# AEROMODELLER


MAY
1949

1/3

# Outfly all others with the STREAKER

KIT PRICE 19/9

SPAN
37 ins.
Length 22½ ins.
Total horizontal area 245·5 sq. ins.
Minimum weight 6·87 ozs.

**SUPER STREAMLINED POWER DURATION MODEL**

Suitable for Amco ·87 c.c. Mks. I and II, ED 'Bee' 1 c.c. and Mills ·75 c.c. Diesel Motors.

This design, brilliant for its simplicity of construction and the elegance of its form, has been designed for the

NEW F.A.I. AND S.M.A.E. RULES

permitting greatly reduced frontal area, which with its 245 sq. ins. of total horizontal surface and light power-loading, gives a spiral climb and performance

GUARANTEED TO OUTCLIMB AND OUTFLY ANYTHING ELSE ON THE FIELD IN ITS CLASS!

**KIT CONTENTS**

**The "Veron" plan, 30" × 40", gives easy-to-follow stage-by-stage constructional details.**

- All Strip and Sheet Balsa carefully selected and graded.
- 7 Sheets of Balsa printed parts.
- Hardwood, Ply Parts, Dowel and Wire.
- Cement, Tissue Paste, Garnet Paper.
- **Lightweight Rubber Wheels.**
- **Metal Spinner.**

Come and see our stand at the
**British Industries Fair — Olympia —**
**May 2nd to 13th, 1949**
All our latest designs including the SEA-FURY and STREAKER, and several NEW SURPRISE DESIGNS IN CONTROL LINE!
**Live Demonstration of RADIO CONTROL.**

1½" dia. lightweight rubber balloon wheels (with aluminium centres) as supplied in the "STREAKER" Kit. ¼ oz. Per pair **2/6**

*Phil Smith, designer of the "Streaker," lost his first prototype model on its second flight.*

**VERON**

**GET YOUR 'STREAKER' TODAY FROM YOUR LOCAL DEALER**

**INDIAN DISTRIBUTORS:** K. L. ROY, 8, Lee Road, CALCUTTA, INDIA.

**MODEL AIRCRAFT (Bournemouth) LTD. Norwood Place. BOURNEMOUTH**

Phone: SOUTHBOURNE 2783

# MILLS diesel design

*This series of articles spotlights features and details of design marking the superiority of Mills Diesels.*

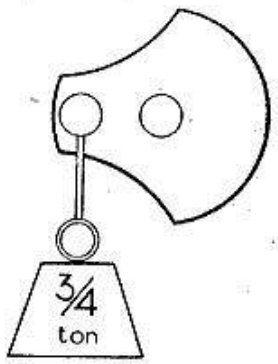
## 4. THE CRANKSHAFT

Constant striving for perfection calls for exhaustive research into the behaviour of each component. Here depicted is a critical examination of a crankshaft of the new 2·4 c.c. Mills Diesel.

A shaft, picked at random, was submitted to specialised tests to ascertain its actual strength at the points most highly stressed. These points are the crankpin which has to transmit the power of each explosion, and the mainbearing just behind the driving disc which may have to bear the full brunt of crash landings.

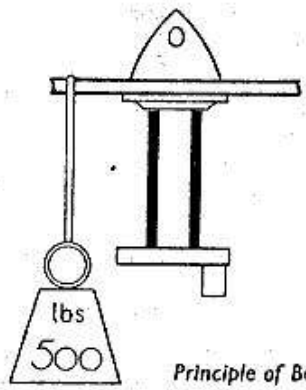
***Torque Tests:*** Using suitable equipment, an attempt was first made to shear the crankpin or break the shaft under exaggerated working load. This attempt failed although eventually a load of ¾ ton was applied to the crankpin; after that the test had to be abandoned because the driving disc began to slip. However, the test had by then confirmed an absolute safety factor of 145, and proved it impossible to damage the crankpin even if the engine were suddenly stopped dead from maximum engine speed.

*Principle of Torque Test.*




***Bend Test:*** A variable load was then applied to represent the impact of crash landings. After increasing this load to 500 lb. ins., the shaft only bent to an angle of 13 minutes, *i.e.* less than ¼ degree. Although this imperceptible bend is measurable under test conditions, it would not interfere with the usefulness of the shaft in service.

In fact, subsequent tests carried out with propellers revealed that even a good quality laminated propeller will break at one tenth of the load mentioned, thus in practical use saving the shaft from the test to which it was subjected in the laboratory.

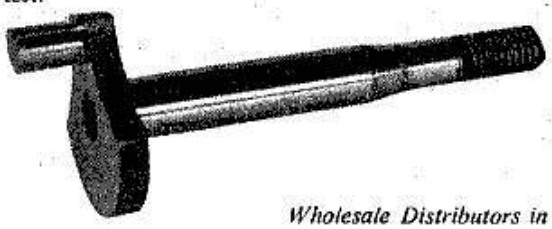



*Principle of Bend Test.*

***Surface Hardness:*** Inspection for surface hardness confirmed a Vickers Diamond Hardness figure of 852 which in conjunction with the excellent surface finish of the shaft is ample guarantee for exceptional wearing quality.

Once more, all the tests proved the nickel steel employed to be the right answer to the demand for surface hardness, strength and elasticity.

*Unretouched photo of shaft after test.*



| | | |
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| ·75 c.c. | 10 ozs. Thrust, | £3 . 5 . 0 |
| 1·3 c.c. | 18 ozs. Thrust, | £4 . 15 . 0 |
| 2·4 c.c. | 32 ozs. Thrust, | £5 . 10 . 0 |
| 1·3 c.c. | Marine Unit, | £5 . 5 . 0 |
| Mills Blue Label Fuel | .. | 2 · 6 |

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**MILLS BROS (MODEL ENGINEERS) LTD.**
2 VICTORIA COLONNADE · SOUTHAMPTON ROW · LONDON · W.C.1

# A TERRIFIC C/L PROGRAMME

*Five models to sweep everything before them—they've got speed, "stuntability," good appearance and sturdy construction. Each model is designed to be top in its class, and the whole range takes C/L performance a long way further along the path of precision flying. And for the learner there is still the renowned Mercury Magnette.*

*Release dates will be announced as each kit becomes available to Dealers. Modellers are asked NOT to write direct to us but to keep in touch with their local MERCURY stockist, who will have all the 'gen' as it is released. We cannot accept retail orders nor answer private enquiries.*

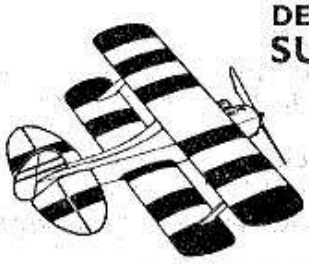
## MERCURY MARLIN

Fully aerobatic and up to contest schedule. Semi-scale appearance. This is NOT a model for beginners. Designed to fly on the ELFIN 1·8. 32 ins. span.

RELEASE DATE MAY 1st.

**19/6**

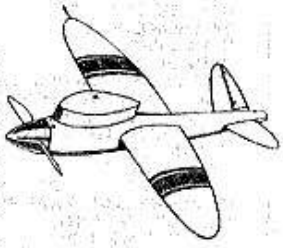
## DE BOLT SUPER BIPE



Made in England under licence from the De Bolt Engineering Co., of New York, U.S.A. As an advanced trainer it remains unsurpassed, yet the Super Bipe is fully aerobatic. For 5 to 10 c.c. engines.

*Release date to be announced.*

## DE BOLT SPEED WAGON



Made in England by Mercury Models under licence from De Bolt Engineering Co., of New York, U.S.A. This is the holder of the world's C/L speed record (163·13 m.p.h.—1948), and is the fastest thing "on lines" available. For 49 and 60 petrol or G.Plug engines. The "49" version also performs well on hot 30 motors.

*Release date to be announced.*

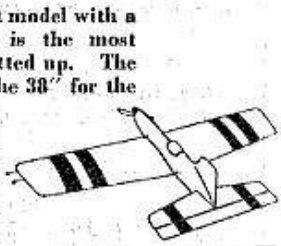
## MERCURY MARLIN MITE

The ideal model to introduce the small diesel owner to true stunt flying. This smaller version of the excellent Marlin is for such engines as the AMCO ·87, E.D. BEE, MILLS 0·75 c.cs., and performs with the same distinction as its bigger brother.

*Release date to be announced.*

## MERCURY MONITOR

This short-coupled high-speed stunt model with a normal flying speed of 80 m.p.h. is the most advanced C/L design ever to be kitted up. The 59" version is for 10 c.c. motors, the 38" for the Amco 3·5. Exclusive features—straight line-up, no offset—for high efficiency, detachable wing with built-in control system, no wires outside fuselage, and many others.



*Release date to be announced.*

**TRADE ONLY. NO RETAIL ORDERS.**

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## We are Sole Trade Distributors of the following Lines :—

THE NEW **AMCO 3·5 c.c.**

The design, power and performance of this AMCO masterpiece place it amongst the world's finest motors for modellers. Every possible feature for the betterment of C/L performance has been built into it, and in the hands of experienced flyers, we predict terrific results from the AMCO 3·5.

**97/6**

**AMCO ·87** — *The classic, small diesel unrivalled in its class for power and dependability* **72/6**

**ELFIN 1·8** — *Its solid popularity is built entirely on its outstanding competition performance* **79/6**

**ALLBON 2·8** — *A quality engine that more than holds its own in every sphere of flying in its class* **96/-**

### MERCURY FUELS.

*In 8 ounce Bottles.*

| | |
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| No. 1. Competition Petrol Red Label 1/9 | No. 4. Competition G-Plug Blue Label 3/- |
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| No. 3. Competition Deisel Orange Label 3/- | No. 6. All-in-One Diesel Yellow Label 3/6 |

*Mercury Ether* 3/-. *Mercury Engine Oil* 1/6.

### MERCURY ACCESSORIES.

CARBURETTOR CONVERSION UNIT (for C/L stunting) 5/3 ★ CONTACT BREAKER POINTS, 1/10 ★ CEMENT NOZZLES, 10d. ★ TRANSFERS, White letters, various sizes ★ IGNITION COILS, 18/6 ★ C/L BELL CRANKS ★ FUEL FUNNELS, 3/3 ★ FUEL FILTERS, 2/- ★ PLUG-PROTECTORS (Hold eight) 2/- ★ C/L WIRE ★ TRANSPARENT FUEL TUBING ★ AJUSTALYNE HANDLE, now 5/6.

### MERCURY RADIO-CONTROL.

Now firmly established and in top working order. Ideal equally for individual modellers and club flying. All orders promptly met from stock, are tested before dispatch.

**COMPLETE OUTFIT 12½ GNS.**

*With valves but less batteries.*

***Trade Distributors also for***

**E.D. Engines, Nordec Engines, Dunlop Rubber, Solarbo Balsa, Precision Kits, etc., etc.**

*Dealers are invited to send for our latest trade lists which we shall be happy to forward them regularly.*

***Good Dealers sell Mercury***

*Kindly mention AEROMODELLER when replying to advertisers*

# AGAIN IT'S

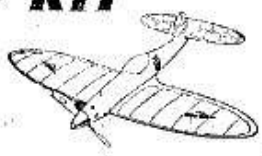
## ACCENT ON CONTROL-LINE

with a

## NEW KIT

THE MERCURY

## MARLIN



This kit reflects the latest and best in C/L design. It is a 100% stunt job, performing up to the full aerobatic contest schedule, yet it retains a fine semi-scale appearance. The Marlin is designed to fly on the Elfin 1·8. It is definitely NOT a beginner's plane, but is, nevertheless, tough enough to withstand hard usage.

- SEMI-SCALE APPEARANCE
- FULLY AEROBATIC
- DESIGNED FOR ELFIN 1·8
- NOT FOR BEGINNERS

*MARLIN KIT complete with cut and printed Balsa, full size plans, instructions, wheels, etc.* **19/6** Post Free

*and a New "C/L ENGINE"*

## AMCO 3·5 c.c.

***Designed for C/L Experts***

From its inception, this new AMCO was designed specifically for modern C/L flying, and its performance is terrific, even by to-day's high standards. It is an engine we recommend unreservedly for the modeller experienced in advanced C/L technique, and used with the proper skill this engine will satisfy the most ambitious.

CASH PRICE **97/6** or by easy Monthly Payments

## CONTROL-LINE SELECTION

### ● KITS

MERCURY MAGNETTE *Intermed. Stunt Trainer.* 26" 25/-

VERON Sea Fury X *Scale Stunt.* 25½" 22/6

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HALFAX Sabre *Speed Trainer.* 18" 16/6

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MODELAIR Mew Gull 24" 25/-

PRECISION Playboy 30" 17/6

K.K. Stuntmaster 30" 19/6

### ● ENGINES

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Allbon Mk. II 2·8 96/-

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E.D. Mk. II 70/-

E.D. Bee 45/-

★ YULON 5 c.c. G.Plug 135/-

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*Engines over 70/- available by H.P.*

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MERCURY Bell Cranks 3d. to 9d.

AJUSTALYNE Handle, now 5/6

MERCURY Wire, 200' 2/-

Full List in No. 4 Easy-Ref.

### HOW'S YOUR ENGINE?

*If it requires repair, re-conditioning or maintenance, send it to H.J.N.'s fully equipped repair dept., with complete confidence. Quick service. Standard prices. Guaranteed work.*

***NOTE TO MODELLERS.*** *— You will find a complete and up-to-date range of kits, engines and accessories in Easy-Ref. List No. 4, which includes articles of interest. Send S.A.E. (Large envelope, please) for your free copy. You cannot afford to be without.*

## HENRY J. NICHOLLS LTD.

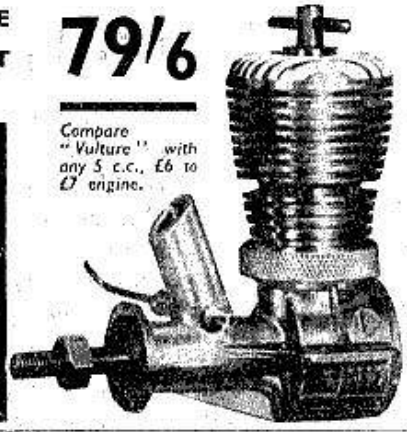
308, HOLLOWAY ROAD, LONDON, N.7.

# —HERE THEY ARE

THREE NEW SUPER DIESELS SPECIALLY DESIGNED FOR THE PLANE, CAR & BOAT ENTHUSIAST

## FROM FACTORY TO MODELLER

**79/6**



*Compare "Vulture" with any 5 c.c., £6 to £7 engine.*

Also the **FAMOUS HAWK** ·2 c.c. DIESEL

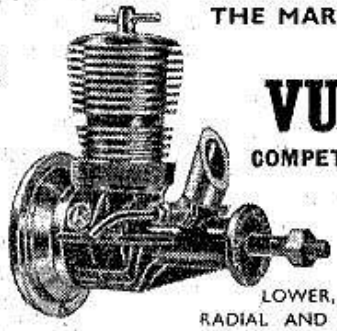
*Re-designed Mk. II.* **67/6**

*SMALLER, LIGHTER AND RADIAL MOUNTING.*

THE MARK III **5 c.c. VULTURE**

COMPETITION SPECIAL

**95/-**



LOWER, LIGHTER, FASTER, RADIAL AND BEAM MOUNTING.

THE NEW ALL POWERFUL DIESEL

MARK II SPECIAL

## 5 c.c. VULTURE

ONE OF THE FASTEST, LIGHTEST 5 c.c.'s YET MADE

**NO** BETTER 5 c.c. yet made. MORE costly than any 2·5 c.c.

## 2 c.c. FALCON *IT'S TERRIFIC*

RADIAL AND BEAM MOUNTING

The Engine you have all been waiting for. A challenge to the American Market in PRICE · DESIGN · PERFORMANCE

**59/6** *Compare with any other 2 c.c. at 75/- to 90/-.*

**Classified as one of the finest 2 c.c.'s in the world.**

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·2 c.c. HAWK Mk. II 67/6
2 c.c. FALCON 59/6
5 c.c. VULTURE Mk. II 79/6
5 c.c. VULTURE Mk. III 95/-
Glow-Plug head 10s. extra.
Extended Crankshaft and Spinner 9s. 6d. extra. 6 oz. Flywheel 8s. 6d. extra.

**Delete where necessary**

AEROMODELLER
INCORPORATING "THE MODEL AEROPLANE CONSTRUCTOR"

## Contents

VOL. XIV. No. 160. MAY, 1949



# Co-operation at Bournemouth

INTEREST in the flying of control-line model aircraft in the parks and other open spaces in many towns in this country continues unabated. And as ever, individual towns have their individual methods of dealing with the problem.

The " battle " at Beckenham appears to continue and our latest information is that " *The Beckenham Council are to ask the Government for bye-laws prohibiting flying of engine-driven model planes in parks and recreation grounds* ". (*Vide* " The Star ".)

On the other hand, as our photograph and caption above reveals, a more sympathetic attitude is being shown in another part of the country—Bournemouth. Here members of the Town Council's Parks Committee went along to Queens Park to observe a demonstration organised by the Bournemouth Model Aircraft Society.

We understand that the Bournemouth Council has always allowed control-line flying on *specified fairways* of the Queens Park Golf Course on Sundays; park keepers have in fact been quite helpful. However, the Bournemouth Model Aircraft Society felt that in the interest of all concerned, arrangements should be made for a portion of the Park to be fenced off and it was with a view to enabling the members of the Parks Committee to appreciate fully the attractiveness of control-line flying that the demonstration was arranged.

*This photograph shows various Bournemouth Town Councillors examining a model at the recent demonstration. The other photograph at the top of the page shows a model in flight with attendant crowd watching the demonstration.*

In the Windsor area, consideration has been given by the General Court Baron at Dorney—composed apparently of local farmers—to the flying of control-line model aircraft on Dorney Common. Firstly, a ban was raised, but modellers were invited to contest this by stating their claim at the Manor Court.

This was duly done and the Chairman of the Slough Model Aero Club, Mr. Tapfield, was given an opportunity of explaining the conditions under which control-line flying would take place. In the event, a compromise was reached under which members will be allowed to continue to use the common as an airfield except during the grazing season when the farmers felt that their cattle should be allowed to feed undisturbed.

We are pleased to cite the above incidents to show the friendly co-operation between the two parties and trust that these examples will be quoted when difficulties are experienced in other parts of the country in obtaining permission for the continued flying of control-line model aircraft on land under the control of local authorities.

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ESTABLISHED 1935

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*Rarely, if ever, do we publish photographs of Spanish aeromodelling activities but here for a change is a model from Madrid. Unfortunately no details are available, but it is certainly of unique design.*


## "Your Aeromodeller"

Now and again, it is necessary to turn from aeromodelling to business matters and the following items are mentioned on account of their importance to our readers.

Firstly, publication date of the AEROMODELLER. This is advertised as the 25th of the month preceding date of issue. The idea of dating an issue for the month prior to that of publication is an old tradition for which it is not easy to give any explanation !

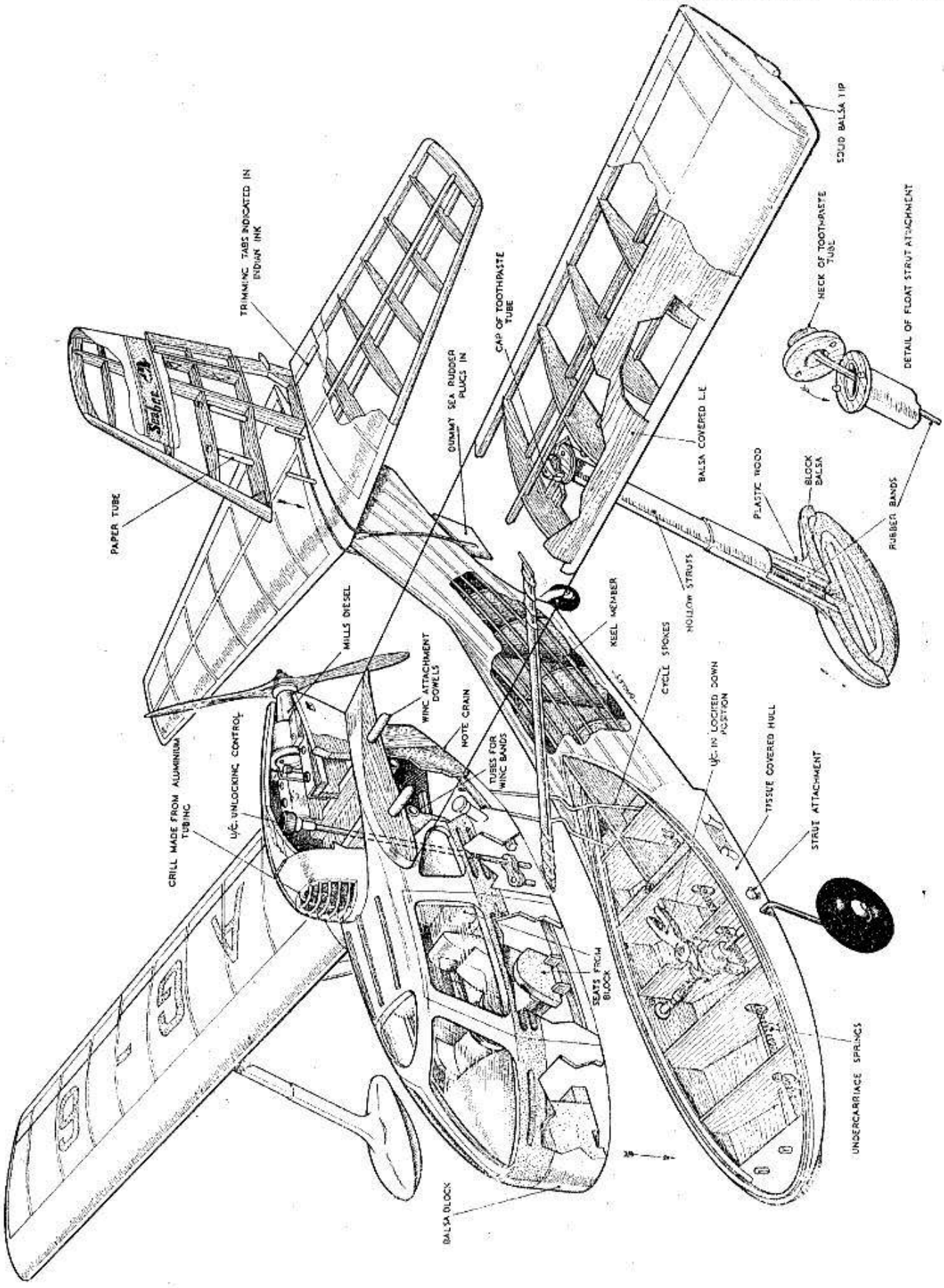
Secondly, there is the question of publishing *on* the advertised publishing date. From time to time readers write in and complain that they do not get their copy on the 25th of the month. Model shop proprietors write in and say that they have not got their copies, but their competitors round the corner have ! Readers who arrange for their copies to be delivered by their local newsagents say they get them two days after they are on sale on their local Smith's bookstall ! !

Let us trace an issue from the time it leaves the printers and see what happens. To start with, the printer cannot run off a print of over 50,000 copies per issue *in one day*. Hence the distributors receive the print spread over several days. This print is delivered in lorry loads and then has to be " broken down " into hundreds of parcels for distribution to all parts of the country. Smith's or other leading wholesalers receive bulk quantities of several thousands, which they in turn have to " break down " into small parcels for distribution throughout the respective areas which they serve.

Transport conditions vary somewhat in different parts of the country ; different wholesalers have different methods of distribution ; and so it will be seen that it is not possible to equitably distribute the whole of the print throughout the country.

To this explanation we have before received objections from readers :—" if our daily newspaper can always arrive on the right day and at the right time, why not the AEROMODELLER ? The answer, of course, is that the newspaper distribution set-up is one that operates *every day of the week*. Monthly magazines are an extra load on the distribution system, occurring just once a month ; and consequently their distribution involves the employment of extra men, and sometimes extra hours of work on not always the same day of the week. Sunday newspapers are always published *on* a Sunday and are allowed for. But the 25th day of the month can *come on any one* of the seven days, and so month by month the conditions vary.

Despite these varying conditions every effort is made by all concerned to ensure even and equitable distribution of this magazine and particular efforts are being made with the June issue and subsequent months to ensure publication on the 25th throughout the country. If any reader receives his copy later than say the 26th or at most the 27th, he will be assisting us considerably if he will write in giving particulars as to the exact time of delivery, and name of supplier, so that we can make an investigation with a view to reducing to a minimum, individual late deliveries.


SOLID BALSA TIP
TRIMMING TABS INDICATED IN INDIAN INK
NECK OF TOOTHPASTE TUBE
DETAIL OF FLOAT STRUT ATTACHMENT
CAP OF TOOTHPASTE TUBE
DUMMY SEA RUDDER PLUGS IN
BALSA COVERED L.E.
PLASTIC WOOD
BLOCK BALSA
RUBBER BANDS
PAPER TUBE
HOLLOW STRUTS
KEEL MEMBER
MILLS DIESEL
WING ATTACHMENT DOWELS
CYCLE SPOKES
NOTE GRAIN
TUBES FOR WING BANDS
U/C. IN LOCKED DOWN POSITION
U/C. UNLOCKING CONTROL
GRILL MADE FROM ALUMINIUM TUBING
TISSUE COVERED HULL
STRUT ATTACHMENT
SEATS FROM BLOCK
UNDERCARRIAGE SPRINGS
BALSA BLOCK

# H. J. TOWNER'S 53½ ins. FLYING SCALE MODEL

**THE DESIGNER:** *H. J. TOWNER . . . 56 . . . married . . . one daughter . . . always a scale enthusiast . . . built first model 1910 . . . at age nine designed and built electric motor with crankshaft and con rod which worked . . . his tip for gadgeteers — when developing a new mechanism try it round backwards—often works better ! . . . lives at Eastbourne.*


FOR those who like to build a model aircraft that is unusual and at the same time a really good flyer, our cover machine, the Republic Seabee, offers an ideal job.

The full-size job is designed for luxurious transport and at the same time can be used as a millionaire's sea, land, and air yacht and is so equipped that the starboard front of the cabin swings open for mooring and fishing and with the engine in the rear both the pilot and the passengers have an uninterrupted view of the world before them.

It is a four place monoplane and all metal construction based on a system of rapid construction.

The model has been designed along a very similar layout, namely, the hull is a complete unit with the cabin a further unit screwed to the hull and easily detachable. The motor is readily accessible, and wings easily removable and rubber loaded to withstand landing shocks. The tail unit is dowelled into place so that when stripped down the hull and cabin in one piece are easily transportable.

The undercart is retractable and is usually flown with wheels up ; landings are taken on the keel, and however unfortunate the touch down the model always slides to rest the right way up.

Spring loaded floats are fitted to the wings but for normal land flying are generally removed.

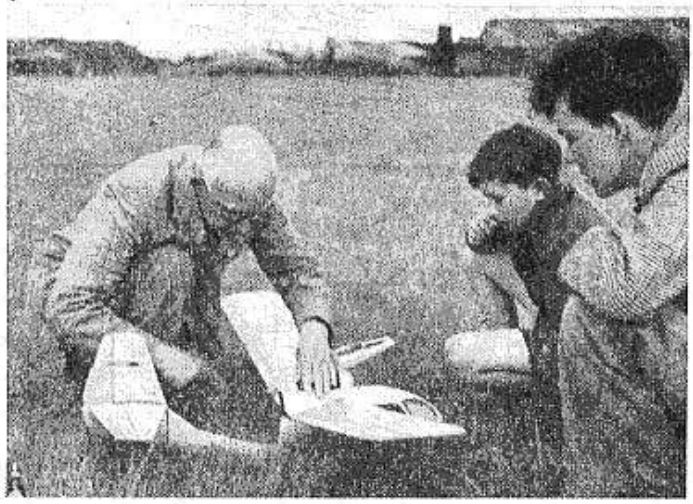
On water, however, the model keeps a straight course and shows no sign of swinging.

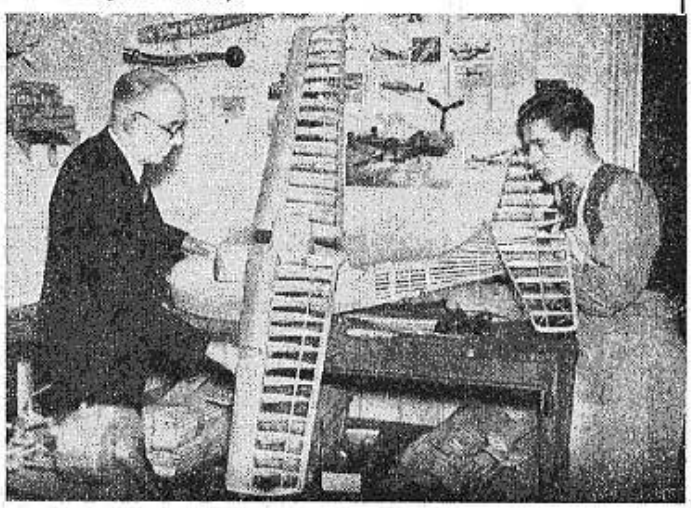
The wing loading of 16 ozs. may appear high but the model is not unduly fast and will definitely fly in all weathers, and clubs in the South of England who have seen the Seabee flying will vouch that when duration models have been grounded by wind the Seabee comes cheerfully on.

The power unit strangely enough is only a 1·25 Allouchery compression ignition motor and with so small a power unit no R.O.W. has been attempted, but no doubt with a slightly larger motor (provided the weight is not increased) this should be accomplished.

Full-size plans of this model, complete with an illustrated leaflet giving full building instructions, are obtainable price 7/– post free from Aeromodeller Plans Service, The Aerodrome, Billington Road, Stanbridge, Nr. Leighton Buzzard, Beds.

*The photos below give a good idea of the size of the model. On the left the designer is preparing for a flight before an admiring audience, while on the right is a view of the semi-completed model in the designer's workshop.*





# SEABEE.

DESIGNED BY
H. J. TOWNER.

7/-

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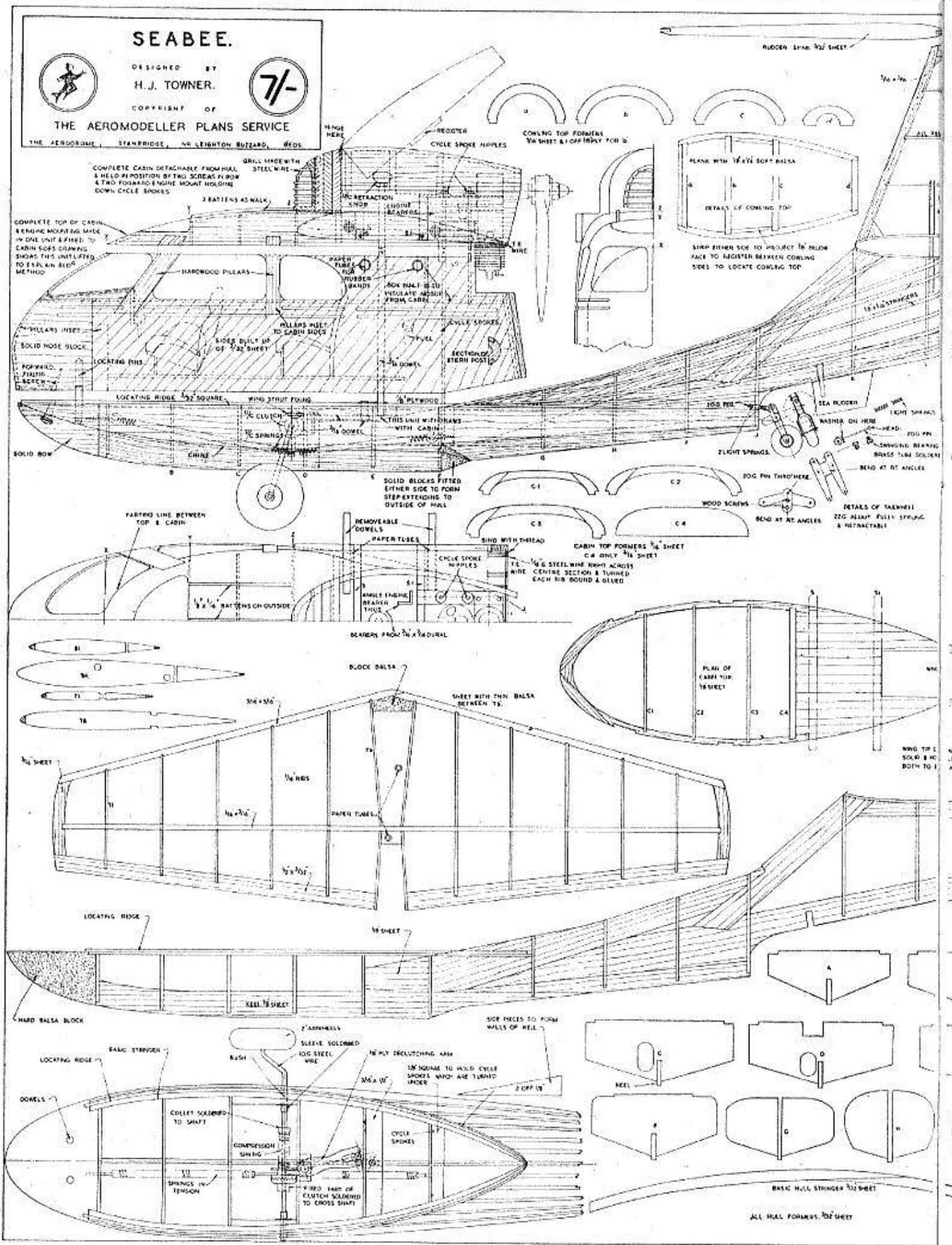
THE AERODROME, STANBRIDGE, NR LEIGHTON BUZZARD, BEDS

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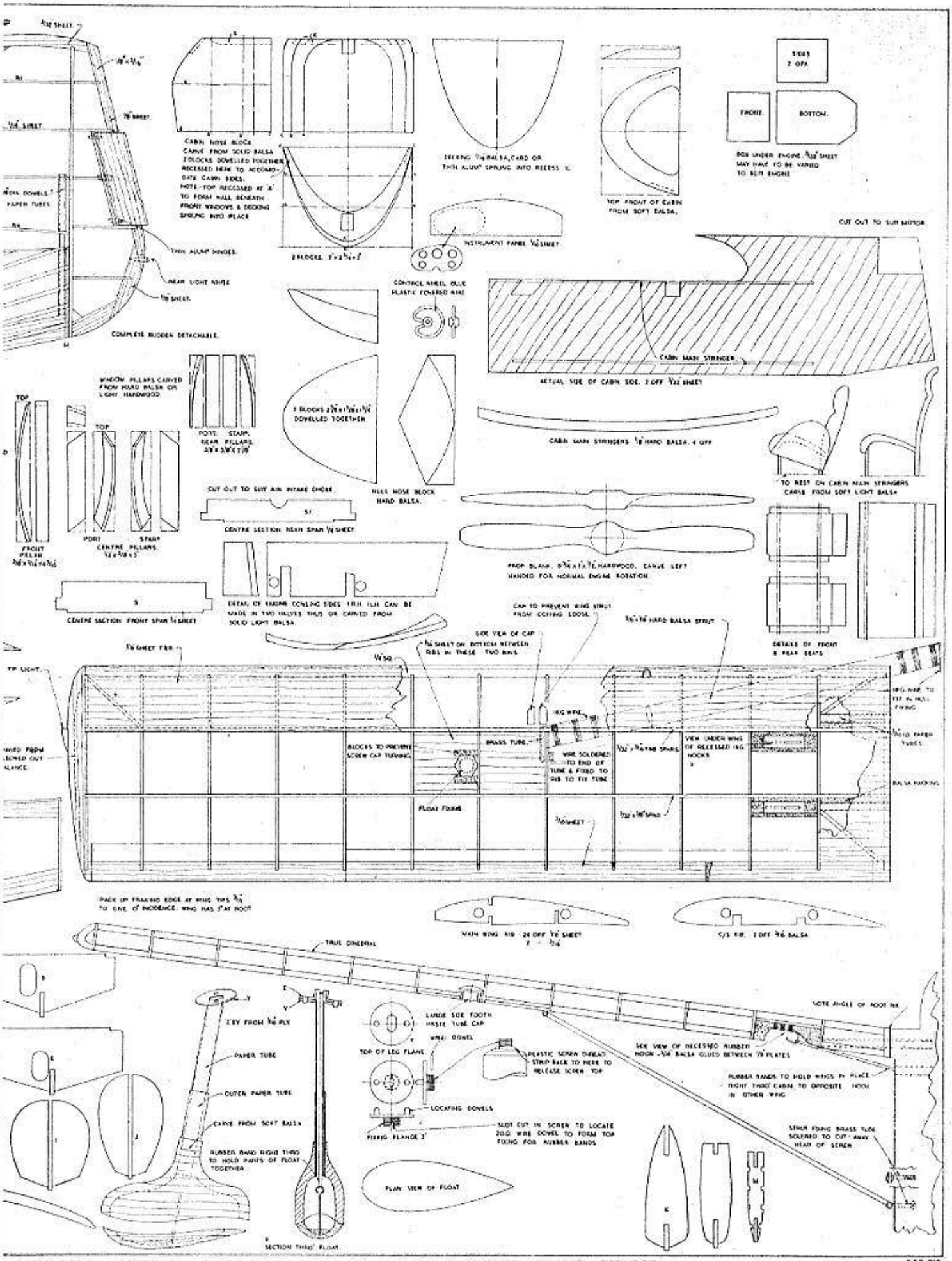



ARE AVAILABLE PRICE 7/- POST FREE FROM THE AEROMODELLER PLANS SERVICE.

FSP 319

A 48" WINGSPAN BRITISH RECORD HOLDING SAILPLANE

# COBRA

DESIGNED BY

R. A. TWOMEY.

COPYRIGHT OF

THE AEROMODELLER PLANS SERVICE.

3/-

THE AEROPLANE STANDARD NR LEIGHTON BUZZARD BEDS.

ALL WOODS UNLESS OTHERWISE STATED ARE BALSA

## MATERIALS REQUIRED

SHEET

1 SHEET OF 1/32" x 3" x 36" BALSA
2 " " 1/16" x 3" x 36" "
3 " " 1/8" x 3" x 36" "
1 " " 1/8" x 3" x 24" OBECHI

STRIP

12 STRIPS OF 1/16" x 1/16" x 36" BALSA
2 " " 1/8" x 1/8" x 36" "
4 " " 1/8" x 1/2" x 36" "

MISCELLANEOUS

14" x 1" OF 1/16" PLY

18" OF 22 SWG PIANO WIRE
3" " 20 " " "
1 SHEET OF 1/8" x 3" x 12" HARDWOOD
SMALL PIECE OF THIN ALUM SHEET
TISSUE
CLEAR & COLOURED DOPE

NOTE. WHEN CORRECT C.G. IS OBTAINED TRIM MODEL BY ALTERING TAILPLANE INCIDENCE. MODEL MUST WEIGH AT LEAST 7.75 OZS.

USE OFFSET TOWHOOK FOR CIRCLING FLIGHT BUT STRAIGHT TOW USE 45° LEFT RUDDER

TAILPLANE NEEDS 1/4" NEGATIVE INCIDENCE FOR CIRCLING FLIGHT

1/8" SHEET TOP & CEMENT TO TAILPLANE

1/8" SHEET TAILPLANE PLATFORM CEMENT TO LOWER PIN. PLATFORM IS DIHEDRALLED TO FIT LOWER EDGE OF TAILPLANE STRIP

HOLE FOR TAILPLANE RETAINING BANDS

PUSH PIN INTO TAILPLANE PLATFORM & CEMENT

1/8" SHEET PIN

ALUM. HINGES

NOSE BLOCK 1/8" SHEET LAMINATED

LEAD BALLAST IN HERE

WING SEAT FROM 1/8" SHEET OBECHI

SHEET WITH 1MM PLY FOR STRENGTH AT CHAIN DOTTED LINE

BALANCE MODEL AT THIS POINT

SHEET BASIC FRAME RUNNING RIGHT THROUGH FUSELAGE

FUSELAGE MAY BE SHEETED WITH 1/16" OR 1/32" SHEET FROM NOSE TO F10 FOR EXTRA STRENGTH

PROTECTIVE WIRE 22 SWG

1/16" TO STRINGER LET IN ON "A" ONLY

1/8" SHEET SKID

22 SWG

1/8" SHEET FOR OFFSET TOWHOOK (SEE F6)

20 SWG TOW HOOKS

1/8" SHEET TIPS

1/8" SHEET BASIC FRAME

SHEET IN SKID & OFF SET TOW HOOK

TAILPLANE SPAR 1/8" SHEET

RIBS 1/32" SHEET

MAIN SPAR 1/8" x 1/2"

SHEET CENTRE 2 PANELS TOP & BOTTOM WITH 1/32"

CHAIN DOTTED LINES SHOW SHAPE OF TAILPLANE PLATFORM

1/8" SHEET CENTRE MAIN WING SPAR

ALL FORMERS EXCEPT F1 HAVE 1/8 SQ STRINGERS LAID ON THEM

F1 - F10 FROM 1/8" SHEET
F11 - F18 FROM 1/16 SHEET

1/16" x 1/8" BOTTOM ONLY

1/16" x 1/8" T.E.

1/8" x 1/8" BOTTOM ONLY

MAIN SPAR

1/8" x 1/8" L.E.

1/8" x 1/8" TOP ONLY SPAR IS SET INTO BOTTOM OF THIS RIB

BOTTOM OF SPAR

SET END RIB AT ANGLE TO FIT FUSELAGE

1/8" SHEET HARDWOOD TONGUE

1/8" SHEET TIP

RIBS 1/16" SHEET.

FAIR IN WING FUSELAGE JOINT WITH PLASTIC WOOD

COVERING & DOPING.
COVER COMPLETE MODEL WITH ORDINARY ENGLISH TISSUE. GIVE ONE COAT OF CLEAR DOPE & ONE OF COLOURED. ADD 2 COATS OF SHELLAC FOR SUPER FINISH.

C. 317

THIS IS A 1/4 SCALE REPRODUCTION OF THE FULL SIZE PLANS WHICH ARE AVAILABLE PRICE 3/- FROM THE AEROMODELLER PLANS SERVICE.

BRITISH CLASS 'A' HAND LAUNCH RECORD HOLDER

# 'COBRA' by R. Twomey

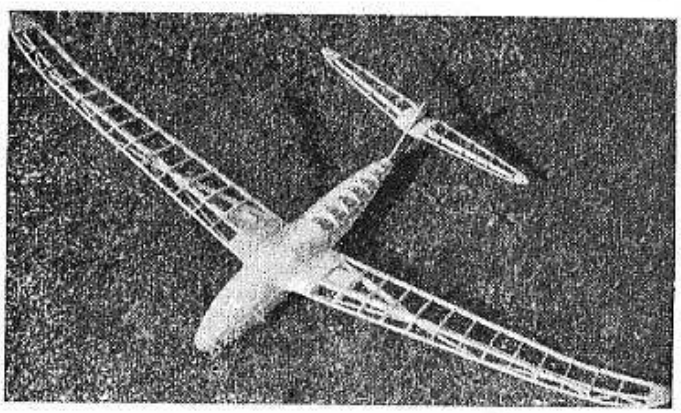
IT is not always that a sailplane possesses both good hand launch and tow launch qualities together. This very useful characteristic, however, is noticeable when one flies the " Cobra " . This is fully demonstrated by the 5 min. 46·6 sec. o.o.s. flight which won for its young designer the British Hand Launch Class " A " record. Everyone will agree that this is a remarkably good hand launch time for a small sailplane but the Cobra is far from limited to hand launching flights alone. For instance, amongst its best performances are an unofficial 31 mins. and a club record of 7 mins. 2 secs. from which flight the model was never recovered, disappearing into the blue at a great height.

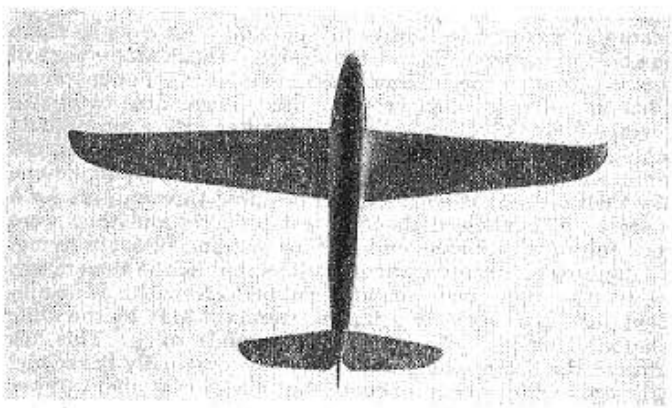
Quite a few models can put up a useful performance given friendly weather conditions, but the " Cobra " is capable of holding its own in any weather. For instance, at a club competition it took first place with 2 mins. 21·1 secs. o.o.s. and 3 mins. 8·2 secs. o.o.s., finally being lost on the second flight. This was under very bad and windy weather conditions, and it led the field despite the loss of the model—enabling the owner to make only two of the scheduled three flights of the other competitors.

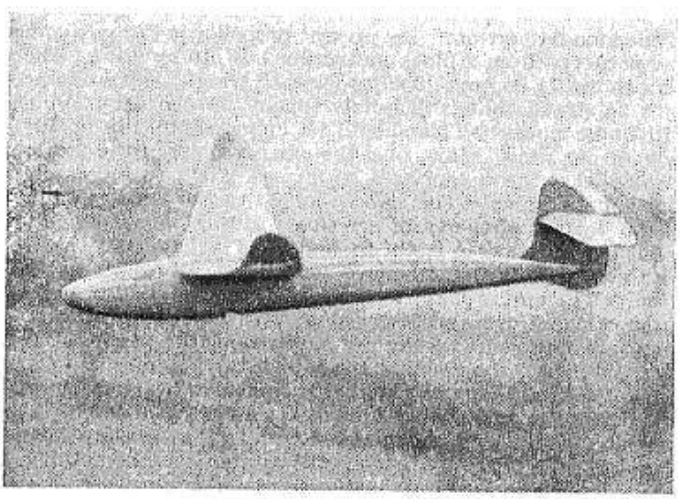
Construction is very simple as can be seen from the plan and very little difficulty should be experienced. Trimming is carried out in the usual way, first checking the C.G. position, and then trimming the model for straight flights before any circling is attempted.

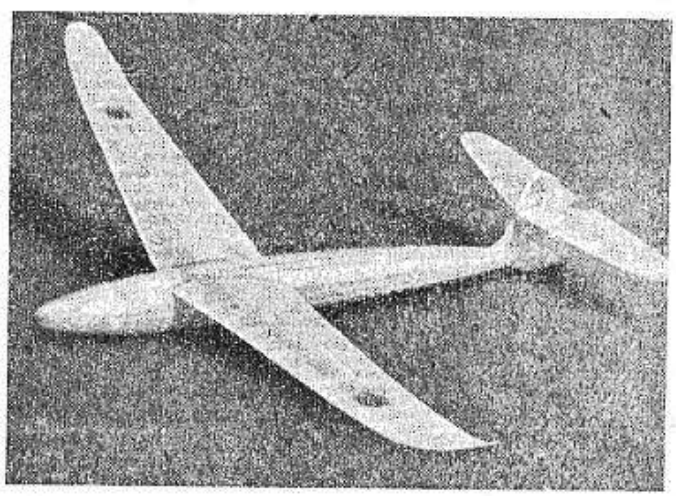
Full-sized plans of this machine are available as usual from the Aeromodeller Plans Service, The Aerodrome, Billington Road, Stanbridge, Leighton Buzzard, Beds., price 3/– post free.

**THE DESIGNER**: *R. TWOMEY . . . student of Ampleforth College . . . is Irish, but lives in Wales . . . secretary of the Ampleforth College M.A.C. for two and a half years . . . also a member of Cardiff M.A.C. . . . enjoys all types of models including the unorthodox . . . British Hand Launch glider record holder . . . best glider flight* 52 *mins. . . . best power flight* 10 *mins.* 31 *secs. . . . greatest success with F.A.I. sailplane.*



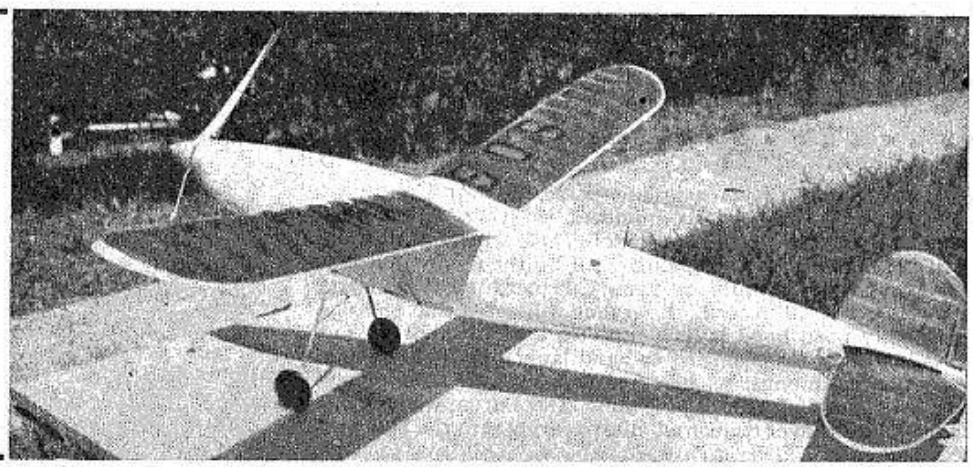






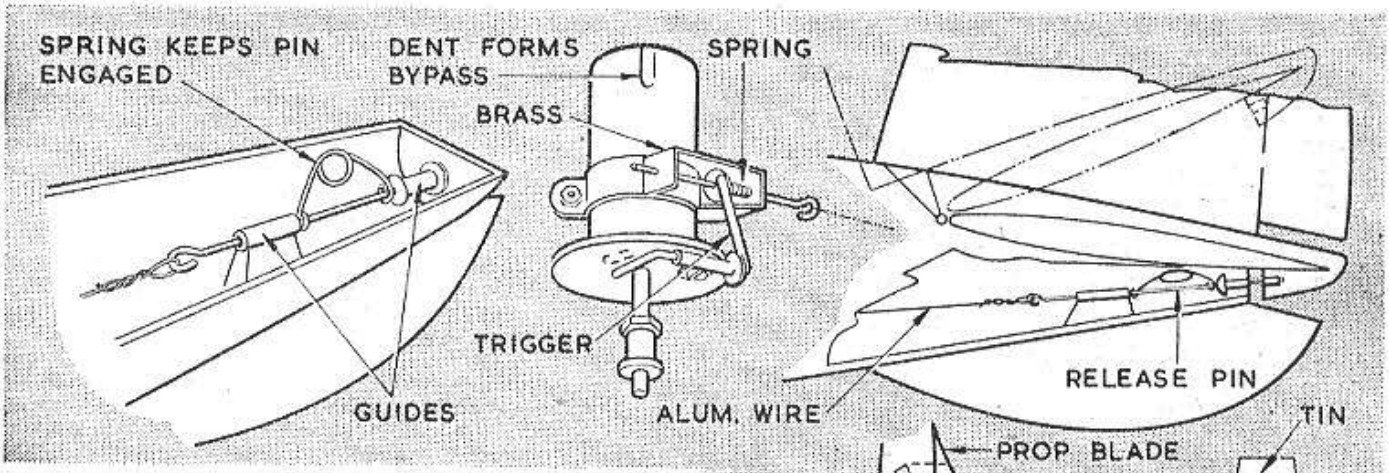
# The WAKEFIELD MODEL

BY A. VAN WYMERSCH



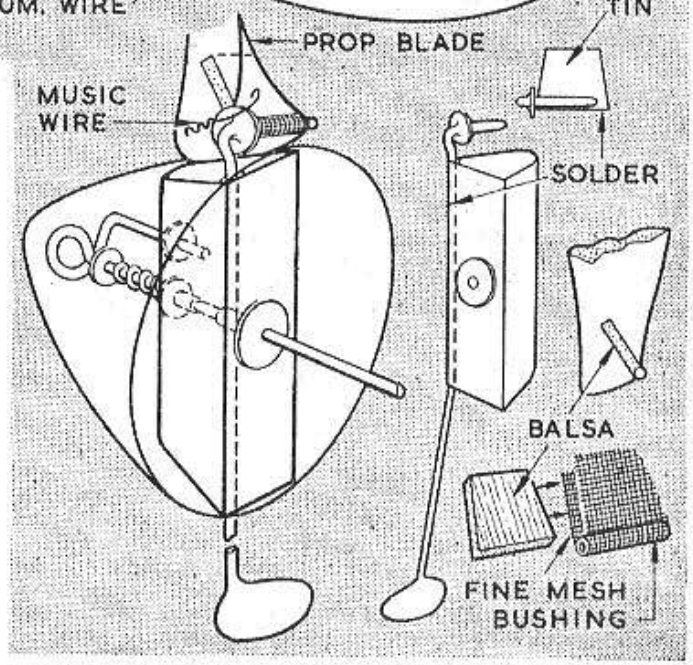
*This elegant model on the right is very easily recognised as a Van Wymersch Wakefield. The designer being one of America's foremost experts in this branch of modelling.*

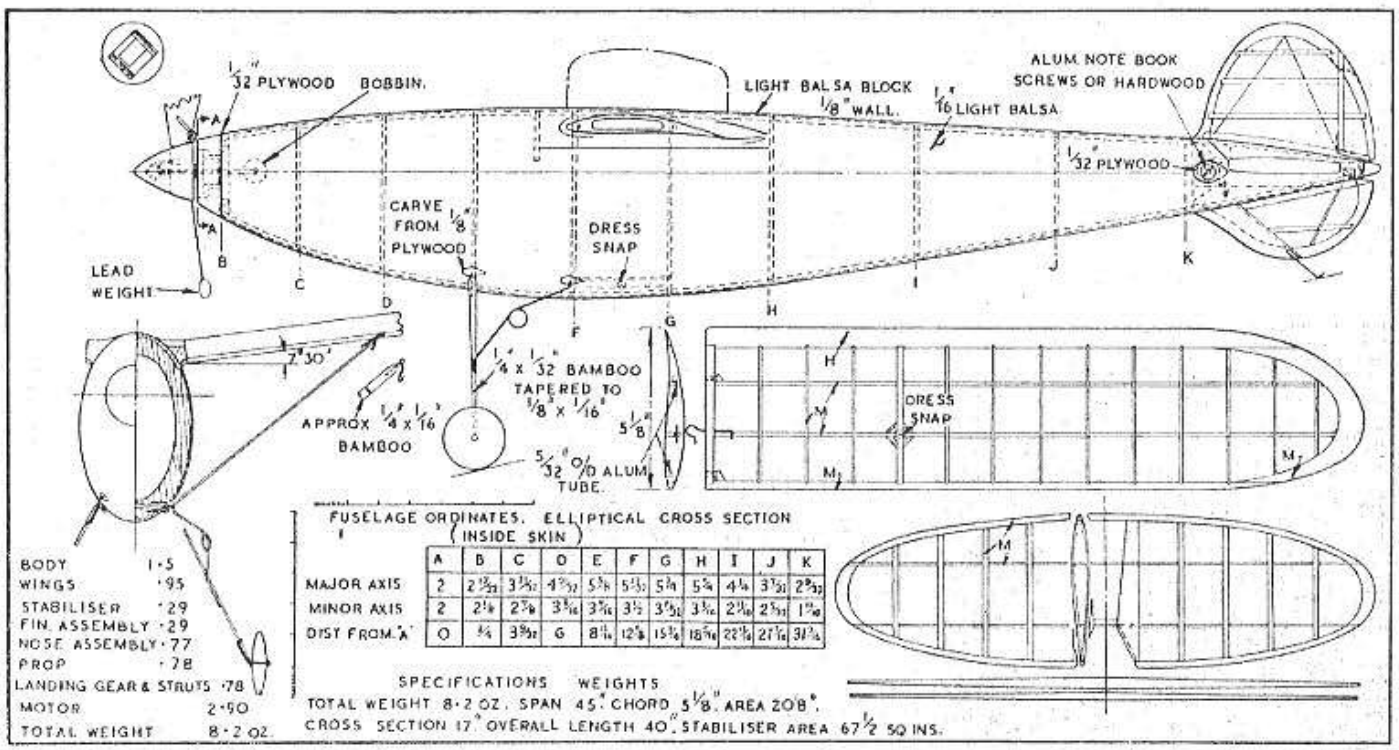
SINCE I was asked to put in my two cents (my views) about this class of model plane, here goes. First, however, I would like to point out that to my mind the " Wakefield " model as a type has " class ". More so, no doubt, than any other at the present time. Consequently performances are of high order. In addition, rubber powered contest models present more problems and varying factors than any others at present. They reflect greater skill, patience and knowledge for here the propellor and power must be properly adapted one to the other and to the model by the designer himself, whereas with internal combustion engines this job is often greatly facilitated by the manufacturer. Those who have seen my 1938 Wakefield model will immediately notice that my latest is but little different at least in regards to appearance. Yet, as many of you know, the improvements are found in such things as the propellor, rubber motor, balance, changes of tail areas, etc. The war years put a complete stop to my building, but even so there has been some evolution in the design. Incidentally part of this was due to the inferior rubber we have. For instance, I had found that when properly used, I was able to obtain average flights of three and a half minutes with a motor of 24 strands of $\frac{1}{4}$ by 51 inches. To do this, I would break in my motor and on the day of the contest I would only make one flight with it. That meant that I required three motors for a contest. This allowed them to rest properly and they were good for an additional contest or for test and pleasure flying. No doubt a bit extravagant nowadays, but at the time it was efficient use of a given weight of rubber. Now this is insufficient and I am currently using 20 strands of 3/16 by the same length. This is equivalent to 30 strands of $\frac{1}{4}$. This has affected the balance diagram of course. Originally the model balanced at 47 per cent. of chord, but now it is at about 52 per cent. Further aft, stability suffers considerably. This could be remedied by use of a lifting type tail (lifting airfoil), thereby obtaining the necessary angular difference between wing and stabilizer, or by relocating the wing (undesirable). Installing a dethermaliser up forward will also do the trick, and that is what I did on my present model. I have found it to be well worth the while too, for I have lost all too many of these time consuming models. My installation of the dethermaliser was necessarily makeshift since I didn't have access to the inside of the model, but it has proven to be very effective and dependable, at least mechanically. You will notice that I resorted to a small mechanism on the timer. This performs a dual purpose. First it allows the timer to protrude from the model at right angles to the cord leading to the stabiliser release, and second, it only puts a load on the timer at the time of release. This allowed me to use the very smallest, and lightest, Austin timer. It is true that the sum total of weight is probably the same, but I do feel that it is slightly more reliable. Of course, a great deal depends on the particular design of the model. I used thin aluminium wire to the tail. I now attach my stabiliser to the upper tail block, which is hinged to the fuselage in a way that allows it to be removed. I also found that it must flip up at least 45 degrees. The model settles down at a steady and reasonably fast rate which I have not as yet evaluated. The path is, if not absolutely, very near to straight down, and the ship touches down on all three points. All the time it seems to be in a groove, and this in spite of wind. Although it is more steady then than in flight, the rudder seems to have little effect for it keeps the direction it had at time of release. At release it goes into a slight stall which dampens immediately without oscillations. You probably gather that I was elated at the results. If so you are right, for I was reduced, for a long time, to flying only early mornings and evenings. The mosquitoes discouraged flying in the evening. Another item that claims much of my time periodically is a design that allows interchange of propellor blades. It must be practical, and sturdy and fairly easy to make. Usually one gets most but not quite all of these things. This latest that I am now using seems to fill the bill, and it allows use ofthe usual prop shafts and tensioner. Although not necessary, I have found it advantageous to make the hub of tin or brass, either of which is equally good for forming or soldering. The prop hinge and counterweight are one piece, for extra strength and simplicity. I prefer good quality knitting needles of approximately ·062 to ·080 diameter. One item that has always been very annoying to modellers was to hinge the blade in a strong, easy and if possible removable manner. I bend fine copper screen around a bushing so that it touches it for 180 degrees. It is soldered in place then and a slot is cut in the prop blade to take it, the opening between the two layers of screen is filled in with a bit of hard balsa. After trimming both so that all is flush with the blade, glue the hinge into place. The glue penetrates the screen and ties everything together. This is so strong that the bushing will tear out before the glue lets go. The blade is simply slipped onto the hinge pin then and a small steel wire glued to the blade will prevent it from coming off inadvertently. Although this doesn't weigh much if any more than the planest system, it should be obvious that it is the right end of the model to err on. The present propellor is 17 ins. diam. and is carved from a block measuring 1-13/16 by 2 ins. The plan shows 7½ degrees dihedral for each wing. This was fine with 24 strands but is definitely touchy for everyday flying with more power. This should be increased to 10½ or 10¾ degrees per wing. This, plus the extra weight in the motor requires that the rudder area be increased by approximately four square inches. This can be added to the bottom fin or to the bottom of the stabiliser tips. Either way is equally good, but I find that I still fly and glide in left hand circles with no ill effects and, I believe, very beneficial results to the climb. The circles may be quite tight too. I find a slight about of sidethrust is necessary along with a bit of downthrust. These are obtained with my automatic downthrust consisting of a piece of sorbo glued at the rear of the noseblock. You will notice the change of airfoil. This is an approximation of L.D.C.2. The only change I made was an attempt to correct for skin covering sag. This doesn't mean that I believe that it is the best but merely that I believe it may have something, for I did have it on an experimental plane on which it




did appear to be at least average. I lost the model in short order before I could evaluate it. The wings are still mounted against the fuselage with shear pins. A streamlined strut efficiently braces it. This allows separate wing panels which are easier to make, cover and align, not to mention transport and replace. Also, they may be adjusted separately for incidence by use of offset shear pins. Originally I found this very convenient for tests. No need for warping! I use 1/8 medium to soft balsa shear pins. A few elastics joining the wings through the fuselage. Dress snaps furnish a good anchorage for the struts.

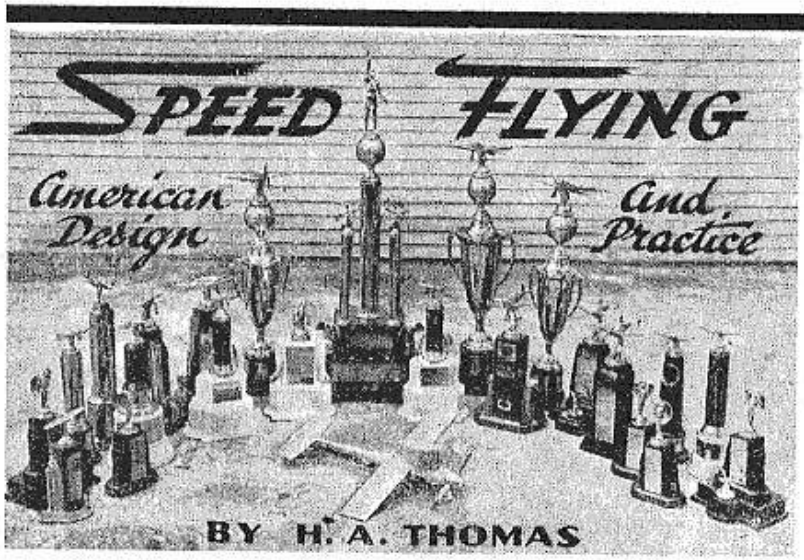
The fuselage has changed but little. I gave up winding from the rear a long time ago, so did away with the removable tail section. The bobbin allowed a pin anchorage at the rear. The noseblock is shortened along with the other forward details, allowing the motor to come further forward. This was in the right direction of course. I still prefer the single blade folding propellor and the streamliner, particularly now that the dethermaliser should prevent us from losing models so easily. Surely it is quite illogical to make a streamlined model and then handicap it with a double bladed free-wheeler? I agree that it would be more interesting were more of the experts to write in and tell of their experiences and ideas. Why be so secretive?




| | |
|---|---|
| BODY | 1·5 |
| WINGS | ·95 |
| STABILISER | ·29 |
| FIN. ASSEMBLY | ·29 |
| NOSE ASSEMBLY | ·77 |
| PROP | ·78 |
| LANDING GEAR & STRUTS | ·78 |
| MOTOR | 2·50 |
| TOTAL WEIGHT | 8·2 OZ. |

| | A | B | C | D | E | F | G | H | I | J | K |
|---|---|---|---|---|---|---|---|---|---|---|---|
| MAJOR AXIS | 2 | 2 3/32 | 3 3/32 | 4 3/32 | 5 1/8 | 5 1/32 | 5 1/4 | 5 1/4 | 4 1/4 | 3 1/32 | 2 3/32 |
| MINOR AXIS | 2 | 2 1/8 | 2 7/8 | 3 5/16 | 3 5/16 | 3 1/2 | 3 5/32 | 3 1/16 | 2 1/16 | 2 5/32 | 1 5/16 |
| DIST FROM 'A' | 0 | 1/4 | 3 9/32 | 6 | 8 1/16 | 12 1/8 | 15 1/16 | 18 5/16 | 22 1/16 | 27 1/16 | 31 3/4 |




OUR model club (Little Rock, Arkansas, south-central U.S.A.) has, for the past two years, stressed model speed flying with heartening results. In the hope that readers of the AEROMODELLER can in some measure benefit from our experiences, we pass along the following comments. John Sadler, dean of southern modellers, has contributed most, our typical club model being primarily his design with details perfected through the combined aid of several other individuals. Our belief is that more is gained through joint effort on a basic design than had each of us branched off on his own.

**The Typical Model.**

Simplicity, compactness and clean lines characterize the "Little Rocket" model. Wings have no dihedral, are straight in plan-form, of constant section similar to a thinned Clark Y with sharpened entering edge, and with square-clipped wing tips. We have found this wing decidedly superior to the double-convex section chiefly due to the flat, nose-down attitude at high speed that can be achieved. Gracefully curved wings with tapering or rounding tips have fallen by the wayside with us; the simple rectangular plan is our choice. The wing is of solid hard balsa with a hardwood stiffener at centre, control lead-out wires being enclosed within.

Fuselage is built around the requirements of engine and tank since glo-ignition requires no space-taking accessories. Hardwood "crutches" are full-length, bandsawed rather than bent to the tear drop shape. Other parts of the fuselage are of hard balsa reinforced with plywood. The unit separates along the horizontal centre-line and is held together by two bolts.

The cylinder is faired by a carefully built pressure cowl of balsa and plywood with openings the minimum necessary for adequate cooling. Inlet is a narrow vertical slit, and outlet usually twice this area. (A frequent mistake of beginners is to enlarge the front opening without providing suitable outlet.) The cylinder fins are filed down at the sides to reduce frontal area—a practice frowned on by many, and discouraged by engine manufacturers. However, we note that a majority of top speed winners endorse it!

Tail surfaces are of 1/16 inch plywood, thinned at leading and trailing edges. Steel wire and tube hinges are favoured over the standard fabric ones. A vertical fin is forgotten in this functional design.

The fuselage "begins" with a spun aluminium spinner, the "Froom", available in several shapes and sizes and used by virtually all U.S. speed models. It is ideal for use with an electric starter; the pointed nose engages the rubber hose perfectly. We have dropped the use of flywheels after finding that racing engines will produce equal speed without this weighty item. The engines require little of the propeller for flywheel effect—the slimmest splinter of a propeller (if in balance) is sufficient when electric starters are employed.

Our models take off via a two-wheel gear rather than the three and four wheel dollies often seen and alight on a steel tube belly skid. Lately we have resorted to hand-launching due to rough flying sites.

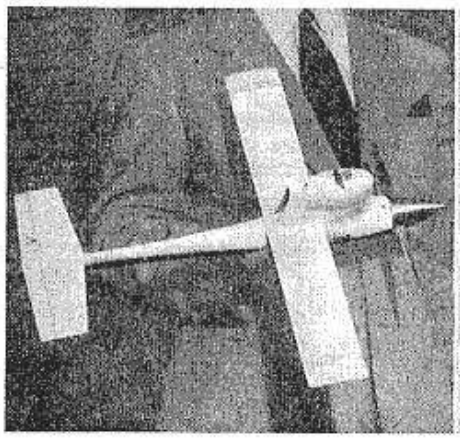
Fuel tank design is of utmost importance to the over-all success of the speed model. Variation in fuel level is a factor to reckon with and it must be remembered that this level moves horizontally due to centrifugal force in flight. A deep narrow tank of whatever length necessary to get the desired capacity is the result. It is of soldered brass or tinplate with fuel line of generous diameter and two additional tubes for filling and venting.

We habitually use a manufactured fuel, "Tiger B", with uniformly good results despite the claims by others that every variance in humidity requires a change in fuel ingredients. Fuel is a costly item since a racing engine in a forty lap flight will consume a considerable quantity.

The cleaner, smaller and lighter the model is, the higher the propeller pitch can be. An engine must be run enough to sufficiently loosen before it will yield the best speed, and we often fly a new engine on perhaps two inches less pitch than will ultimately be used. Again we standardize on a reliable product: "Excell" propellers in various pitches and diameters. These are moderately-priced, are nicely finished of hard maple and we generally dress them down a trifle at the hub and sometimes in blade area.

Fillets, though small, are neatly faired, using a water-solvent substance which is easily shaped. Wood-filling is done by spraying several coats of grey auto primer over the entire model with sanding between coats. Since bright colours are no iron clad requisite, we are finishing latest models in this flat grey paint. The last coats are rubbed to glass-like smoothness.

Within a year, our models have reduced in over-all dimensions, weight and bulk by approximately one-third. This permits us to efficiently employ higher-pitched propellers than before with an obvious boost in flight speeds.



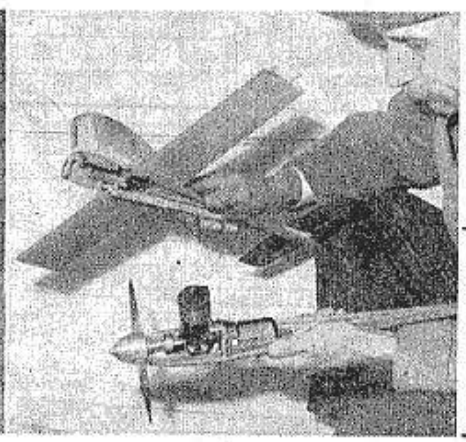


*Photo on the left shows a highly finished "Little Rocket" belonging to one of the Club members, in this case a Class C version powered by a McCoy 49. On the right Charles Lord displays the interior of another McCoy 49 powered replica, this time the finish is plain highly polished wood. Note the full-length sycamore crutches and the tremendously compact engine installation.*

*Heading Photo, Left, shows an imposing array of trophies won during 1948 contest season by "Little Rocket" models. Right, shows John Sadler, centre, tuning his speed model for flight, assisted by Jim Tucker and Roy Shearer, right.*

Duromatic's line of McCoy racing engines are our favourites. Even the highly regarded Dooling has failed to equal the new Model 20 McCoy '60—at least in our hands. The McCoy '29 and '49 are foremost in their repective classes (although a new Atwood Triumph '49 won a first place at the National meet). The aforementioned '60 and the tiny, new '19 comprise a stable of well-built, reliable, high-performance power plants. Consequently our stock model design is now built in four varying sizes for these engines. Spans range from eleven inches for the class A '19 model to eighteen inches for the large ship. Weights range from less than 12 oz. to 20 oz. ready to fly.

Several times during the past two-year period we have felt we had reached minimum size and ultimate compactness. Each time, however, subsequent improvements have made for lighter, smaller models without too much sacrifice in handling characteristics and with still greater speeds.

Some fifty models of this basic design have been constructed by our group members to date. The high standard of uniformity in performance we feel is an attribute to the design, and we have won many state and regional competitions. First place trophies were won at the 1948 Nationals, and again at the 1948 Plymouth Internationals. Recently, three of our class D models equalled or exceeded 150 m.p.h. at a local contest. During the 1948 contest season, our group collected a total of thirty speed event trophies and numerous other awards flying the "Little Rocket" models. Improved 1949 versions are being built as this is written.

### General Notes on Speed Flying.

The neatest model with the fastest engine will avail little if it is flown at an inefficient attitude. Flying trim is finally being regarded as a key factor in speed flying. "Mushing" attitudes, however slight, kill speed tremendously. "On the step" is our slang phrase describing the fast-moving ship, fully flattened out in what appears to be a very slight nose-down attitude. This is the condition of flight trim to design, build and adjust toward.

Equally bad is the model which yaws and strains outward to a great extent in flight. Nowadays no outward-set fins or thrust lines are employed—to the contrary, inward settings are more common. Minimizing cowl side area, shortening the nose and locating lead-out wires near the C.G. are steps toward reducing excessive "pull".

Skilful piloting still pays dividends in speed competition. Steady, level flight at 6–10 ft. height will help get the best out of any model. If an engine is on peak at 10 ft. altitude, it may lean out and quit if rather suddenly zoomed to 25 ft. altitude. Conversely, if it is running hot and lean at 20–25 ft. height, it may smooth out nicely if slowly depressed to shoulder-height elevation.

Certain modellers have greater aptitude for speed flying than others but if the individual is normal, extended practice will develop him into a competent "pilot".

Safety measures must always be taken. Careful examination of lines and terminals as well as the control fastening within the model should be a ritual. Onlookers should be tactfully moved back a safe distance prior to making a flight.

We know, first-hand, that speed flying is an engrossing and a valuable phase of aeromodelling; it teaches us more about propellers, fuels and engines than perhaps any other. And continued wide participation proves that it is here to stay. Those of use who have enjoyed it so much in the past find it heartening to learn that it is gaining the interest of greater numbers of English modellers.

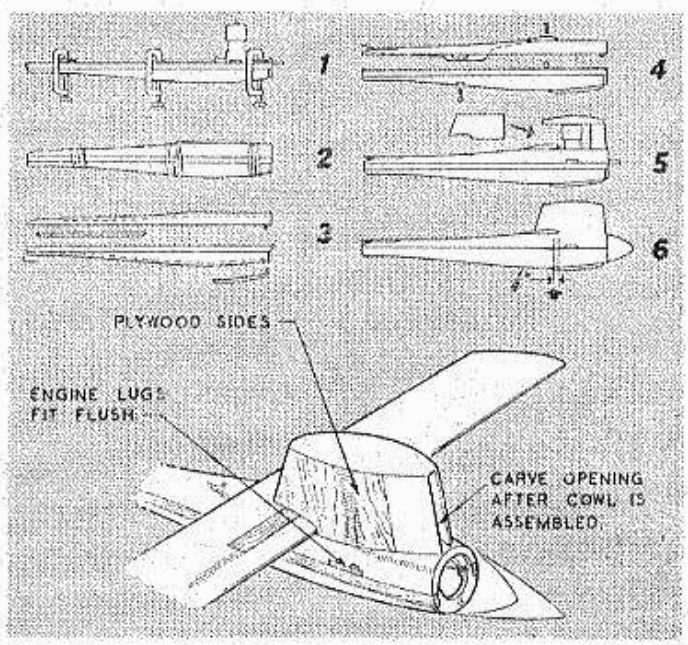
We have no desire to leave the impression that we have achieved any high level of perfection as speed model enthusiasts. Our intent here has been to encourage others to take up speed flying. If we can be of assistance to any individuals through correspondence, we shall be happy to oblige.

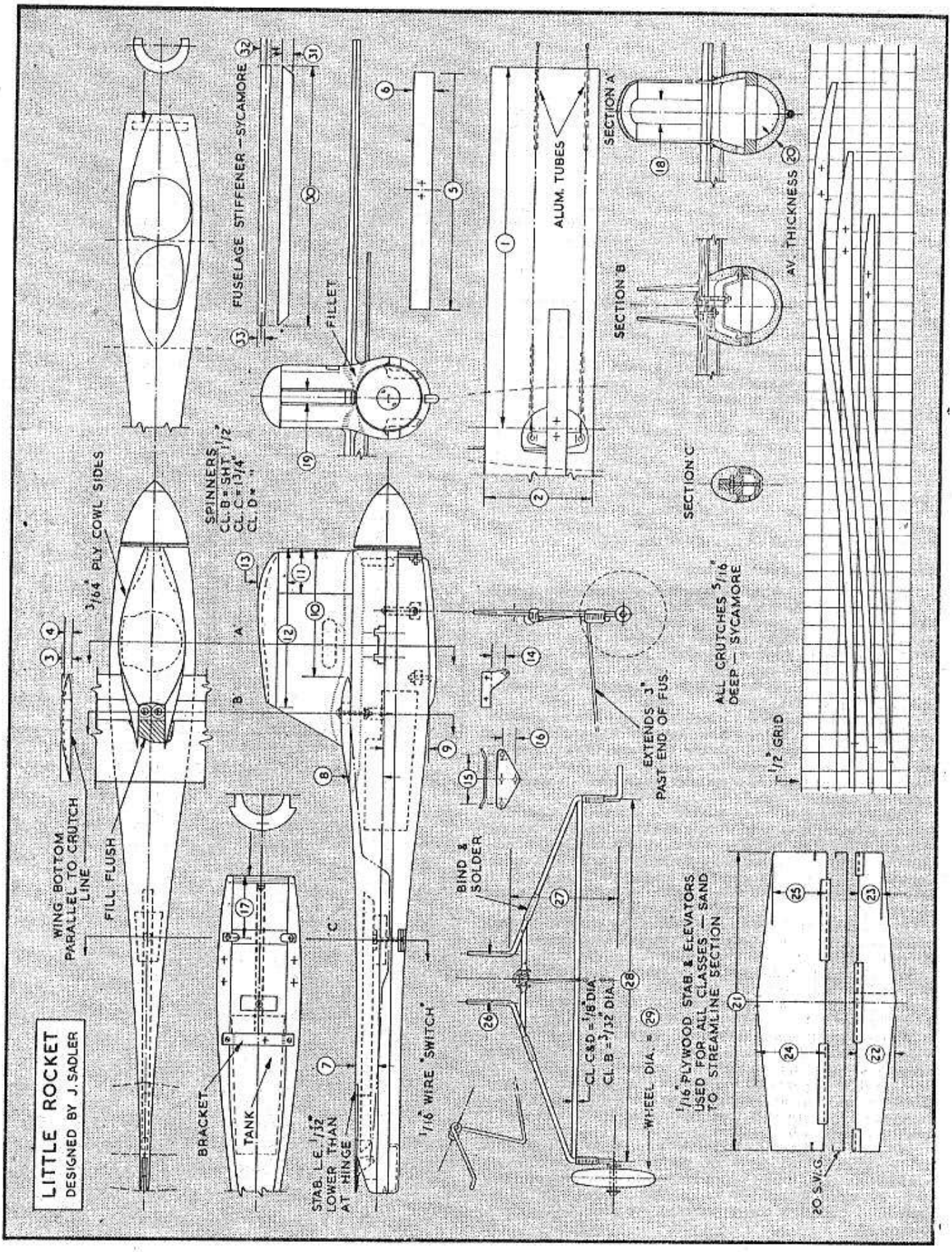
This table supplements the plan on the next page, on which all dimensions are numbered. To scale up the model to any of Classes B, C and D (S.M.A.E. classes III, IV and V) it is only necessary to substitute the dimensions in the required category below for the numbered dimensions on the plan, and draw full-size accordingly.

**"LITTLE ROCKET" DIMENSIONS (INCHES)**

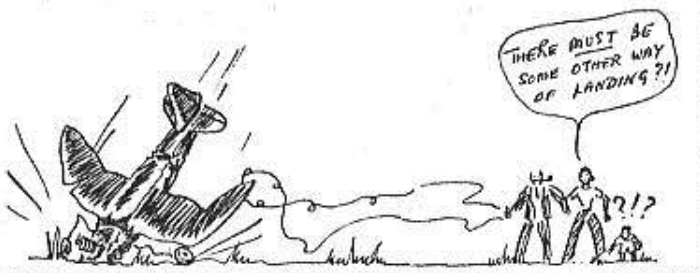
| Ref. No. | "B" (III) | "C" (IV) | "D" (V) | Ref. No. | "B" (III) | "C" (IV) | "D" (V) |
|---|---|---|---|---|---|---|---|
| 1 | 8½ | 10 | 10 | 18 | | | |
| 2 | 2⅜ | 3 | 3 | 19 | | | |
| 3 | | | | 20 | | | |
| 4 | | | | 21 | 7⅛ | 8½ | 8½ |
| 5 | 5 | 6½ | 6½ | 22 | | 1 | 1 |
| 6 | | | | 23 | | | |
| 7 | | | 1 | 24 | 1⅜ | 2 | 2 |
| 8 | | | | 25 | 1⅛ | 1½ | 1½ |
| 9 | ½ | 1⅛ | 1⅛ | 26 | 1½ | 1⅜ | 1⅛ |
| 10 | 3⅛ | 3⅜ | 3⅜ | 27 | 2⅜ | 3 | 3 |
| 11 | 1 | 1½ | 1½ | 28 | 8½ | 10 | 10 |
| 12 | 3½ | 4⅞ | 4⅛ | 29 | 2 | 2⅜ | 2⅜ |
| 13 | | | | 30 | 6½ | 7½ | 9½ |
| 14 | | | | 31 | | | |
| 15 | 1¼ | 1⅜ | 1⅜ | 32 | | | |
| 16 | | | | 33 | | | |
| 17 | 1¼ | 1⅜ | 1⅜ | | | | |

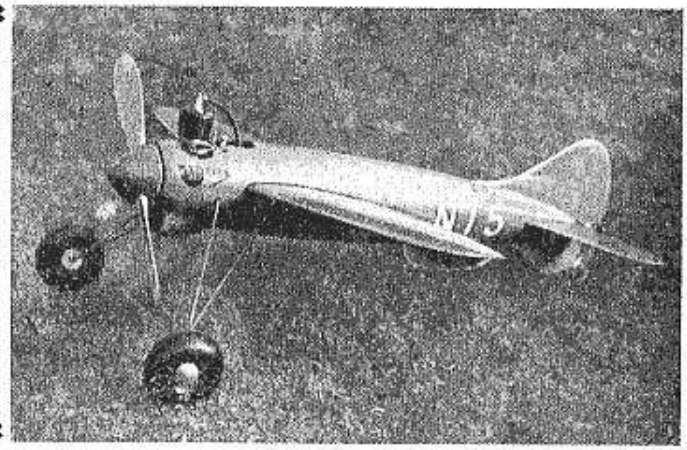
*Below shows the various stages of construction of the "Little Rocket," scale plans of which are given overleaf.*




LITTLE ROCKET
DESIGNED BY J. SADLER
WING BOTTOM PARALLEL TO CRUTCH LINE
FILL FLUSH
3/64" PLY COWL SIDES
SPINNERS
CL. B = SHT 1/2"
CL. C = 13/4"
CL. D = "
FUSELAGE STIFFENER — SYCAMORE
FILLET
ALUM. TUBES
SECTION 'A'
SECTION 'B'
SECTION 'C'
AV. THICKNESS
ALL CRUTCHES 5/16" DEEP — SYCAMORE
1/2" GRID
EXTENDS 3" PAST END OF FUS.
BIND & SOLDER
1/16" WIRE "SWITCH"
CL. C&D = 1/8" DIA.
CL. B = 3/32" DIA.
WHEEL DIA. =
BRACKET
TANK
STAB. L.E. 1/32" LOWER THAN AT HINGE
1/16" PLYWOOD STAB. & ELEVATORS USED FOR ALL CLASSES — SAND TO STREAMLINE SECTION
20 S.W.G.

# CONTROL-LINE COMMENTARY



THE querulous question in our heading we feel is one which has been voiced aloud or *sotto voce* by many an infant controlliner as he wearily goes for a spade. Its illustration in this case we owe to Mr. J. Randall who wrote to us in desperation and whom we hope we managed to help to better flying.

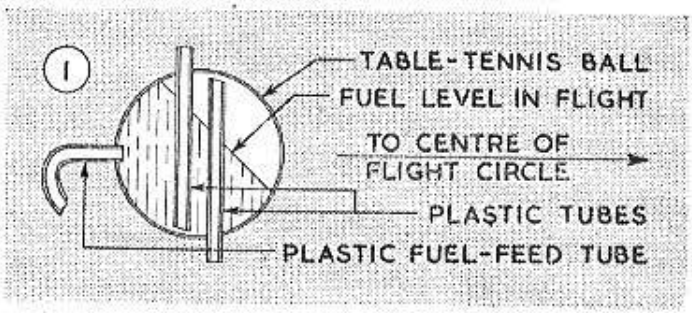
We have another miscellany this month, photos and drawings, all the contributions of our readers. Perhaps the high spot news item is a new unofficial record put up by a member of the Weston Club, which they are trying to make official at the time of writing. With a model of some ten inches span weighing only 6 ounces all up, 98 m.p.h. was put up with the aid of an Elfin 1·8 turning a 6 in. dia. 14 in. pitch one-blader at some colossal revs.! We certainly hope he can repeat the performance for the official timekeepers—it may open many people's eyes!

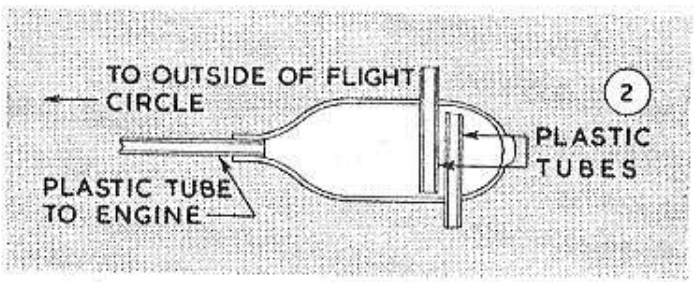
Our heading photograph is of a beautifully made 28 in. span Ohlsson "60" powered job weighing 3 lb. 12 ozs., designed by N. G. Taylor, Secretary of the newly formed Wimbledon and District Model Aero Club, now welcoming new members. Mr. Taylor is something of an old hand, as this is his 12th model and his first was built in 1941. Tell us, Mr. Taylor, how come you make them last so long?

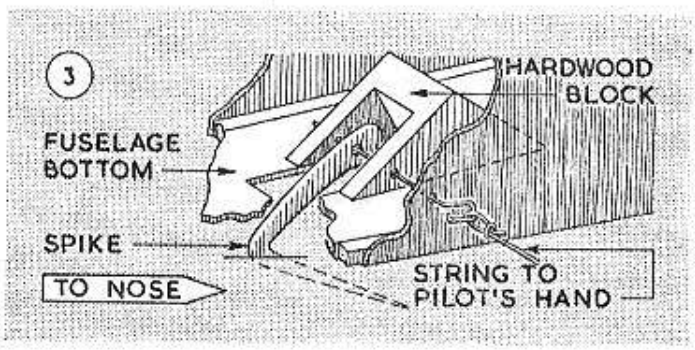
At the bottom of the page are a couple more shots, that on the left being from W/O Hicks of the B.A.O.R.—a modified Phantom, E.D. powered. On the right is an excellent control line Gladiator, built to G. Jones' design by E. McDiarmid of Cardiff. Scale is 1 in. to 1 ft. and the model is powered by a Mills.

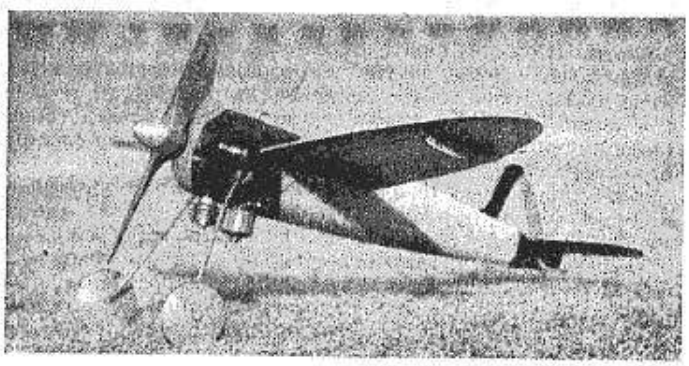
Now for two wily schemes for stunt tanks. Shown in Figs. 1 and 2 they are from A. Caunt and J. Clark respectively. The first utilises a ping-pong ball, the second an empty petrol lighter refill—1½d. size. They are both worth trying, anyway, to save yourself the 5/– or so for an ordinary stunt tank.

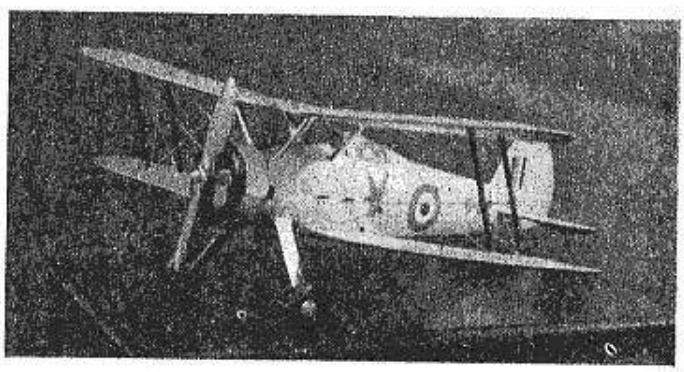
The old problem of how to go and fly when no helper is available is settled by P. D. Tyson's single-handed release system drawn in Fig. 3. We can see a lot of fun for those who fly off concrete . . .

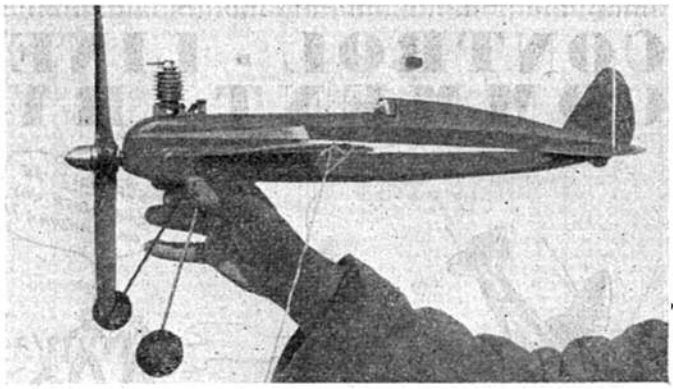


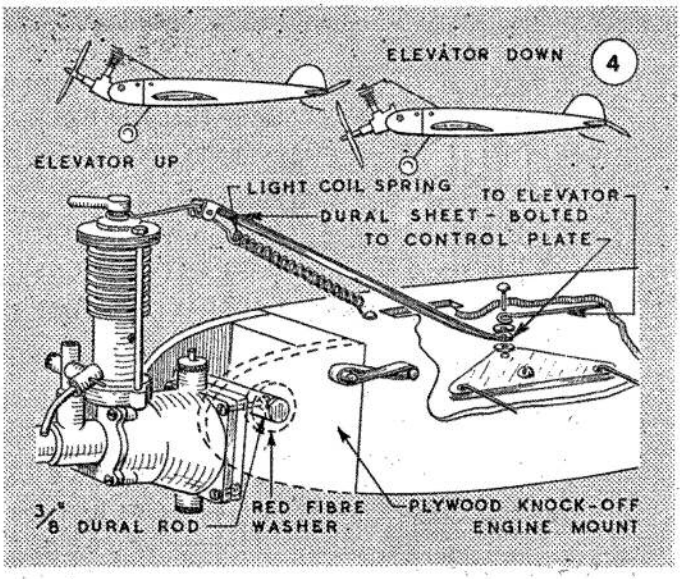



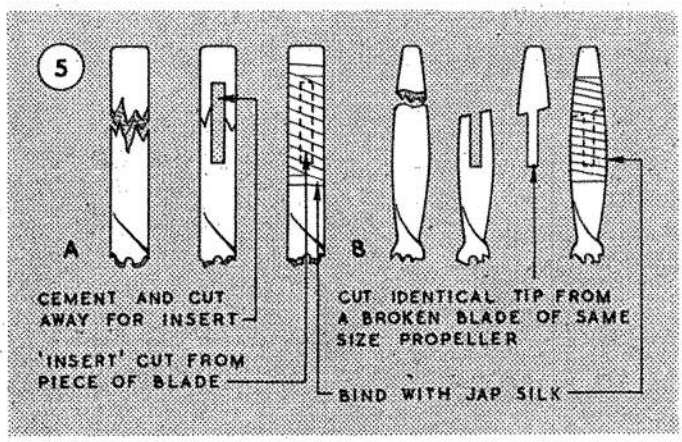



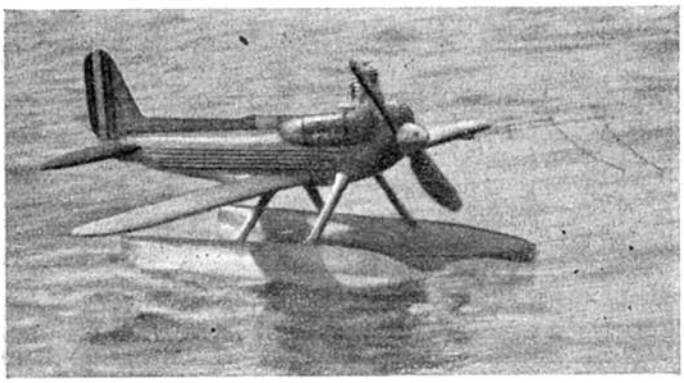









Another Fokker favourite, the old D VII, was chosen by D. Smith of Southampton for his control line child and the result is shown you above left. Like most control line enthusiasts, he met a lot of preliminary trouble before he obtained the right pitch and diameter airscrew for this particular model, but the last we heard was that, vertical wingovers achieved, everything was set for the first loop.

From overseas, and A. Brailsford, comes our other photograph above showing his little Movo D.2 powered sports monoplane of rather attractive lines. It was built during a spot of service in Italy.

Readers will remember Major F. Brian Thomas whose articles in the AEROMODELLER lent much weight to control line boom in this country when it started a short while back. From his experience he sends a very novel suggestion for helping a small model to become more responsive to control with a small engine—without increasing the elevator area. Shown in Fig. 4 it might well be regarded as a rather Heath Robinson device but Mr. Thomas says he has found it gives definite improvement in response. He would like to hear from anyone else who tries it out and what their own findings on the subject may be. As the diagram shows, the engine is bolted to a $\frac{3}{8}$ in. diameter dural rod held in the plywood knock-off engine mount, the rod being bushed by a fibre washer glued with Durofix on each side of the plywood mount. The light coil spring is intended to support the weight of the engine when the model is not flying, although when the engine is held with the left hand and started with the right it is found when running that the engine remains horizontal and hardly needs this spring at all. At the top of a loop the weight of the engine itself tends to flop it into the upthrust position which smacks the model smartly over the top—something many modellers will appreciate after watching their models waver unsteadily at this point. By this virtue it should be possible to stunt models with smaller engines than would normally be needed.

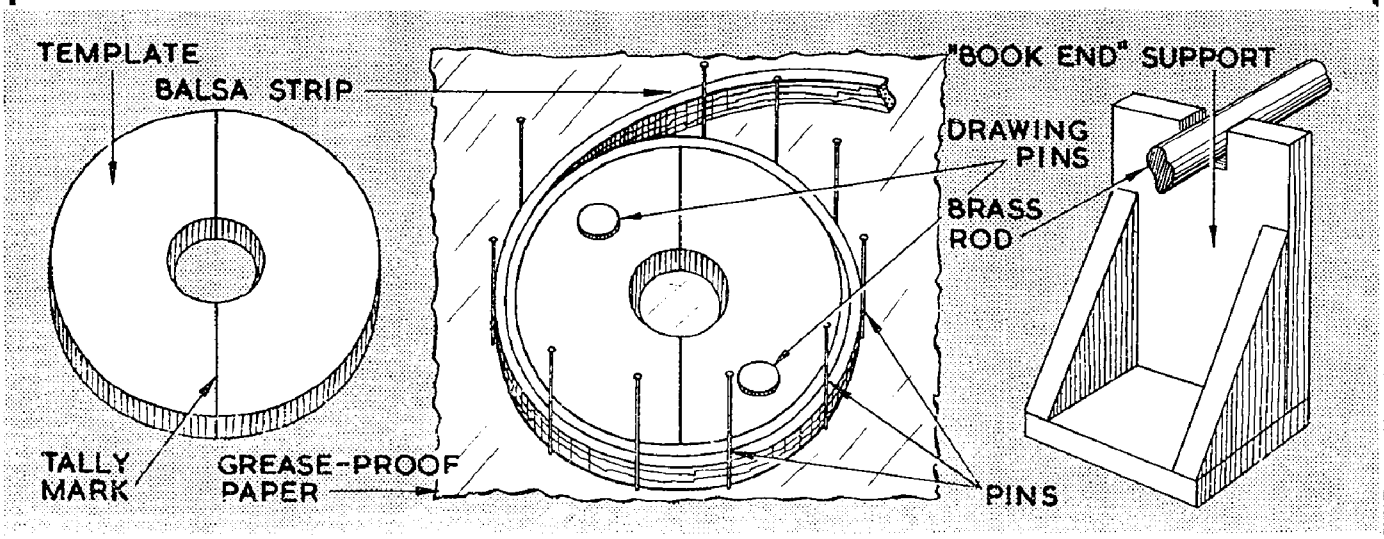
Our last item is from D. Thomas (no relation) who has got tired of the constant expenditure on propellers and so thought out the following scheme for getting over the difficulty without having to resort to actually carving them himself. In the event of a centre-blade breakage either method may be used but in the case of a tip breakage method "B" is preferable. When breakage occurs near the root a repair is much more difficult, and therefore on many occasions the repairs are not worth while unless they are really consistent with safety and strength.

To round off this month's Commentary we have a photograph from P. Donavour-Hickie showing his most attractive little model, based on the Schneider Trophy S6b, at rest on the water. Seaplane take-offs and landings present completely new problems of their own which call for an entirely new approach. We hope we may be able to publish a few tips on this subject in a future article. This model, Mills powered, does 40 m.p.h. on 25 ft. lines and has been found to take off from snow equally as well as from water!

Before we sign off may we remind you that this feature is specially for all control liners and apart from ideas and photographs we are also anxious to receive informative letters of interest to other modellers, so roll them in, modelbods, and here's looking forward to hearing from you.

# WOUND FORMERS

BY
R. A. ALEXANDER




BEFORE I tried my hand at making wound formers those two words used to conjure up in my mind a vision of steam kettles and complicated jigs and patterns. After actually making them, I can assure those who think as I did, that no complicated apparatus or unusual ability is necessary.

The use of wound formers is generally confined, with a few exceptions such as light-weight streamlined gliders, to rubber-driven models of medium wing loading where their advantages —weight for weight—they are far stronger than any other type of former, and the fact that they allow the maximum space for the rubber motor, far outweigh their disadvantages, namely, that they require more patience and time to make and that they are more difficult to repair on the field.

Now as to their construction and the materials required. You will need some sort of stiff cardboard or artist's board, about 3/32 in. thick is ideal, from which to cut your shapes or templates, some medium hard balsa sheet from which to cut your strips, a packet of pins, a tube of cement, a length of ½ in. diameter dead straight brass or steel rod on which to thread the completed formers, and lastly, some ordinary wood with which to make two " book ends " in which to mount the rod and formers while cementing on the stringers. No steam kettles or complicated jigs required.

The first job is to draw accurately on the cardboard the shapes of your formers, remembering to make them ⅛ in. smaller all round than the finished outside size of the former if you are using four wrappings of 1/32 in. strip, or 3/32 in. smaller if you are using three wrappings and so on. In the centre of your template draw a ½ in. diameter circle which, when cut out will accommodate the mounting rod, and draw a line dividing your template into two halves as you will later require to cut it in two. Next take your 1/32 in. sheet balsa and cut it into strips, 1/32 in. wider than the required width of the completed former. This extra width is to enable you to sand down the sides of the formers to a flat surface. Having cut the strip, try and persuade your mother or wife to allow you to use the bath and soak the balsa strips in a few inches of tepid water for two hours then take them out and let them dry off for an hour, by which time they will still be damp and very pliable but not dripping with water.

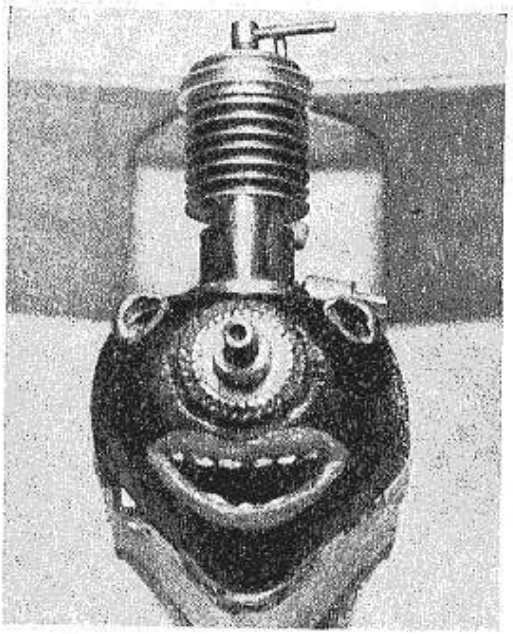
Whilst the balsa is soaking and drying, cut out the cardboard templates and the hole in the centre with a fret saw but do not cut them in half at this stage. Next pin the templates to the building board and start winding the strip round them, using pins to hold it close to the templates—the smaller the radius of the curve the closer must the pins be placed to prevent the balsa strips from cracking. Do not use any glue at this stage, but when sufficient wrappings have been applied allow to dry out thoroughly wrapped round the templates, and by thoroughly I mean a minimum of 24 hours. Then pull out the pins and you will find that the balsa strip will spring out to a slight extent. This completes the preparations and the next job is the actual construction of the formers.

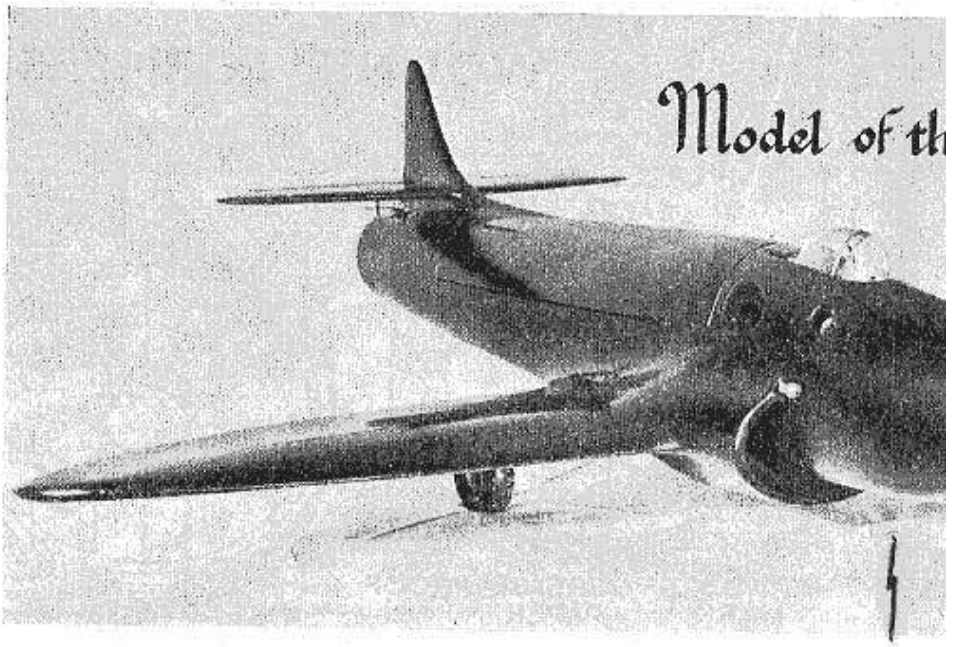
Place a piece of greaseproof paper or tracing paper under the template and once more pin down on the building board. Champher off one end (the inside one of the coil of balsa strip) and commence re-winding the strip round the template using balsa cement this time. If one strip is insufficient to complete the former join another on to the first by champhering the two mating ends, and incidentally, do not make a join on either the first or last wrappings. The balsa strip having previously dried round the template will this time bend round quite easily and with very little tendency to crack, though pins are still necessary to keep it tight to the template. When the formers are quite dry, lift from the board, removing the paper from the underside and lightly sand on both sides to the required thickness. Next ease the formers off the templates and lightly sand the corners only of the insides of the formers. If you sand the whole of the inside surface of the formers they will be a sloppy fit on the templates. The next operation is to cut the templates in half using the line which you have previously drawn but please use a razor blade and not a fret saw or the formers will again be a sloppy fit on the re-joined halves of the templates. It is a good plan before halving the templates to make a tally mark on the two halves so that they will mate up correctly. Having cut them in halves cement them together again very lightly, it being most important to use the minimum of cement, and slip the balsa formers on to them.

Your wound formers are now made and the final job is to thread them in to the brass or steel rod (wood will warp with the years) at their correct intervals which have been marked on the rod. See that they are all square to the rod and support between the two " book ends " which are fastened to the building board. Cement the stringers in place, double glueing all points of attachment to formers and turning the rod round in its rests so that the stringer being attached is at the top for ease of alignment.

Having allowed the whole job to dry the last stage is to withdraw the building rod and gently break the lightly cemented templates into two pieces when it will be found a simple matter to extract them from the finished fuselage.

The construction of wound former fuselages needs careful work, a lot of patience and requires far more time to construct than the slabsider, but the completed result is well worth every minute of the time spent on it.

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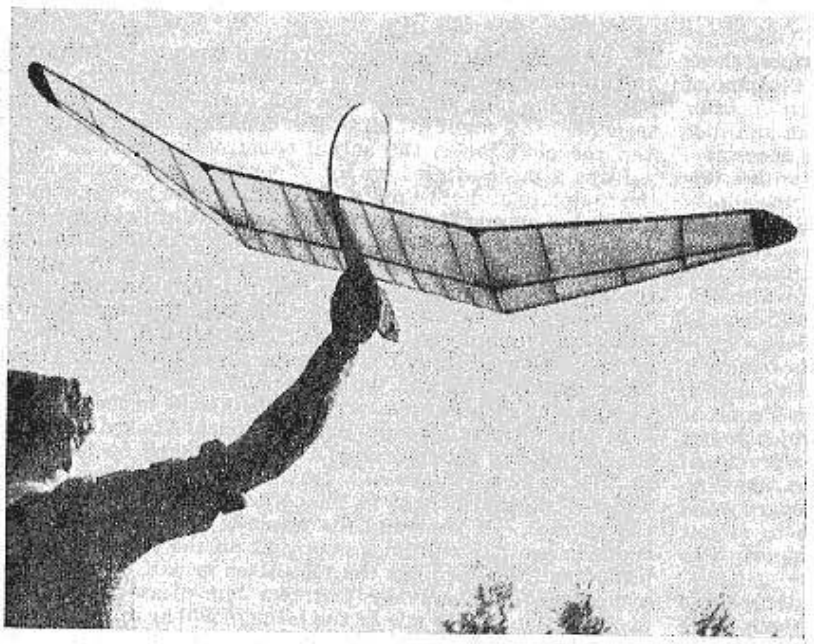
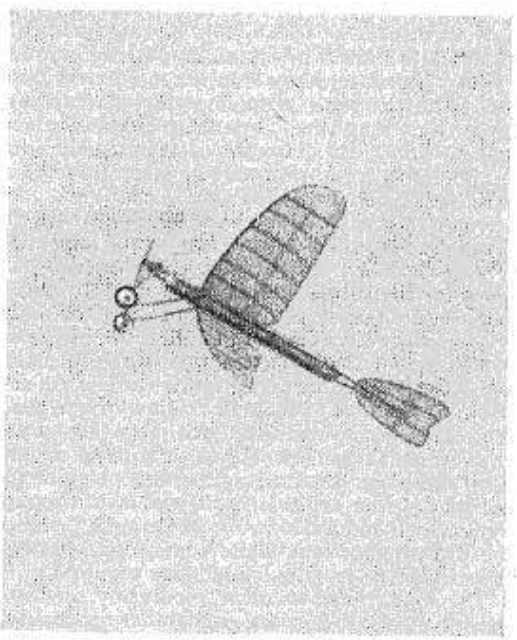
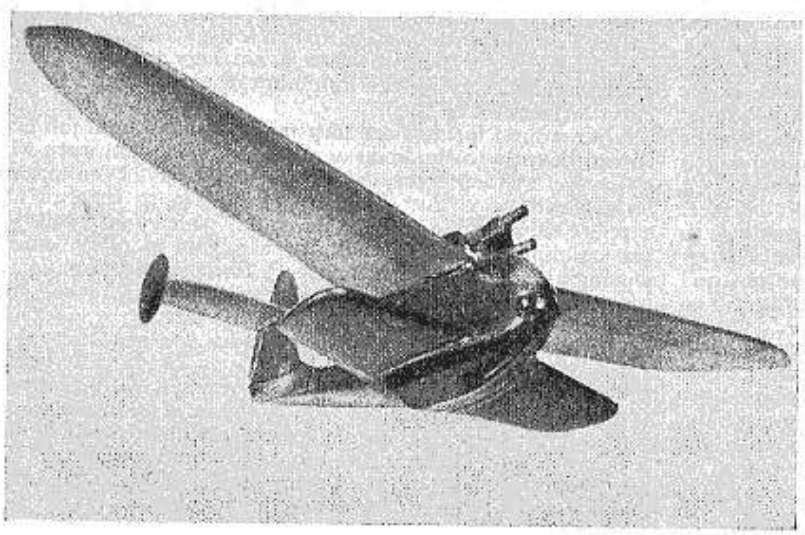
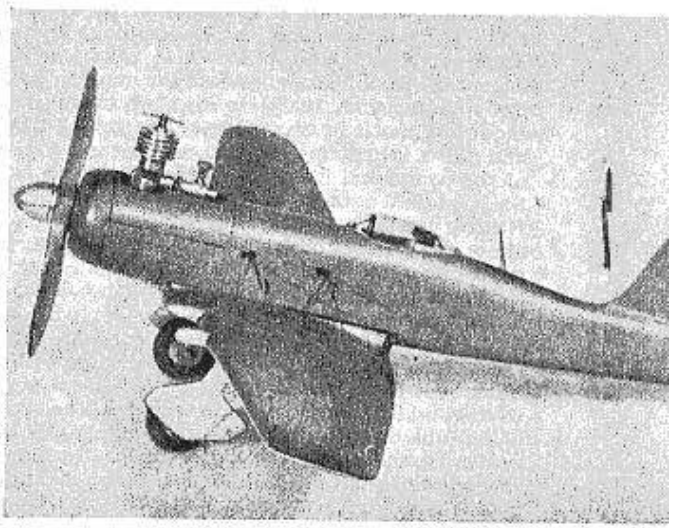
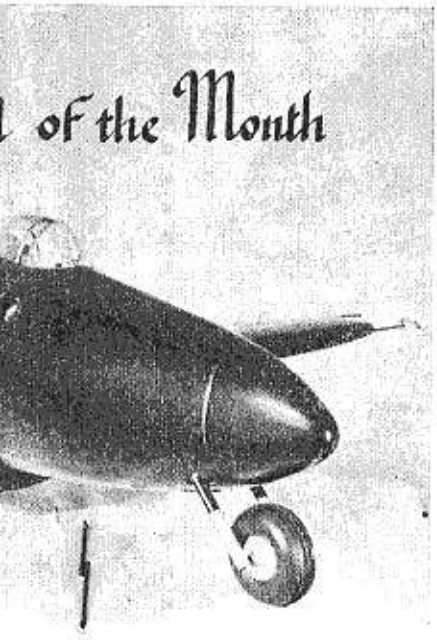










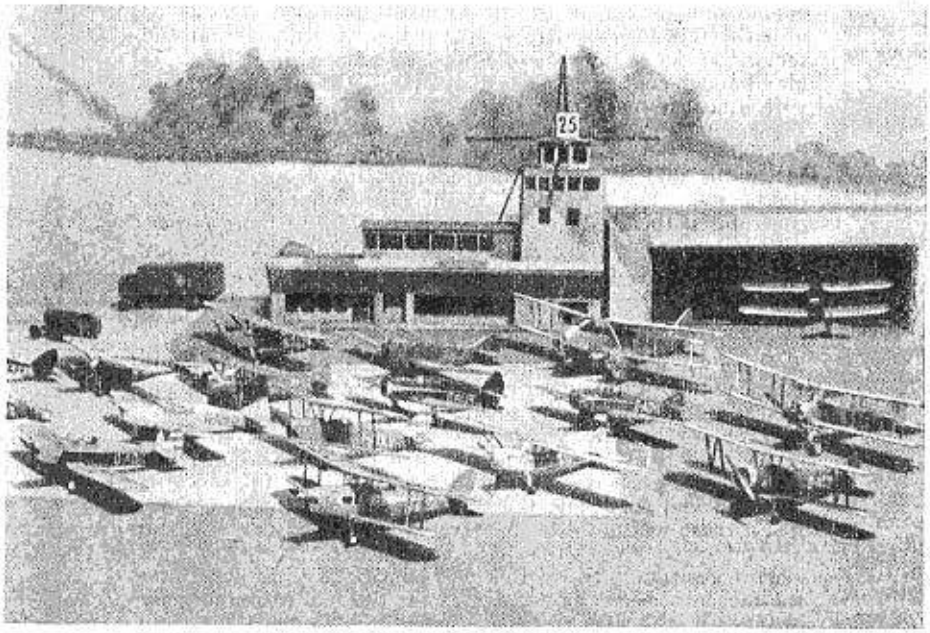


SPRING being upon us and the dreadful prospect of another English summer before us, Fliar Phil's thoughts turn once again to models and how to fly them, the latter being something he has been trying to find out for years. Despite his conversion to control line flying, he is none too sure that losing his engines free flight is not rather cheaper than breaking them control lining.

Before we start, a correction. Gentleman described as L.A.C. Ware in March Model News should have been L.A.C. Wroe—Fliar Phil apologises.

Our Model of the Month will prove of interest to many jet enthusiasts. The model is 36 in. span with a completely enclosed Juggernaut engine insulated with asbestos and glass wool. Total weight without the insulation is 3½ lbs. Congratulations to John B. McStea for an excellent piece of work and we hope that the model's performance will justify the effort—in particular it will be interesting to see how the insulation stands up to the heat.

Top left is an original design for engine cowling by Alf. Pearce of Cardiff, who adorned his Amco Mark I powered Airflo Mite with a strange device which looks rather like the after effects of an aeromodelling bad dream. No claims are made as to its efficiency but perhaps that's just as well!

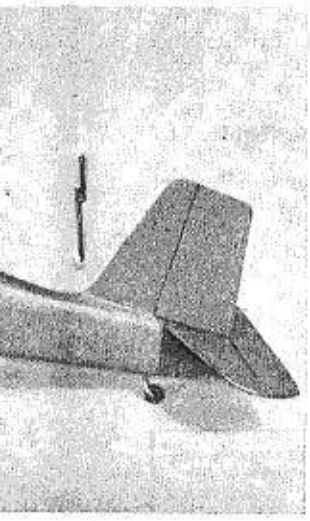


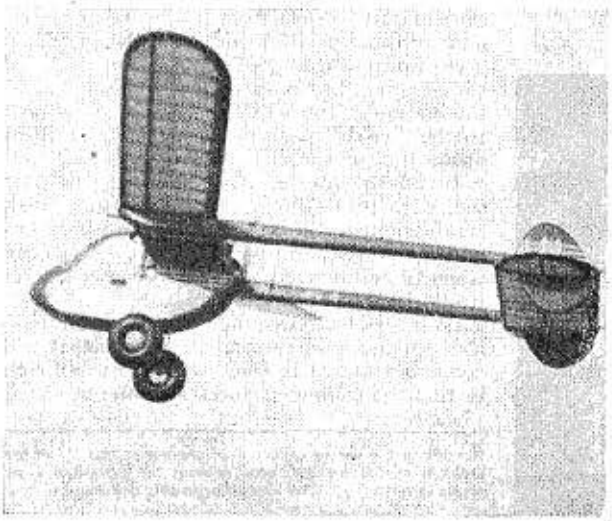

News still arrives occasionally from those German sectors outside the Iron Curtain and centre left is a photograph from Otger Smolenske which was taken at a recent contest at Neumünster. It shows an attractive tailless glider designed and built by Manfred Brauer.

Flashback to Wimbledon 1914 is our centre picture which shows a compressed air driven monoplane built by G. Laing. Some of these magnificent old machines put up amazing performances which would not be despised by many people even today.

H. Parrish of Ashton M.A.C., built the 1/72nd scale light planes shown centre right in the photographs by W. Titterington. This hard working enthusiast includes not only this considerable collection, but also many replicas of military and civil aircraft in his aeromodelling "Noah's Ark".

A well known member of the trade, H. J. Watkins (another Cardiff modeller) is no less an active aeromodeller despite his business attachments. The enchanting little model bottom left is from his stable and the most unorthodox of designs in that it is a miniature flying boat powered by a Jetex 100. Spanning 21 ins. its weight is only 2¾ ozs., and the baby Jetex unit gives it adequate power.



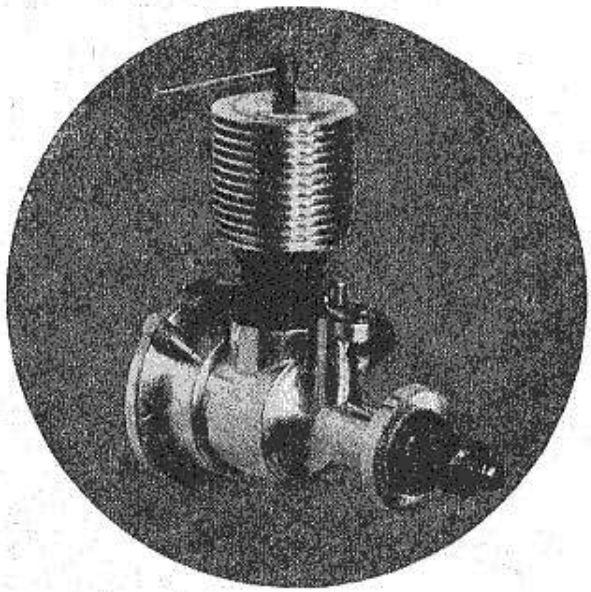


A very attractive piece of scale control line modelling shown bottom centre, is E. Bannister's ½ inch scale Firebrand IV. The wing span is 25½ ins., the wing being solid but detachable, and the weight is 16¼ ozs. giving a wing load of 26¾ ozs. per sq. ft. With an E.D. Comp. Special turning an 8×10 prop fastest speed to date is 42 m.p.h. on 30 ft. lines.

Last on the list is an excellent flying shot by Ed. Stoffel of West Essex member, Mr. Mowbray's twin boom pusher. The model has an all up weight of 28 ozs. but has a very fast climb despite its high wing loading.

Once more Fliar Phil stops writing and starts drawing—this time his new model that perhaps will fly . . .

# Spotting Diesel Troubles—by R. Burns



IN the past two years I have had quite a number of model diesels brought to me which were troubling their owners. There have been no less than 14 different makes, in all states of sickness and of health ; and for that matter some were nearly at the " death do us part " stage. All this experience has resulted in a private system of my own for finding the troubles, or if there is nothing wrong for deciding the best running settings. It might interest you, so here it is.

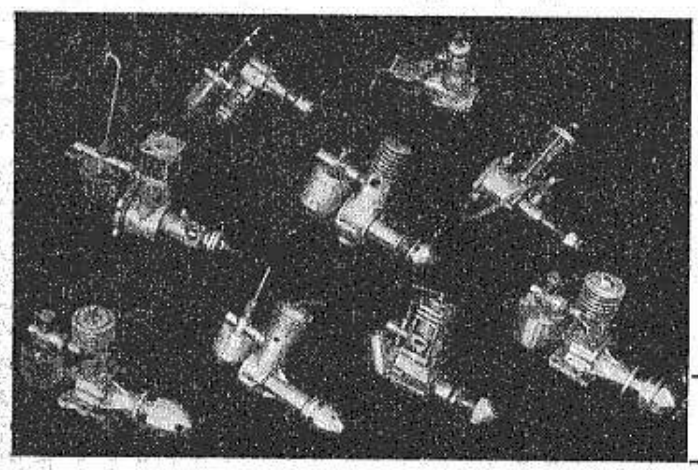
Take the dry engine, and turn it over in your hand, to see that the two pistons are not touching, and to feel the compression. Set the maker's instructions and try to start. If the engine fails to start adjust the contra piston until it touches the piston, then slack back the lever 1½–2 turns.

Then mount the engine upright and *without* filling the tank introduce two or three drops only of fuel into the exhaust ports, slowly turn the engine over holding prop firmly and flick to start. If the engine hydraulics clean in usual fashion and prime with less fuel. If the compression is right you get a short burst ending in an abrupt cut out as the fuel is used up. Memorise that sound, as a similar cut-off later shows shortage of fuel (or sometimes not enough compression) as explained later.

Oscillation of the airscrew or a start followed by a rapid slowing down of the airscrew to a stop, together with knocking or a harsh metallic note, shows the exact reverse.

If the engine does not fire you can usually tell by the feel of the flick whether to give more compression or by the feel of your finger whether to give less! More is usually the requirement, and repeating the primary start idea, soon gives you the right compression. Never overdo the priming or a false impression of over-compression will result. Do this a few more times, and the engine will warm up, when it may be found that a little less compression is called for.

Now all that is required is to allow enough fuel feed for the normal feed to take over as the " priming start " tapers off. Take out the needle and look at it. If it has a coarse taper, like a knitting needle, it will need to be open about half a turn from the off position. If very fine like a small sewing needle the amount of adjustment might be as much as three turns. Fill the tank, and set the needle to a little less than the guessed setting for running, and repeat the " priming start " *without* choking or sucking in fuel. The normal short burst will result with possibly a slightly longer period. Try again, with a shade more opening of fuel control, and soon you will find a position where the normal fuel supply will take over from the primer and the engine will continue to run. I have had an unknown make of engine running in under a minute from first trial.



Starting such a varied collection of engines as this would present a very difficult problem to the inexperienced without the fool-proof system outlined by the author in this article.

Once running and the engine warmed up, listen to the engine note and look at the exhaust for excess smoke or unburnt fuel in considerable quantities, indicating that the fuel is too rich and the needle must be screwed in a little. It may happen that despite the above faults the engine runs fast with a healthy crackle and when the fuel is reduced it stops. The explanation is that an excess of fuel was partly filling the combustion space artificially increasing the compression. When the fuel is reduced this compression drops and stops the engine. The remedy is to increase compression by the control *first* then reduce fuel, which should give more power.

Some engines require a reduction of compression as they warm up, whilst a few are still more awkward. One of mine on starting requires an increase of compression and reduction of fuel, then it runs fast and becomes very warm, I then have to reduce compression again, and the power goes right up. Nothing will make this engine pick up from start if you merely alter the fuel to full power position, although the starting and final running compression settings are the same.

It follows that once you have worked through the " priming start " and found a fuel position which will allow continued running you must try various adjustments until full power is obtained and then note the positions of the controls. Once found these will not alter unless your fuel is varied, and you now direct your work to finding the normal " choke and suck start " position. To do this you simply have to substitute the fuel introduced by sucking in for the fuel introduced by priming in the first method. Open the needle a bit from running position and try it. Normally you have to double the amount of turn from " off " position, compared with the final running position just established. That is, if the engine gives full power at ¾ of a turn from " off ", try 1½ turns for a suck engine, but only suck in once or twice or you will flood the engine. You will also have to put the compression back to the " cold " position, reversing the alteration required to obtain full power.

In all the above, you should use a standard commercial fuel with its ordinary ether allowance freshly mixed. Some small engines will be found to have very small exhaust slots, and in that case a hypodermic needle is a great help. Naturally when handling the small engines you insert less fuel than you would in the case of a 5 c.c. job.

So far we have assumed that the engine is all right and that if given fuel and the right treatment, it will run. But there comes a time when the engine is not all right. To guide you in this the following notes are offered as assistance.

1. Unless there is something wrong with the mechanical parts the engine will run when " prime started ". The only three cases which would not were found to have something wrong internally. One had no compression; the piston and cylinder were worn out! It was finally made to give short runs by liberal use of heavy oil before starting and by using extra ether in the fuel.

Another was a great puzzle until the owner admitted having taken it down, when on dismantling it was seen that he had put the piston back the wrong way round. The step cut to open the transfer ports was thus at the wrong side and there was no transfer passage at all. A third was found to have its crankshaft (which was hollow for the usual ported crankshaft) all filled up with a white gum. It was found that the owner had used a length of wireless set insulation tube as a fuel pipe, and the ether had dissolved the covering which had baked into the inside of the engine.

2. Sometimes there is a click noise and the engine will not run. This is due to the propeller not being tight, and when the engine goes over top centre it lashes over through the play allowed, either between a square on the shaft and the prop washer, or at the driving pegs in the airscrew. Another variation of this is that some small engines with light wooden props are hard to flick fast enough, there being insufficient flywheel effect at slow speeds. Young modellers who have not yet attained strong wrists find this class difficult, but if a plastic prop is used this is often enough to cure the trouble.

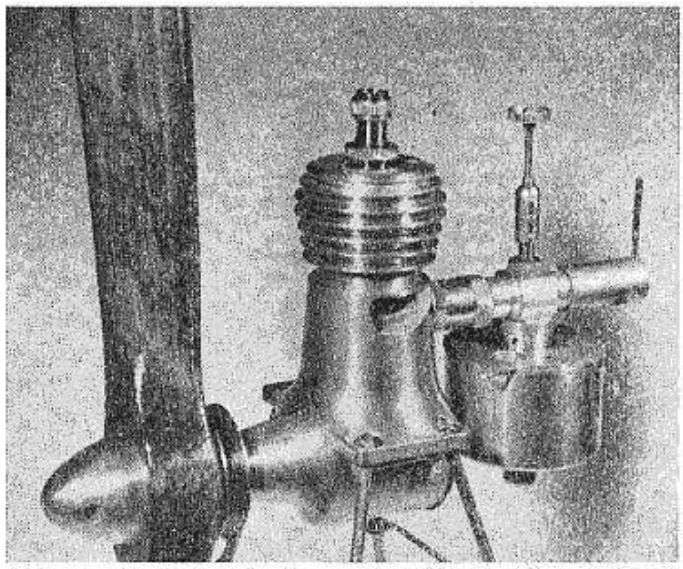
3. Where the engine will not pick up running, although it will " prime start ", the mechanical part is all right and the fuel supply is wrong. The commonest cause is a choked jet. One case of which I have a lively memory was due to a little bit of thread, which allowed about half the usual fuel to pass, and when there was no fuel it clung to the side of the jet pipe and you could see clearly through the jet. That one took all day to find. Another very difficult case was due to a leak of air where the intake pipe was soldered to the cylinder. This reduced the suction at the jet, as quite a lot of air was being taken in through the leak without passing over the jet, and the engine ran very oddly. A similar result was encountered where the needle was sealed into the carburettor assembly by a piece of plastic pipe through which the needle ran. This stopped an air leak, but sometimes it moved outwards and the leak returned stopping the engine.

4. Where the engine is all right on the " prime start " but floods when the tank is filled, no matter what you do about the needle valve. This has been found twice. Once it was a flaw in the needle valve hole so that the needle could not seal it, being a " round peg in a square hole " so to speak. The second time was with a type of engine where the needle passes through a threaded bush into which it is soldered. The needle had become loose and its owner had soldered it again, but had not put it in the right place, so that the screw was full home before the needle closed the jet.

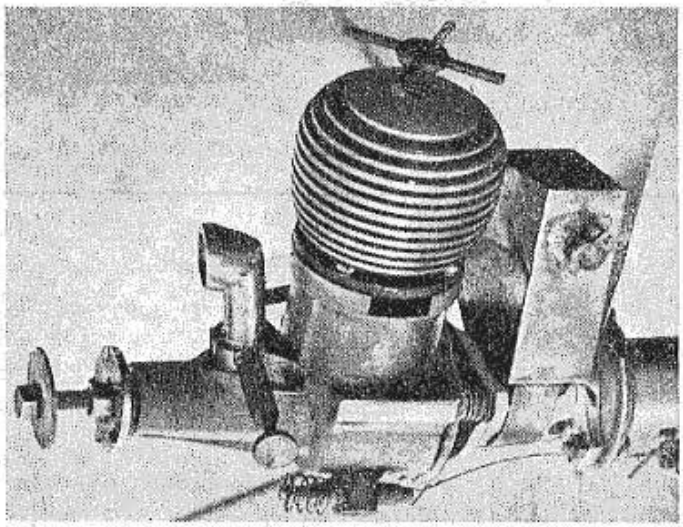
5. One engine would start and run all right until it became hot, when it slowed down and stopped, in spite of reduced compression. It was seen that the piston was dry after these stops, and more oil was tried. Finally 10 per cent. of castor oil in the fuel, plus a little more ether, were the cure. The ether seemed to cool the engine internally, and the castor oil stood up to the heat. This might be found with a rather tight new engine.

6. One engine had lost some power, but the piston seemed tight enough. On removing the head the space above the contra piston was found full of oil, and finally a leaky contra piston was proved the cause.

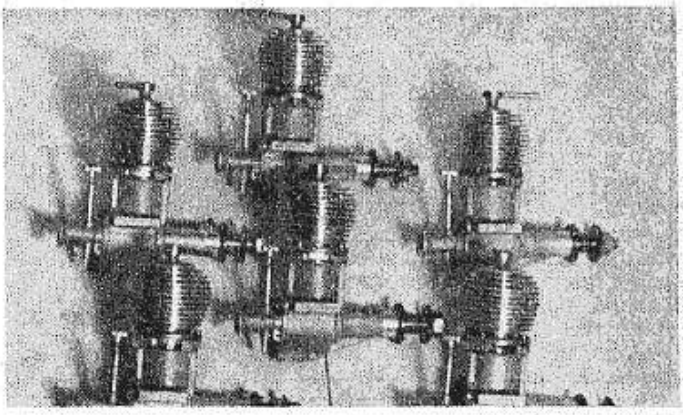
7. This one is a puzzle. The engine ran all right on the " prime start " but cut out later if the tank was not full. However, with a full tank it flooded. The flooding continued until the tank was $\frac{1}{8}$ inch from full, than the fuel cut off and the engine stopped. It was found after some time that the jet, in this case, a brass fitting screwed into the tank top, was loose, giving a leak up the screw threads. With full tank this sucked fuel, and caused flooding. When the fuel was lower the leak sucked air and the engine stopped. After fixing the jet tightly the engine ran perfectly, but not before a day or two had been spent finding out why! This was the worst case encountered.



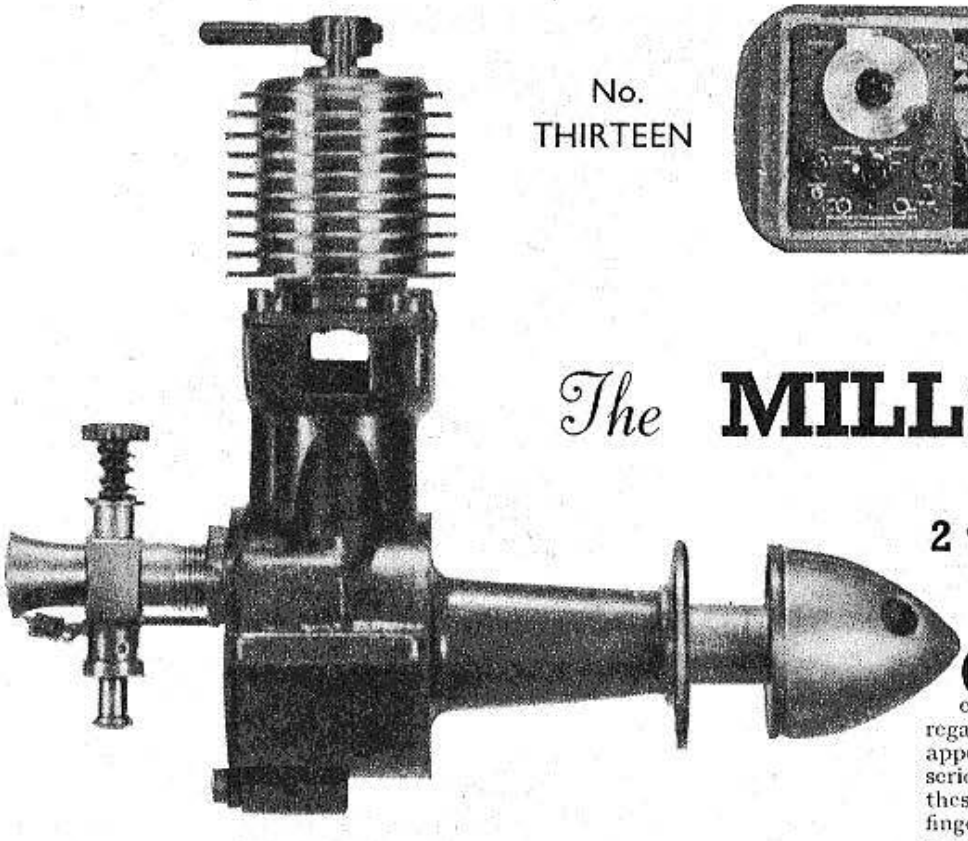
*Above is a most interesting newcomer—a 3·5 c.c. diesel designed and built by a reader J. Robertson-Brown, and now with patents pending. It gives complete speed control from a tick-over to flat out owing to several unique features—a low (10:1) compression ratio, the special piston which improves scavenging and combustion, and an air control only. More details are promised later. The heading photo shows a popular New Zealand engine, the Pepperell 2 c.c.*



*An interesting contrast in development and its relation to ease of starting is given by the photos above and below. The top photo shows the prototype Mavo 10 c.c., giant Italian diesel which was demonstrated at the second International Week. It was remarkable not only for its power but its vicious and obstinate qualities as well. The lower photograph shows this engine as it was put into production—the bugs ironed out, and many improvements incorporated including a rotary disc inlet valve.*



No.
THIRTEEN

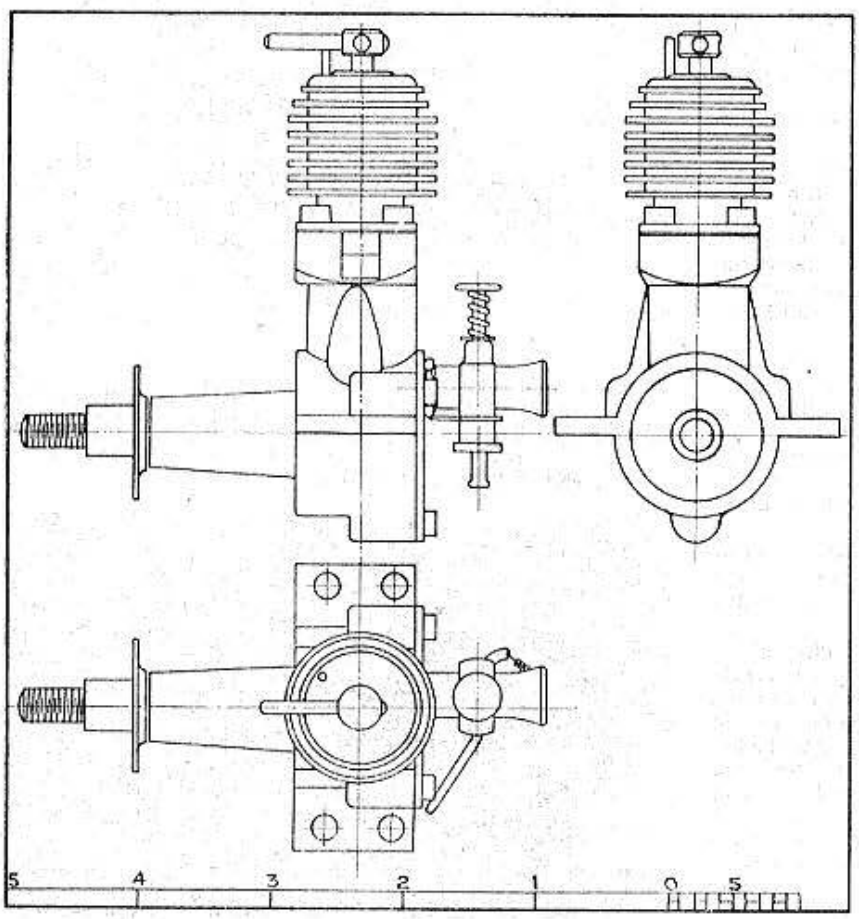



# *The* MILLS Mk. III

## 2·4 c.c. DIESEL

ONE of the greatest difficulties connected with work of this kind is that it is extremely hard to obtain information regarding the results of other workers. It appears that the number of folk who have seriously embarked on a systematic test of these small engines might be counted on the fingers of one hand—leaving, possibly, a couple of fingers to spare. Furthermore, there is very little published data to which one may refer, so that the would-be experimenter is forced, not only to design and make his own apparatus, but to develop his own technique also. Most serious difficulty of all is that there is no available data against which results may be checked.

In view of this, I am pleased to record that I have recently received a great deal of useful information on the subject of these engine tests from Mr. N. K. Walker, B.Sc., of the I.S.A.R.A., who has sent me details of the test apparatus which this Society is using, together with a full description of the technique employed and the snags encountered. The information has been most helpful to me, and I have made modifications to my test equipment, and to my procedure, which has not only made the testing more simple, but which should add to a greater accuracy of results. This free interchange of hard-won knowledge has always been one of the most pleasing features of " full-sized " scientific research, and it is good to know that this unselfish outlook extends to the model world also.




The addition of an oil-dashpot damping device to the apparatus enabled extremely steady readings to be taken on the Mills Mk. III engine, especially at the higher speeds. Apart from this, the engine is noteworthy for its even running at all speeds tested, in fact, it is a very pleasant engine indeed to handle. Throttle control is positive, and there is no tendency for the setting to vary under vibration. The use of a rotary disc valve operating on the back crankcase-cover places the carburetter


BY
L. H. SPAREY

control-needle in a convenient and safe place, well away from the airscrew.

A sturdy compression-control lever still further adds to convenient handling. The Mills diesel engines were among the first to appear on the British market, and the manufacturers seem to have incorporated the results of this long experience in the design and production of this latest engine. No trouble or failures of any kind were experienced throughout the whole of the tests, which, considering their severity, indicates that the working parts are adequate for their job.

### TEST

**Engine : Mills Mk. III, 2·4 c.c. Diesel.**

**Fuel : Mills Blue Label, 2 parts : Ethyl Ether, 1 part.**

**Starting :** Although cord starting was mostly used, this was purely for convenience, as the engine started readily by hand when tried experimentally during the course of the test.

**Running :** The even running of the Mk. III engine as marked at all reasonable speeds. At the very high range (above 11,000 r.p.m.) speed was, however, inclined to vary : this was due to the very rapid change in fuel level in the tank owing to the high rate of fuel consumption.

A cut-out is fitted to this engine, and it was found to be generally reliable at all useful speeds. It was uncertain in action at the extreme high range.

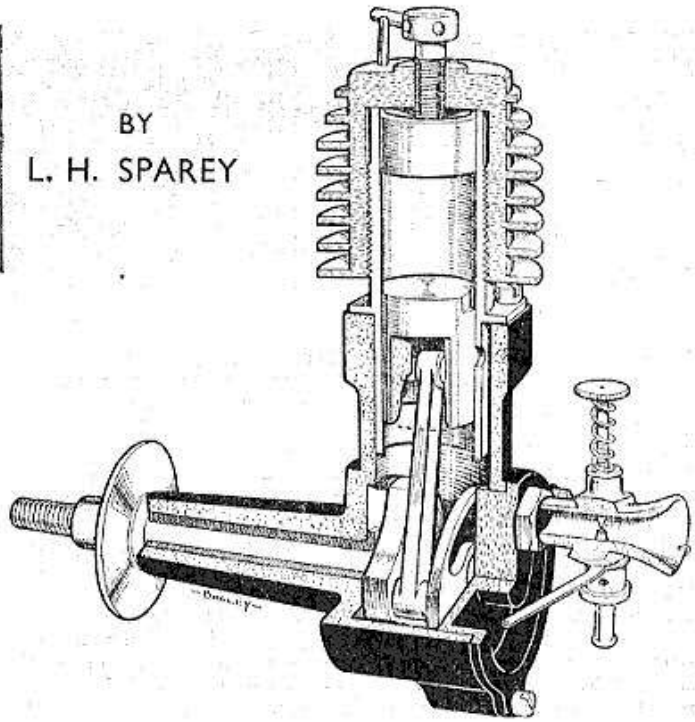
**B.H.P. :** Although the makers claim a maximum output of ·18 b.h.p. at 10,000 r.p.m. I was not able to hit this figure. Maximum output did, in fact, lie around this speed, as at 9,900 r.p.m. the peak was reached at ·167 b.h.p. This figure is extremely good for an engine of this capacity.

Beyond this speed the output fell fairly rapidly, until, at 10,900 r.p.m. it was ·118 b.h.p. At the other end of the scale, a minimum output of ·0906 b.h.p. was found at 4,800 r.p.m.

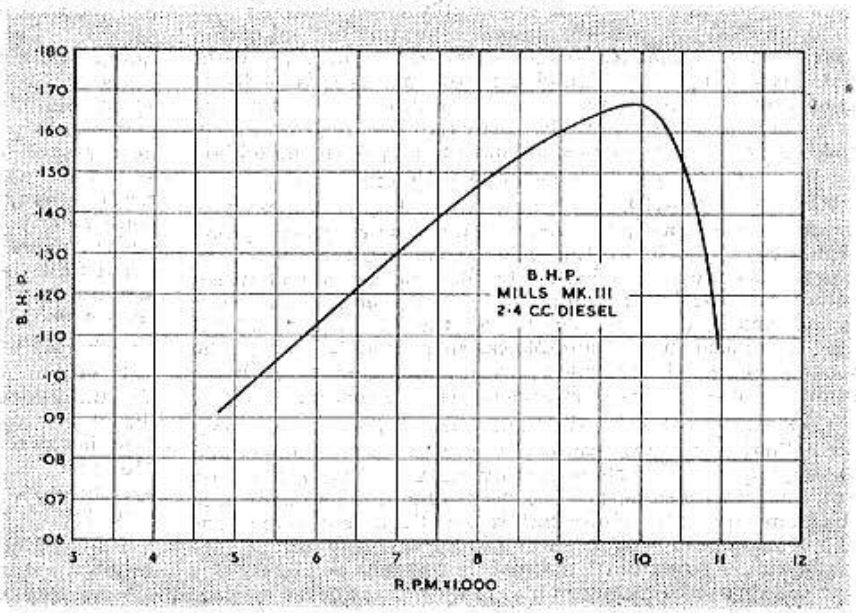
The graph indicates that it is necessary to keep fairly close to the 10,000 r.p.m. mark if maximum efficiency is to be obtained, it being especially necessary not to exceed this figure. An increase of only 350 r.p.m. drops the output ·006 b.h.p. On the lower side, however, decrease of 1,000 r.p.m. is required to equal this loss.

**Power /Weight Ratio :** ·486 b.h.p. /lb.

**Remarks :** From the general behaviour of the engine, and the extremely good power output, the Mills Mk. III seems to be one of the most successful of the British diesels. Propellers would, however, need to be carefully matched to the engine if its exceptional qualities are to be enjoyed.



**Type :** Compression ignition engine.
**Specified Fuel :** Mills.
**Capacity :** Cubic centimetres 2·4. Cubic inches ·147.
**Weight :** 6 ozs.
**Compression Ratio :** Variable 8 : 1 to 24 : 1.
**Mounting :** Beam, upright, and inverted.
**Recommended Airscrew :** 10 ins. by 5 ins.
**Recommended Flywheel :** 2 ins. O.D. by 7/16 in. thick. 5½ ozs.
**Tank :** Separate stunt tank supplied as standard equipment.
**Bore :** ·500 in.
**Stroke :** ·75 in.
**Cylinder :** Chromium/Molybdenum steel 2 ports. Cylinder bolts.
**Cylinder Head :** Dural. screwed.
**Contra Piston :** Ground and lapped central screw.
**Crankcase :** Magnesium pressure die casting.
**Piston :** Deflector head. No rings.
**Connecting Rod :** R.R.56.
**Main Bearing :** Phosphor Bronze.
**Little End Bearing :** Plain.
**Crankshaft Valve :** Rotary disc.




### GENERAL CONSTRUCTIONAL DATA

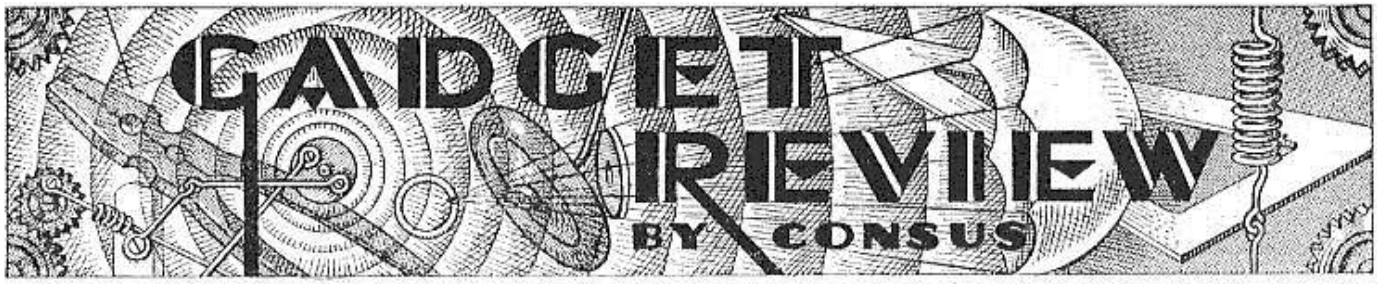
**Name :** 2·4 c.c. Mills Diesel.

**Manufacturers :** Mills Bros. (Model Engineers) Ltd., 143, Goldsworth Road, Woking, Surrey.

**Retail Price :** £5. 10s. 0d.

**Delivery :** Immediate.

**Spares :** Immediate.




ONCE more inside his breeches, dear Friends, Consus returns to the attack with a fresh selection of gadgets and widgets and things that go bang in the fuselage. He is glad to see a steady stream of ideas is again trickling in, and quite a few of them are very sound, and therefore get accepted. If, however, you've sent in an idea which has been politely refused, and you don't know why, it's probably one or all of three things. First it isn't practical—biggest sin of all. Second, it hasn't been tried in practice, so that even if it looks reasonable there is no real proof it will work. Thirdly, it can be practical and work but is only another and no better way of doing something that is perfectly well done already, by a well known and perhaps simpler device. This last is perhaps the most common failing of all—so when you next send an idea along remember—Consus is always glad to see it but don't fall into the traps described above.

Just a year ago in Gadget Review we featured a very neat retracting undercarriage in which the wheels folded together and then back into the fuselage without a very complicated mechanism and which would detract just as easily in the same way. Well, simple as it was, P. O'KEEFE, of Dunmow, has worked out an even simpler system shown in Fig. 1. It is strong, simple and working parts are cut to a minimum. Two lengths of aluminium tubing are sawn and cemented firmly to a former as shown, at an angle to each other, and with their lower ends about ¼ in. apart. Undercarriage legs are then formed as shown, the wire being bent after passing through the tubing, so as to be parallel to the main leg. A loop is made at the top of each of these pieces of wire. A " T " shaped piece of wire is then made, and the cross bar slipped through the two loops. This cross bar must extend beyond the loops and the ends can be turned up or down to form strips. It will be seen that when the stem of the " T " piece is moved forward the legs fold inwards and backwards, to the position shown by the dotted lines. The ends of the legs above the tubing will of course go forward and outwards, and it is for this reason that the cross bar of the " T " must extend beyond the loops.

Unless you're one of those unbearably sensible people who build dihedral jigs, you will always be hunting for odd cotton reels, tins and matchboxes to prop your wings up with. But have you, having found a matchbox, ever thought of using it in the cunning form shown you in Fig. 2 and brought to our notice by W. TAYLOR. Any required angle is quickly and rigidly obtained by pushing out the tray of the matchbox the required distance and securing it with a pin.

From J. TUFFILL, of Penge, comes Fig. 3 brainwave—if you want a quickly and easily detachable air wheel use an ordinary cycle spoke for the undercarriage leg and axle. The nipple must be cut in half, retaining the larger end which makes an excellent retaining nut for the end of the axle. If the cycle spoke is too flexible for the size of the model it may be braced in any suitable manner, or only part of the spoke including the threaded portion may be used, this being firmly soldered to a stouter undercarriage structure.

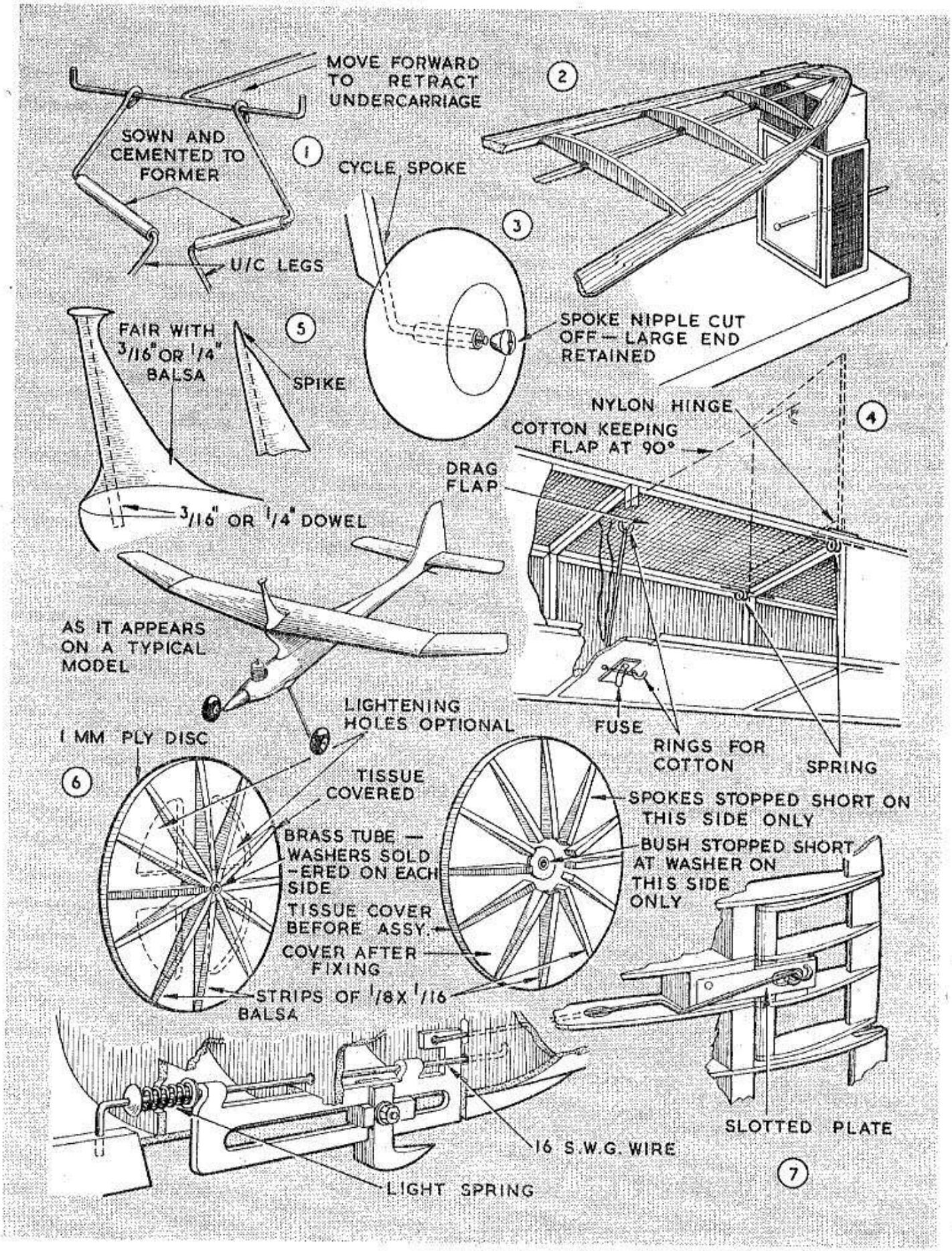
Lost models being more and more frequent these days, ideas for dethermalisers are also being born in great numbers and amongst them is a system used by M. A. KING, of Leigh on Sea, illustrated in Fig. 4. It consists of a drag flap instead of the more usual parachute but is equally as effective. The flap is made from 3/32 in. sheet and the spring is thirty gauge piano wire. To set the dethermaliser cotton is tied to the ring on the flap, passed through a hole in the bottom of the fuselage and tied to the other wing. A piece of mica is glued on to the fuselage to prevent burning. There is no need for the spring to open the flap the whole way as the slipstream will drag it open once the little way up. The retaining cotton is necessary to keep the flap at its angle of maximum drag. Of course, any area will not do for the flap, which must be scaled according to the size of the model. The rule is as follows :—one square inch of flap per fifty square inches of wing area up to a maximum wing area of 500 square inches ; above that one square inch for every sixty-five square inches of wing area. It has been found that weight has no appreciable effect.

Not the least hazard encountered when flying on a windy day occurs at the end of a flight or test glide. Many a model quite unharmed on landing has snapped its mainspar and done other damage after being blown on to its back after landing and before its owner can retrieve it. The modern trend towards polyhedral has aggravated this trouble, and to such an extent that D. R. HUGHES, of Birkenhead, has found it well worth while to incorporated a " crash pylon " in all his designs. This is of such a length (see Fig. 5) that when the model runs over on its back full weight of the engine and model is taken on the bar instead of the wing tips, which in this case only rest lightly upon the ground and steady the model. As an alternative, it can be spiked (see illustration) in which case it should be an inch or so longer that the other type so that once the model has flown over it is firmly spiked into the ground and thus anchored to prevent its further travels and more damage.

For competitions such as the Wakefield where the specification calls for every part to be built up including the wheels, the two greatest difficulties experienced in making the latter are in obtaining a true running wheel and securely attaching the wheel hubs. Fig. 6 shows a system which overcomes these difficulties and at the same time results in lighter weight. It was sent in by M. GARNETT, of Bristol, from a suggestion by C. S. WILKINS. First cut out a disc of 1 m.m. or 0·8 m.m. plywood, lightened if desired as shown. For the hub a short length of brass tubing is inserted at the wheel centre, and retained by thin metal discs soldered on each side of the ply disc. Lengths of ⅛ in. × 1/16 in. balsa are then cemented radially on both sides of the ply disc, coming right up to the brass tubing. Eight of these " spokes " seem adequate for 1½ in. dia. wheels and twelve for 2 in. wheels. Over this diameter it may be advisable to use either thicker plywood or deeper spokes. Finally, the spokes are sanded to form a streamline shaped wheel, and both sides of the wheel are tissue covered and doped. The method also lends itself very conveniently to making the so-called " hubless " type of wheel. Here construction is as before, except the brass tube is cut flush on one side of the wheel, and the spokes on this side are stopped off short about ¼ in. from the centre. After the wheel has been sanded to shape, one side of the wheel is then covered and the whole doped.

If you are an adherent of the automatic rudder idea for tow-line gliders you will be well aware that one of the greatest disadvantages of the usual systems is that no alteration of tow hook position can be made whatever the weather. However, M. A. G. WOOD, of Woolwich, designed the system in Fig. 7 which combines an automatic rudder with a considerable amount of adjustment.

Here endeth another Gadget Review—if you have any brilliant notions don't forget to send them into Consus who is always pleased to have the chance of looking through them.


MOVE FORWARD TO RETRACT UNDERCARRIAGE
SOWN AND CEMENTED TO FORMER
1
U/C LEGS
2
CYCLE SPOKE
3
SPOKE NIPPLE CUT OFF — LARGE END RETAINED
FAIR WITH 3/16" OR 1/4" BALSA
5
SPIKE
3/16" OR 1/4" DOWEL
AS IT APPEARS ON A TYPICAL MODEL
NYLON HINGE
COTTON KEEPING FLAP AT 90°
4
DRAG FLAP
FUSE
RINGS FOR COTTON
SPRING
LIGHTENING HOLES OPTIONAL
1 MM PLY DISC
6
TISSUE COVERED
BRASS TUBE — WASHERS SOLD -ERED ON EACH SIDE
TISSUE COVER BEFORE ASSY.
COVER AFTER FIXING
STRIPS OF 1/8 X 1/16 BALSA
SPOKES STOPPED SHORT ON THIS SIDE ONLY
BUSH STOPPED SHORT AT WASHER ON THIS SIDE ONLY
SLOTTED PLATE
16 S.W.G. WIRE
LIGHT SPRING
7

# ARMCHAIR AERONAUTICS

**Control-Line Flying**, by R. H. Warring.
(Percival Marshall & Co., Ltd., 10/6).

This further publication from the prolific pen of Ron Warring displays his usual painstaking and exhaustive technique, and is both well presented and very readable. It would appear, however, than an attempt has been made to create a mountain from a molehill, (and a three-peaked range at that), as the current volume is to be followed by two others dealing with stunt and speed models separately, while the volume under review deals with the subject generally. The reviewer doubts whether many modellers will be prepared to pay 1½ guineas to discover what is currently known in this rapidly developing sphere of aeromodelling. (C.S.R.)

* * *

**"Control-Line Model Aircraft"**—D. J. Laidlaw-Dickson—(Harborough, 7/6).

The art of control-line flying has definitely "arrived" in this country, and thousands of initiates to this branch of aeromodelling will welcome the arrival of the first book to be reviewed this month "control-line model aircraft," by Laidlaw-Dickson.

Here is an authoritative review of the whole scope of control-line models, accessories and flying which will be of tremendous help to the beginner and of no little interest to the expert. This has been written for beginners and no attempt has been made to give advice on advanced flying.

Starting with a short historical review the author has dealt systematically with the choice of the first model; the design of the various types of models; with detail considerations of control systems, engines, and airscrews; and finally gives notes on elementary flying in so logical a sequence that the book is really easy to read. This is a first requirement in a book which purports to be in any way educational, and from that point of view it is completely successful.

Above all, this book is essentially practical. The minimum of space is devoted to theory and the practical experiences of the AEROMODELLER staff, including the author, in building and flying C/L models has been drawn upon to the full. The reader can identify himself with all their experiences and thus learn much that will enable him to avoid many of the beginner's mistakes, some of which can be very costly. This book might well pay for itself in the saving of broken props alone.

The presentation is good throughout and the quality of illustration high. Appendices at the end of the book give a host of informative facts and figures which make a useful source of reference.

There are several details, however, in which the book could have been made more complete which I commend to the author's future attention. In the chapter on airscrews there are no recommendations on prop. pitches and diameters for the more popular engines. These are now more or less standardised for most engines and airframes and the beginner is all too often unable to seek the advice of an expert at first hand. A table would have been a big help.

A further table giving details of the more common engines in use for C/L work together with suggested wing areas and all-up model weights would have started the beginner on his career as a designer with some useful information.

It would have also been pleasant to have seen more photographs of some of our better known control fliers with their models, and fewer pictures of activities overseas.

But these are minor criticisms of a book that will undoubtedly find a place on the bookshelves of every convert to line flying.

At the moderate price of 7/6 it is recommended as a good buy and a "must" for beginners. (I.M.)

* * *

**Model Aeroplane Handbook**, by F. J. Camm.
(George Newnes, Ltd., 12/6).

Coming from the pen of such a well-known author, many people interested in model aeronautics will be inclined to take this book as authoritative and indicative of modern practice. It is to be regretted, therefore, that the bulk of the material is dated, and in many cases extremely antiquated.

To the keen enthusiast the opening chapters describing the early history of model aviation in this country are interesting, but the newcomer to aeromodelling, noting the words "First published 1949" on the flyleaf, will be badly misled into thinking that model aeronautical development in this country came to an abrupt halt around the 1930's.

One is left with the impression that the reader of this book who "graduates through the hobby of model aircraft to a career in aviation" will probably initiate his vocation on a B.E.2C.

Frankly, rather a disappointing effort from such a distinguished author. (C.S.R.)

**"Model Glow-Plug Engines"**—C. E. Bowden.
(Percival Marshall, 3/6).

The second book to be reviewed this week is a bit of a puzzle.

"Model glow-plug engines", by C. E. Bowden just isn't what it starts out to be.

Having set himself the impossible task of writing a full-length book on a subject that can be adequately dealt with in two thousand words, the author has recourse to padding and repetition to make the distance.

The book has no logical sequence, is difficult to read, and what is more, fails to convey the information the readers would expect to find, i.e. the precise manner in which the glow-plug works and the precise performance an engine will give on glow-plug as compared with spark ignition.

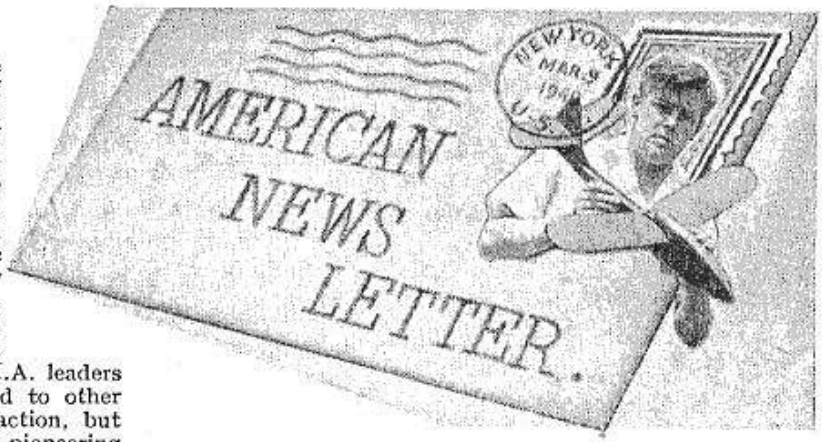
There is not a performance table of a B.H.P.–R.P.M. curve throughout the pages.

The function of the glow-plug is dealt with in two lines at the foot of page 16. Half a page is devoted to the choice of a suitable fuel can.

It is indeed difficult to understand just how this book came to be written and published.

Hardly recommended. (I.M.)

# BILL WINTER writes . . .




TWO new ideas that could become trends are the trials of team racing in U-control, and of precision in free-flight. Both schemes are radical departures from existing American methods of competition. Team racing had its start in California better than a year ago, when a small group of expert speed fliers, such as Keith Storey and Les MacBrayer, concerned with making speed flying safer and more attractive, organised the "Fast" club, and by a process of trial and error developed a fascinating set of rules. The free-flight precision deal is the brain-child of Jim Walker, world famous for popularising U-control.

While Jim's first contest was reported to A.M.A. leaders on March 1st, the team racing idea had spread to other sections of the country, meeting favourable reaction, but causing as many rules innovations as there were pioneering groups. Finally, a rules committee, including the writer, was formed but standardization is still some ways off. Since the "Fast" club rules are the backbone of the idea, we shall report briefly on the highlights of the scheme.

Airplanes must resemble full-scale machines, have a minimum wing area of 125 square inches, and be powered by engines of not more than ·29 cubic inches displacement. Engines must be fully enclosed, excepting the tips of plugs, landing gears must be permanent or, if retractable, must be let down before landing. These interesting machines are raced simultaneously by twos, or in any number up to six. A take-off stooge is employed to release machines for a "race horse" start. Races of various lengths are held on 60-foot lines, and, because of the limitation to one-ounce fuel capacity ships competing in, say, a 180 lap race will have to refuel during the race.

For this purpose three concentric circles are laid out, with the outermost circle of 70 foot diameter to permit landing and take-offs without snarling up the "works". A centre circle guides the flier when he moves out sufficiently from walking around the pylon. He remains crouched while helpers refuel. If all this suggests great detail, it can be said that a lot of thought has gone into the matter and that specific details would require a page or two more space. The thing does work. An interesting sidelight is that a slower engine with lower fuel consumption stands a real chance against a bigger engine that eats more fuel, as with the Arden ·199 compared to the McCoy ·29.

Known as the "Flight Plan Contest", Walker's idea works like this: Each contestant files a flight plan with the judge before taking off, explaining exactly what the flight is to consist of. Points are then compiled according to the accuracy with which he sticks to the plan. Three attempts are permitted for each of three official flights. High score in one flight determines the winner.

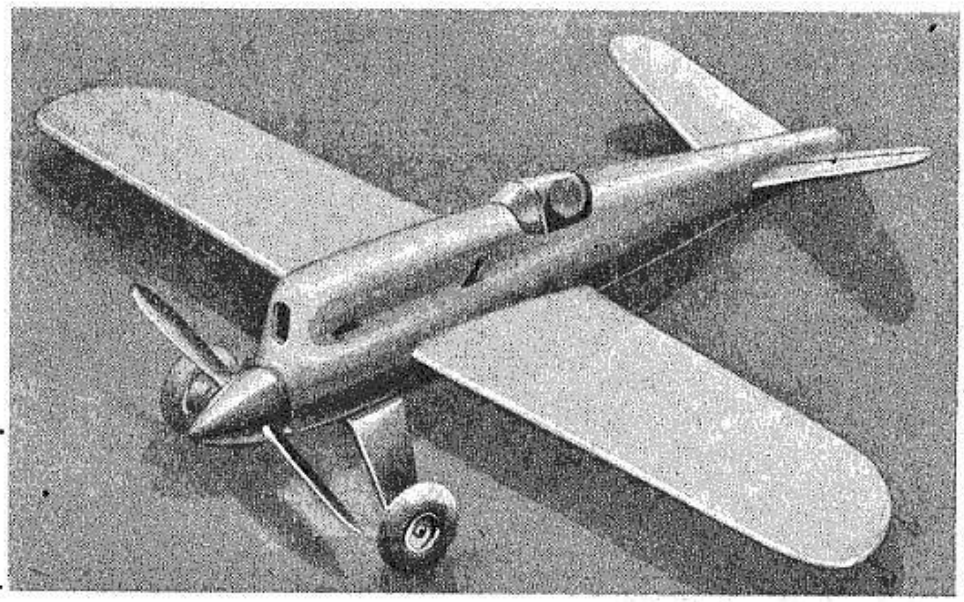
Points are allocated in four categories of performance. For take-off: 10 points are given for each second on the ground during take-off; for circles: 10 points per circle, 15 points if direction is reversed after first two circles, and any circle over or under will lose five points per circle, for flight, two points for each second duration, with a point deducted for every second over or under the stated time; for landings, 100 points is given for a spot landing, with one point deducted for every five feet distance from the spot, and 50° feet from spot cancels all scores, but is recorded as an attempt.

Doubtless, the rules will evolve, perhaps become simpler, if the idea takes hold and is flown in many localities. Walker is pushing the event for the Nationals, offering cash awards. Two interesting points are the permission for the entrant to test fly, find his probable landing spot, and then mark it for his official try; and that builders who do not know what they are up against frequently end up with minus scores on their first attempts. That the flight plan contest is a great leveller for men and machines already has been proved.

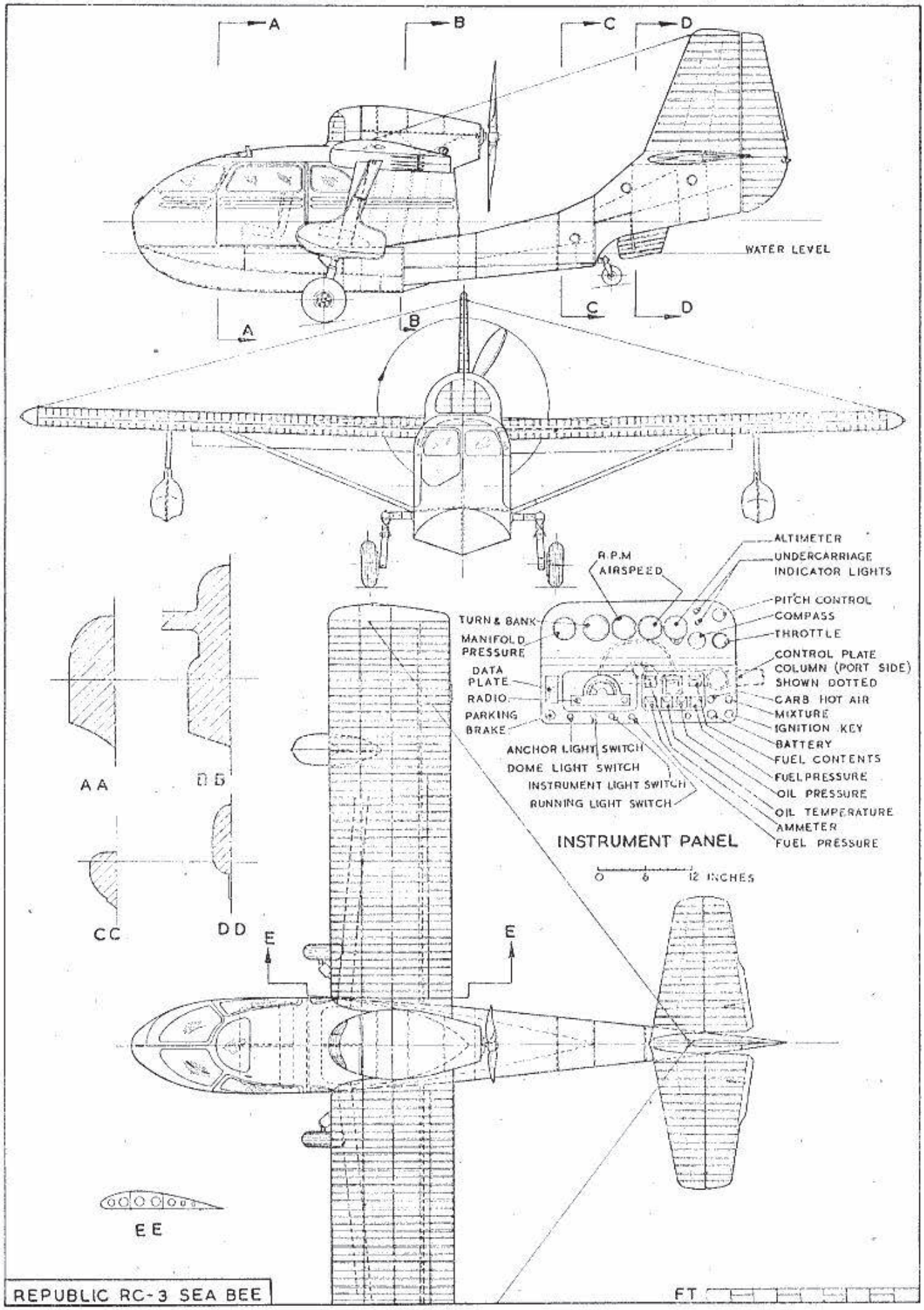
With a maximum of 200 points anticipated for the winner, Owen D. Brown ran up a score of 302 for exactly fulfilling his plan, flying two left circles, then two right circles, coming within four seconds of his proposed duration, and within 64 feet of the chosen spot. It can be pointed out that a ship adjusted for left-power circles and right-glide circles is a potent entry. Such a ship took second place with 300 points, but reversed direction after only one power turn, when two had been called for. An infant powered model took third place with 284 points on a sensational ground skimming flight. With a 20-inch span it was trimmed for a maximum number of circles.

Ships were all ages and sizes. The fourth place winner was a large contest model, and six place was hotly contested for by an eight-foot giant and a 22-inch infant job.

Ambitious flight plans may come to naught when the entrant snags a riser, or comes down beyond the 500 foot limit from the pot. It is thought that the flight plan contests can be held under flood lights in areas not bigger than a football field or baseball "diamond". Inefficient props appear a must in order to hold down altitude, a problem familiar to the radio control boys.



*Right is shown the design "Chatterbox", developed on the lines of the Goodyear type racers, by the F.A.S.T. Club for team C/L racing.*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REPUBLIC RC-3 SEA BEE
FT

# REPUBLIC Seabee

## Aircraft Described No 19

BY E. J. RIDING

ELSEWHERE in this issue will be found a description of a powered flying model of the Republic Seabee, and we have brought our series into line with both this and the cover painting this month by describing the full-sized machine from which Mr. Towner's model was derived.

The all metal Seabee has a roomy cabin for its four passengers, plenty of luggage space, all the inherent advantages of amphibian layout and is complete with two-way radio, electric starter, retractable undercarriage, hydraulically-operated flaps and dual controls.

At the time of writing two specimens of the Seabee had found their way over to this country—G-AJVO and G-AJVP, constructor's serial numbers 645 and 644 respectively, both registered to Air Transport Association Ltd., of Guernsey, a charter firm which operated in and around the Channel Islands a year or so ago. In May, 1948, VP was sold abroad, becoming LN-PAM, and VO retired to the back of Rollason's hangar at Croydon Airport, where it still resides for lack of spares necessary to complete a C of A renewal overhaul. Its present owner is G. C. S. Pearson of London.

**Construction.** An examination of the dismantled airframe at Croydon revealed some of the interesting production methods adopted by the Republic Aviation Corporation of Farmingdale, N.Y., in order to produce a really cheap amphibian of the " personal plane " category.

As will be seen from the G.A. drawing, the hull and flying surfaces possess very few internal members. The fuselage is, in fact, almost a pure monocoque shell consisting of a mere three dozen or so component parts the majority of which would appear to have been pre-fabricated before they reached the assembly line. Although this method of construction is common in the automobile industry, it is nevertheless a departure from orthodoxy in the aircraft world. The wings are built up from three main spars carrying three normal sheet alloy ribs located one at each extremity of the wing and one at the attachment point of the bracing struts.

There is no further internal structure. Torsional rigidity is obtained by corrugating the light alloy wing covering. This covering is produced in a hydraulic press in widths of 36 ins. each, the pitch, width, and depth of the corrugations being 4 ins., $\frac{3}{4}$ in. and $\frac{1}{4}$ in. respectively. Upper and lower surfaces are formed at the same time from the same sheet of material, which, during assembly, is folded over down the centre line, slipped over the three wing spars to which it is ultimately riveted and joined together at the trailing edge. The control surfaces and empennage are formed in exactly the same way, whilst the wing tip floats are formed from two identical light alloy pressings riveted together along external flanges. The landing gear consists of two fully cantilever oleo legs capable of being retracted hydraulically to a position clear of the waterline.

Power is supplied by a 215 h.p. six-cylinder Franklin 6A8-215-B9F air-cooled inverted engine mounted on a steel tubular framework bolted to the top of the aft portion of the cabin superstructure. The fuel tank of 75 gallons capacity is made of rubber impregnated fabric and is situated inside the hull immediately forward of the step. Carrying four people (pilot and three passengers) and 47 gallons of fuel, the Seabee has a duration of $3\frac{1}{2}$ hours at cruising speed.

**Colour.** G-AJVO—aluminium finish with green flashes, letters, etc., G-AJVP—as per Mr. Moore's cover painting.

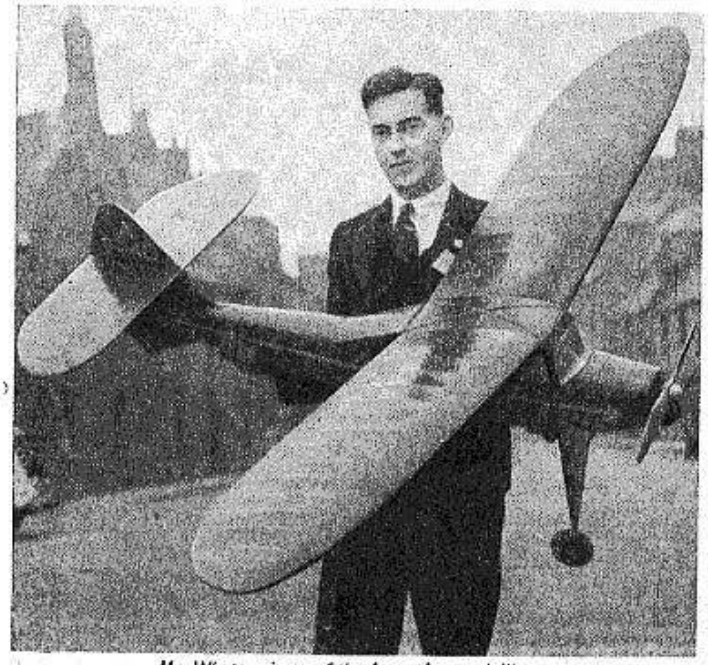
**Specification.** Length: 28 ft. Span: 37 ft. Height: 9 ft. 7 ins. Tare Weight: 1,950 lbs. Maximum Weight: 3,150 lbs. Maximum Speed: 120 m.p.h. Cruising: 103 m.p.h. Landing: 58 m.p.h. Wing Area: 196 sq. ft. Range: 560 miles. Ceiling: 12,000 ft.

$\frac{1}{4}$ in. to 1 ft. reproductions of the G.A. drawing may be obtained, price 1/-, from Aeromodeller Plans Service.

*Photos: A. S. C. Lumsden*


# NORTHERN HIGHLIGHTS

BY C. S. RUSHBROOKE



*Mr. Whyte, winner of the Angus Aeromodelling League Exhibition, with his model "Eros".*

I HAVE long promised myself a trip up to Scotland in order to get acquainted with the many modelling enthusiasts in that country, and the occasion of the Angus Aeromodelling League exhibition held on March 26th gave me the chance to shake the dust of Leicester from my size nines.

This decision was made easier by the fact that the NORTHERN MODELS EXHIBITION took place in Manchester around the same period, and, having been invited to judge the model aircraft exhibits at this affair on the 25th, the opportunity was taken to break my journey at Manchester, and meet many old friends from my old "active" modelling days when the Lancs. M.A.S. was still a power in the land!

Organised by the Northern Association of Model Engineers, the Manchester show was opened by the Lord Mayor of Manchester in the spacious Corn and Produce Exchange—a lofty building that tended to dwarf the exhibits both in size and significance. (I learn that this venue is being assiduously chased for indoor flying next winter, and with an unbroken space under a high dome, some good times should be achieved.)

Though model aircraft formed only a section of the exhibits, the models on show were a fair selection of the varying phases of our craft, though not so numerous as I would have expected from such a model-minded area as surrounds Manchester. Frankly, I was rather disappointed with the number and general standard of the aircraft exhibits, as, with one or two notable exceptions, I am sure the Lancashire boys can turn out much better stuff than that shown.

Comprising seven sections, two limited to junior entries only, certain models were outstanding, making judging a fairly simple task. My hardest decision was when awarding the "Aeromodeller Exhibition Trophy" for the best model aircraft exhibit, for many considerations have to be taken into account. Obviously, the solid modeller can put unlimited detail and finish into his craft, while the scale modeller who builds flying stuff has to allow for flight considerations and practical aerodynamic requirements. Similarly, when judging a power section, allowance must be made for the amount of polish and elbow grease piled onto a speed control-line job as compared with a free-flight model.

Finally, the elimination process brought forward the flying scale power-driven model Avro 504K, constructed by R. Booth of the Manchester M.C. as champion exhibit, a very fine piece of craftsmanship. Powered by an Amco ·87, the model was to 1/12 full size, finished in red and yellow. An interesting feature was the rubber wing bracings.

The closest rival to this model was the beautifully finished sailplane which won the class for T. Whalley of Whitefield. This was one of the few machines that did not rely on slapdash coatings of coloured dope and varnish to hide up constructional defects, the finish on the fuselage being an example to any modeller. A third outstanding model was the finely detailed Fairey "Firefly" entered by G. D. Barnes of Sale, one of the best solid models the writer has seen for some time.

Other section winners were: Power, G. Seymour (Cheadle), Wakefield, R. Musgrove (Oldham), Junior rubber, R. Duncan (Cheadle) and Junior Glider a tie for O'Donnell, J. and H.

Catching a night train from Manchester to York, I joined the "Aberdonian" there and slept like a log until Arbroath was reached at 6.10 p.m., an unearthly hour to arrive anywhere! However, a tip-top breakfast served at my Scottish hosts' table soon brightened my outlook, and I settled down to enjoy a stay in a true aeromodelling household, where father and son are keen enthusiasts, with sister running them neck and neck, and the tomatoes are regularly asphyxiated by running diesels in the glass house.

The ANGUS AEROMODELLING LEAGUE had taken over the local drill-hall for the occasion of their annual exhibition and demonstrations, a large area being netted off with fishing nets. On one side of the barrier models were displayed in rows for exhibition, whilst on the other continuous activities lasted all day, mainly control-line flying.

The models here were of an all-round high standard, and judging was no sinecure, Mr. Inglis (President of the Angus League) and myself finding our work cut out to decide in some very close "finishes".

Rear Admiral W. S. Jamieson of H.M.S. "Condor", the local Naval Air Station, opened the exhibition with a well-chosen address, recalling that he actually built and flew models back in 1906, though these hardly compared with the type of model now on show! Other speeches being concluded, the winners were announced, chief award going to 22 years' old Ken Whyte of Montrose.

Runner-up was J. S. Duthie of Dundee, who exhibited an "Aristocrat" among other fine models. His collection of tiny solids, including many very early type aircraft, was one of the best exhibits of the type I have seen, his class winning "Farman" being exceptional.

Mr. Webster Senior of Arbroath won the power section with a beautifully constructed control-line biplane "Firecrest", which featured some fine fuselage planking and sheet covered mainplanes, the whole job being natural wood polished, with red trim. His son, David, carried off no less than four prizes, mainly in the junior sections.

Altogether, the static display was well balanced, and a good example of what can be done when a collective effort is made. This standard was well backed up in the "active" display which continued in the arena, where some hectic control-lining was witnessed from time to time.

The usual engine troubles were well in evidence, and one or two pendant lights "went for a burton" before the evening was over, but there is no doubting the fact that the lads really enjoyed themselves, particularly the contingent from "Condor".

The day following was notable for a meeting with representatives of the Scottish clubs, a round table discussion fixing boundaries for Areas under the S.M.A.E. I, with others, would like to see more active participation by Scottish modellers in national contests, and this meeting may be the means of bringing this about. Lunch, at the invitation of the Arbroath M.A.C., followed, after which a trip was made to H.M.S. "Condor" where general flying was indulged. In spite of a cold wind, some fine thermal flights were witnessed, Peter Montgomery losing his "Gamage Cup" hope on a really hefty "sky-hook".

I must get up to Scotland again during the flying season, for they certainly know how to entertain a Sassenach!

# CLUB NEWS

## BY CLUBMAN

*A typical "field" scene portrayed by members of the Lincoln and District Club.*

SINCE compiling our last list of clubs in the British Isles in 1946, such a high percentage of secretarial changes, addresses, and title alterations have taken place that the list becomes virtually useless from a practical point of view. In addition, the number of new clubs that have come into being during the last couple of years is such that we feel justified now in printing and distributing a new and up-to-date list.

Every club on our records has received under separate cover a form which we ask to be filled in and returned to us to enable a new list to be prepared, and combined with this, certain information is requested which will enable us to make a survey of the club movement similar to that which appeared in the December 1946 issue. Will any club secretary who has not separately received the special form please advise us at Leicester *immediately*, as we find from past experience that it is almost impossible to maintain a 100% correct list in the normal course of events, and it is only when we undertake a full-scale survey of this nature that we can hope to produce a full and comprehensive list.

This list and survey serve a double purpose as, in addition to our being able to supply enquirers with details of clubs in and around their particular locations, the information gathered from such a survey is invaluable to those charged with administering the hobby in these Islands. From such statistics they are able to convince various Ministries of the strength and value of the model aircraft movement, and thereby safeguard the interests of those of us who are desirous of seeing model aviation continue in this country without the imposition of needless and pettifogging restrictions.

Don't forget therefore to check with your club secretary whether he has supplied the necessary gen on your club, and should the standard questionnaire not have been received, make immediate application to the AEROMODELLER Offices.

As I write this the 1949 contest season will have opened with the famed Gamage Cup event, and if conditions outside my window are any indication of weather over the country as a whole, the Gamage will again earn its unenviable reputation as the "Damage." Scattered showers are driving across the sky, coupled with a very strong gusty wind which will undoubtedly play havoc with the vast majority of models being flown.

Before you read this column, further events in the shape of the "Model Engineer" and "Flight Cup" contests will have taken place on Easter Sunday, and I only hope the weather will be a vast improvement on the Gamage, as I shall be spending that weekend in Folkestone in readiness for the South Eastern Area Control-line Rally at Dover on Easter Monday.

Among my other travels during the past month I spent a very interesting weekend with Squadron-Leader Lord at R.A.F. Station, Wittering, and had my first real experience of jet-powered model flying. This, happily (or unhappily), took place inside a large hangar, and those of you who have heard a pulse jet engine operating in the open air will have some appreciation of the terrific racket caused by one of these motors running inside an enclosed space. An interesting technical hitch was traced to (and which should be carefully added to Squadron Leader Lord's article in the April issue) the fundamental factor that it always pays to strain your fuel irrespective of the type of engine you are using. Lord's famed "easy-starting technique" was conspicuous by its absence until an investigation shewed a hopelessly clogged jet orifice. Was his face red! However, we all had a very fine time and it was a treat to find such a person on an Air Station mucking in with the cadets and all enjoying this hobby to the full.

Those of you interested in a trip to Eire this year for the increasingly popular Irish Nationals will be wise to make a note of the following list of contests, just received from our old friend Pat Masterson. Comprising a one-and-a-half day "do," events start off on the afternoon of Saturday, August 13th with a control-line comp. at a central Dublin site, followed by the regular Wakefield and Power events at Baldonnell on the 14th. (We are informed that the high wind of 1948 has been eliminated this year. I hope so—it takes me too long to regrow my thatch these days, and I sure lost some last year!)

If the "sportsman" who pinched an E.D. Bee engine on the 20th March from Epsom Downs will contact the owner, C. Thompsett of 21, Leechcroft Road, Wallington, he will have pleasure in forwarding the prop to go with it! (This sneak-thieving is reaching the limit, and the sort of thing that goes on at Fairlop [where the local spivs wait at the downwind end of the 'drome and whip out engines before the harassed owners can get there] is getting beyond a joke. Seems we shall have to split the clubs up into flying and policing squads.)

CONTEST CALENDAR.

| | | |
|---|---|---|
| May 1st | ASTRAL TROPHY—Power Ratio | D/C |
| | HALIFAX TROPHY—Power Duration | D/C |
| May 8th | Blackpool & Fylde Rally | Blackpool. |
| May 15th. | WAKEFIELD ELIMINATOR | Area. |
| June 5/6th | BRITISH NATIONALS | Fairlop. Cent. |
| June 19th | S.M.A.E. CUP—F.A.I. Rubber | D/C |
| | PILCHER CUP—F.A.I. Glider | D/C |
| | West Essex Gala | Fairlop. |
| June 26th | Foresters M.A.C. Rally | Langar. |
| July 2nd | WAKEFIELD TRIALS | Fairlop. Cent. |
| July 17th | WOMEN'S CHALLENGE CUP—Rubber/Glider | D/C |
| | FROG JUNIOR CUP—Rubber | D/C |
| | Blackheath M.F.C. Open Day | Epsom Downs. |
| | Southern Area Rally | Stoney Cross. |
| July 31st | WAKEFIELD TROPHY | Cent. |
| Aug. 1st | BOWDEN TROPHY—Precision Power | Cent. |
| | INTERNATIONAL POWER—Power Ratio | Cent. |
| Aug. 14th | Irish Nationals | Dublin and Baldonnell. |
| | Brentford & Chiswick Gala Day. | |
| Aug. 21st | FARROW SHIELD—F.A.I. Team Rubber | Area |
| | K. & M.A.A. CUP—F.A.I. Glider | Area. |
| Aug. 28th | All Herts. Rally | Radlett. |
| Sept. 4th | Huddersfield Air League Rally | Crosland Moor. |
| Sept. 11th | WESTON CUP—Wakefield | D/C |
| | LADY SHELLEY CUP—Tailless | D/C |
| Sept. 12th, 14th, 16th | Isle of Man Rally. | |
| Sept. 25th | KEIL TROPHY—Power Ratio | North/South Cent. |
| | HAMLEY TROPHY—Power Precision | North/South Cent. |
| | CONTROL-LINE SPEED | North/South Cent. |

Mr. C. D. Dobson, Assistant Secretary of the B.O.A.C. (Croydon) Society of Model Engineers, advises that he has a pylon type power plane in his possession awaiting collection by the owner. This model landed near Croydon Airport on the 20th March and can be collected from the Police Office at Croydon Airport. Mr. Dobson rightly says, " I am surprised to find that the owner of this plane, after purchasing the parts and going to the trouble of making the plane, omits the elementary precaution of putting his name and address on the machine." Some people will never learn !

In view of the home venue of this year's Wakefield contest, the donation of a cup for this class of model is appreciated by the **BRENTFORD & CHISWICK M.F.C.** Donated by Mr. and Mrs. Close, the cup will be flown for on April 24th. An indication of the trend in contest glider design is the new version of Higgins' very successful '48 model, which now features very closely-spaced wing ribs—test flights proving that some benefit is obtained by this method. It is proposed to revive the Brentford & Chiswick Gala this year, August 14th being the date.

With a rapid increase in membership, the **BOSTON & D.M.A.C.** (formed last August) held their first exhibition, honours being taken by G. Thorlby and P. Luff.

**WALSALL M.A.C.** are making preparations for their second annual control-line rally in August. Membership is improving and all branches of the hobby (except indoor) are progressing rapidly. Club records at present are :—

| | |
|---|---|
| **Power :** | **23·5 ratio** |
| **Rubber :** | **11 : 19** |
| **Glider :** | **10 : 35** |
| **C/L Speed :** | **61 m.p.h.** |

The **SOUTHAMPTON M.A.C.** held a scale C/L comp. on January 16th at which Pete Cock showed that he can do his usual stuff in all classes, winning with a score of 182 points. He flew an " Elfin "-powered " Sopwith Triplane," the runner-up flying an E.D.-powered " S.E.5." The Hampshire R.T.P. Contest resulted in a win for Southampton by 1489·7 points against their nearest rivals, Portsmouth, who scored 1279. Best score was set up by Pete Cock who totalled 580·4 secs. Highlight during February was the lecture given by Ralph Bullock on " Wakefields," as a result of which many members have aspirations for the Finals, which are almost certain to take place at Cranfield, Beds. (not Bucks ! ! )

**READING D.M.A.C.** have at last obtained a field worthy of the name—Aldermaston Aerodrome, just outside the town. It is proposed to hold the South Midland Rallies there this year, and from all accounts it should be almost ideal. Club christening of the new ground was postponed—snow got there first.

The **HACKNEY M.A.C.** has terminated its activities and amalgamated with the West Essex boys.

Though a number of Wakefields are being readied in the **BIRMINGHAM M.A.C.**, most of the new machines appearing are power jobs, with diesels tending to give way to petrol engines. No shortage of engines around Brum, anyway ! (Frankly, I think it high time the " engine shortage " bogy was flushed—and that applies in particular to those bods who are continually writing begging letters to the States in an out-and-out cadge racket. These writers *can* buy engines here, but are currently imposing on the well-known generosity of our American friends, and a nasty smell is beginning to appear under the noses of the fellows across the Atlantic. Cut it out, chaps, and go out and buy a good English engine, or conduct a proper exchange with your American correspondents.)

Norman Davies of the **LIVERPOOL M.A.S.** gave a fine display of indoor " mike " flying when winning the club contest with his 30-in. span stick model, aggregating 8 minutes for three flights. His best flight was 3 : 07, which is very creditable under such a low ceiling. I. S. Cameron placed second, with Ernie Dillon third.

During the past few weeks there has been a steady influx of new members into the **BLACKHEATH M.F.C.**, and with the competition season just around the corner a recent line-up of models produced over thirty new machines. Ken Upton reckons to tie himself in knots this year if all goes to plan. He's trying out a Mills-powered C/L Auto-giro calculated to do loops ! !

Since being allowed the use of Croydon Airport, Saturday afternoons have been put to full use by the **CROYDON & D.M.A.C.** lads improving their stunt routines. After having Dak's and Dove's at roof height, the neighbours don't complain about the noise put out by a little thing like a Super Cyclone !

Would-be competitors at the **BLACKPOOL & FYLDE M.A.S.** Rally at Blackpool on May 8th *must* produce proof of insurance. This applies to *all* contests. This condition has been agreed with the local authorities who gave the club use of Stanley Park on that undertaking. Club members Walker, Morgan, Wright and Booth are giving demonstrations of C/L flying at the Blackpool Football Ground to prove to the general public that they are not playing with toys !

Twelve-year old Tony Speakman of the newly-formed **KINGSTANDING M.A.C.** won first prize at the local Arts and Crafts with his Slicker Mite, which has since made many fine flights when powered with an E.D. Bee.

As a pleasant change from the usual moans regarding local councils, the **PRESTON & D.M.A.C.** report that they have been offered a suitable ground for control-line flying by the corporation, the authorities being willing to defray the cost of fencing the ground. The controversy in the club now revolves around whether a nice soft grass surface shall be fitted (lightweight stunt bods) or a concrete circle (speed fiends). One member, searching for fuel for his glow-plug job, purchased some absolute alcohol ! Still, he could always drink it ! !

During an inter-club contest with the Epsom College modellers, A. Richardson of the **BY-PASS MODELLERS** raised the club senior rubber record to 3 : 41 o.o.s., and R. Starding put up a junior figure of 2 : 41. This club has private use of the Wandgas Sports Club every Sunday for C/L work, which comes in quite handy. This group have the very sound scheme of charging a sufficient fee to include insurance and S.M.A.E. affiliation, thus ensuring that all members are fully protected and complying with reasonable regulations.

Nothing daunted, the members of the **BURY & D.M.A.C.** conducted their first contests of the season in several inches of snow—the motto eventually being, " the shorter the flight, the drier the feet." G. Ashworth won the power event with a ratio of 4·6, W. Hinks clocked 4 : 06 to win the rubber event, and the glider honours went to S. Kay with a time of 4 : 20.

I had the pleasure of visiting and lecturing to the **AMPLEFORTH COLLEGE M.A.C.** during March, and during my stay there timed M. D. Pitel's new club power record which resulted in a ratio figure of 14·7. Model was a " Hell's Angel " powered with an " Elfin." R. A. Twomey later raised the F.A.I. sailplane record to 7 : 52 o.o.s., flying his " Stileto."

With the disbanding of the Nottingham Area Council of Aero Clubs, the South and North Notts clubs have combined to form the **FORESTERS M.F.C.** with some 70 members on the rolls. The South Notts lads held a " close-down " contest at Langar on February 27th with the following results :—

| | | |
|---|---|---|
| **C/L Stunt :** | **D. Boulton** | **36 pts.** |
| | **R. Noble** | **27 ,,** |
| | **P. C. Ball** | **20 ,,** |
| **Glider :** | **P. C. Ball** | **2 : 30** |
| | **J. Howard** | **1 : 43·8** |
| | **D. Fox** | **: 46** |
| **Rubber :** | **D. Fox** | **2 : 57·8** |
| | **D. Boulton** | **1 : 29** |
| | **D. Wade** | **1 : 09·5** |
| **Power :** | **T. Woodward** | **1 : 16** |
| | **R. Noble** | **1 : 12** |
| | **D. Ward** | **: 41** |

The **HUDDERSFIELD AIR LEAGUE M.A.C.** is another group to have good luck with a field for C/L flying, a local farmer having given them the use of a suitable ground. Most models appearing are naturally control-line, including a jet-powered effort that persists in catching fire every time it is brought out.

Secretary Barnes of the **R.Ae.S. (PORTSMOUTH BRANCH)** tried out a Jetex powered r.t.p. model at a recent contest, resembling a cross between a V.1 and an M.E.163. After several attempts to light the jet, he managed finally to light the fuselage. Exit speed job in exactly 20 seconds ! !

Club records in this group are interesting for your comparison and as follows :—

| | | |
|---|---|---|
| Rubber : | A. J. Brooks | 6 : 48 |
| Wakefield : | A. J. Brooks | 2 : 29 |
| Power : | K. L. Sapsed | 10·7 ratio |
| Glider : | M. J. Concannon | 8 : 30 |
| C/L Speed : | L. Glover | 73·4 m.p.h. |

The MERSEYSIDE M.A.S. held a " miniature " exhibition of " Models for the 1949 Season," which was well supported. Highlights were Roy Alexander's 75-in. span monocoque sailplane, featuring an A/Ratio of 15–1, elevated tailplane, and a mainplane incidence of 7 degs. positive. R. F. L. Gosling's " Tern II " (a very much modified version of his well-known design) is 84 ins. span, and employs a very thin diamond fuselage section and Davis airfoil. This job uses auto-aileron for directional control, more of which anon. The effects of the new F.A.I. rules are clearly seen in the new slimness of many fuselages.

Two or three chaps from overseas write this month in the hope that I can fix them up with pen-pals from here. Anyone interested in conducting correspondence take your pick from the following : Janusz Zygadlewicz, Poznam, ul, Mylnska 2/16, Poland ; Jim Butcher, Hi-way Hobby House, Kingman, Kansas, U.S.A. ; W. K. Shannon (age 16), c/o Scots College, Wellington, E.4, New Zealand ; Rosario Savona, St. Patrick's School, St. John Bosco Street, Sliema, Malta ; and Bruce Lester, 254 Glen Park Ave., Toronto, Canada, who is particularly interested in tail-less models and Jetex.

That's all for this month of May, and here's hoping that the Weatherman is kind to us poor little modellers throughout 1949, though if " Damage Day " is any criterion of his attitude so far, it's time he withdrew the digit ! Good flying, and till next month . . . gently, you Bentley's.

The CLUBMAN.

NEW CLUBS.

GLASGOW BARNSTORMERS M.A.C.
J. A. R. Smith, 150, Golf Drive, Drumchapel, Glasgow, W.3.
OUNDLE & D.M.A.C.
E. W. Burgess, 27, Benefield Road, Oundle, Northants.
NORTHUMBERLAND SENIOR M.F.C.
L. E. Cranston, 41, Warrington Road, Newcastle-on-Tyne, 4.
BROMLEY M.A.C.
J. S. Whitaker, 42, Cambridge Road, Bromley, Kent.
DUDLEY & D.M.A.S. (formerly Tipton & Dudley).
V. S. Collins, 288, The Broadway, Dudley, Worcs.
KETTERING & D.M.A.C.
A. G. Clarkson, 2, London Road, Kettering, Northants.
FORESTERS M.F.C.
R. C. Noble, 57, Collygate Road, Trent Bridge, Nottingham.
WISBECH M.C.
B. G. Barwick, 29, Verdun Road, Wisbech, Cambs.
LOFTUS A.M.C.
G. Allinson, 36, High Street, Loftus, Saltburn, Yorks.
MILLS POWER CLUB.
J. Thompson, c/o Mills Bros. Ltd., 143, Goldsmith Road, Woking, Surrey.
NEWPORT PAGNELL M.F.C.
W. J. Davis, 8, Park Avenue, Newport Pagnell, Nr. Bletchley, Bucks.

SECRETARIAL CHANGES.

R.Ae.S. (PORTSMOUTH BRANCH).
Model Section. W. Barnes, 34, Station Road, Drayton, Nr. Portsmouth.
BOREHAMWOOD & D.M.A.C.
A. G. Trodd, The Laboratory, Kitwells, Shenley, Herts.
LEIGHTON PARK M.A.C.
N. Ouroussoff, Grove House, Leighton Park School, Reading, Berks.
RAVENSBOURNE M.A.C.
E. Walker, 43, Holbrook Way, Bromley, Kent.
AVON M.A.C.
B. A. Smith, 439, Filton Avenue, Horfield, Bristol, 7.
BUSHY PARK M.F.C.
S. R. Heaford, 102, Heath Road, Twickenham, Middlesex.
AVRO (Langar) M.A.C.
B. E. Toms, c/o A. V. Roe & Co. Ltd., Langar, Notts.
WARWICKSHIRE M.S.
Miss B. Aldridge, 104, Waverley Road, Leamington Spa.
SHELDON M.A.C.
B. Beckingham, 289, Lyndon Road, Sheldon, Birmingham, 26.
R.A.F. SYERSTON M.A.C.
H. Horsfield, The Vicarage, Kneeton, Notts.
CROYDON & D.M.A.C.
H. E. Setterfield, 61, Brighton Road, South Croydon, Surrey.
ILKESTON M.A.C.
A. E. Smith, 240, Heanor Road, Ilkeston, Derbyshire.
OLD HILL & D.M.A.C.
Miss M. B. Raybould, 52, Cherry Orchard, Old Hill, Staffs.

(Others held over to next issue.)

***STOP PRESS***

**1949 "GAMAGE CUP" RESULTS**

| | | |
|---|---|---|
| 1. Bainbridge, R. M. | Seaham | 396·7 |
| 2. Revell, H. W. | Northampton | 380·2 |
| 3. Joyce, P. L. | L'boro College | 305·5 |
| 4. Parham, R. T. | Worcester | 300·6 |
| 5. Viles, A. H. | Worcester | 262·1 |
| 6. Munden, A. B. | Blackpool | 261·95 |
| 7. Berryman, T. | Thames Valley | 254·7 |
| 8. Tubbs, H. | Leeds | 245·5 |
| 9. Dubery, V. | Leeds | 245·4 |
| 10. Haisman, B. V. | Liverpool | 215·7 |
| 11. Cameron, C. | Leeds | 209·2 |
| 12. Owen, J. | Blackpool | 201·5 |

(86 Competitors from 29 clubs.)

## L.S.A.R.A. News

RE-ORGANISATION of the internal structure of the Association has now been completed, and the Research Council is meeting regularly in London. For the last two meetings, members were the guests of Sir William Acland Bt., B.A., at the Athenæum Club, Pall Mall, and one distinguished visitor included Professor A. A. Hall, M.A., F.R.Ae.S., the Association's Vice-President.

Although the primary aim has always been to study aeromodelling for its own sake it has been found advantageous to test the products of various manufacturers, and submit advice on future development. This helps the Association to amass useful information and helps reputable manufacturers to give better service to the movement in general.

Also, it has not been possible up to now to distribute unrestricted reports to non-members because of the amount of work entailed. More voluntary assistance with this job has now been obtained, and the reports listed below can be ordered from the Director of Research at 23, West Road, Hawsley Lane Estate, Farnborough, Hants. Applications for membership are also welcomed and should be made to the Director of Research.

## International Radio Control Contest

Stop Press News indicates that the Aero Club of France are running an International Radio Control Contest for Model Aircraft on June 12th in the Paris District. We understand that the contest is open to all types of aircraft and that they can be launched by any method with the exception of towing by full size aircraft.

A full translation of the rules and full particulars of the event will be sent to any British Radio Controlled enthusiast who is interested, on application to the Secretary of the S.M.A.E., Londonderry House, Park Lane, W.1.

# Raylite

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| Mills Mk. II | £4 15 0 |
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| Frog '100' | £2 8 0 |
| Mills 2·4 c.c. | £5 10 0 |
| Amco Mk. II | £3 12 6 |
| Nordec Glo-Plug | £12 0 0 |
| Keil Kraft CO² | £1 1 6 |
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| Amco 3·5 c.c. | £4 17 6 |
| E.D. Bee | £2 5 0 |

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| Capacity | 2·499 c.c. | R.P.M. (new) | 8,000 |
| Weight | 5·75 oz. | R.P.M. (run in) | 10,000 |
| Bore | 0·520 ins. | Static Thrust | 35 ozs. |
| Stroke | 0·680 ins. | C/L Prop 9" × 10" | F/F Prop 10" × 6" |

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Halfax Tern 10/-, Halfax Albatross 25/-, Keilkraft Invader 6/6, Keilkraft Soarer Baby 5/-, Keilkraft Soarer Minor 8/6, Keilkraft Soarer Major 11/6, S.J.A. Southern Sloper 6/6, Frog Vanda 9/6, Frog Fairey 7/6, Frog Prince 25/-

### POWER DURATION

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|---|---|
| Keil Kraft Slicker | £1 2 6 |
| Keil Kraft Outlaw | £1 7 6 |
| Keil Kraft Slicker Mite | 11 6 |
| Frog Strato-D | 17 6 |
| Laws Zephyr | 10 6 |
| Slicker Mite | 10 6 |
| Skyjet '100' | 5 6 |
| Bowden White Wings | £3 15 0 |
| Keil Kraft Bandit | £1 1 0 |
| Keil Kraft Falcon | £5 17 6 |
| Frog Centurion | £3 3 0 |
| S.J.A. Dragon | £1 5 0 |
| Airflo Mite | 8 6 |
| Super Slicker | £2 7 6 |
| Skyjet '200' | 7 6 |
| Keil Kraft Pirate | 13 6 |

### CONTROLINE

| | |
|---|---|
| Sea Fury | £1 2 6 |
| Veron Martinet | £1 1 0 |
| Keil Kraft Scout | £1 2 6 |
| Frog Vandiver | 13 6 |
| Halfax Sabre | 16 6 |
| Airyda Swallow | 12 0 |
| Kan-doo | £1 5 0 |
| Phantom Mite | 11 6 |
| Don Rival | 10 6 |
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| Veron Stunter | 19 6 |
| Veron Nipper | 9 6 |
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| Mercury 'Marlin' | 19 6 |
| Don 'Nifty' | 12 6 |


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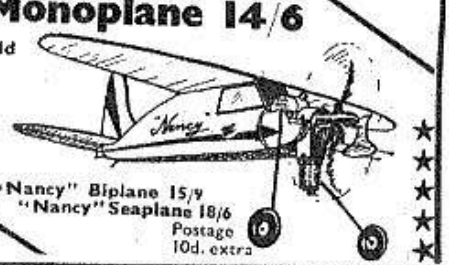


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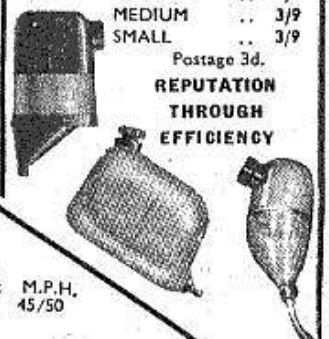

## J'S MODEL CENTRE · 6 BLENHEIM GROVE · LONDON S.E.15

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*Continued on page 323.*

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