marking individually, so it says much for the efficiency and hard work of the ladies of the secretariat that they were able to work out the averages and check the figures in

time to issue the results the next morning. The judges' box was festooned with the paper ribbon issuing from the calculating machine—the office was at work well into the early hours of the morning.

The most exciting event of the meeting was undoubtedly the team-racing. First of all because of the visibly competitive element existing in this type of event, and secondly,

because of the misdemeanours of the competitors born, no doubt, of the excitement of the moment. Crashes were all too frequent and many disqualifications had to be applied. The two worst faults observed were not placing the control handle on the ground during refuelling, and zooming-up when taking off, thus fouling other competitors' lines. A certain amount of whipping and

### RESULTS

#### GRAND PRIX OF THE IX CRITERIUM OF EUROPE, VICTOR BOIN CHALLENGE TROPHY

- |                |            |
|----------------|------------|
| 1. Hungary     | 3. Spain   |
| 2. { Belgium   | 4. Germany |
| Great Britain  | 5. Sweden  |
| Italy          | 6. Holland |
| Czechoslovakia |            |

#### TEAM PLACINGS

- |                   |                   |                    |
|-------------------|-------------------|--------------------|
| <i>Aerobatics</i> | <i>Speed</i>      | <i>Team Racing</i> |
| 1. Hungary        | 1. Hungary        | 1. Great Britain   |
| 2. Czechoslovakia | 2. Czechoslovakia | 2. Italy           |
| 3. Belgium        | 3. Italy          | 3. Belgium         |
| 4. Germany        | 4. Spain          | 4. Hungary         |
| 5. U.S.S.R.       | 5. U.S.S.R.       |                    |
| 6. Austria        | 6. Great Britain  |                    |
| 7. Spain          | 7. Sweden         |                    |
| 8. Great Britain  | 8. Finland        |                    |

#### INDIVIDUAL PLACINGS

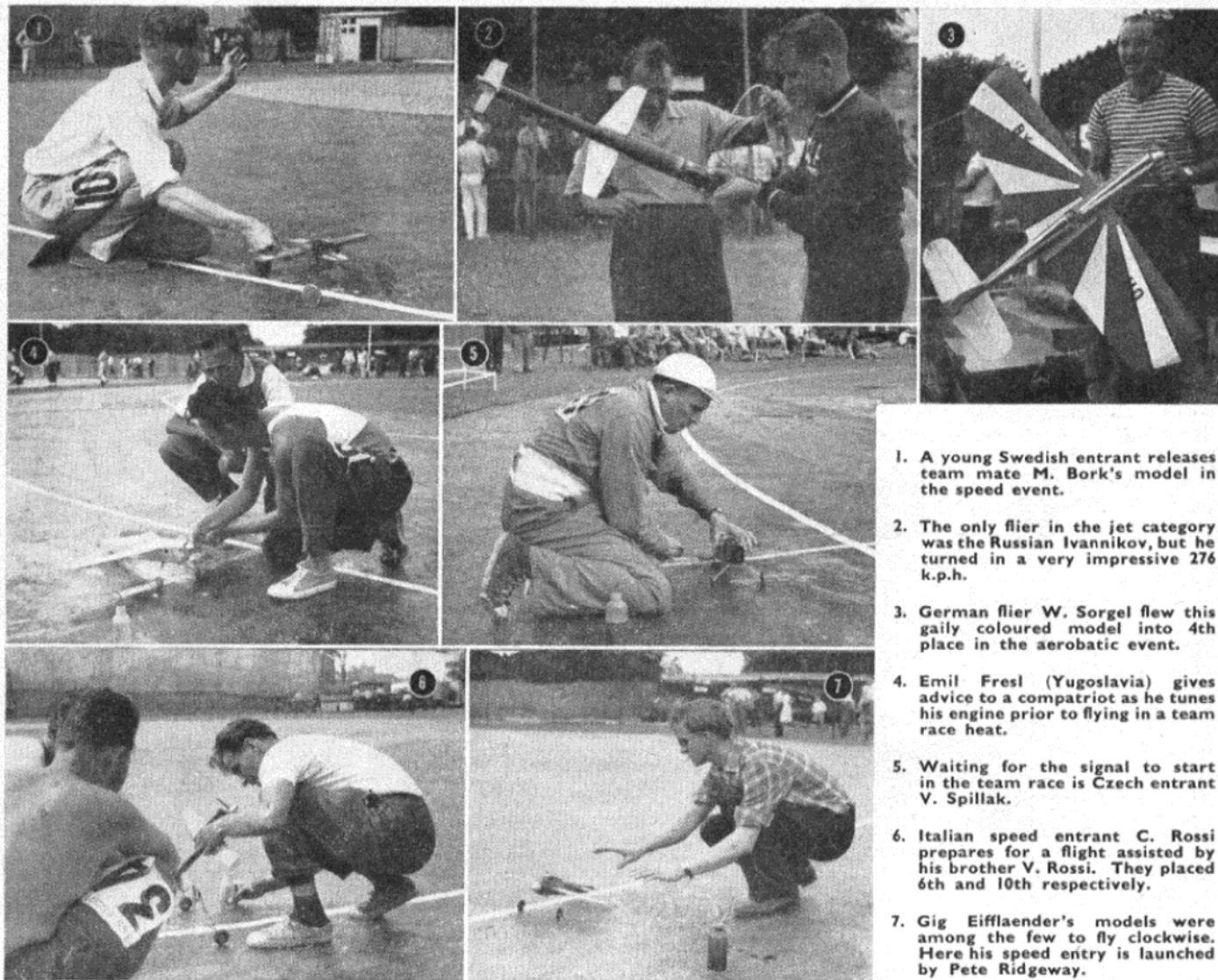
- 2.5 c.c. Speed*
- |                                      |     |
|--------------------------------------|-----|
| 1. Toth (Hungary) .. .. .            | 216 |
| 2. Beck (Hungary) .. .. .            | 214 |
| 3. Koci (Czechoslovakia) .. .. .     | 209 |
| 4. Pastyrik (Czechoslovakia) .. .. . | 206 |
| 5. Sladky (Czechoslovakia) .. .. .   | 205 |
| 6. Rossi C. (Italy) .. .. .          | 204 |

- Jet*
- |                              |            |
|------------------------------|------------|
| Ivannikov (U.S.S.R.) .. .. . | 276 k.p.h. |
|------------------------------|------------|

- Team racing*
- |                            |                        |
|----------------------------|------------------------|
| 1. Edmunds (Great Britain) | 4. Azor (Hungary)      |
| 2. Tad. (Italy)            | 5. de La Plaza (Spain) |
| 3. Stouffis (Belgium)      | 6. Bernard (Belgium)   |

- Aerobatics*
- |                               |                           |
|-------------------------------|---------------------------|
| 1. Gabris J. (Czechoslovakia) | 4. Sorgel W. (Germany)    |
| 2. Stouffis, H. (Belgium)     | 5. Macon, G. (Belgium)    |
| 3. Bene, P. (Hungary)         | 6. Egervary, G. (Hungary) |

- Combat*
- |                     |
|---------------------|
| Kruck, D. (Germany) |
|---------------------|



1. A young Swedish entrant releases team mate M. Bork's model in the speed event.
2. The only flier in the jet category was the Russian Ivannikov, but he turned in a very impressive 276 k.p.h.
3. German flier W. Sorgel flew this gaily coloured model into 4th place in the aerobatic event.
4. Emil Fresl (Yugoslavia) gives advice to a compatriot as he tunes his engine prior to flying in a team race heat.
5. Waiting for the signal to start in the team race is Czech entrant V. Spillak.
6. Italian speed entrant C. Rossi prepares for a flight assisted by his brother V. Rossi. They placed 6th and 10th respectively.
7. Gig Eifflander's models were among the few to fly clockwise. Here his speed entry is launched by Pete Ridgeway.

elbowing was also being carried on.

The final between Edmunds of Great Britain, Tadéi of Italy, Stouffs of Belgium, and Azor of Hungary, resulted in a clean, if hectic, race with a dramatic episode when Gibbs, who was acting as Edmunds's pilot, lost one of his shoes, which he fortunately had the presence of mind to kick out of the circle.

Edmunds's machine proved to be appreciably faster than his rivals and, supported by his first class pit work, he slowly established his superiority and finished a clear winner with the very fast time of 4 min. 58 sec., the next best being the Italian Tadéi with 5 min. 7 sec.; a very brilliant win which gave Great Britain a world champion and a sporting chance in the final placings.

Some excellent flying took place in the combat section and made up for the small entry. The contest developed into a duel between Belgium, represented by F. Papegnies,

and the German flier, D. Kruck.

The German machines were flying wings with the elevator attached to the trailing edge, providing an extremely short moment arm. Their manoeuvrability was markedly superior to all their rivals and in addition they were appreciably faster. This invincible combination coupled with excellent piloting naturally prevailed and Kruck proved the ultimate winner, although Papegnies made him work hard for his victory, providing a thrilling piece of flying.

In the final team classification, Hungary made almost a clean sweep and reproduced their Cranfield success, Great Britain gaining the only other championship and tying with Belgium, Italy and Czechoslovakia for second place in the "Grand Prix" of the Criterium.

Taking all things into consideration, and having particular regard to the general high standard of performance, the British team did

well to gain the success which it did.

The contest terminated with the presentation of the main awards in the Town Hall by the Burgomaster's Deputy, followed by a visit to the Brussels World Exhibition, where additional prizes were presented at a dinner given by Sabena in the restaurant attached to the heliport terminal.

This over, all competitors and officials marched in a body to the "Joyous Belgium" enclosure where they were met by a brass band which played them into the "Grand Place," much to the amusement of the other visitors. A feature of this procession was a Panhard car of early 1900 vintage which served as a chariot for the ladies of the party.

As all the buildings in the "Grand Place" are cafes complete with their own dance bands and small dance floors, it does not require much imagination to realise that a good time was had by all.

# Topical Twists

by PYLONIUS

## Minor Troubles

I must confess to having sadly misjudged modern youth. Too often I have blamed the unpopulated state of our airfields on to an outbreak of telly fever and plastic palpitations among our modelling minors. Now, it seems, they have not been quite so armchair stricken as I have believed. Gangs of schoolboys and adolescents have forsaken the mild excitements of the Lone Ranger and the sticky delights of poly jointing for the workaday world of full size construction. Gliders and light planes are being turned out by the fleet, and it will be literally true to say that the next generation will come to look down upon us outdated modelling relics.

All of this will make life even more difficult for us ageing modellers. Just think of the social implications. Your reputation as an overgrown boy will become even more enhanced as the outline of little Johnny-next-door's full size job begins to loom over the back fence. You would be indeed a brave man to so much as poke the nose of your rubber powered toy out of the front door. In fact, such a procedure might be positively dangerous.

And that's not all. Imagine the sort of dog house life you will lead after the little woman, in the course of sweeping the balsa chips into the garden, meets the challenging eye of little Johnny's proud mother. You don't mind keeping up with the Joneses at the fridge and washing machine level of social warfare, but when they start attacking with full-size aircraft you can only quietly leave the district or make a public bonfire of your entire model stock.

If, however, you remain patient, you might live to enjoy a quiet snigger at the plight of young Johnny when he seeks permission to fly the thing. After he has spent his declining teenage years filling in all the necessary forms a horde of bowler hatted officials will descend upon him. After a good deal of vigorous poking with their umbrellas, they will kindly announce that little Johnny can fly the plane, provided that it doesn't leave the back garden, and is securely anchored by a 6 ft. long rope. The wing, of course, would have to be rebuilt—didn't quite stand up to the five ton test weight. And a newly designed fuselage would be required—too modern to meet the approval of the Ministry of Town and Country Planning.

## Ex-experts

The latest in the "How to Run a Model Journal" series of letters gives a nasty smack in the eye to the page hogging, cup snatching expert. For some inscrutable reason or other an expert cannot be defined as an experienced modeller, although most of the experts I know were scampering about the flying fields when I was a boy. Some of them must be at least 90, if a day, and the secret of their perpetual youth is a greater mystery than the number of turns they get out of 1½ oz. of rubber. Their faces remain even less wrinkled than the immaculate covering of their models, and their ancient limbs, which by all normal biological standards should be safely tucked into a bathchair, can still move across the airfield at gold medal speed.

But, if we are to accept the idea that the experienced modeller has forgotten more than the expert ever knew,

perhaps, as the most experienced beginner in the business, I could let you into the secret of just a few of the things I have not only forgotten, but am jolly glad to forget.

One of my masterly efforts is the lopsided fuselage. Two unidentical sides are built from different grades of balsa, and the whole thing finished off by use of a jig. If you don't happen to know a jig, just plain up and down jumping will do as well.

Then there is my built-in warp method, using the unequal rib principle. The ribs should be cut to various sizes and fitted into the framework of the wing—by brute force if necessary. To remove warp hold wing in front of hot fire. Rebuild after disposing of the charred remnants of the carpet.

Another of my discoveries, achieved quite accidentally, was a method of getting a rubber model to fly inverted. To do this, build in plenty of downthrust into the noseblock. Then, after winding up motor, insert the noseblock upside down. Please remove litter from flying field after experiment.

Our correspondent also suggests that the expert should be debarred from contests. After all he only enters contests to win, which is hardly fair on all the other fly-for-fun entries.

## Down with the Stick



While the full-size world of aviation has been making pot shots at the moon with explodable rockets we modellers have been going about our antiquated business with little concern for those rocket projects dogged by ill luck, or those which have been ill luck for the dogs. But, in space conscious America, the model boys are going in for space pyrotechnics in a big way. Fully equipped with bunkers, launching ramps and technicians trained in the art of counting 10 backwards, they are peppering the inner atmosphere with all manner of rocket and roll missiles, regardless of cost.

For the poorer American boy, if such a being exists, paper and balsa rockets are available at the bargain price of 3s. per flight. This includes a realistic cardboard bunker, and, if there is any launching ramp, it is the shocking price of the fuel.

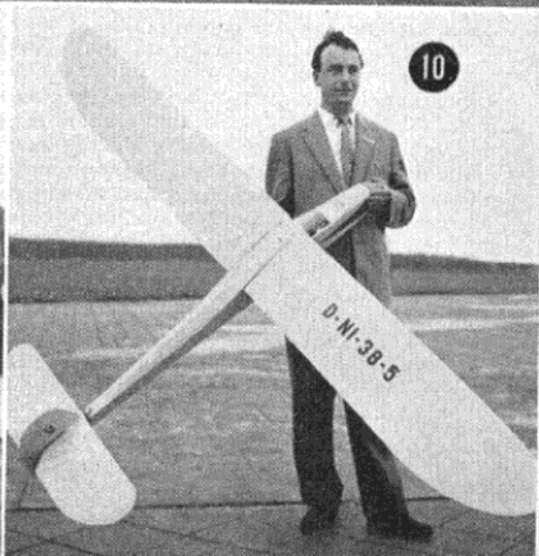
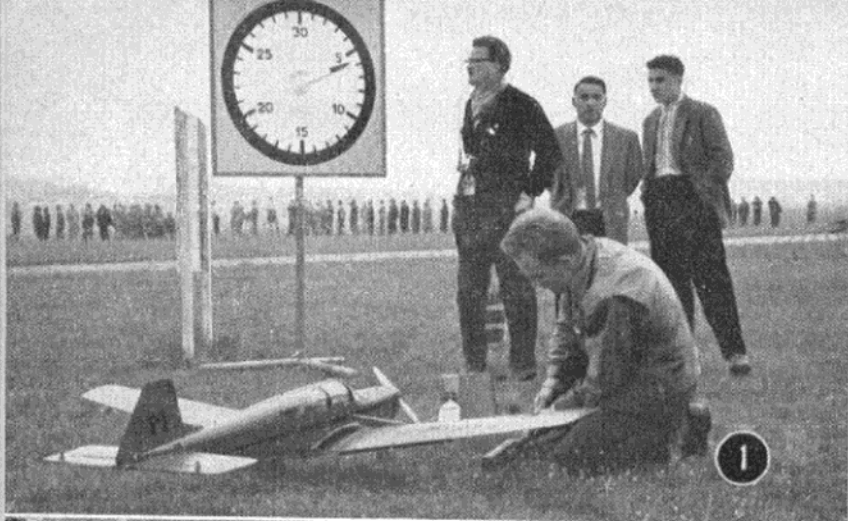
In contrast, the rocketry of my own distant boyhood worked out at 2d. per flight. The apparatus was what might be called a Guided Missile; correct launching elevation being given by the selection of suitably sized milk bottle.

## And It's Kind to Hands

Balsa, the darling of the model world, still remains the Cinderella of the world of timber. Dewy eyed brides are carried triumphantly over gleaming deal thresholds; Lords and Ladies shovel up their fodder from polished mahogany tables; and gentry bang their well bred craniums on sombre oak beams. But poor old balsa gets only the occasional, rough menial job to do, like providing body in pig food and insulating dog kennels.

However, there is an indication that things are looking up. Those who tread the luxurious floors of the Britannia are walking on what might have been your next model wing. With demand going up, balsa for modelling might become as scarce as timekeepers at a rally. The only gleam of light in this dismal prospect is the possibility of a balsa substitute. It might not be quite up to the standard of pure balsa, but good publicity should gloss over any deficiencies. Telly viewers of the future might be asked if they could tell New Corko from real balsa; or confided the astonishing information that New Corko contains 10 per cent. pure balsa.





# INTERNATIONAL RADIO CONTEST

## Stegmaier again wins the King of the Belgians Cup

Reported and photographed by E. F. H. COSH

THE King of the Belgians Cup International Contest for R/C models provided (in racing parlance) a "photo-finish" between Karlheinz Stegmaier, and Jean-Pierre Gobeaux, with Helmut Bernhardt close behind and the rest "also-rans." Held at Darmstadt-Griesheim Aerodrome, on September 19th-22nd, 1958, the contest confirmed that these three flyers are way ahead of everyone else in R/C contest flying. It was a great pity that once again although entered the Russians failed to put in an appearance as their presence would undoubtedly have added a great deal of interest to an otherwise somewhat dull contest—dull, because of the extremely poor showing of the competitors other than the three top place men.

The fact that only two points out of total scores of over 3,000 separated Stegmaier and Gobeaux at the end of the contest is in itself remarkable and there was, in fact, very little to choose between them in the standard of their flying. It should be noted, however, that Bernhardt's score of 1,854 was virtually for one flight, as he only scored around 200 points for take-off and landing on his first flight. After take-off the engine of his model was not running

well and he landed the model with the intention of taking-off again to complete the schedule, but he was unable to sort out the engine trouble within the time limit allowed, and so was unable to attempt any of the manoeuvres. If he had been able to get his model airborne again and if he had scored as many points as he obtained for his second flight, he would probably have won the contest.

As the results clearly show, none of the other competitors were anywhere near the same class as the three leaders.

From a technical point of view, the contest was disappointing. The Stegmaier equipment, which was also used by Bernhardt, is now so well known that it does not need any description. Gobeaux had modified American Orbit equipment, the modification being, so we understand, the substitution of larger relays in the receiver and the use of a power-pack instead of the standard



Eric Berglund of Sweden, 1st in the Single Channel.

small batteries for the transmitter. The actuators were home-made and based on Ever-Ready motors.

The contest arrangements were very well organised and the competitors undoubtedly found the event most enlightening and enjoyable.

### RESULTS

Multi-channel			Single-channel		
1. Stegmaier, K.	.. Germany	3,247 pts.	1. Berglund, E.	.. Sweden	712 pts.
2. Gobeaux, J.	.. Belgium	3,245 ..	2. Schoorel, C. W.	.. Holland	706 ..
3. Bernhardt, H.	.. Germany	1,854 ..	3. Vandermeulen, W.	.. Belgium	698 ..
4. Olsen, C. H.	.. England	1,401 ..	4. Huber, B.	.. Switzerland	617 ..
5. Bickel, A.	.. Switzerland	1,194 ..	5. Dilot, R.	.. Sweden	567 ..
6. Hetzel, M.	.. Switzerland	1,116 ..	6. Schumacher, H.	.. Germany	555 ..
7. Uwins, S.	.. England	880 ..	7. Louis, M.	.. Belgium	547 ..
8. Johnson, J. E.	.. England	587 ..	8. Strickland, O.	.. U.S.A.	539 ..
9. Higham, Richard	.. England	253 ..	9. Setz, Eugen	.. Switzerland	534 ..
10. Veenhoven, J.	.. Holland	235 ..	10. Louis, P.	.. Belgium	507 ..
11. Van der Hoek, W.	.. Holland	72 ..	11. Harf, F.	.. Germany	281 ..
			12. Rolle, R.	.. Belgium	265 ..
Gliders			13. Janse, L.	.. Holland	229 ..
1. Campolongo, R.	.. Switzerland	609 ..	14. Bossard, H.	.. France	196 ..
2. Lodiga, R.	.. Germany	600 ..	15. Boys, A. H.	.. England	130 ..
3. Nettingsmeyer, H.	.. Germany	399 ..	16. Kreulen, E.	.. Holland	—
4. Geraerts, J.	.. Belgium	146 ..	16. Christiaanse, C.	.. Holland	—

### CAPTIONS

1. Rolf Dilot of Sweden prepares his model in front of the large clock that ticked off the minutes for the pilots while their models were airborne.

2. Hetzel of Switzerland used two-channel equipment, operating rudder and elevators.

3. German Helmut Bernhardt flew his tricycle undercarriage cabin job into third place in the multi-section—and this from the points of practically one flight.

4. Top British flier was Chris Olsen, fourth in the multi event.

5. What's cooking? "Windy" Kreulen of Holland is obviously suspicious of something he's heard.

6. Gobeaux of Belgium walks out for his flight, with his brother—the radio technician half of the team—carrying the model.

7. Ed. Johnson starts the Ruppert-Twin on his "Smog Hog" type—here minus the lower wing he used at Cranfield.

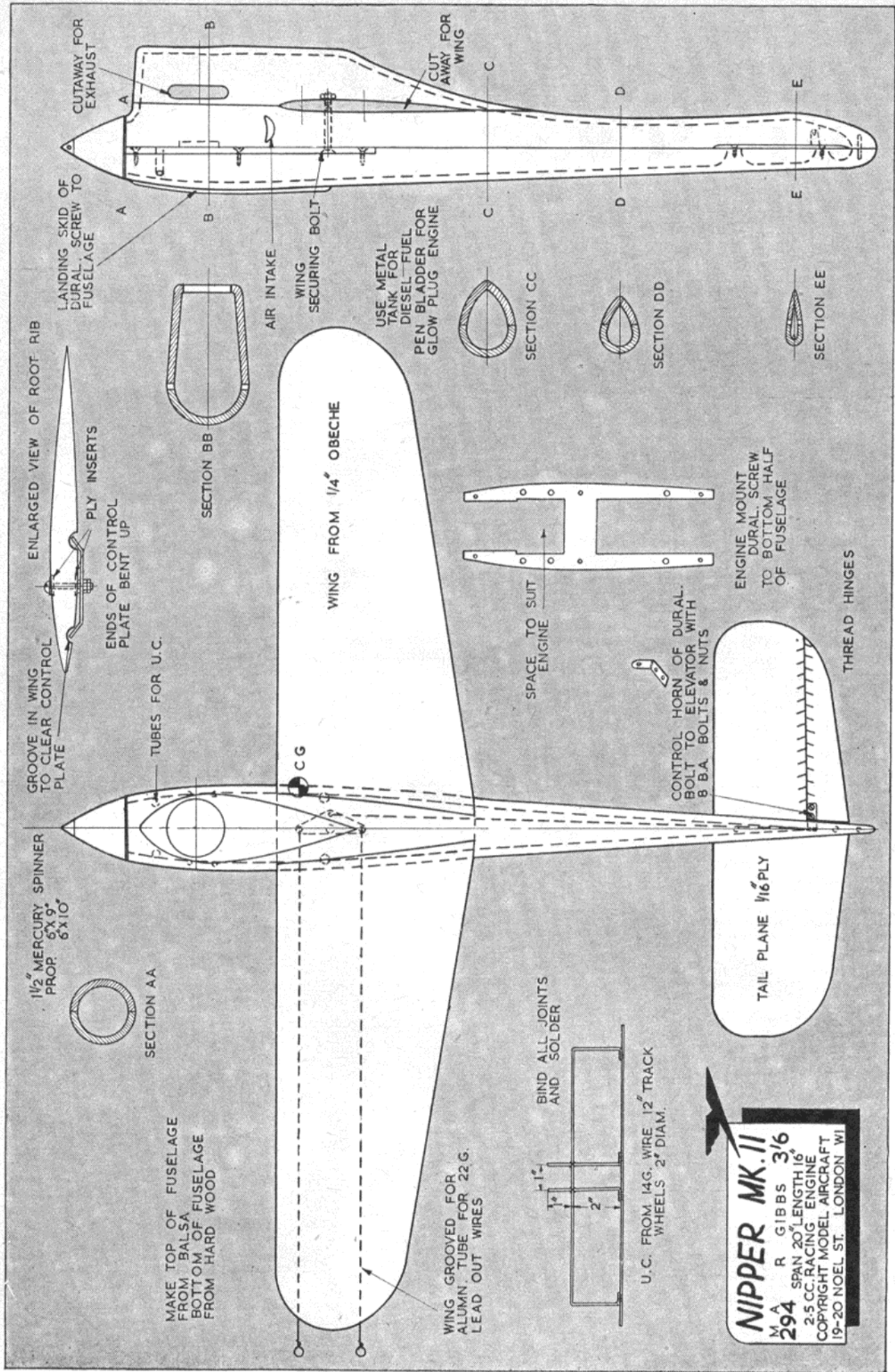
8. Winner of the Radio Glider event, Rolf Campolongo of Switzerland.

9. Winner Stegmaier's model just released.

10. Second place man in the Glider, Rudi Lodiga of Germany.

George Honnest-Redlich lends a hand to R. Higham in the multi-event—and in the r.in.





**NIPPER MK. II**

M A R GIBBS 3/16  
 294 SPAN 20" LENGTH 16"  
 2.5 CC. RACING ENGINE  
 COPYRIGHT MODEL AIRCRAFT  
 19-20 NOEL ST. LONDON W1

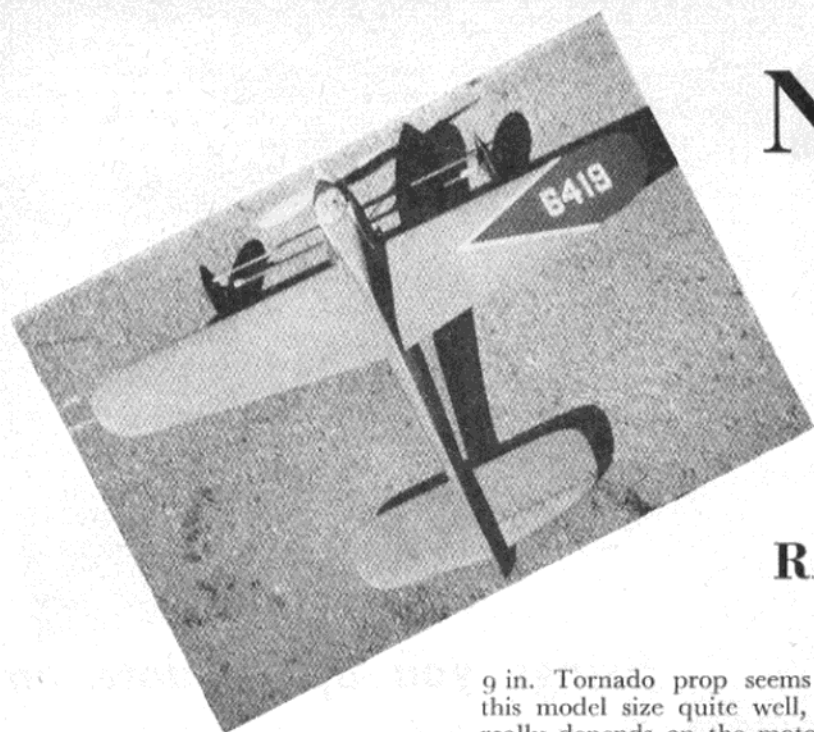
FULL SIZE WORKING DRAWINGS ARE OBTAINABLE FROM YOUR LOCAL DEALER, OR BY POST FROM THE "MODEL AIRCRAFT" PLANS DEPARTMENT  
 19-20, NOEL STREET, LONDON, W.1 3s. 6d., POST FREE



# NIPPER II

*An F.A.I.-rule speed  
model by control  
line expert*

**RAY "GADGET" GIBBS**



ON looking at the new F.A.I. rules for speed models it was thought that one could design a good speed trainer, to this specification, but that the days of the really fast 2.5 model were over—just how wrong this idea was is now known to everyone.

Flying a large model at low speed can be quite pleasant, but above 120 m.p.h. it becomes very hectic—the slightest movement of the handle and the model shoots over your head to become an o.o.s. control-liner. This tendency is not due to any fault in design, but is caused by just too much honest to goodness wing and tail area. Under the new rules there is definitely too much area for high speed flying—the least twitch from the pilot sends the model all over the sky.

I've had a few modellers fly my speed model and they think it handles O.K., but they were all stunt boys, and I can't quite get the hang of squares and triangles at 120 m.p.h. But joking aside, I am hoping to go faster than 123.8 m.p.h. as recorded at the Belgian eliminators.

The model is designed and built on normal lines, with a hard wood bottom and balsa top, obeche wings and ply tail. It is not doped with colour all over, but covered in coloured tissue to save weight; a two-wheel drop-out dolly is used and the take-off is very smooth. A 6 ×

9 in. Tornado prop seems to suit this model size quite well, but this really depends on the motor.

I used one of Fred Carter's motors at the eliminators and, after flying, Fred found a discrepancy in the model which was holding the motor back—the nose of the model was rubbing on the backplate of the spinner—normal speed flyers' troubles. Having taken a man-size rasp, and removed some of the model, Fred assured me that the motor would now be able to two-stroke!

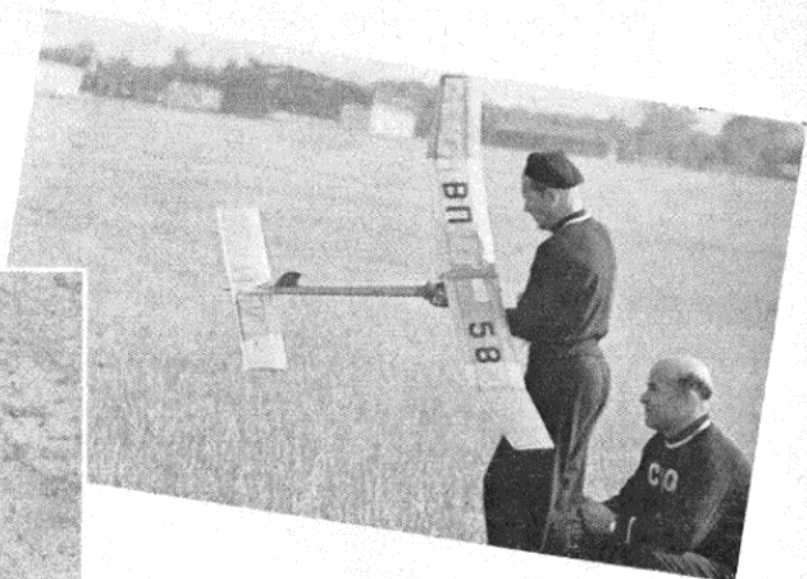
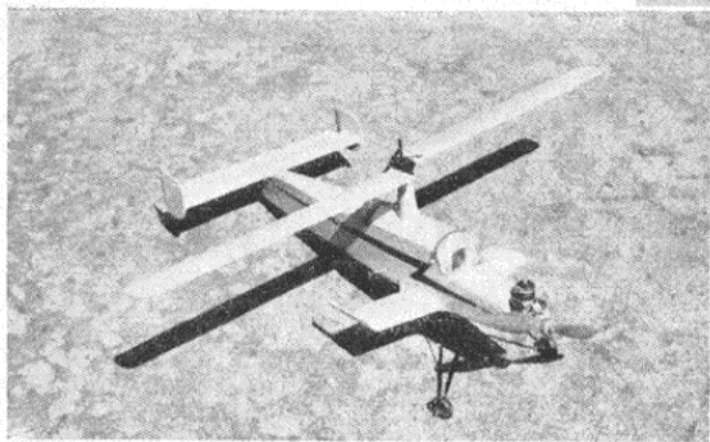
It is very difficult to know which of the commercial engines obtainable would be the best to use, but I think

that it must be a glo-motor—to use a diesel is wasting your time. The new Italian Super-Tigre 15, when it comes out, should be an interesting motor, as its predecessors have placed in many speed contests on the Continent. It features robust construction, and it also has such refinements as roller race big end, balanced crankshaft, with twin ball races, large hole for intake and specially designed head. Other motors which—although I have never used them—have proved to have good performances, are the K.B.15, Fox 15, Barbini 15, Webra 15, etc., and any of these should do quite well in this model.

This dramatic shot was taken at the recent Criterium of Europe, and shows Gadget, assisted by Bob Page, preparing for one of his flights. He was plagued with faulty pen bladders, and further handicapped by having to use a virtually untried motor—that which he used in the eliminators having been damaged when the lines bound solid during a test flight.



# ROVING REPORT



**Brings you up to date on  
the latest world model news**

Top right: At the 1958 M.M.S. International Championships at Budapest, Petukov, of Russia, flew this power model fitted with a 2.5 c.c. WIP-20 glow motor of his own design and reputed to deliver 0.32 b.h.p. at 14,500 r.p.m. Russian team manager on right. Above: Something out of the rut from Japan; a C/L autogiro by T. Iwabe. It is powered by an O.S. Max 15.

dale, who clocked 168.16 m.p.h. in class "C" speed using a McCoy 60 and went on to add 3 m.p.h. to this to set (subject to confirmation) a new F.A.I. world record for the 10 c.c. class.

Just for a change, the open stunt event was not won by George Aldrich or Bob Palmer—nor even by a Nobler or Thunderbird. Winner Bob Randall amassed 548½ points with a commendably out-of-the-rut design of military appearance featuring a nacelle type fuselage, and having the tailplane supported on twin tail booms with twin swept-back fins. It was powered by an inverted Fox 35 turning a 10 × 6 nylon prop.

R/C flying in the 27 Mc/s band in the U.S. is now permitted on six examination-free frequencies. Unlike our own regulations which allocate a "band" (26.96-27.28 Mc/s), the American Federal Communications Commission rules have hitherto allowed the use of a spot frequency only (27.255 Mc/s) and this has now been extended to include 26.955, 27.045, 27.095, 27.145 and 27.195 Mc/s.

Much interference on 27.255 Mc/s has been experienced by modellers in some parts of the United States, due to this frequency being used also for the operation of traffic lights and for vehicle communications. A 30 watts input on transmitters will now be allowed on this frequency. The new frequencies will, however, be limited to the usual 5 watts. Another change in the regulations lowers the age limit for licence holders from 18 to 12 years.

When you want to sell them, second-hand model engines are not usually worth much and in the United States they are generally worth next to nothing.

FOR the fourth time in five years (he lost the title last year to James Paysen), W. S. ("Woody") Blanchard became National Champion at the U.S. Nationals for 1958.

However, in the 36 events, sub-divided into over 90 classes for open, senior and junior categories, by far the larger proportion of the winners were lesser-knowns and no more than a dozen winners were modellers whose names are familiar.

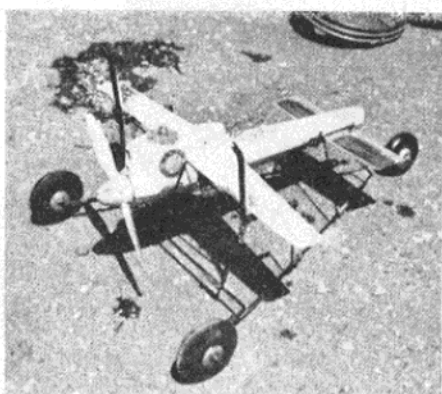
Bob Dunham, maker of Orbit R/C equipment, once again won the multi-channel R/C event. His model was the low-wing *Astro-Hog* design by Fred Dunn, powered by a K. & B. Torpedo with throttle control and, of course, with Orbit equipment. At the other end of

the size scale, Joe Foster won the indoor H.L. glider event with a time of 58 sec.

Ed Christenson, who was a member of the U.S. A/2 team at the Prague World Championships last year, won F/F power r.o.w. senior class and also the F/F scale senior class. James Patterson, won the F.A.I. power event with an Oliver Tiger powered model—the same design he used as a member of the U.S. team at the 1958 World Championships.

Other well-known names in the winners' list included Larry Conover, who took the open class Clipper Cargo event, Bob Hatschek, winner of the open rubber event, Joe Bilgri, top in the indoor microfilm fuselage class with a time of 17 min. 23 sec., and Bob Lãuder-

Typical Japanese speed models, powered (left) by O.S. Max-II 29 and (right) by Max-II 15, the latter by M. Takamatsu, current Japanese class champion.

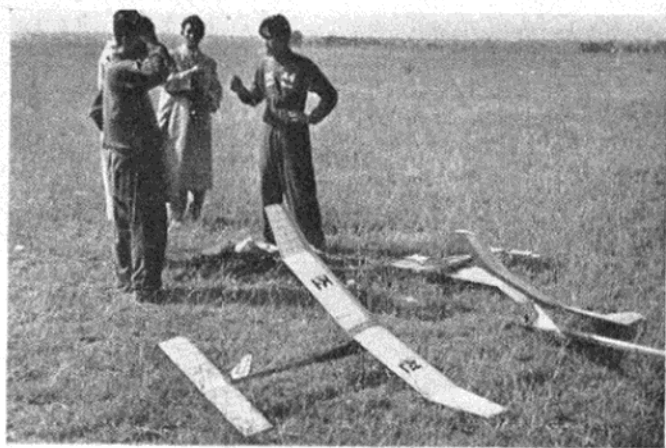


The exception to this rule is the Dooling 61—long out of production. Lucky people who own examples of this superb engine usually treasure them, especially the model power boat and car racing enthusiasts. For these latter activities, nothing has ever quite equalled the Dooling and a good 61 will often fetch well in excess of its original price.

Naturally, every kind of "souping up" operation imaginable has been tried and it is quite within the bounds of possibility to realise a peak output of 2 b.h.p. from a well prepared example. The reason for these efforts to improve an already outstanding engine becomes easily appreciated when it is understood that, with most of the top contestants using Doolings, much depends on extracting the utmost power from individual engines to produce the winning performance.

Often somewhat over-stressed in this way, parts occasionally give up the struggle. This is not too much of a

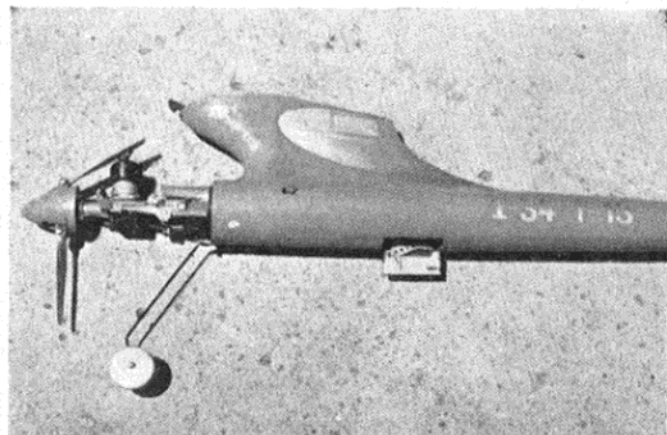
Competing this year for the first time in the M.M.S. Internationals was a team from North Korea.



61 in which extra strength has been built in where necessary. The new block is known as the Yellow-Jacket 61. It has a pair of strengthening webs above each mounting lug, all fillet radii have been made larger to provide extra strength and rigidity at the critical

less than one ounce over the weight of the original Dooling part.

Anyone who needs a replacement Dooling 61 block and has the necessary dollars can obtain a Yellow-Jacket block from the Model Power Company, 931, Minerva Avenue, Columbus-24, Ohio, U.S.A., price \$15.00.



Seen at the M.M.S. meeting, Hans Neelmeijer's Schlosser powered model (cowl removed) which has a mass of mechanical features including variable incidence wing, retractable undercarriage, folding prop and mechanical d/t.

problem if it concerns a component for which a replacement can be precision machined from suitable material, but in the case of a main casting breakage it is, of course, much more serious.

Happily, Bruce Underwood, noted American model engine collector and designer, has come up with a solution to this latter difficulty. He has designed and made available a new crankcase and cylinder block unit for the Dooling

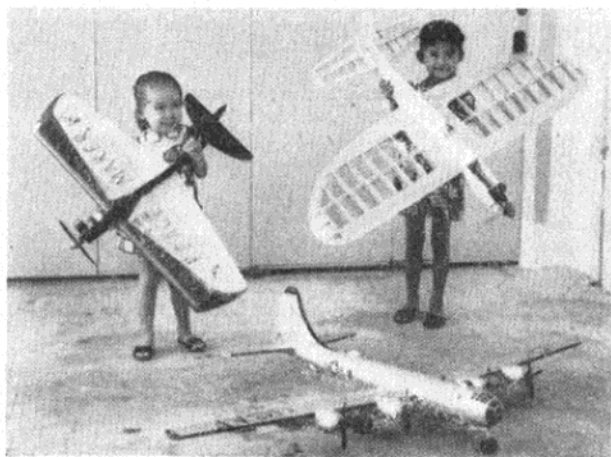
points, and there is extra clearance at the back of the machined exhaust duct to improve scavenging through the back exhaust ports. The block is made of a self-ageing, sand-cast aluminium alloy having a tensile strength of 45,000 p.s.i. as cast and 63,000 p.s.i. when fully aged—which is about twice that of diecast aluminium. It has seven cooling fins (one less than the standard component) and has an anodised finish. It weighs

Despite great strides made in the German model industry recently—in particular by the Johannes Graupner organisation—Germany has thus far lacked a really good model magazine. There have been several different model journals published during the past 10 years but none seems to have managed to survive for very long.

Recently, however, there have been two separate attempts to put this right. The first of these is a publication called *Modell*, which has as its technical contributors such notable authorities as Karl-Heinz Denzin and Rudolf Lindner. The second is a revival under new ownership, of *Thermik*, the gliding and model magazine. This has been con-

Continued on page 380

"Roving Report's Rollei Cops Cranfield Confab!" V.I. Press Persons Performing are, of course, M.A. Editor Roy Wesson and Frank (Yearbook) Zaic of New York.



Charlie Choong, in far off Penang, enlisted the help of his two daughters to pose this shot of his C/L models. They are holding his E.D. powered Peacemaker and a Max 35 powered stunter based on Bob Palmer's Smoothie, while in the foreground is a 55 in. span B.29 built from an Ogawa kit—power supplied by three Elfin 2.49's and an A.M. 10.





No prizes are offered for identifying this radiator mascot on John S. Oliver's M.G.TD.

**E**ARLY this year we published a photo of an experimental 3½ c.c. diesel constructed by Frog designer George Fletcher. Prior to this, the engine had been sent to us for testing, although it was by no means certain that it would be put into production. I.M.A. have now decided, however, to market the engine in the near future, and we are therefore giving a few more details of this interesting motor.

The Frog 349, as it will be known, is aimed primarily at the C/L (combat and stunt) and R/C fields. The production version will be identical with the prototype, except, of course, for external cleaning up.

Recent Frog engines have not been entirely devoid of new innovations (for example: "Vibramatic" induction on the 149, the bearing-seal on the 249, O-ring compression seal and nylon thread lock on the 80) but the 349 really gets out of the rut, and is in many respects, quite unlike any other motor in current production.

The main points of interest are centred around the engine's breathing system: namely, the induction valve and transfer and exhaust porting. The 349 is of the rear induction type and uses a form of drum valve. Drum valves, or rear shaft valves, are still quite uncommon, but in most of them, mixture from the carburettor is drawn downwards through a suitable port in the wall of the drum and then enters the crankcase horizontally through the open front end of the drum.

In the 349, this arrangement is, in effect, reversed. The mixture, from a downdraught carburettor, enters the rear, open end of the drum valve horizontally. The front end of the valve is sealed and to enter the actual crankcase compression chamber, this gas passes upwards through valve ports in the drum and projecting boss of the backplate casting. A glance at the photos (page 380) will clarify this. The only engine we can recall which had a

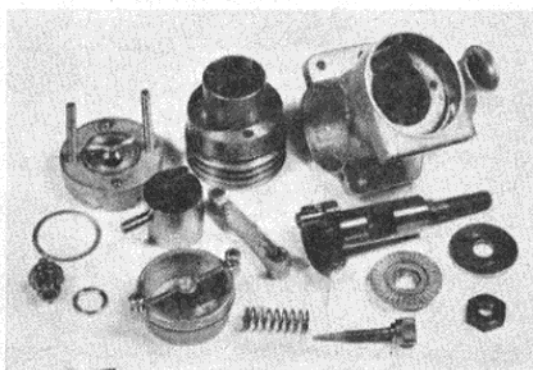
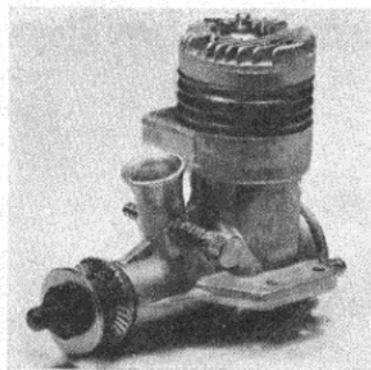
basically similar system was the American 7.4 c.c. May petrol motor of 1940 —later known as the Rocket-45 and last made more than 10 years ago. Intake timing on the Frog 349 is approximately 45 deg. after BDC to 20 deg. after TDC. The drum valve itself is ⅜ in. dia. with a ⅜ in. passage and 7/32 in. dia. port.

Getting away from the usual reverse-flow scavenged diesel layout, the cylinder employs loop scavenging. From the crankcase gas passes through five ⅜ in. dia. circular ports drilled at 45 deg. to the cylinder axis through both cylinder wall and flange and giving a very smooth transfer from crankcase to combustion chamber. The exhaust port is ⅜ in. deep, divided in the centre and occupies approximately 170 deg. of the cylinder circumference —or very slightly less than the transfer.

The cylinder liner has a wall thickness of 0.055 in. and a very heavy flange at exhaust port level. It is clamped to the crankcase by four long screws passing through from the cylinder head and separate alloy-cooling barrel (as on the Frog 249). The piston has a conical top (contra piston matching) and has a solid ⅜ in. dia. fully-floating gudgeon-pin.

The main casting comprises crankcase, with beam mounting lugs and exhaust stack and main bearing housing. The bearings consist of one ⅜ × ⅞ ball journal inner bearing and a bronze outer bush. The crankshaft has two ⅜ in. dia. journals, being relieved in the centre for ⅜ in. of its length. It is of the full disc (non-counterbalanced) type and has a 13/64 in. dia. crankpin. The

The first new American 2.5 c.c. engine for five years; the Fox 15, a low priced engine which retains the traditional Fox Desaxe cylinder.



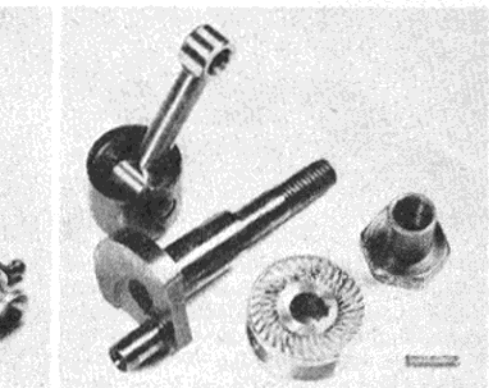
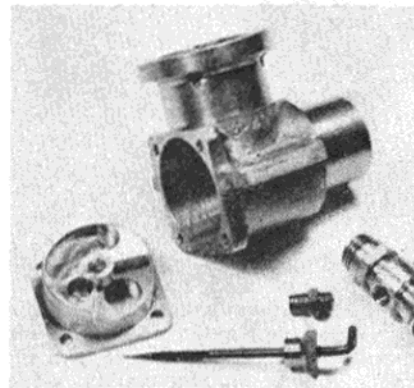
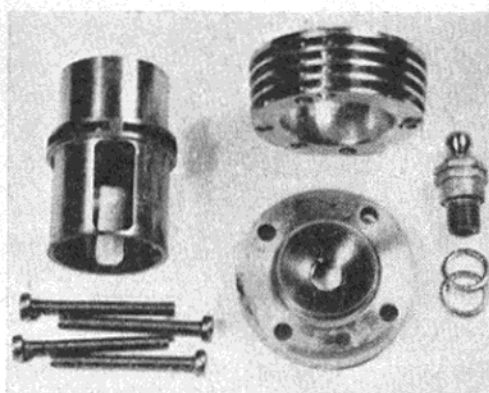
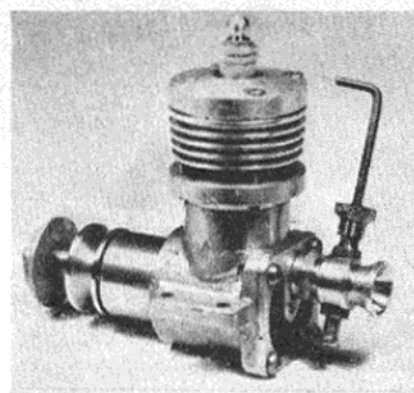
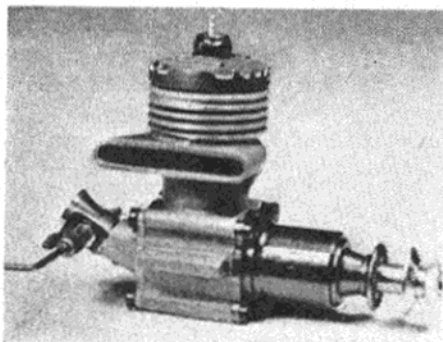
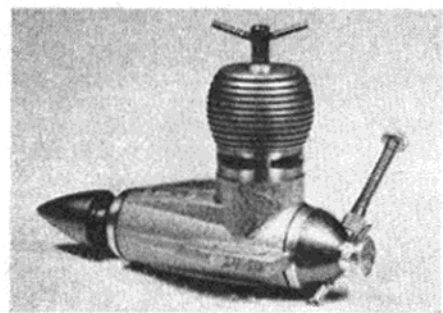
Unlike the typical American glowplug 19, the Miles 3.49-Glo features disc induction and a twin ball-bearing shaft. Note the unusual transfer slots.

front of the shaft is internally threaded for the prop retaining stud. This latter will probably be of high-tensile light alloy on production engines in order to reduce the risks of crash damage to the shaft and would be regarded as expendable. The front of the crankcase casting is heavily webbed also to reduce risk of crash damage.

On test, we found the prototype Frog 349 started very easily from cold and hot re-starts were also rapid. It showed a marked improvement on some earlier 3.5 diesels in that it would re-start on running settings. There was that slight harshness that characterises all diesels of largish capacity, but, of all 3.5 diesels tested, we would rate the 349 as one of the least offending in this respect. As regards power, the advantages of the 349 over a good 2.5 c.c. motor are most apparent at speeds up to 12,000 r.p.m., where better than 0.30 b.h.p. was delivered on test, with 0.28 b.h.p. available at 10,000 r.p.m.

The Frog 349 has a bore and stroke of  $0.672 \times 0.574$  in. and weighs 6.6 oz.

In the same capacity class, Basil Miles has recently produced a disc-induction, twin ball-bearing, reverse-flow scavenged, short-stroke diesel, somewhat similar in general appearance to his well-known Miles-Special 5 c.c. motor and a modified, glowplug version has now been built, to be known as the 3.49 Glo. We have this engine at present for testing. All Miles engines are, of course, handmade in small quantities (sometimes to special order only) for a specialised section of the market, and the 3.49 Glo will be added to this range in due course.



Basil Miles tells us that this engine has been in a speed model "test-bed" and, using a 6/10 Stant prop and 20 per cent. nitro, has clocked 120 m.p.h.

In due course we shall be reporting our test findings on the Miles 3.49 Glo.

The construction of the engine follows the general pattern of other Miles Specials. Similarities will be noted in the main casting, with its parallel machined front end, housing two ball-bearings, the square flanged backplate with screw-in carburettor, alloy disc-valve, flanged radially-ported cylinder-liner with separate finned alloy cooling barrel and head secured with four long screws to the casting, counter-balanced shaft, and, of course, in its all-round excellence of construction.

Obvious only after dismantling the engine, however, is the new type of transfer porting that has been adopted. In this, the skirt of the cylinder, which is a close fit in the casting, extends below the skirt of the piston at BDC and the transfer is arranged via large vertical slots, cut almost full length through the skirt section. When the liner is inserted in the casting, these form large capacity internal flutes,  $\frac{1}{4}$  in. wide and  $\frac{5}{64}$  in. deep.

Top left—Graupner's Taifun Blizzard 2.5, the latest international class engine from this German manufacturer. It features reed-valve induction from a multi-jet carburettor. The shaft is supported in two ball bearings.

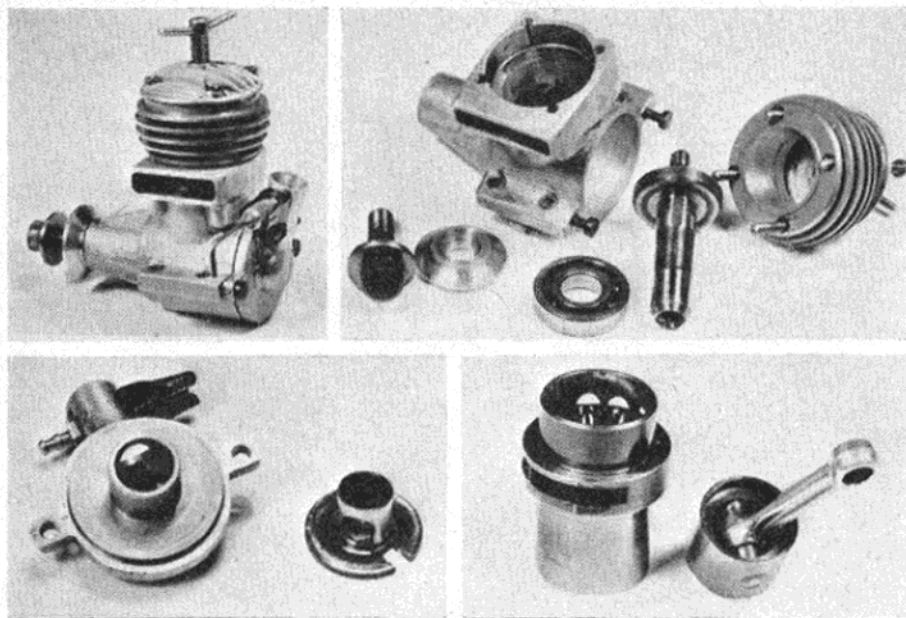
Left—Based on the highly successful MVVS racing engine is the Vltavan 2.5 from Czechoslovakia. It will be fully described in next month's "Engine News."

A short-skirted piston is used, of typical Miles design, having a bevelled crown and thin walls, but with generous gudgeon-pin bosses. The gudgeon-pin itself is  $\frac{3}{16}$  in. dia. and the machined dural conrod is the same as that used in the 5 and 6 c.c. Miles engines, resulting in a really stiff assembly and, incidentally, giving a between-centres conrod length of exactly twice the stroke. The shaft, machined from tough nickel-molybdenum steel, is counterbalanced and runs in  $\frac{3}{8}$  in. inner and  $\frac{1}{4}$  in. outer ball journal bearings. The prop driver is keyed to the shaft and a sleeve-nut is used.

Metal-to-metal joints are used throughout and a long-reach KLG Miniglow plug is fitted as standard. The needle-valve is the usual Miles refinement, consisting of a separate jet and needle block with a gland for correcting the stiffness of the needle adjustment.

The Miles 3.49 Glo has a bore and stroke of  $\frac{11}{16} \times \frac{9}{16}$  giving a stroke/bore ratio of 0.818 and a capacity of 3.42 c.c. It has a compression ratio of 8.5 and weighs just 6 oz.

Hitherto, the American Fox engines have all been of medium to large capacity and the recent introduction of the Fox 15 also marks the entry of this company into the low-priced field. The  $2\frac{1}{2}$  c.c. Fox 15 sells at a mere \$6.95 in the U.S.—less than half the price of the next cheapest Fox engines, the 19 and 25. Obviously, at this figure, manufacturing economies have had to be made, but it is probable that large volume sales are expected with this new



These photos of the Frog 349 prototype show the many distinctive features of the design. Especially noteworthy are the unique loop-scavenged cylinder and rear rotary admission valve.

down with two long screws, fore and aft. Two extra screws secure the head to the cylinder each side.

In common with current Fox practice, a very large crankshaft journal ( $\frac{3}{8}$  in. dia.), running in a bronze bearing, is used in conjunction with fairly modest crankpin and gudgeon-pin diameters ( $\frac{5}{32}$  and  $\frac{1}{8}$  in. respectively). The piston has a high gudgeon pin position and is not relieved on the skirt diameter. A diecast con-rod with plain eyes is employed.

Despite its low price the Fox 15 is expected to be comparable in performance with other glowplug engines in the 2.5 c.c. class. We shall be reporting further on this at a future date. The engine has a bore and stroke of  $0.590 \times 0.530$ , giving an actual swept volume of just under 0.145 cu. in. or 2.37 c.c.

#### IN BRIEF . . .

New engines received from the Continent, recently, include the Taifun Blizzard, latest German contender in the International class diesel group, and a pre-production example of a new Swiss-made 2.5 c.c. engine. These, together with a new Japanese-built small pulse-jet and other interesting new products, will be featured in our next issue.

"popular" model which would automatically permit unit costs to be reduced.

The basic design of the engine is traditionally Fox with one or two new ideas thrown in. Like other Foxes, dating back to the original 59 of 1947, it has a Desaxé (offset) cylinder layout and, in common with all other models in the present range is of the shaft valve type with a plain (bushed) main bearing and, of course, loop scavenging.

The main difference is to be found in the cylinder design, which instead of

the usual drop-in plain liner, has integral fins and a  $\frac{1}{4}$  in. thick flange. A  $\frac{1}{8}$  in. deep exhaust port is cut through this flange while the transfer port is cut into the base of the flange to mate with the transfer passage in the casting. The cylinder head is diecast, but machined on the inner face which is flat with a recess for the piston baffle. A short-reach glowplug, offset to the exhaust side, is used, and an aluminium gasket is employed to make the head joint. The complete cylinder assembly is tied

## ROVING REPORT

Continued from page 377

siderably brightened up, with quite a good modelling content and Hans Pfeil, whose writings in British model magazines several years ago will be remembered, is acting in an advisory capacity on the editorial side.

On the subject of publications, we have received from Poland a copy of a new book by M.A.'s Polish correspondent, Wieslaw Schier, who, it may be recalled, was a member of the Polish

power team at Cranfield this year.

The book, which runs to over 300 pages, deals with C/L flying, with the main emphasis on aerobatic models. Included is a good deal of theory, supported by much mathematical formulae, an approach which seems to have long-since been abandoned by British and American publishers in favour of a more widely understood treatment.

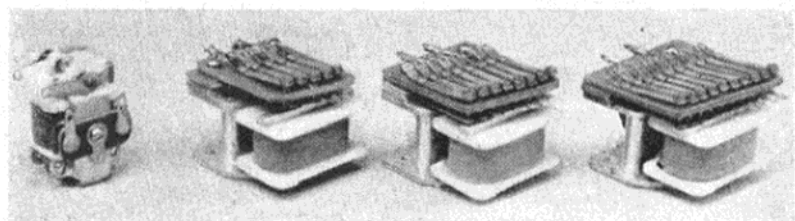
Left—Finnish F/J Power Champion for 1958 is M. Hoglund, seen here with his Webra Mach-1 powered international class model.

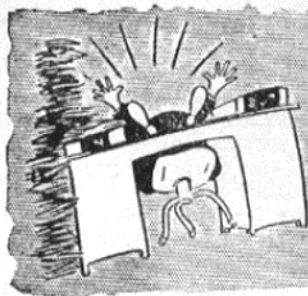
Below—New R/C products of the O.S. Manufacturing Company of Japan. New type polarised relay and 5, 8 and 10 channel reed units.



There is, nevertheless, some more general data, including 3-view drawings, descriptions and specifications of stunt model designs from Belgium, Hungary, Russia, Yugoslavia, Italy and Great Britain (Bill Morley's *Thunderbolt*).

Some recent team racing trials to the new rules in Czechoslovakia provided quite interesting results as, among seven models, one Oliver Tiger and one Super-Tigre G.30 battled it out with five MVVS Diesels. Aggregate figures for three 10-kilometre runs gave first place to an MVVS with a total time of 19 min. 55 sec. The Oliver was second in a time of 21 : 04. Third place went to another MVVS, 1 min. 23 sec. behind the Oliver, followed by the other three MVVS and the G.30. Winning model was piloted by K. Gotz and "mechanised" by speed expert B. Studeny. The Oliver model was operated by K. & E. Brauner and was, in fact, the model illustrated in our September column.





# LETTERS

## A/2 Glider comments

DEAR SIR,—I read Karl Webster's article "Evolution of an A/2" (M.A. August) with interest and hope that it will lead to a renewal of interest in the design and development of A/2s which have certainly stagnated, in this country at least, over the past two years.

The trouble seems to be that the A/2 can be such an easy and inexpensive model to build that the majority are slapped together to be flown as a sideline to some other branch of F/F. However, because of the frequent recurrence of certain names at the top of glider result lists, it is obvious that this type of model can be developed to a really high degree if given the benefit of considerable thought and experiment.

It should be stated firstly that it is not fair to compare the British A/2 with the Continental variety. The latter type has been developed to a high degree by such people as Hacklinger and Lindner, and some models are certainly capable of a sinking speed of less than 1 ft. per sec. However, weather conditions in Europe can be so different to those which exist for most of the year in this country. In the countries where long periods of calm air are common, it is possible to design an A/2 with very fine degrees of trim and stability giving a model capable of still air times around the 3 min. mark.

Such a model would not last long over here, and as a result the British A/2 has to contain features giving consistency rather than sheer performance. Ruggedness is unfortunately generally combined with an increase in weight and it is this increase of weight on outboard wing panels and tailplane which leads to greater rolling and pitching moments about the c.g. We are also not given the benefit of exhaustive wind tunnel and theoretical tests available in certain European countries. It is not until someone in this country does test extensively various modern wing sections, layouts, etc., and most important of all, publish the results, that we are likely to make any great strides in design improvement.

There is, in this country, no A/2 capable of more than 2 min. 30 sec. in genuine still air. It must be remembered that we very rarely, if ever, meet with still air conditions over here. Evening trimming is especially misleading. Air

in contact with varying surfaces cools at different rates thus forming convection currents. The upward section of such an air current may be sufficient to delay the descent of an A/2, thus turning an average 2 min. model into a top-line 2 min. 30 sec. plus model and giving rise to the fantastic "still air" performances of which we hear.

It is obvious that to win an A/2 contest in this country when there is a 3 min. maximum you must have all thermal assisted flights. Therefore, the secret of continual success lies as much with the flier as with the model—it is mainly a question of good towing. The model must be capable of being towed in all conditions and the modeller capable of placing it in lift before releasing.

The average British glider flier is not good at towing and until he improves his technique he is unlikely to make the grade.

Having seen some of the Continental experts towing at the World Championships at Florence, I can honestly say that we are still years behind them in this art. Practice, and still more practice, is the only answer.

To sum up, the British A/2 must always be a more rugged breed than the Continental variety, but there is room for vast improvement on the following lines: (a) development of theoretical design and application; (b) complete re-appraisal of our ideas over towing techniques.

Yours faithfully,  
NEVILLE WILLIS.

Chelmsford, Essex.

## 'Professional' viewpoint

DEAR SIR,—As one of the circus of so-called professional aeromodellers who do the rounds of the galas and rallies in this country, I feel that some reply to Mr. Wilson's letter in the September issue is called for.

Firstly, by no stretch of imagination can any contest flyer in this country be termed a professional, for even if he were to win every contest he entered, he still could not make a profit.

Mr. Wilson appears to have overlooked the fact that there are still modellers in this country keen enough to want to fly in all contests, even if most of them offer no more than perhaps a 10s. first prize after having driven 200 miles and stayed the night at an hotel which doesn't give much change out of 30s. If one of the four in the car, therefore, wins the 10s., thus reducing his loss by that amount, is he a professional? Mr.

Wilson seems to think that he is.

Secondly, I would draw Mr. Wilson's attention to the fact that model aircraft contests are, in effect, contests of model aircraft against the watch and if, therefore, you remove the top level, the lower level is bound to win—but, of course, with a lower time—and this neither proves anything nor improves the novice. In fact the effect is the contrary, as the poor novice goes away thinking he is good enough to win because the standard necessary to win is lowered, rather than the standard of the novice raised to the necessary level for him to beat the best in the country.

If Mr. Wilson will refer to his daily newspapers of not so long ago, he will see that the sports writers were of the opinion that the only way to raise the lowering standard of lawn tennis was to allow the amateurs to play against the professionals, whose standard of play was higher. If the novice is not to remain in ignorance of what can be done with a model aeroplane then the tinpot galas and rallies should start to think of how they can attract the best flyers in the country, as in my opinion this is the only way that the standard can be raised and some dark horse be found to show the experts that they cannot win all the time. Let's face it though, the experts don't win all the time so who is afraid when they turn up on the flying field?—Mr. Wilson!

I would point out, of course, that none of the members of the circus with which I travel are connected with either the trade or aeronautics, and on a strict legal definition must be termed amateurs, but if you desire to indicate our keenness and love of the hobby then perhaps we are professional, but not for gain.

As regards the small point on time-keeping, I would say that if you are running a rally then you either run it or you do not. If you do then you provide timekeepers and if you cannot do so you should not run the event. If Mr. Wilson keeps his eyes open he might observe that the so-called experts are the people who run his National contests for him, so he shouldn't expect them to run his club's gala as well—or does he feel that it might be run better?

Let's please keep aeromodelling a hobby and stand together to fight off all the outsiders who try to see that it doesn't exist, rather than fight each other.

Yours faithfully,  
London, N.W.6. D. S. POSNER.

## Snuff it!

DEAR SIR,—I was rather indignant at the views expressed in R. Wilson's letter that was published in the September M.A.

He condemns the "resident associates" of the magazine and suggests that articles from experienced modellers should be invited.

Mr. Wilson should read the magazine

more carefully before he reaches for pen and paper, for in the last few months articles on tail-less, lightweight rubber, and A/2 gliders, have been featured, all written by practising modellers, none of them regular contributors.

What, then, is reader (?) Wilson beefing about?

He also says that top contest fliers should be banned from local rallies. Rubbish! The solution is to beat them by determined and systematic trimming and flying.

However, I do agree with his views on M.A.'s tendency towards scale articles.

I have nothing against this type of modelling but I do think that it receives more than its fair share of space. He is also right about the timekeeping situation, although several of the "mercenary contest types" that he condemns have put on excellent galas largely through hard work. (Here the Surbiton and Croydon clubs can blush modestly.)

Finally, a private "beef." Aero-modellers as a whole seem to resent rules and regulations on their flying.

Quite right, EXCEPT for one thing. D/t snuffers should be COMPULSORY on all contest models. Timekeepers should refuse to time any model not fitted with one, after all it is only common sense—particularly if you fly on places like Chobham Common!

Yours faithfully,

Camberley, Surrey. J. HARRIS.

Now forward the scale modellers!

## Bar the experts?—No!

DEAR SIR,—Again the old cry arises "bar the expert—let the novice have a go." How does R. Wilson (Letters, September M.A.) think a flyer gets into the top class? By a bit of luck or by a lot of flying and experimentation? Let him ask himself does he enter comps and does he specialise. I have been an aeromodeller since 1937 and have yet to enter a comp, but good luck to those who do. I still get my enjoyment pottering on Sundays.

Mr. Wilson also says that he knows many modellers who have forgotten more than the present experts; obviously



Which button will make it recover from this manoeuvre?

The Editor does not hold himself responsible for the views expressed by correspondents. The names and addresses of the writers, not necessarily for publication, must in all cases accompany letters.

they have forgotten or they would be representing England in comps. Encourage the up and coming modeller by all means, let him attend the local and national contests, enter, fly, and profit from his mistakes and then he can compete on equal terms with the expert.

Yours faithfully,

DIXON ASHMAN.

Middlesbrough, Yorks.

This correspondence is now closed—Editor.

## Model Aircraft are toys—official

DEAR SIR,—Regular readers of M.A. may recall that a heated row was started some time ago because I was honest enough to state that model aircraft were pure toys, however much we kidded ourselves.

I have recently obtained from the States some Bonner radio gear, and without going into the details I will say that it was necessary to obtain an import licence from the Board of Trade. From this august body I have received a communication headed "Radio Controlled Toys" (Exhibit A—Ed.). The last paragraph of the covering letter reads: "Model aircraft equipment is classified as toys..." (Exhibit B).

Joking apart for a moment, is it not time that the S.M.A.E. stopped the endless pastime of rule changing and concentrated on the real job of selling modelling both to the Government and to the general public?

The model shop of which I am a director carries some hundreds of pounds worth of plastic kits, many of them coming to us directly from Liverpool docks, and paid for in dollars. Surely these dollars would be better spent in buying equipment such as the Bonner radio gear, and things for the real modeller which cannot be obtained in this country.

I have used a Bonner Vari-Comp long enough to know that this one piece of equipment is the direct link between the pure single channel "click-clack" rudder-only flight, and the much-too-expensive multi-reed job. For a modest £4 this actuator will give selective rudder, elevator, and blip engine control. Put two together in cascade system, and there is very little indeed that you cannot do as well, and much cheaper than the reed gear. I know very well that Bonners can be copied by the clever people, but what about the average chap who hasn't the know-how, or the tools. Then again, perhaps some reader can tell me of a British actuator that can pull in on three volts (two pen

cells) with a loop of quarter-inch elastic on double knots without skipping with the engine running, at a consumption of less than a third of an amp.

Before the British manufacturers blow their tops, I will hasten to add that I have matched the world's best actuator with the world's best set—the new Airtrol receiver (see test report on page 364—Ed.). With a little more information in the instructions about what to avoid in installing and tuning, I am sure this is the finest lightweight receiver on the market. For those who want the very greatest reliability at the cost of more batteries, then the Rip Max set has proved itself in our club. But the fact remains, we have not got one commercial actuator of the compound type available in this country.

Will the S.M.A.E. please try to convince the powers that be that the Battle of Britain was won with ex-aeromodellers, and the next may well be operated by experienced R/C modellers! What the Government can do to assist us is: (1) to do their utmost to provide flying ground facilities where possible, not for the odd rally, but for weekly flying and; (2) to make available to us unobtainable equipment to enable us to make the most of our abilities.

Are the lessons of Germany and Russia never to be learned—that progress must start with the rising generation and the sooner the young people are helped to become clever, the better.

Yours faithfully,

Grimbsby. E. FEARNLEY.

## HANDY HINTS

**Pliers** are easily overloaded, strained and ruined. Respect their limitations and use them only for the jobs for which they were designed. For cutting steel wire, use proper cutting pliers and cut as closely as possible to the jaw pivot. Do not try to rock or twist the pliers when cutting heavy wire.

An "Abrafile" with one end broken off is a perfect "running fit" reamer size for 16 S.W.G. steel wire. Use to finish slightly tight bushes, etc., which carry 16 S.W.G. shafts. The "Abrafile" is first screwed right through the bush and then pulled out straight. Continue to ream until the "Abrafile" will pass quite readily when the shaft fit will be just right.

**Screwdrivers** are the most misused of all tools. They are designed and made only for tightening and loosening screws. The correct size of screwdriver blade for any screw is one of a tip width equal to the length of the screw slot, and with a taper such that when the tip is inserted in the screw head slot it will carry the screw in a horizontal position without falling.

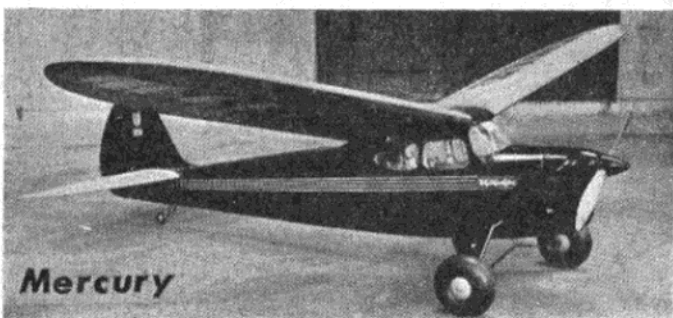


At the  
**MODEL  
AIRCRAFT**  
Exhibition

# PHOTONEWS presents

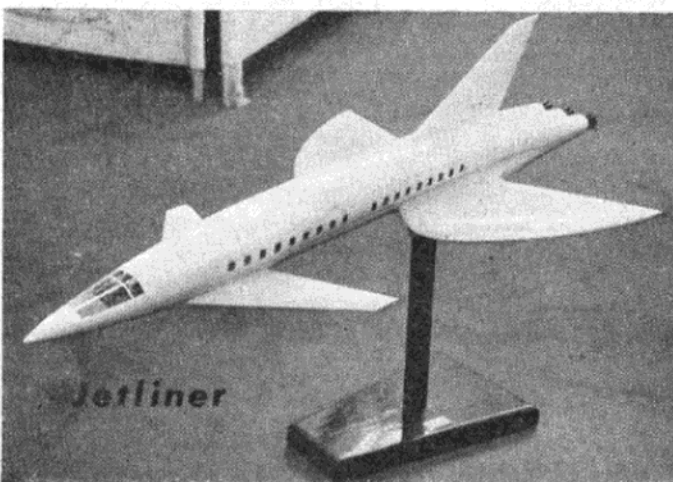
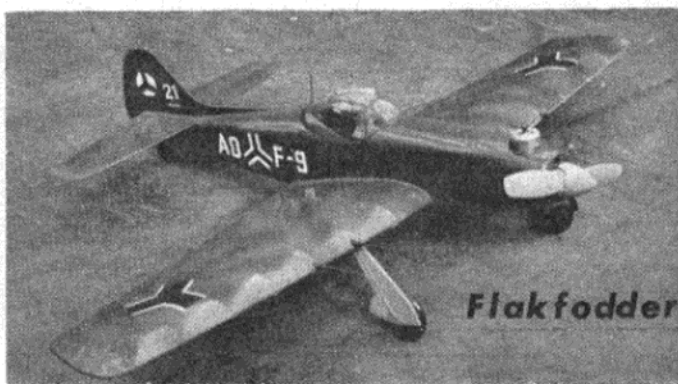
## some of the outstanding models

**Aeronca Sedan** by Noel Barker of Surbiton was entered in the R/C section and won the Championship Cup for the best model in the entire exhibition. Needless to say the construction was impeccable and featured a detailed interior layout. The model was also impressive for its size—span 10 ft., weight 11 lb., power by 20 c.c. O.K. Twin—and has over an hour's flying to its credit.



**Mercury**, also by Noel Baker, was another impressive R/C model. Slightly smaller than his *Aeronca*, its span is a mere 8 ft., and it weighs only 9½ lb., the power in this case being supplied by the popular pre-war Forster 99. The model has amassed over four hours' flying time, and is still in immaculate condition as is witnessed by the award of a Bronze Medal.

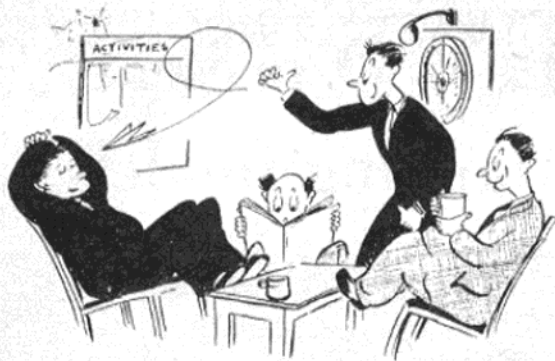
**Flakfodder** by M. Saunders, was a most interesting own-design entry in the C/L section. Inspired by the FW 190 and N.A. *Mustang*, the result was a fascinating hybrid fighter, finished in the colour scheme of an imaginary nation and piloted by the celebrated Ecuadorian aviator Senor Solarbo. The model received a Highly Commended award.



**Supersonic Jetliner** for Mach 2 speeds as visualised by Michael Shepherd has a canard layout with three silenced engines in the rear of the fuselage with underwing intakes. The model, which was Very Highly Commended, is made from laminated mahogany, and features fully furnished 1st and tourist class cabins, containing 95 seats, and a fully detailed cockpit with crew. In keeping with the futuristic design, the finish was in pink and white!

The Westland **Widgeon** is a popular original for F/F scale enthusiasts, but this example by V. Spence of Enfield, was one of the finest we have seen, and well deserved its Silver Medal award. Built to a scale of 1/10.4 in. = 1 ft., it has a span of 42 in. and weighs 13 oz., so the Mills 0.75 "up front" should provide ample power. The construction, with the exception of the fibre glass cowl, is entirely orthodox and the finish must be seen to be believed.





# Club News

## HAYES M.A.C.

Two of our members made the long trek to the Devon Rally, and found it a rewarding trip. In his first ever rubber contest Jim Baguley took fourth place, and not content with this, managed third in power. Not to be outdone, Brian Chapman came second in the glider event. Congratulations to both and also to the organisers for an extremely well run affair.

With three contests in as many weeks, the C/L boys are almost flat on their backs. But they still have the strength to tell how certain victory was snatched from our grasp at Wanstead. Picture a tense "A" final with Dave Balch's little Elf 1.49 screaming round, showing even an Oliver a clean pair of heels. Then disaster strikes, a line breaks and the model in its last despairing plummet earthwards, takes with it Graham White's Frog 150 model, also well placed at the time.

At Dagenham the following week, a similar situation occurred in the class "A" final. This time, however, fate delayed the line break until two laps after the chequered flag, and Dave collected second place as a consolation for another wrecked model.

## BRIXTON & D.M.A.C.

Recently we have undergone a complete reorganisation, the clubroom now being at Rosendale Road School, Turney Road, Herne Hill, S.E.24. Meetings take place on Tuesdays and Thursdays from 7.30 to 9.30 p.m., while a C/L flying ground is available on Saturday afternoons.

Indoor flying is proving itself very popular now that the evenings are becoming cold and dark. Dick Taylor achieved over 50 m.p.h. with his latest R.T.P. speed model, *K.O.T.G.* (keep off the grass). C/L speed is popular, some members taking it very seriously and Fox 29R's are appearing.

There have been a few outings to the various rallies, but no success has come our way yet. However, junior E. Martinez was awarded a highly commended diploma at the recent MODEL AIRCRAFT Exhibition for his MODEL AIRCRAFT plan design *Nordwing*.

Modellers looking for a club in our area are welcomed. For further details write to E. H. Wigley, 12, Milton Road, Herne Hill, S.E.24.

## WIGAN M.A.C.

Once again our keen contingent went up for the Scottish Gala, where five of our travel-stained competitors won no less than four places in the top prizes. B. Talbot was in the double fly-off in power with J.O'D. and was beaten by the narrowest margin of one second. He had the consolation, however, of being told by our down wind recovery team that even though both models were o.o.s. from the time keepers, J.O'D.'s was still well up and half as far again away. T. Rhead was third in rubber and third in glider, and B. Picken fourth in rubber. Our other two competitors just got sunburnt.

A full coach and numerous transports wended their way to Lynton on Ouse for the Northern Gala, only E. Ashcroft Junior getting anywhere near the prizes with a second place in junior power.

The club has now reached the semi-final of the local English Electric knock-out competition, beating Accrington by a narrow margin.

## N.E. AREA

As the majority of clubs in Northumberland and Durham will, no doubt, be aware, the North East Area Committee of the S.M.A.E. has not functioned for some considerable time.

This is, of course, an intolerable situation, particularly in view of the great increase of aeromodelling in the area. Many new clubs have arisen with new and progressive ideas and these clubs are now demanding the services which only an association between them can give.

To this end, representatives of five Tyneside clubs met recently to discuss the question and it was decided to make arrangements for a full meeting of all interested clubs. Our problem at the moment is to make contact with all other clubs in the area (whether affiliated to the S.M.A.E. or not) so that an invitation to the meeting and information about the new area organisation can be sent them.

We hope that the secretaries of all clubs situated in Northumberland and Durham will drop a line to R. D. Anderson, 62, Lindfield Avenue, Newcastle upon Tyne, 5, and let us know of their existence. They will, of course, be under no obligation to join with us in this project but we should like to tell them about it. A postcard giving the name of the club and the name and address of the secretary is all that is necessary.

## ST. ALBANS M.A.C.

Six members made the long journey down to Woodbury Common to the Devon Rally on August 17th, leaving St. Albans at 5 a.m. The club had quite a good day, collecting a place in each of the F/F events. B. Cox came second in power and also third in glider, while G. Fuller collected second in rubber. The following week the club went to Cranfield to the South Midland Area rally. G. Fuller spent nearly all day looking for a power model which had landed in the countryside downwind. However, J. Simeons collected second place in the chuck glider.

At Chobham we won first place in a slope soaring meeting for the third time this year (the other two being Ivinghoe and Clwyd), this,

of course, being the Epsom Slope Soaring Meeting. G. Fuller took first and B. Cox took third place. On that day we were also successful in beating Sidcup in an L.D.I.C.C. round.

Five members made the journey to the Northern Gala but had no success, much of the time being spent looking for models scattered around the Yorkshire countryside.

## BAILDON M.F.C.

Several of our members attended the Novocastria club's gala and had quite an exciting day. Frank McNulty winning the chuck glider and J. A. B. Pannett finishing fourth in the power fly-off after rescuing his *Super Creep*, somewhat battered, from the roof of the house onto which it d/t'd at the end of his last flight. (Frank, we regret to say, is now no longer with us, the Army having claimed him for the next two years.)

The club's "general" competition was held at Baidon, rules this year being any number of entries at a bob a time up to 5 p.m., an hour to complete flights, and then a fly-off at 6 p.m. Out of the three who reached this stage—Brian Eggleston (power), C. P. Miller (rubber) and Gerry Tidswell (glider)—Brian finished top and Gerry second, all three receiving a share of the jackpot.

At the Northern Gala our secretary, Stan Eckersley, making one of his rare appearances on the contest field this season, showed everybody else the way and won the Frog Senior with 11:06; meanwhile, in the semi-final of the area knock-out our "A" and "C" teams were competing respectively, against Tees Side and Wakefield. The "C" team won conclusively, but an unfortunate last flight of 43 sec. by J. A. B. Pannett enabled Tees Side to gain the rubber by about a minute.

## NORTH KENT NOMADS

The club was very fortunate in having aeromodellers' dream weather on the day of their Dance Trophy for R/C planes. In glorious sunshine the club met at Detling Aerodrome, complete with a contingent of some 60 spectators.

The competition was very well run, and the judges wore their best N.H.S. spectacles, while of the 13 entrants, only one flew out of range, and we are still awaiting news of this model!

One machine went into an ever-tightening spiral dive and crashed into a thicket which was virtually unsearchable, but a "bright spark" suggested that in the quiet of the evening the actuator might be heard operating if a Tx was keyed. This was tried, and by a dint of much listening the owner heard his actuator operating and found the model very easily.

The winning model was entered by a trio of new members, but credit must be given to Trevor Waters who piloted the model through some very pretty manoeuvres.

On the whole there was very little to choose from the single and multi-channel models

## Recent Results

### NORTHERN GALA

#### FLIGHT CUP U/R Rubber

1. D. Poole ..	Birmingham ..	12.00
2. E. A. Barnacle ..	Leamington ..	10.31
3. R. Lennox ..	Birmingham ..	9.53

#### FROG SENIOR CUP. U/R Power

1. T. H. Wilkes ..	Sheffield S.A.M. ..	11.55
2. T. S. Eckersley ..	Baidon ..	11.06
3. K. Glynn ..	Surbiton ..	11.04

#### PAN AMERICAN TROPHY

1. A. R. Collinson ..	Baidon ..	6.01
2. P. Muller ..	Surbiton ..	5.18
3. R. Monks ..	Birmingham ..	5.02

#### AEROMODELLER R/C TROPHY

1. W. S. Neild ..	Cheadle ..	23 pts.
2. G. W. Parkinson ..	Kendal ..	18 "
3. H. B. Smith ..	Baidon ..	10 "

#### TEAM RACE CLASS "A"

1. L. Davy ..	Wharfedale ..
2. T. Pasco ..	Thornaby ..
3. R. Cunningham ..	Prestwick ..

#### TEAM RACE CLASS "B"

1. D. W. Mitchell ..	Prestwick ..
2. T. Pasco ..	Thornaby ..
3. M. Pearce ..	Thornaby ..

### SCOTTISH GALA

#### CATON TROPHY. U/R Rubber

1. J. O'Donnell ..	Whitefield ..	12.00
2. T. Chambers ..	Tees Side ..	9.57
3. T. Rhead ..	Wigan ..	9.27

#### OPEN GLIDER

1. R. Sleight ..	Prestwick ..	9.00 + 5.58
2. W. Meechan ..	Glasgow S.A.M. ..	9.00 + 1.15
3. T. Rhead ..	Wigan ..	7.26

#### ASTRAL TROPHY U/R Power

1. J. O'Donnell ..	Whitefield ..	12.00 + 5.55
2. B. Talbot ..	Wigan ..	12.00 + 5.54
3. A. J. Smith ..	Stranraer ..	10.40

#### TAPLIN TROPHY Radio Control

1. W. S. Neild ..	Cheadle ..	44 pts.
2. G. W. Parkinson ..	Kendal ..	35 "
3. R. Fraser ..	Kirkcaldy ..	31 "

#### TEAM RACING CLASS "A"

1. T. Pasco ..	Thornaby ..	4.51
2. J. King ..	Cadzow ..	

#### TEAM RACING CLASS "B"

1. G. Rhucroft ..	Thornaby ..	13.46
2. L. Jeffrey ..	Thornaby ..	

except the worried looks on the latter pilots' faces. The results were as follows:—(possible 450 points): 1st, Pete Brown and Trio—271.5; 2nd, Pete Hartridge—138; 3rd, Jack Ashcombe—119.5; 4th, H. Fellow—81.

#### WEST BROMWICH M.A.C.

The recent chaotic attempts at combat competitions has slowed the liking that many of the members have for competition flying. The accent is now on "concours models," and our recent successes at the M.A. exhibition include Mike Kendrick's silver medal and Tony Day's MODEL AIRCRAFT Trophy. This only goes to prove that combat flyers can build as well as, if not better than, modellers who concentrate on concours.

#### WHARFEDALE M.A.C.

Highlights of recent rallies we attended were first and fourth places in class "A" team-race at the P.A.A. rally at Abbotsinch. Ken Long's winning model being timed at over 97 m.p.h. in the final.

Four models were literally slapped together for the C/L team trials held at Cranfield. Due to hasty building and no previous test flights, the models were all getting less than 25 laps, nevertheless, they had about 85-90 m.p.h. airspeed which cannot be more than 2-3 per cent. below the normal class "A" jobs. The majority of the club feels strongly that we would benefit greatly if the S.M.A.E. would adopt these F.A.I. rules in place of the class "A"; this would allow us to concentrate improvement and development to these F.A.I. models, putting us on equal footing with the Continental lads.

Big surprise at the South Midland Area rally at Cranfield, after having no success in the class "A" team-race, was Frank Baxter's win in class "B" with a swept wing Frog 500 model.

At the Northern Gala held at Linton, Les Davy managed to patch up his class "A" model after having half the safety barrier fall on it—to win the class "A" team-race final in 8:16 after doing 5 miles in 3:38 on test. Ken Long had fuel feed trouble with his class "B" model in the final and only managed fourth place. In the power event our main F/F enthusiast, Ray Ward, managed to d/t his *Paramia* into a 100 ft. pine tree on his first flight.

#### CANTERBURY PILGRIMS M.F.C.

It is with deep regret that we have to announce that our secretary, E. A. Copping, was killed on his motor cycle whilst travelling to work on Monday, August 25th. Members of the Canterbury Pilgrims would like, on behalf of themselves and his many other modelling friends, to offer their sincere condolences to his relatives in their loss.

Correspondence concerning the club should for the time being be sent to R. Burville, 63, Peter's Place, Canterbury, Kent.

#### NOVOCASTRIA M.A.S.

The Novocastrians held their James Rush Gala on the Newcastle Town Moor on Sunday, August 17th. The first thing in our favour was the weather, it was really perfect. The total number of entries was 78 and there were clubs from as far afield as Lincoln and Glasgow. (Black of Glasgow, who was only just beaten by J. O'Donnell for the gala championship, had cycled all the way from Glasgow with four models in a box on his back!)

Results		Power	
1st	J. O'Donnell	Whitefield	
2nd	Black	Glasgow	
3rd	Unsworth	Tees Group	
Rubber			
1st	Pollard	Tynemouth	
2nd	Tubbs	Baildon	
3rd	Morley	Lincoln	
Glider			
1st	Sayer	Tees Side	
2nd	Colling	Tees Side	
3rd	Stoker	Tynemouth	
Combat			
A. Farrer	Whitefield		
K. Dale	Thornaby		
Chuck glider			
McNulty	Baildon		

The Gala Champion and winner of the trophy was:—J. O'Donnell Whitefield. The prizes and trophy were presented by our president Sq./Ldr. James Rush.

We also held a very successful social on September 3rd, in honour of two of our members

who are leaving us to go to Canada. They are Mr. & Mrs. Stan Wood, well-known people in the model trade and we shall miss both themselves and their model shop.

We are holding our annual social and prize giving on Friday, October 31st, in the R.A.F. Club, Newcastle upon Tyne. All are welcome.

#### DE HAVILLAND (HATFIELD) M.A.C.

This year's club glider contest was of five rounds flown in non-thermal evening conditions, maximums were 3 min., and from an entry of seven C. A. Ward was the winner with a total of 12:22 flying an A/2, and D. Howell was second with 10:29 flying a lightweight.

D. Howell also placed second in the glider contest at the Croydon Gala.

#### TEES SIDE M.F.G.

At the Rush Trophy meeting at Newcastle, J. A. Sayer and R. Colling were first and second in glider and T. M. Unsworth was third in the power fly-off.

We were asked by the S.M.A.E. if any of our members would like to be considered for the English team at the U.K. Challenge Trophy. The competition secretary was considerably surprised when all the names submitted were chosen. Seven out of the 10 who flew for England were from Tees Side. Unfortunately, we lost to Scotland but perhaps this will wake up the interest of the S.M.A.E. and the rest of the country to this event.

The next day at the Scottish Gala, T. B. Chambers was second in the rubber event. We want to thank the Glasgow club for bringing J. A. Sayer's glider, that he left on the works roof at Abbotsinch, back to him at Linton.

Only two members went to Beverley for the Sportcraft rally, due mainly to the lack of interest in the combined F/F contest. The organisation was very good, but we were proved correct in our theories by rubber taking first, second and third places. We were flying gliders and in the calm almost thermal-less conditions were unable to better 2 min.

The conditions at the Northern Gala were exactly the opposite, high winds carrying the models far outside the aerodrome. T. M. Unsworth was fourth in power.

We flew our Northern Area knock-out trophy match flights at the same meeting, our "A" team beating Baildon "C" in the semi-final.

We should very much like to see some more members. Anybody interested, who lives in the Darlington, Stockton, Middlesbrough, Hartlepool districts, should write to R. Swinden, 17, Marwood Crescent, Darlington, Co. Durham, for details.

#### OUTLAWS (CANNOCK) M.A.C.

After three or four years in the "doldrums," a complete spring clean of the existing committee earlier this year has given the club a new lease of life, and the lads have embarked on a hectic programme of display and competition flying. Four successful displays have been given so far this year and as combat now controls 90 per cent. of the interest, entries have been made in all the accessible rallies ranging from Woodford in the north to Northern Heights in the south; best place to date is Roy Lockley's 3rd at South, Midland rally with a P.A.W.-powered *Peacemaker*—a very popular combination in these parts.

#### THE DEVON RALLY

This year's meeting, which was organised and sponsored by the Exmouth & D.M.A.C., attracted 93 entries—the highest number yet—and much to the organisers' surprise, such eminent personalities as Dave Posner, Vic Jays, Mike Gaster, G. Fuller, J. Baguley and J. and P. Manville, were among the early arrivals.

For the second year running the rally was

## CONTEST CALENDAR

Oct. 26th HAMLEY TROPHY. U/R Power, De-centralised.  
FROG JUNIOR CUP. U/R Rubber, Glider, De-centralised  
Nov. 2nd St. Albans Slope Soaring Rally. Invinghoe Beacon.  
All S.M.A.E. competitions in capitals.

fortunate with the weather. Although the morning started off dull and a little drizzly, by mid-day the sun was shining and it was really hot. With this sort of weather it was obvious that max's would be in abundance, and in all 19 max's were scored (max 4 min.).

One of the first to score a max was George Fuller in rubber, and he had to climb a tree to retrieve his model which was, however, unfortunately lost on its third flight. Another model which was lost was Dave Posner's Oliver Tiger-powered *Dream Weaver* on its first flight. The model was seen to d/t but failed to turn up despite a long search.

Gliders came in all sizes from A/1s to the big 8 ft. span jobs. But it was the smaller models that made the higher placings. Typical of these was J. Ralph's small o/d model which took first place.

The R/C event which was held in conjunction with the S. Western R/C M.F.S., was soon under way with an entry of 10, the judging being done to the Rip Max schedule. Popular winner was Harry Stillings of Exeter, with his own design, *Zoom*, which has been featured in MODEL AIRCRAFT.

Combat was the usual crowd drawer and most of the 1,000 spectators made this the main event to watch. Brian Hopkins of S. Bristol, had the TV cameras on him in his first heat, when they were filming the rally for the B.B.C. West of England News, there also being a close-up of him and his model.

Brian made it to the final where he flew against fellow clubmate Jim Sullivan. This bout started off to be a good lesson in attack and evasion, but came to an end when a mid-air collision forced Sullivan to retire. Until then neither combatant had scored a hit.

Running concurrently with the open events was a contest for the S.W. Area Shield, which was for clubs in Devon and Cornwall only; and was for F/F classes worked on a points system of 3 points, 2 points and 1 point for 1st, 2nd and 3rd place in each of the three F/F classes.

Exmouth came out the winners for the third year running after a tight fight with the Plymouth M.F.C.

Results		Power	
1.	J. Manville	(Bournemouth)	622 sec
2.	B. Cox	(St. Albans)	598.5 "
3.	J. Baguley	(Hayes)	575 "
Rubber			
1.	J. Russell	(Bristol West)	653 sec
2.	G. Fuller	(St. Albans)	585 "
3.	Benson	(Cowley)	535 "
Glider			
1.	J. Ralph	(Glevum)	634 sec
2.	Chapman	(Hayes)	565 "
3.	B. Cox	(St. Albans)	499 "
Radio control			
1.	H. Stillings	(Exeter)	75 pts
2.	K. Williams	(Bodmin)	55 pts
3.	H. O'Heffernan	(Plymouth)	53 pts
Combat			
1.	B. Hopkins	(S. Bristol)	
2.	J. Sullivan	(S. Bristol)	

#### WESTON CONTROLLINERS

After a lapse of several years this club is being re-formed, and anyone in this area who is interested in joining should get in touch with R. E. Turner, 1, Oxford Street, Weston-super-Mare, Somerset.

#### DAGENHAM M.A.C.

We had fine sunny weather for our C/L gala, and despite the fact that there were two other competitions held on the same day we had a total of over 60 entries, the results being as follows:—

T/R Class "A" (7 entries)	
A. Soanes	Wanstead
T/R Class "B" (4 entries)	
N. Winch	W. Essex
Combat (43 entries)	
1st	P. Tribe Northwood
2nd	J. Perry Northwood

Speed	
J. Watson	Lomac Class II 124.8
I. Roffey	Lomac Class I 90.18

The club wishes to extend its thanks to Norman Butcher who came to judge the stunt although there were no entries, to Pete Drevell of Lomac who ran the speed event, and to everyone who came and helped to make it a success.

CHANGE OF SECRETARY  
BRENTWOOD M.A.C. A. C. Jones, 11, Spital Lane, Brentwood, Essex.

# A MUST for Modellers!

**A new book by a  
world famous author!**

**CHAPTERS ON . . .** Making a start • Flight simply explained • Making the fuselage • Building the wings and tail • Covering and doping • Trimming and Flying • Rubber-driven models • Your first engine • Building a control-line trainer • Flying your C/L trainer • Solid scale models • Jetex motors and models • Free-flight power • More about free-flight • More about motors • Control-line stunt models • More about control-line Radio-control in a nutshell • Converting the "Deacon" to R/C • Preparing and flying your R/C model • Soldering for the modeller • Silk covering and colour finishing • Fuels and how to make them • Glossary of model aircraft terms.

112 large pages 8½ by 7½ ins. (same size as MODEL AIRCRAFT) Over 50,000 words. 24 chapters. Approx. 400 illustrations Price 6/- (Post free 6/8). U.S. A and Canada \$1.50.



Please mail me a copy of ALL ABOUT MODEL AIRCRAFT. P.O./Cheque for 6s. 8d. enclosed.

NAME .....

ADDRESS .....

**ON SALE NOW!**

At your local Model Shop or Bookseller

**MODEL AIRCRAFT SALES DEPT  
19-20 NOEL STREET • LONDON • W.1**

**RADIO & ELECTRONIC PRODUCTS**

G. Honnest-Redlich

8 Station Parade, Sheen Lane, Mortlake, S.W.14  
Telephone: Prospect 9375**FOR EVERYTHING CONNECTED  
WITH RADIO CONTROL**

Construction kits for Single and Multi channel receivers and transmitters. Complete range of E.D. Radio and Engines.

★ Prompt Mail Order Service.

★ S.A.E. for price lists and information.

6-reed tuned relays ...	60/-	8-reed tuned relays ...	70/-
"Uniac" motorised actuator ...	45/-	"Speediac" motorised actuator ...	30/-
Relays from ...	22/6	F.R. Clockwork Escapement	35/-

Latest Kits by:—

**FROG MERCURY  
KEILKRAFT  
and all Plastics**

FOREIGN and BRITISH DIESELS

COMPLETE RANGE OF ALL ACCESSORIES

**SHEEN MODELS**263 UPPER RICHMOND ROAD WEST,  
EAST SHEEN, S.W.14 PRO 4353**England's Only Aviation Bookshop**

The books, plans, photos you want on Aviation are here—we stock nothing else!

We BUY, SELL or EXCHANGE

Thousands of magazines and books always in stock

*Open All Day Saturday Only*

or send 4d. for our 14-page catalogue

**Beaumont Aviation Literature  
2a Ridge Avenue, London, N.21***(Trolley bus 629 and 641, or Greenline bus 715  
pass the door. Nearest Tube—Wood Green)***T  
r u c u t**

PRECISION AIRSCREWS

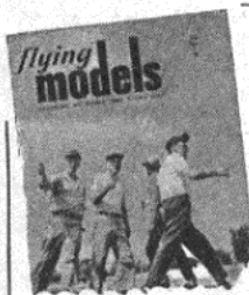
**RICHTHOFEN  
AND THE  
FLYING CIRCUS**

Not only the full story of von Richthofen and Jagdgeschwader Nr. 1, but of the air-fighting in the 1914-1918 war. Told with truth, without bias, and above all, NOT written in a "fictional" style.

Contains over 100,000 words. Over 250 superb photographs. Twelve 2-page 6-view 1/72 scale drawings of aircraft flown by the "Baron" and his fellow pilots. A list of over 200 pilots of the Richthofen Jagdgeschwader. A review of all Richthofen's victory claims, with fuselage profiles showing insignia and squadron markings of each of the 84 aircraft concerned. Two 2-page maps. The names of nearly 450 pilots are mentioned in this book!

**45/-**

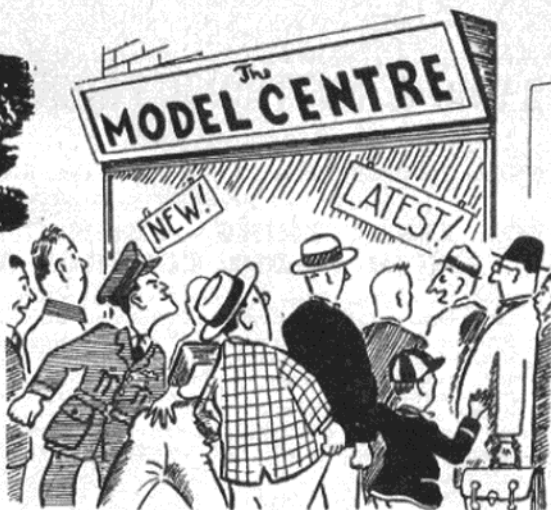
Obtainable from any W. H. Smith's bookshop or other booksellers, your local model shop, or direct from the Publishers.

**HARLEYFORD PUBLICATIONS LTD.  
LETCWORTH :: HERTS***How-to-do-it  
Magazine of U.S.  
Modeldom*

Read FLYING MODELS, the only American magazine devoted exclusively to model aviation! Every issue includes how-to-build data on new model aeroplanes of various types (with full-size plans wherever possible) . . . worth-while hints . . . photographs . . . how-to-do-it information . . . and features for sport a-plenty!

**Now published every month.**Annual subscription (12 copies) £1 9 6  
*Including Postage*Mail your order and remittance today to:  
**ATLAS PUBLISHING & DISTRIBUTING CO. LTD.**  
(Dept. A)  
18 Bride Lane, Fleet Street, London, E.C.4

# YOUR BEST MODEL SHOPS



## Readers

YOU CAN DEAL WITH  
THESE MODEL SHOPS  
WITH COMPLETE  
CONFIDENCE

## Retailers

ADVERTISE ON THESE  
PAGES TO REACH THE  
LIVE MODELLERS IN  
YOUR TOWN

### BIRMINGHAM

Tel.: Midland 0972

#### *Hornton's*

32, STEPHENSON STREET, BIRMINGHAM, 2  
(Facing stage door Theatre Royal) and  
1, NAVIGATION STREET, BIRMINGHAM, 2  
(Adjoining Queens Hotel)  
Stockists of Model Aircraft, Railways and Ships

### CARDIFF

Tel.: 52906

#### *Bud Morgan*

THE MODEL AIRCRAFT SPECIALIST  
22/22a, CASTLE ARCADE  
SEND 4d. IN STAMPS FOR MY 1958 PRICE-LIST

### BIRMINGHAM

Tel.: Central 5483

#### *Hobbies Ltd.*

100a, DALE END, BIRMINGHAM 4

The firm known to Modellers throughout the world. Ask our Mr. W. Starns for advice

### DARTFORD

#### *Modern Models*

49-51, LOWFIELD STREET, DARTFORD, KENT

Whether you call or whether you post, we claim we've got more stock than most

### BIRMINGHAM

Tel.: Northern 5569

#### *The Model Mecca*

204-206, WITTON ROAD, 6

A 100% Modelling Shop. Aircraft Kits, etc.  
Trix "OO" L.M.S. Co. "O" gauge. 5 and 5a buses pass door  
WRITE, PHONE or CALL

### GLASGOW

Tel.: Central 5630

#### *Caledonia Model Co.*

5, PITT STREET, C.2

THE engine repair specialists. EVERYTHING for the enthusiast,  
with personal attention from GEORGE LEASK, A.M.I.B.E.

### BRIGHTON

Tel.: Brighton 27693

#### *Arthur Mullett Ltd.*

16, MEETING HOUSE LANE, BRIGHTON

Agent for all leading Model Manufacturers  
World wide Mail Order Service

### GLASGOW

Tel.: Central 5042

#### *Hobbies Ltd.*

326, ARGYLE STREET

The firm known to Modellers throughout the world. Ask our Mr. J. Stewart for advice

### BRISTOL

#### *The Model Airport*

51, COLSTON STREET

Get your supplies from the leading M.A. shop in the town

### HOUNSLOW

Tel.: Hounslow 0041

#### *Poulton's Model Shop*

79, HIGH STREET  
HOUNSLOW, MIDDX.

Model aircraft, boats and trains. No charge for technical advice,  
engine runs or radio checks

**HULL**

Tel.: Hull 32959

**Hobbies Ltd.**

10, PARAGAN SQUARE

The firm known to Modellers throughout the world. Ask our Mr. J. Mason for advice

**IPSWICH**

Tel.: 51159

**East Anglian Model Supplies**

37, UPPER ORWELL STREET, IPSWICH

Wakefield gears: 3s. each, post 2½d. Contest "Avenger" sailplane Nordic A/2 design. Plans and cut ribs 10s. Kit, 23s. 6d., both post free

**LEEDS**

Tel.: Leeds 27891

**The Model Shop**

58, MERRION STREET, LEEDS

Specialists in radio control equipment for models.

**LONDON, N.7**

Tel.: North 4272

**Henry J. Nicholls Ltd.**

308, HOLLOWAY ROAD, N.7

M.A. enthusiasts' complete stockist. Britain's No. 1 Model Shop. H.J.N. will be pleased to see you

**LONDON, N.W.1**

Tel.: GULLiver 1818

**Ripmax Limited**

39, PARKWAY, CAMDEN TOWN, N.W.1  
THE RADIO CONTROL SPECIALISTS

All Requirements stocked PLUS Personal Mail Order Service

**LONDON, S.E.1**

Tel.: Hop 3482

**Model Aircraft Supplies Ltd.**

171, NEW KENT ROAD, S.E.1

The oldest established model aircraft shop in London.  
Personal service with satisfaction

**LONDON, S.W.17**

Tel.: Balham 7339

**BEC Model Stores**

10, TOOTING BEC ROAD, UPPER TOOTING, S.W.17

Everything for the modeller—Aircraft, Boats, Radio Control and Railways

**LONDON, S.W.20**

Tel.: LIB 3062

**Model & Tool Supplies**

604, KINGSTON ROAD, RAYNES PARK,  
LONDON, S.W.20

Fine range of aircraft, boats, trains and accessories

**LONDON, W.4**

Tel.: Chiswick 0958

**Jones Bros. of Chiswick**

56, TURNHAM GREEN TERRACE, W.4

1 min. Turnham Green Station (Dist. Line)

THE SHOP WITH THE STOCK

OPEN SATURDAYS 9 a.m.-6.30 p.m.

**LONDON, W.C.1**

Tel.: Museum 2975

**Hobbies Ltd.**

78A, NEW OXFORD STREET, W.C.1

The firm known to Modellers throughout the world. Ask our Mr. S. Nelson for advice

**MANCHESTER**

Tel.: Blackfriars 3972

**The Model Shop**

13, BOOTLE STREET, DEANSGATE

We have EVERYTHING in stock for the aeromodeller: Kits, Engines and Accessories

**MANCHESTER**

Tel.: Central 1787

**Hobbies Ltd.**

10, PICCADILLY

The firm known to Modellers throughout the world. Ask our Mr. W. B. Cummings for advice

**NEWCASTLE**

ESTABLISHED 1924

**The Model Shop**

(NEWCASTLE UPON TYNE) LTD.  
18 BLENHEIM STREET, Tel.: 22014  
NEWCASTLE UPON TYNE, ENGLAND  
Pioneers of modelling with 33 years' experience...  
Our Expert Staff are at your Service

**OXFORD**

Tel.: 2407

**Hawes Model Shop**

LARGEST STOCK IN THE MIDLANDS

CALL, WRITE OR PHONE

9-10, BROAD STREET

Mail service by return

**PADDINGTON**

Tel.: 8827-8-9

THE COMPLETE MODEL SHOP

**Burleigh's**

303, EDGWARE ROAD, W.2

All your wants supplied by return  
BURLEIGH, OF EDGWARE ROAD, LTD.

**SHEFFIED**

Tel.: 26071

**Hobbies Ltd.**

4, ST. PAUL'S PARADE

The firm known to Modellers throughout the world. Ask our Mr. C. Smith for advice

**SOUTH AFRICA**

*Greenacres*

WEST STREET, DURBAN

You can obtain all your Model Aircraft requirements from Natal's Hobby Centre

**SUTTON**

Tel.: Vigilant 8292

*E. L. S. Model Supplies*

272, HIGH STREET, SUTTON, SURREY

Surrey's Hobby Centre. By return Postal Service  
Complete stock of all M.A. requirements.

**ST. HELENS**

Tel.: St. Helens 3972

*George Webster (St. Helens) Ltd.*

THE MODELLERS' RENDEZVOUS, CORPORATION STREET, ST. HELENS

All leading makes of kits, engines, etc., in stock. Mail order by return. Aircraft List 6d., post free.

**WATFORD**

Tel.: Watford 3522

*H. G. Cramer Ltd.*

172a, HIGH STREET, WATFORD

The leading stockist in the area



**CLASSIFIED ADVERTISEMENTS**

Private 3d. per word; minimum 12 words. Trade 6d. per word; minimum 12 words. Use of Box No. 2s. 6d. extra.

Displayed Classified Advertisements (including Situations Vacant): 35s. per single column inch (column width 2½ in.).

Advertisements, together with remittance, should be sent to Classified Advertisement Department, MODEL AIRCRAFT, 19-20, Noel Street, London, W.1, at the latest by the 25th of the month preceding publication date.

**SITUATIONS VACANT**

**PRESSED STEEL COMPANY LIMITED**

Stratton St. Margaret, Swindon, Wilts.

Invite applications for employment from

**UNSKILLED MEN**

aged 21 to 35 for training as

**METAL WORKERS**

Ideal working conditions. Good rates of pay. Canteen facilities. Pension scheme. Hostel accommodation available.

For further particulars, please apply to the Personnel Officer.

FOR SALE. Fox 35, £4. Fox 35 crankcase, £2. ETA 29 IV, £5. Torp. 15, new, £4. Torp. 15, £3.—Box No. 106, MODEL AIRCRAFT Offices, 19-20, Noel Street, London, W.1.

**WHEN YOU SEE THE OPPORTUNITY GRASP IT**

**The Fairey Aviation Company Limited**  
**White Waltham Aerodrome**  
**White Waltham, Berkshire**

Offer immediate employment to  
**RADIOTRICIANS**

With experience on airborne and ground Radar Equipment.

If you have this experience then this is your opportunity to obtain a worthwhile job with a progressive Company world renowned for its aircraft and record breaking achievements.

Applications please to  
**EMPLOYMENT MANAGER**  
Address as above.

"SAILPLANE & GLIDING"—the only British magazine devoted to the sport of gliding. Published every other month. Send stamped addressed envelope for descriptive leaflet; or 2s. 10d. for current copy; or 17s. for a year's subscription to BRITISH GLIDING ASSOCIATION, Dept. M.A., 19, Park Lane, London, W.1.

The RIGHT ANGLE IS DEXION. Saves time and money on every job. Right for brackets, shelves, racks, ladders, tables, trolleys, scaffolding, etc. Send for details.—PITHERS, 36, Mortimer Street, London, W.1.

WANTED. OLD ENGINES FOR PRIVATE COLLECTION. Good prices paid for interesting examples in good condition. For sale: latest Max-II 35, £6 10s.; Max-II Multispeed-35 with coupled exhaust and intake throttles, £8. Both new and unused, customed and tax paid.—P. G. F. CHINN, Box No. 107, MODEL AIRCRAFT Offices, 19-20, Noel Street, London, W.1.



# its UNEQUALLED

## AM.15

THE LATEST ADDITION TO THE  
ALLEN MERCURY RANGE

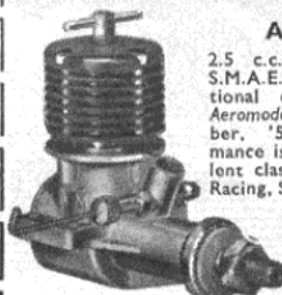
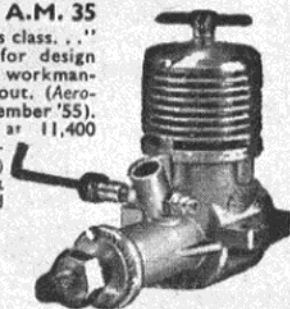
An Allen Mercury Engine of 1.5 c.c. capacity and right up to the same standard as the famous A.M. 10 that set a new high for diesel motors with a specific output of no less than 120 b.h.p. per litre. This motor gives approximately 0.17 b.h.p. at 14,000 r.p.m. For control-line and free-flight it is the finest motor in its class. Ideal for all 1/4A team racing.

This latest A.M. engine is a robust, easy-starting and powerful engine designed for long life with high output.



ASK TO SEE THE A.M. 15  
IN THE BLUE BOX AT  
YOUR LOCAL  
MERCURY STOCKIST.

**A.M. 35**  
"Excels in its class..." Full marks for design and practical workmanship throughout. (Aeromodeller November '55). 0.26 b.h.p. at 11,400 r.p.m. (Aeromodeller test) Ideal for Stunt Combat and R/C 3.5 c.c.



**A.M. 25**  
2.5 c.c. Eligible for S.M.A.E. and International contests, says Aeromodeller (October, '54). "Performance is in the excellent class." For Team Racing, Stunt, Combat, F/F and R/C



**A.M. 10**  
The most powerful engine of its capacity in the world! This engine has the highest output of any 1 c.c. diesel in production to-day. In fact, its output exceeds that of most 1.5 c.c. engines.

### D. J. ALLEN ENGINEERING LIMITED

MANUFACTURERS OF ALLEN-MERCURY DIESEL ENGINES

28, ANGEL FACTORY COLONY, ANGEL RD., EDMONTON, N 18 Phone EDMONTON 6466

Distributed by H. J. NICHOLLS (WHOLESALE) LTD., 308 Holloway Road, London, N.7

# VASCO

offers something new !!!

Car Modellers !!

Railway Enthusiasts!

A Bumper Packet of 30  
Miniature Garage and  
Railway Siding Posters

Wonderful Value,  
30 Realistic, Coloured,  
Gummed Posters

Only 1/- per packet

Ask your nearest Model or Hobby Shop

JUNIOR AIRCRAFT SUPPLY CO. LTD.  
Eastbank Street : Southport : England

## THE POPULAR FLYING ASSOCIATION

Read Popular Flying: The bi-monthly magazine of the Popular Flying Association. Subscription, £1 a year. Specimen copy with scale plans of the Hirtenberg HS9A and history of this unique aircraft 1s. 6d. from The Popular Flying Association, Londonderry House, 19, Park Lane, London, W.1.

## OUTSTANDING OFFER! EX-GOVERNMENT SPLIT-ACTION Stop Watches

These fine precision watches are ideal for individual and successive timing. Either hand can be stopped independently. Split action obtained by side button. Reads to 1/5 sec. and records on separate dial to 30 min. Fully tested and guaranteed for 12 months. Others from 52/6.



UNITED  
TECHNICAL SUPPLIES £5.5.0

Dept. M.A., 3 Harrow Road, London, W.2. Tel: PAD 1133  
Opp. Edgware Road Stn. 5 min. Marble Arch.

# Equado

## BALSAWOOD



EQUADO Balsawood is shipped all round the world to satisfied clients—in metric and English sizes. Let us quote you for your balsawood requirements.

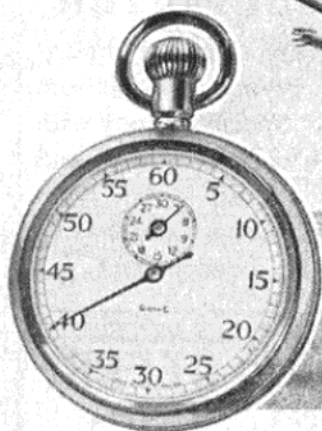
Trade price lists on application to Sole Manufacturers and Shippers

- ① PARAGUAY
- ② ARGENTINE
- ③ PORTUGAL
- ④ YUGOSLAVIA
- ⑤ THE CONTINENT
- ⑥ SOUTH AFRICA
- ⑦ INDIA
- ⑧ AUSTRALIA
- ⑨ NEW ZEALAND

**E. LAW & SON (TIMBER) LTD.**

272-274 HIGH STREET, SUTTON, SURREY • VIGilant 8291-2

C.201  
7 Jewel 3 pressure,  
1/5th second stop  
watch. Ideal for use  
in Sport. £6.15.0.



you can't do without  
**SMITHS** stop  
watches

Used for the World Championships, Smiths Stop Watches are renowned for their split-second accuracy and unique dependability.

**SMITHS** CLOCK & WATCH DIVISION  
Sectric House, Waterloo Road, London, N.W.2

# GAMAGES

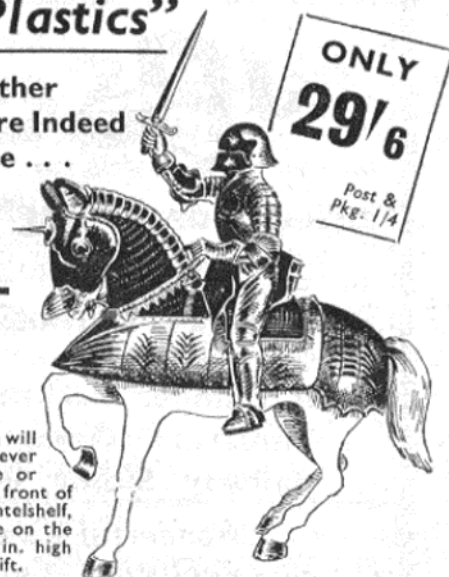
## For all "Plastics"

NOT Just Another  
Plastic Kit—Here Indeed  
is a Masterpiece . . .

THE  
GOLD  
KNIGHT  
OF NICE

By Aurora

This magnificent model will be greatly admired wherever displayed: in the home or office; as a firescreen in front of an unlit fire; on the mantelshelf, or used as a centrepiece on the table or sideboard. 12 in. high x 11 in. long. A fine gift.



## GAMAGES MODEL BOOK

The Latest and Best Edition

For the latest information about Trains, Aircraft, Boats, Cars, Engines, etc. Included in this issue is a special 24-page Plastic Kits section showing many of the latest and best plastic kits. It also gives full details about "plastics."

—What equipment to use, where to start, improvements, cementing, etc.

ONLY Post 6d.

GAMAGES • HOLBORN • LONDON • E.C.1

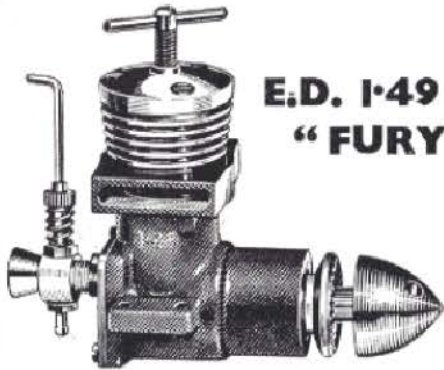
HOL 8484

*Insist  
on*

**ED**

TRADE MARK

## THE FINEST EQUIPMENT FOR THE MODEL MAKER



**E.D. 1.49 c.c.  
"FURY"**

The latest addition to our range. Cleverly designed, beautifully made and up to the E.D. standard of quality in every detail. Height 2½ in. Width 1½ in. Length overall 3½ in. Weight 3½ ozs.  
Air-cooled £3 17s. 10d.  
Water-cooled £5 2s. 3d.

## E.D. Diesels

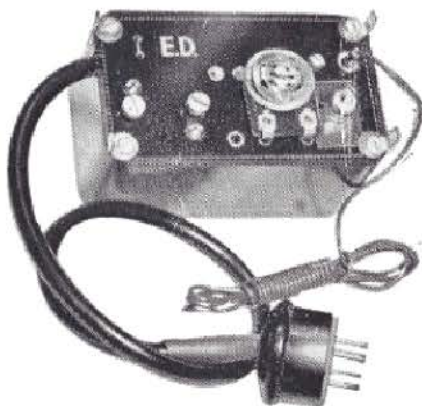
Precision built engines that will make the most of your models, give them all the power they require, make them really "alive" and improve their all-round performance.

For high speeds, endurance flights, control line or stunt flying, there is an E.D. Diesel especially designed for the job.

Aircooled or Watercooled versions available.

Fit one to your model, try it, compare it, and see the difference that it can make. And remember, every E.D. Diesel is individually tested for accuracy and reliability up to the highest standard before it leaves our works. They are easy to fit, simple to operate and suitable for use in model planes, boats or cars.

Eight Models available: E.D. 5 c.c. "MILES SPECIAL"; E.D. 1.46 c.c. "HORNET"; E.D. 3.46 c.c. "HUNTER"; E.D. 0.46 c.c. "BABY"; E.D. 1 c.c. "BEE"; E.D. 2.46 c.c. "RACER"; E.D. 2 c.c. "COMP. SPECIAL".



**E.D. "AIRTROL"  
HARD VALVE RECEIVER**

The smallest receiver in the world. Size 2½" x 1½" x 1½". Weighs 2½ ozs. This latest addition to the E.D. range has been developed to meet the demand for a Transistor Hard Valve Receiver producing the ultimate in Radio Control. Price £7 5s. 0d.

## E.D. Radio Controls

Equipment which will enable the user to operate, independently, more than one control, is now demanded by most enthusiasts. The reliability and ease of control of the Tuned Reed System, pioneered by E.D., has, after long and exhaustive experiment and tests, been amply demonstrated and proved by continual successes in open competition.

E.D. now produce five models, which will adequately meet the demands of most enthusiasts, two of which are illustrated.

### E.D. P.C.I TRANSMITTER

A high-powered, super compact, lightweight portable Radio Control Transmitter suitable for the operation of all carrier receivers. Engineered in every respect for maximum reliability. Size: 6½ in. x 5 in. x 5½ in. Weight with batteries 8 lb. Supplied complete with a four-section collapsible aerial and keying lead. Price, less batteries, £5 19s. 9d.



Write to  
Dept. M.A. for  
illustrated  
Lists giving  
full details  
of all  
E.D. ENGINES,  
RADIO CONTROLS,  
SPARE PARTS,  
ACCESSORIES, ETC.

STOCKED BY THE BEST MODEL SHOPS

**ED**

PHONE:  
MOLESEY  
6037-0030

**ELECTRONIC DEVELOPMENTS (SURREY) LTD**

DEVELOPMENT ENGINEERS

ISLAND FARM RD. WEST MOLESEY. (SURREY) ENGLAND.

GRAMS:  
"EED" EAST MOLESEY

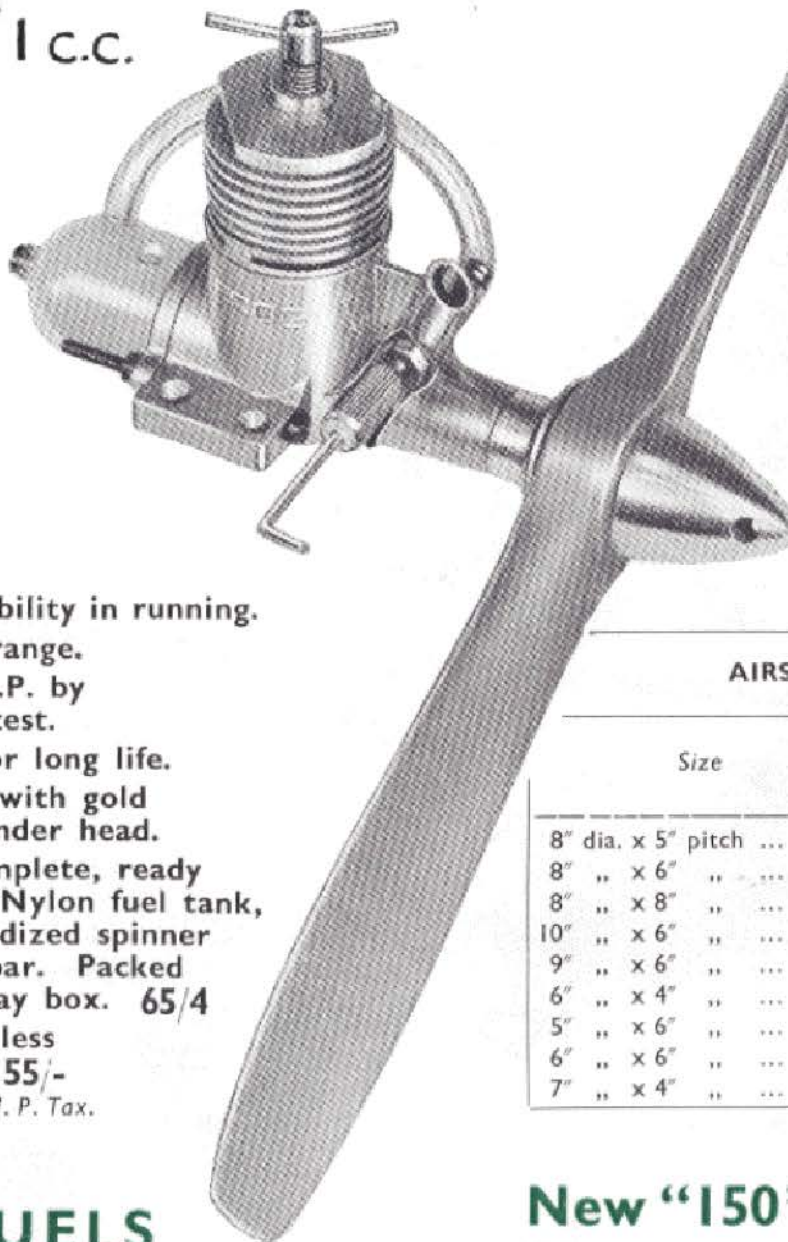


All prices  
include P. Tax.

# FROG "100"

## Mk.II DIESEL

1 c.c.



- Exceptionally easy starting.
  - Extreme flexibility in running.
  - Wide speed range.
  - Over .10 B.H.P. by independent test.
  - Engineered for long life.
  - Super finish, with gold anodized cylinder head.
  - Available complete, ready to run, with Nylon fuel tank, airscrew, anodized spinner and tommy bar. Packed in rigid display box. 65/4
- Bare engine, less accessories. 55/-  
*incl. P. Tax.*

### AIRSCREWS

Size	High-Impact Styrene	Nylon
8" dia. x 5" pitch ... ..	1/3	3/-
8" .. x 6" .. ..	1/3	3/-
8" .. x 8" .. ..	1/6	3/6
10" .. x 6" .. ..	1/6	3/9
9" .. x 6" .. ..	1/6	3/6
6" .. x 4" .. ..	9d.	1/6
5" .. x 6" .. ..	9d.	1/3
6" .. x 6" .. ..	1/-	1/6
7" .. x 4" .. ..	1/-	2/-

## FROG FUELS

Specially blended fuels suitable for these motors have been prepared by Shell-Mex and B.P. Ltd.

"Red Glow" for Glow-plug ignition motors and "Power-Mix" for Frog diesels.

*Made in England by*

## New "150" type "R"

1/2 A Contest Engine. Revised timing, exceptional power. Output over 100 b.h.p./litre.

Price 55/- inc. Nylon Tank

INTERNATIONAL MODEL AIRCRAFT LTD.  
MERTON · LONDON · SW19 · ENGLAND

