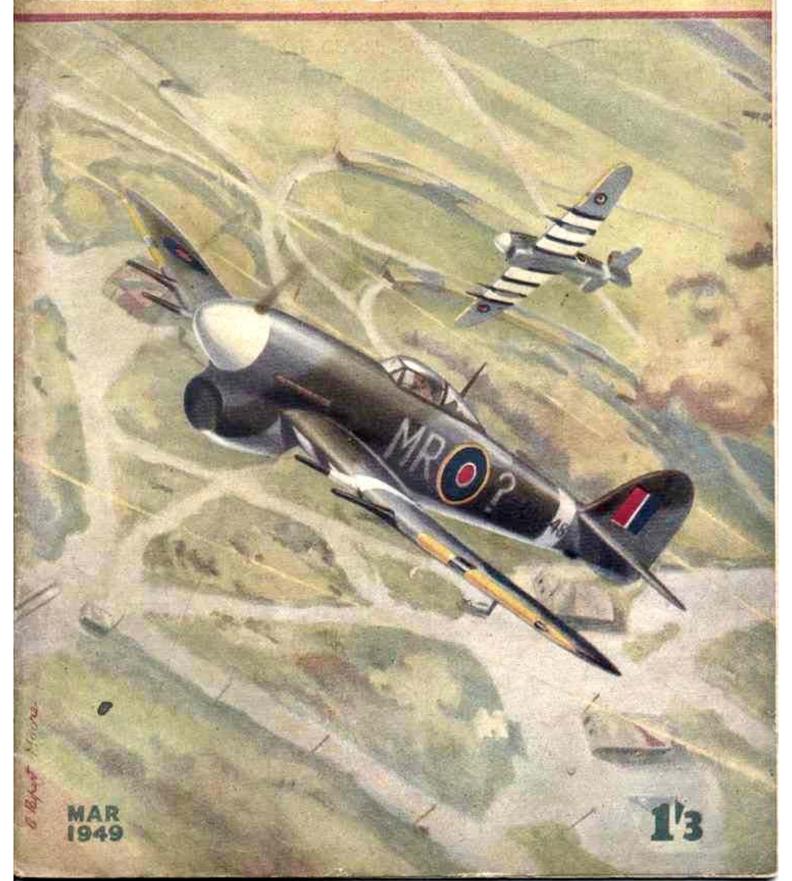
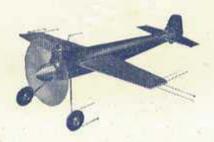
# AEROMODELLER



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### FREE FLIGHT POWER KITS

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SPEED CHART natantaneous reading over any length of line or 1/6 of laps.

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STUNT TANKS

Constant fuel feed

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" ADJUSTA-LYNE " C/L HANDLE.

For perfect con-trol. Tailored to fit the 7/6

BELL CRANKS



An attractive looking speed model which may be used as an advanced trainer or, with suitable power, is capable of an exceptional turn of speed.

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Shoulder wing "sports" model with semi-scale lines. An ideal introduction to the art of C.L. flying.

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### "WAKEFIELD" TYPE KITS

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The Model of the Year! 1948 "Wakefield Trophy" winner. Britain's most popular "Wakefield" design a performance unrivalled by any model.

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"Flying Minutes"

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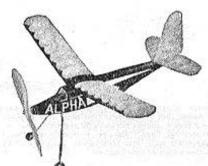
GRAMS: AEROMODEL. HALIFAX

# All The Best Model Shops Stock THE "POPULAR"

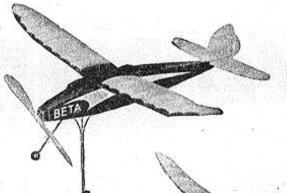
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C.M.A.

OF FLYING KITS by



26" WINGSPAN
Rubber Driven Monoplano
5/6 KIT



40" WINGSPAN
Rubber Driven Monoplane
#0/6 KIT

Ask your local Dealer for them



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Your Local Dealer should also have the following Items:-

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NEW PRICES FOR C.M.A. DOPES.

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A

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155 STATION ROAD

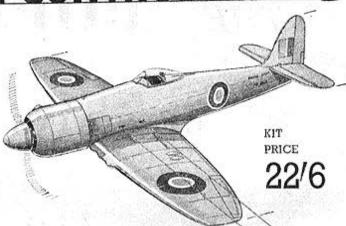
LONDON, E.4



Veron designs have opened up a great new field in Control Line with the Super manoeuvrable

HAWKER Jury X
Sea Jury X
sea with its ingenious

COMBINED FLAP AND ELEVATOR CONTROL



designer putting the model through its paces

—a wonderful action picture made possible only by "reduced throttle and short lines" with high speed photography — note the realistic effect of this accurate scale model of the Navy's finest ship-board fighter.

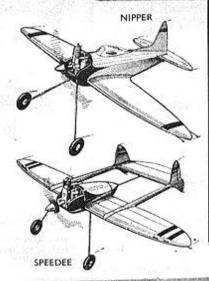
NIPPER. 17° Span. Ideally suited for all those new Diesels under I c.c. Open beam mounts for adaptability to all engines, but fit a spinner for super 9/6

SPEEDEE. 24" Span. Twin boom speed and sport for '5 to 3 c.c. Diesels and Glow Plug motors. Has the most fascinating lines and performance of its type.

STUNTER. 24" Span. The original Control Line Stunt Biplane for small Diesels 1-3 to 3-5 c.c. and for Glow Plug motors. A really rugged 19/6

MARTINET. Span 36". One of Veron's Super Value Kits. For small Diesel motors up to 1 c.c. capacity. Suitable for Amco, E.D. "Bee" 21/-

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This Model is capable of all advanced stunts—in experienced hands, but is not recommended as a beginner's model—it flies at speeds between 50 and 60 m.p.h. The Veron "Sea Fury " plan, so accurately detailed, has been described as a masterpiece—so concisely does it explain every step of construction.

OF ESSENTIALLY SIMPLE CONSTRUCTION, THE KIT CONTAINS MANY UNIQUE FEATURES NEW TO VERON KITS

- Span 251"
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- Graded Balsa, Printed Sheets and Strip.
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- Cements, Tissue Pastes, etc. (No Dopes.)
- Partly formed Metal Tank.
- Metal Spinner.
- All up weight 12 ozs, with E.D. Comp. Special 2 c.c. Diesel Motor.

In fact everything to make the first and finest Stunt Scale Control - line Model of 1949.

Veron "Gold Seal" Stunt Tank, Complete Tank (as supplied in the Fury Kit) 4/-

VERON

ASK YOUR DEALER FOR THESE FINE VALUE KITS.

MODEL AIRCRAFT (Bournemouth) LVD. Norwood Place. BOURNEMOUTH

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"There's nothing I like better than selling good lines to people who appreciate them." H.J.N.

An enthusiastic recruit to modelling, looking at our advertisements, accused us of having little or no time for the beginner, and said that we catered only for "power-hounds," experts, and R.A.F. "bods" on holiday! Yet this is far from being the whole story. It is true you will always find experienced modellers enjoying themselves at 308, but we never forget beginners. We do our utmost to put them on the right tracks from the word "go." That is why, this month, we have split our ad. into 3 sections, representing a fair example of a modeller's progress. Whatever stage you have reached, you can depend on the H.J.N. organisation understanding your requirements completely.

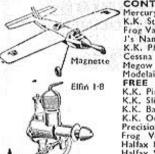


#### OR NEWCOMER TEX + RUBBER DURATION + K FILKRAFT

C. Uz.
21/6
10/6
5/6
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BEGINNERS ARE URGED TO BUY PERSONALLY AS MUCH AS POSSIBLE

FOR INTERMEDIATE MODELLERS Group B POWERED FLYING-COMPETITION





### D ENGINES (Prices subject to alteration without notice.) E.D. Mk. I (Bee) £2 5 Amco Mk. II · 87 c.c. £3 12 (or by monthly payments) Slicker Mills Mk. II. 1-3 c.c. . . 64 15 0 137 (or by monthly payments) Elfin 1-8 c.c. £3 19 (or by monthly payments) Allbon Mk. II. 2-8 c.c., 64 16

63 10 (or by monthly payments) E.D. Comp. Spec. 2 c.c. (or by monthly payments)

Amco Mk. II

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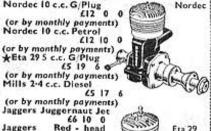
Mercury Radio-Control FOR DELIVERY NOW

controls over a single No special knowledge Gives needed to instal and operate. Actuator may be used to advantage with any sequential R/C system. This equipment is as light and dependable as the best practice in radio can make it. S.A.E. for leaflet.

COMPLETE OUTFIT 12) Gns. £7 12 0 £2 16 0 Transmitter £2 16 0 £2 16 6 Actuator (Prov. Pat.)

For Radio Control. (Available by many able by monthly payments) Veron Stentorian . . 69/6 (For Radio Control) (For Radio Control)
Veron Hawker SeaFury X 22/6
(The C/L sensation)
Halfax Jaguar 21/(1948 Wakefield Winner)
Albatross II 94 36/(The Glider for Experts)
Cocks Kan-Deo C/L 25/(Gold Trophy Winner)
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C/L 261 34/9

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Eta 29 5 c.c. G/Plug
(5 19 6
(or by monthly payments)
Mills 2-4 c.c. Diesel 65 17 6 (or by monthly payments)



★IT'S ALL IN EASY-REF. LIST No. 3 (with latest supplement) ......

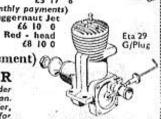
### No More Engine Worries

We have the only trained staff and specially equipped workshop in the country devoted exclusively to repairs, test and service. You can depend on the engine you send us coming back to you 100% right. Test certificate and running instructions with every job.

It is regretted that we can no longer service IROG conducts. FROG englnes.

Send cash, cheque or maney order with order, or pay the postman. Orders over £1 post free; under, send 1/- postage for kits, 6d. for accessories, unless stated.

MONTHLY PAYMENTS Engines over 70/-, certain kits and other lines where indicated may be purchased by monthly payments. Send S.A.E for details.



### Accessories for all stages modelling

K.K. CO2

When ordering, it will help if (1) Where possible you mention an alternative for props. (2) Order as much as possible at the same time. This saves you time, money and unnecessary delay.

### **CONTROL - LINE**

Ajustalyne C/L Handl Mercury Plastic Bell C	e . 7/6
	l. and 6 d.
Snip Speed Chart	2/6
Bat small stunt tank	5/-
Bat large stunt tank	6/6
Mercury Control Wire	200 ft. 2/~

### POWER MODEL

Mercury Fuel Funnel		4/3
Mercury Fuel Filter		2/3
Mercury Plug Protector		2/3
Dekko Rev. Counter Britfix Balsa Cement	**	10/-

per tube 7d. Mercury Cement Nozzle., 10d. Cockpit Covers 4\* long . 9d. Solarbo Balsa (Min. Mail Order)

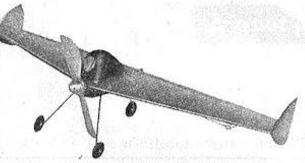
Dunlop Rubber-

### EASY - REF. LIST No. 3 AND FEB. SUPPLEMENT

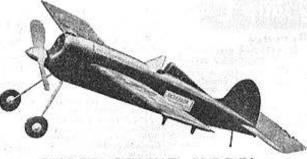
Combined with this advertisement, Easy-reference List No. 3 and the Feb. supplement provide the most up-to-date and detailed information any modeller could wish for. Send for list and/or supplement without delay.

### SPECIAL

All engines, and certain acces-sories are subject to alteration in price without notice in the event of Purchase Tax becoming charge-We shall make no change, however, in the minimum price at which engines may be purchased by monthly payments .i.e.







# Miesel design

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

### 3. CYLINDER STEEL

The cylinder is the most vital single component of a "Diesel", if alone for the fact that on its fitness depends the engine's useful span of life. The choice of material for the cylinder can therefore make or mar an engine.

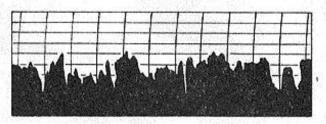
Mills set the standard of performance and engine life by making the cylinder of Firth Brown Nitralloy HCM 7 Steel, a Chromium-Molybdenum steel of admirably suited virtues.

HCM 7 hones to the fine "dull grey" finish which is perfect for ideal smoothness and effective oil retention. These properties are essential for high performance.

★ The wearing quality of this tough-cored and hardsurfaced steel (830 Diamond Hardness) makes an engine life of 400 hours a reasonable expectation. This life has been proved in practice over and over again and makes a "Mills" one of the cheapest power units.

★ The nitrided case retains its hardness up to a temperature of 500°C. This is a great advantage over other surfaced hardened steels which begin to soften at 200°C. Thus in the event of overheating owing to faulty lubrication, there is considerably less risk of engine seizure.

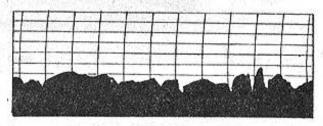
★ In its nitrided condition the steel resists the corrosive action of fresh water, sea water, steam and moist atmosphere. In practice this means that your "Mills" is not a fussy engine; it withstands severe climatic conditions and needs little attention in every day use.



PORTRAIT OF A "MIRROR" FINISH

(Magnified vertically 40,000X, and horizontally 50X.)

Section of a Mills 1.3 c.c. Cylinder after honing (above) and the Cylinder Wall after initial running-in (below). The average surface finish of the latter was 2.4 mu, inches; the average finish of the cylinder wall between ports and TDC was 1.83 mu, inches (less than 2 millionths of an inch).



Factnote: Though to the naked eye a cylinder may appear to have "mirror" finish, modern laboratory equipment reveals mercilessly the slightest unevenness, by using suitable distorting degrees of magnification.

Incidentally, the piston and cylinder do not touch each other. They are separated by a film of oil. At the same scale of magnification and the normal Mills piston clearance of '000075', this film of oil would measure 3 inches in thickness, and the piston belonging to the cylinder wall in the lower illustration would be found to be floating somewhere at the level of the outlined word "MILLS" in the heading of this advertisement.

Mills Diesel engines are designed throughout on scientific principles proved in experimental research, and all materials are selected without compromise for suitability and quality to give lasting life to engines of superior design.

·75 c.c. 10 ozs. Thrust, 2 ozs. Weight, Max. Power at 9,000 RPM £3. 5.0

1.3 c.c. 18 ozs. Thrust, 31 ozs. Weight, Max. Power at 10,000 RPM £4. 15.0

2.4 c.c. 32 ozs. Thrust, 6 ozs. Weight, Max. Power at 9,500 RPM £5.10.0

1-3 c.c. Marine Unit complete with Flywheel and Exhaust Stubs £5 . 5 . 0

USE MILLS BLUE LABEL DIESEL FUEL IN THE 10 oz. CONTAINER, Price 2/6

Wholesale Distributors in the U.K.; E. KEIL & CO. LTD., LONDON, E.2

MILLS BROS (MODEL ENGINEERS) LTD.
2 VICTORIA COLONNADE : SOUTHAMPTON ROW : LONDON : W.C.I



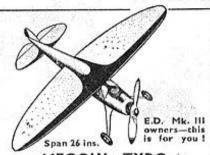
### \* planely the best - joy-plane products



COMMERCE WAY, LANCING, SUSSEX.

TELEPHONE: LANCING 2090-2099.

## GAMAGES "Model Aeroplane Corner"



**MEGOW - TYRO** 

Semi - scale 2-5 to 5 c.c. engines. Yes! Our stock includes the renowned American Megow C/L Kits, including the famous Tyro by Ace Designer, Mat Kania. Precision cut parts of smooth silky balsa, with streamline sorpo wheels. Including the Price, only 22'9

Post Free.



### THE NEW C/L WIRE

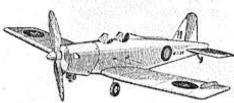
Thickness 010. Breaking strain 45 lbs. Guaranteed rustless, this new thin section wire is a MUST for all who want maximum M.P.H. and full stuntability with a 100% safety factor.

200 ft. coil 2'-

### CONTROL-LINE

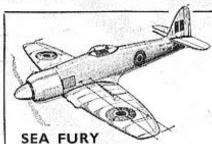
### -without Tears

Realism-Manœuvrability-Toughness-Safety!! Four basic features of successful and enjoyable control-line flying, on which we have based our selection for this month. Study them carefully; they all add up to maximum value and a new high level of all-round performance.



### MILES M.18 MAGISTER

Span 25] ins. Speed 45 m.p.h. Scale Semi Stunt 2-3 c.c. engines. Another superb scale C/L model, and one which will delight all those for-tunate enough to have flown in these grand little trainers. The kit is of the highest standard, and trainers. The kit is of the highest standard, and includes Scalelite wheels, metal cowling and many cut-out parts. Really essential for 25/-



Scole § in. = 1 ft. Spon 25h ins. Speed 60 m.p.h. Fully stuntoble for 2-3 c.c. engines. Pick of the month and bristling with outstanding features! Finished metal spinner, cockpit cover. Partly formed stunt tank, cut-out parts in graded balsa and a superbly detailed step by step plan. Only its unique interconnected stunt flaps and elevator can give such an amazing speed and stunt performance. 22/6

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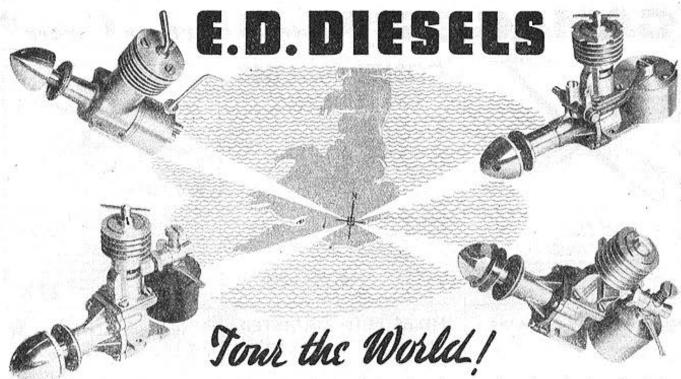
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If you are between 15-16 or 17-28, write to the Director of Naval Recruiting, Dept. AU/29, ADMIRALTY, LONDON, S.W.I, for full details of how to join.

chirpy, too. . . . if you'd just joined your carrier, made a nice landing, and walked straight into an old pal. It was Ted Purvis; he took this snap. 'Nice of you to drop in,' he says. 'Nice, was the word . . . what a cruise that was. You know it's a great feeling to look down at a carrier tearing through the water while you circle round it in a Sea Hornet, waiting to land-I

always get a kick out of it. It's a great life altogether—I remember at Hong Kong . . ."





World tourists—first class! Apart from the tremendous demand at home (and it is no exaggeration to say that the majority of British Model enthusiasts choose E.D.'s), the continuous flow of orders from overseas fill the E.D. factory to capacity. For many months, day and night shifts have been in operation at the E.D. works. There must be a reason.

be d reason.

1 c.c. MARK | BEE (the engine with a sting)

2 c.c. MARK | BEE (the engine models.

2 c.c. MARK | B. excels with marine models.

2 c.c. COMPETITION SPECIAL. Record Holder control line, 89.95 m.p.h.

2-49 c.c. MARK | Record Holder "C" Cars, 50.5 m.p.h.

Do not order direct, order from your nearest Model Shop.

RADIO CONTROL UNIT



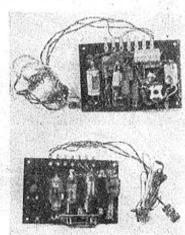
Surpasses any known apparatus on the market for reliability, efficiency, design and price. Provides the answer to the ever-growing demand for reliable control at long range. Simplicity itself—no technical knowledge required. Guaranteed range of control is 1,000 yards, but under test and severe conditions craft has been controlled at much longer ranges.

Unit comprises two-valve battery-operated Transmitter size 8" high, 7" wide, 94" deep, a three-valve circuit Receiver with single tuning control and a clockwork Servo.

The complete set is of compact design and minimum weight consistent with mechanical and electrical reliability. Complete unit, less batteries, £14 10 0.

Wooden Box returnable 5/-

Ask for descriptive literature from your nearest Model Shop or write to the makers.



Two views of the Receiver

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### 



Packed stands and terraced restaurant testify to the interest shown in the recent International Control Line Meeting at Monaco. Model " My Jenny " is shown going through its paces against the towering hills of Monte Carlo

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### Control Line Bye-Laws???

A REVIEW OF THE PRESENT SITUATION BY OUR MANAGING EDITOR

OF outstanding importance to aeromodellers was a decision given by Mr. Justice Finnemore in the High Court of Justice, King's Bench Division, on February 2nd, 1949.

Justice, King's Bench Division, on February 2nd, 1949.

As far back as the end of September, 1948, the Parks Committee of the Beckenham Borough Council were in touch with the Home Office with a view to obtaining approval of certain bye-laws which would have the effect of restricting, and in some cases entirely prohibiting, the flying of model aircraft within certain areas under their control.

Flying would be permitted in certain recreation grounds only if the engines were effectively silenced, and for a matter

of a few hours each week.

At that same time—towards the end of September of last year—it was known that proceedings had been instituted in the High Court for an injunction against Beckenham Borough Council "in respect of power driven model aircraft in the Blake Recreation Ground, and alleged nuisance from the noise occasioned".

The plaintiff—owner of a house adjoining Blake Recreation Ground—complained that the owners—the Beckenham Corporation—" had allowed persons at various times, and particularly at weekends, to operate mechanically propelled

model aircraft in the Recreation Ground ".

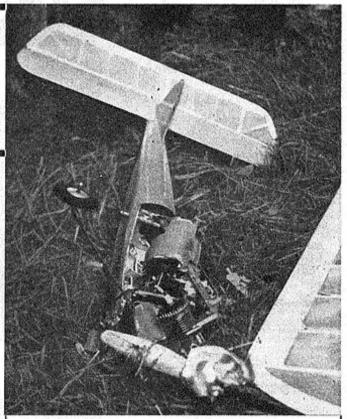
According to The Times, from whose report we quote, the plaintiff complained that "the engines made a loud noise and constituted a nuisance and that the continued noise was interfering with his enjoyment and health". He had therefore begun an action to recover damages, and to obtain an injunction restraining the Beckenham Corporation from allowing the alleged nuisance to continue.

In reply, the Corporation pleaded that the model aircraft were flown by members of the public whom they could not identify, in the exercise of their right to use the ground for the purpose of recreation. They contended that they were permitted by Section 164 of the Public Health Act, 1865, which provided:—" An Urban authority may purchase or take on lease, lay-out, plant, improve and maintain lands for the purpose of being used as public walks or pleasure grounds... Any Urban authority may make bye-laws for the regulation of any such public walk or ground and may, by such bye-laws, provide for the removal from such public walk or ground of any person infringing any such bye-law."

For the Corporation it was explained that they had a number of bye-laws in force for the regulation of the recreation ground, but they had not provided for the coming of model aircraft. Unfortunately there was no existing bye-law which covered the case, and would not be until such times as the Home Office confirmed a bye-law which had been submitted to them. The "Authorities" showed that the public had a right to come on to a recreation ground, provided under Section 164, without interference by the Urban authority. That right of the public was subject only to the condition that they must not infringe any bye-law made by the authority."

Finally, it was submitted on behalf of the Corporation, that the plaintiff might have rights against the persons who actually used the model aircraft, but he had no claim against the Defendants (the Corporation) for causing or permitting the alleged nuisance which they had no power to prevent.

On behalf of the plaintiff, contentions were submitted that the Corporation had control of the Recreation Ground, which was their own property, and if a nuisance was committed on the ground, and the Defendants did not abate it within a reasonable time of their becoming aware of it, they must be



This smash was the result of a control line handle breaking and incidentally the model belonged to an expert. Which only goes to show that accidents can happen to the best of us.

under the same liability as any other owner of land under the Common Law. The people who actually caused the nuisance in this case were licencees of the Defendants and the Defendants were liable for their Licencees' wrongful acts. Section 164 gave power to "maintain" a recreation ground, and maintenance must imply control. A statute could not authorise the committing of a nuisance unless it did so in express words or by inevitable implication.

If a nuisance were, in fact, created, it would not relieve the Defendants from liability to show that they had taken all

reasonable care to prevent it.

Mr. Justice Finnemore, having stated the facts set out above, and reviewed the "Authorities," said that, in his view— "the contention that the Defendants were trustees of the ground for the public was right. They were bound to admit anyone who wished to enter the ground during the hours of opening, and their only power over the public was by way of bye-laws. Their proper attitude would be to say that the plaintiff must take such action as he could against the persons who actually committed the nuisance alleged; and they might make a new bye-law to deal with the matter. He was told that they had proposed one. The preliminary point of law must, therefore, be decided in favour of the Defendants, and the present action failed."

In the above report, certain words had been printed in italies. These italies are mine. They are very important and should be carefully borne in mind by all clubs and individuals who may be concerned with the question of the flying of model aircraft in recreation grounds and public parks. The whole point is that it is not up to the aeromodeller to prove his right to fly; it is up to the Authority to disprove his right to fly, and this can only be done if already existing bye-laws can be invoked.

At the same time, I must emphasise that the question of safety still remains of paramount consideration, and while an authority might not have available a bye-law which it could deny to an aeromodeller the right to fly his models, it

might well be able to invoke a bye-law which could prevent flying, if it could be shown that the flying was dangerous, or even potentially dangerous.

Some few months ago, exception was taken by the Borough of Tottenham to the flying of model aircraft in the local parks. Following the advice I have so often "preached" in my Editorials, local Aeromodellers had insured with the N.G.M. and, when approached by officers of the Tottenham Borough Council, produced their membership cards as proof that they were insured against third party claims.

In due course the Town Clerk of the Borough of Tottenham approached the N.G.M. for particulars of the third party insurance, which were immediately passed to him, and Lloyds Underwriters, with whom the N.G.M. third party policy is (and always has been) negotiated, endorsed the N.G.M. policy to the effect that should any claim be made against the Mayor, Alderman and Councillors of the Borough of Tottenham by reason of accidental bodily injury to any person and/or damage to property caused by a member of the N.G.M. in the course of flying model aircraft in parks situated in the Borough of Tottenham; the Underwriters would, subject to the conditions of the policy . . . indemnify the officers of the Borough against all such claims."

Once again, we see the importance attached to aeromodellers protecting themselves from third-party claims by insuring themselves with the N.G.M.; and attention is drawn to the membership application form which is printed at the bottom right-hand corner of the back inside cover page of this issue

of the Aeromodeller.

In the Autumn of last year, the Enfield Urban District Council placed a ban on control-line flying in all public parks in the district, whereupon the Enfield and District Model Engineering Society approached the Council and arranged for a demonstration to be given by members on a private sports ground. Despite somewhat unsatisfactory weather conditions. the Councillors attended, and asked many questions. They were undoubtedly very interested, and it was considered that the demonstration had proved very successful.

Following this demonstration, the club received a letter from the Clerk to the Council in which it was stated that the Council "had under consideration the question of allowing the use of a portion of the ground at Brown's Brick Field for the flying of control-line models". It was added that it would be necessary to fence the site, and the cost would be about £300 (which included levelling) and the Club was asked

whether it would be prepared to pay a rental.

I have not heard further from the Secretary of the Enfield and District Model Engineering Society as to whether the proposed arrangements had been satisfactorily concluded; but here at least one authority was ready and willing to attend a demonstration and consider in an unbiassed manner the whole question of control-line flying.

I would suggest to club secretaries that wherever difficulty is encountered, when approach is made to the local authority for permission to fly; "an offer is made to arrange a demonstration so that the local officials can know exactly what they are talking about, and the kind of problem-if it is a problem

-that they have to deal with.

From Mr. Smith of Earlsfield comes a report that-" the Head Warden and all the other Wardens of Wimbledon Common are courteous and very interested in model flying. They ask that models shall be kept away from horse vehicles. Other than that, there are apparently no restrictions.

From Mr. Heaford of Lewisham, I have received a report that he approached the park keeper of Ladywell Recreation Ground with a view to obtaining permission for control-line flying in an area which was entirely closed by iron railings, was big enough to have a large running track around it on the inside of the railings, and was completely unused except for schools sports days, and occasionally by the Blackheath Harriers. Mr. Heaford was referred to the "Officer in Charge of Parks, London Area," who replied to the effect that permission could not be granted. Mr. Heaford goes on to say that he wrote further, giving his various reasons in support of his application, but that it was still turned down .

Mr. Joslin of Tooting reports that he has been stopped

flying a control-line model on L.C.C. parks and open spaces in the Wandsworth district. Possibly the L.C.C. have available a bye-law which they can invoke, but no one so far has given me particulars of it!

From Mr. Bell of Romford, who writes " as a local Government Official and a keen Aeromodeller "I received in October last, a report recording friendly co-operation in the Romford and Dagenham areas. Mr. Bell feels sure that if club officials would approach their local authorities before allowing members to fly in the parks, at least there would be avoided the bias against control-line flying in these parts which so often builds up. Mr. Bell's club has such friendly relations with the Council that it has taken part in several local demonstrations; with the result that they have received permission from the Council to rope off and fly in a large area in one of the parks.

Mr. Struk of Ewell, Surrey, reports an unsatisfactory interview with his local Town Clerk, who intimated that any application for facilities was likely to be turned down.

And now to the Midlands:-Early in November last, I received a report from Mr. Williams, Secretary of the Erdington and District M.A.C., that the Sutton Park and Estates Committee had issued a ban on the flying of powered model aircraft. Following representations from the Club, and by letters to the Press from local enthusiasts, the Council decided to cut a recognised fairway near the 13th hole on the golf course on Sutton Park especially for control-line flying. I would add that aeromodellers were warned that if they flew their models anywhere in the Park other than on the fairway especially prepared for them, they would be reported to the Mayor! Incidentally, the free flying of model aircraft at no time came under the proposed ban.

In Nottingham, the question of control-line flying has been under consideration by the Nottingham Parks Committee, and recently, the question was deferred for a month. At the moment, aeromodellers are writing to the local press pointing out that if space can be allocated for football and cricket pitches, then why not for the flying of model aircraft? This contention is logical enough, and I have noticed that on several occasions where a campaign of "letters to the Editor" is conducted, followed by an approach to the local authority, a more favourable hearing, if not decision, is recorded.

Now back to Harrow. There has been quite a bit of trouble here, which, however, seems to have been smoothed out quite recently. Originally, it was stated that notice boards were to be erected in all Council recreation grounds and open spaces prohibiting the flying of powered model aircraft. (The sailing of power driven boats on the children's paddling pools was also to be forbidden). At the same time it was stated that "the Open Spaces Committee" would be prepared to consider setting aside suitable areas for the flying of control-line model aircraft—" if the demand warrants it". My information is dated "early January, 1949", so further developments may have taken place; but meanwhile, the Harrow Club may well consider referring the Open Spaces Committee to Mr. Justice Finnemore's recent decision.

Epsom Downs have long been used by aeromodellers for the flying of all types of model aircraft, and here again difficulties have been experienced. During November of last year, a visitor to the Downs, who was cleaning his car in the car park adjacent to the grandstand at Tattenham Corner, was hit by a fairly large power driven model aircraft (pre-sumably flying "free flight"). This gentleman, unfortunately, sustained a fracture of his leg; and this, of course, was taken up in the local press as an indication of the "danger" which could arise from the flying of power driven model aircraft. This may be true, but it would be equally true of the danger to which this gentleman might have been submitted had he been cleaning his car adjacent to a golf course or cricket pitch!

My latest information is that the Epsom Downs Conservators are asking the Home Office for permission to establish a bye-law to prohibit the flying of model aircraft upon the Downs. If this "ban" is to apply to all types of model aircraft, then no doubt the local clubs will organise opposition.

From Bournemouth I have had a report of "sympathetic" consideration shown by the Bournemouth Town Council regarding the flying of control-line model aircraft. I do not know exactly the form this has taken, but the Chairman of the

## HARBOROUGH

presents

## CONTROLLINE MODEL AIRCRAFT

Compiled by D. J. LAIDLAW-DICKSON

Edited by D. A. RUSSELL, M.I.Mech.E.

CONTROL LINE MODEL AIRCRAFT is intended to offer suitable guidance and instruction to the many thousands of ordinary aeromodellers who are already struggling with the initial stages of flying, or hope to do so in the near future. It does not pretend to teach the expert anythingas if one could !- but it will help the newcomer to this fascinating branch of flying to avoid the sometimes expensive pitfalls that can beset him. It answers in its pages many of those questions that have always seemed too obvions for the wellknown authorities to even mention; it takes the would-be flyer in easy steps from his first model, usually a kit, to his first loop. Constructional methods as applicable to control line work are discussed and considered. We have frankly searched the best sources available for skilled advice on all aspects, and to this "know-how" is allied our own practical experience learned the hard way as absolute beginners, through a bucketful of broken props to comparative skill.

Orders should now be placed with your local model shop or bookseller for March delivery. See that you get your copy and join the band of

successful control line flyers.

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X Airscrews

Control Line, Reels, Handles

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Size  $8\frac{1}{2} \times 5\frac{1}{2}$  ins. 128 pages, white art paper. Fully illustrated photos and line drawings. Nearly 35,000 words. 3-colour dust jacket. Cloth and card bound, gilt titling. PRICE



THE AERODROME BILLINGTON ROAD, STANBRIDGE NR. LEIGHTON BUZZARD, BEDS.

Bournemouth Model Aircraft Society referred to it as an "indication that the Council were aware of the national importance and educational value of aeromodelling activities.

Up on the Lancashire coast—at Southport—aeromodellers have been banned from flying in the public parks" because of the nuisance and possible danger to other users". Once again, the decision of Mr. Justice Finnemore raises the query as to what authority there has been for this decision. However, a short while ago it was reported that the Southport Model and Engineering Club had approached the Corporation asking permission to use part of Victoria Park for the purpose of constructing a track for model race cars, and to fence off an area for control-line flying. The Club also wished to use a small lake for model powered boats and other craft. The Parks and Cemeteries Committee has appointed a sub-committee to discuss the matter with representatives of the Club, and it is to be hoped that a satisfactory arrangement will in due course be come to. Incidentally, it is the Town Clerk of this town who invoked the bye-law which forbids "mechanically-propelled vehicles" in the public parks, and sought to apply it to the flying of power driven model aircraft ! ! !

From the Bradford Model Aircraft Club I have heard that although the Parks Committee has declined to level and surface a plot of land on Baildon Moor for the use of aeromodellers, no objection is being raised to the Club doing the work at its

own expense. . . .

Whilst the fact that third-party insurance has been effected in no way reduces the alleged "danger", the fact that adequate insurance cover has been effected by aeromodellers is bound to weigh heavily in favour of applications put forward to authorities in charge of administering public parks, recreation grounds and other "open spaces". The responsible authorities have, quite rightly, a feeling of responsibility to all the other members of the public who have every right also to make use of the facilities which are provided for recreation, no matter what form it may take.

Thus, once again, I stress the importance of living up to the motto of the N.G.M.—to "fly with care" and see that you have effected a third-party insurance policy. That available through the N.G.M. (the first insurance scheme in the world to be initiated for the benefit of aeromodellers) is underwritten by Lloyds, and has now been in operation for over ten years. Many thousand aeromodellers throughout the country are members, and full particulars can be obtained from the Leicester Offices of the Aeromodeller to whom all enquiries, and the membership application form already referred to, should be addressed.

Attractive black and gold transfers in various sizes, suitable for affixing to models, are available, together with a lapel badge, which may be worn by all members. In addition, each member is provided with a certificate which should be carried always when flying. Production of this certificate will, in many cases, lead to an amicable arrangement with representatives of the local authorities.

### AEROMODELLER ANNUAL

I am pleased to announce that our introduction of the AEROMODELLER ANNUAL has met with an unqualified success, so much so, that despite strenuous efforts by the binders, it was not until after Christmas that output had caught up with orders. In this connection readers should please note that whilst we are willing to accept orders sent direct to our Leicester Office, no priority over supplies to the Model Shops and Booksellers through the usual trade channels, can be obtained. Our normal practice is to send all supplies to our sole distributors, Messrs. Horace Marshall & Son Ltd., London, who arrange distribution as equitably and efficiently as is possible. Since the demands for copies of the Annual have continued unabated, a reprint was put in hand a short while ago and by the time this issue of the Aeromodeller is in the hands of readers, deliveries of this reprint should have been effected throughout the country.

In response to many requests from satisfied readers, we have decided to make the publication of the Aeromodeller Annual an annual feature, and notice is now given that the publication date of the next issue will be December 1st, 1949.



The original model was a converted pylon model of 23½ ins. span, light in weight and powered by a Bolton Revmaster baby electric motor. The airscrew was carved more on the

mings which were necessary only for the original model. Yes,

we probably are lazy, for we took up control-line to save

chasing free flight models-and now we think we have found

something that saves even refuelling control line models.

lines of rubber design than general power practice, due to the fact that the motor, which gives 5,000 r.p.m. on 4.5 volts, could hardly be expected to turn a 4 in. propeller at the same speed! However, the power of these little motors is surprising and as long as a model is kept down to minimum weight—built more on freeflight lines than the usual control line, performance is very satisfactory. The illustration here gives an idea of a good general set up.

Power is provided by a 9 volt grid bias battery carried in the pocket from the terminals of which two insulated leads run to the control handle. The leads of course must be loose with plenty of slack to allow for free arm movement. One lead should run to the bottom of the control handle while the other, reaching the handle at the same place, should be let in along the handgrip, connected to a switch at the top, and from thence to the metal arm of the handle to which it should be firmly soldered. Note that these metal arms must be rigidly fixed in the handle, and each must be separate. The other wire is soldered to the lower arm in the same manner and copper control wires should now be looped through the holes provided and wound tightly around the arms to make sure of a good contact surface. The wire used should be enamelled copper wire as thin as is consistent with strength. It will be necessary of course to remove the enamel covering where the wire is attached to the handle. The whole handle must now be bound tightly with insulating tape and then if desired with any other substance to give a smooth and firm surface. Note however, that the insulating tape should be carried right to the end of the arms and care must be taken to see that it is as tight as possible here so that the bared wires are in firm contact with the handle. The wires are fixed to the control rods of the model in the same manner with insulating tape, and the rods hook into a plastic bell crank or one made of any similar non-conductive material. From the rods where they are hooked into the bell crank, the positive and negative wires, of sufficient length to be reasonably slack, lead to the terminals and to the motor to which they should be firmly soldered.

Now all that is necessary is for the "pilot" to push the battery into his coat pocket, take up the handle, switch on and the aircraft should commence to move. With a lightly loaded model it should be possible to execute mild stunts on normal 15' lines. The standard battery gives \ hour flying life.



Heading picture gives a general view of the meeting from the terrace.

Below left. Labarde with his 5 c.c. engined speed model, still breathless from his efforts.

Bottom left. Girl friends were much in evidence in the field and in the paddock; this young lady has popular French stunter." Dervish."

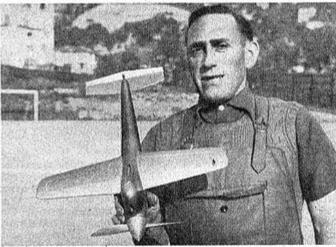
Near right. Local enthusiast flies his 7 ft. goat into the ground—without permanent ill effects 1

Top right. Roger Aubertin, joint organiser, found time to fly this stunt model into second place.

Below. Arnold Degen's 108-5 m.p.h. speed model with appropriate national emblem.

Below centre. Semi-scale "Flapjack" type of sports model with the re-fuelling tender in attendance.

Bottom right. View of the spacious pits, with room for everybody and their friends.





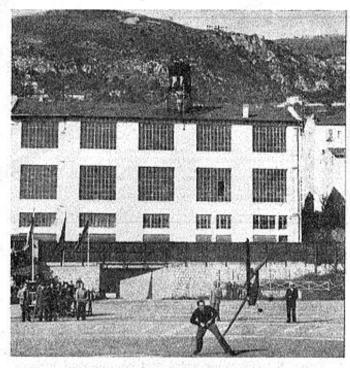
THE Monaco Air Club is to be congratulated on its first International Control Line Meeting held at the Moneghetti Stadium on Sunday, 23rd January, in just the sort of weather travel posters promise for the sunny Mediterranean. At least half the pleasure of any meeting such as this depends on the efforts of the organisers to make "off-duty" periods interest-ing, and here our hosts certainly started the right way. The Club headquarters are located at the Hotel du Siecle, which describes itself as a Sporting Bar, and is decorated with a wide variety of pennants commemorating this or that club success or meeting. In this hotel the more distant visitors were lodged, to be joined at opening time-which is any time-by local members for the usual sort of natter dear to aeromodellers the world over. Swiss Aero Club Central Secretary A. Gehriger and their Models' Section Secretary, Arnold Degen had flown in by Auster with another Swiss friend; Labarde and Gustave Maraget had come down with the latest glow-plug 5 c.c. Maraget for its first public outing; while champion of Italy, Ridenti had brought his famous 2.8 c.c. speed model and a new stunt job to try his luck.

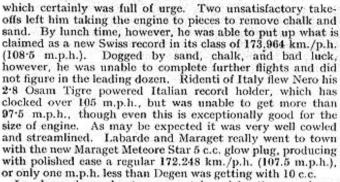
Venue of the contest was well chosen, being laid out as a football ground and athletic centre, with full-size pitch separated from spectators by a stout rail fence, and with a basket-ball pitch to one side that served admirably for the pits. A terraced restaurant looked after the bodily needs of contestants and spectators. Only disadvantage was unavoidable—the difficulty of keeping grass on a Mediterranean football pitch! Most had been worn off, leaving a chalky sub-soil mixed with sand which proved definitely unpopular amongst speed merchants making belly landings.

Until well after dusk on Saturday evening would-be contestants were testing and practising. Both Labarde and Ridenti were careful to do their practice work with second string models. Not so several of the locals who gave themselves busy nights, restoring entries to an airworthy condition.

The big day dawned bright as only the Cote d'Azur can dawn, and from 8.0 a.m. onwards the Stadium began to fill up. Coach loads of spectators and entrants came from the southern centres of France, introducing a number of flyers who have not previously been seen at British or more northern events, so that by the time first flights were made the entry stood at over fifty (actually forty-eight entrants made flights).

Two circles were in operation, one being considered less subject to local down draughts and sacred to speed flying, the other available for practice and stunt flying. First interesting performance came from Arnold Degen flying a pine built cowled streamliner with a Micron 10 c.c. glow plug engine,



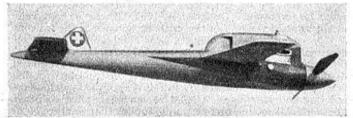


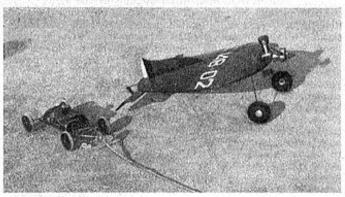
Local speed merchants were outclassed by these performances and did little above 80 m.p.h., but nevertheless thoroughly enjoyed doing it! Rules were so formulated as

to place a premium on curious stunts, such as flying smoke streamers, dropping parachutes and the like, and contestants had carefully selected the easy, but productive point makers in lieu of real stunt flying. In the same way team flying by two or three in the circle at once drew high bonus points and was much favoured.

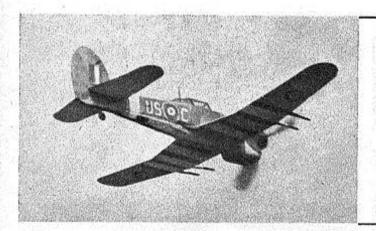
The Championship was awarded to the outright winner of speed and stunt combined, and it so fell out that though the speed flying was far superior in quality to the stunt work, both winner, Ridenti of Italy and second, Roger Aubertin of Monaco took their places on stunt flying, leaving Labarde as the highest placed speed flyer. Ridenti's stunt pattern included the inevitable smoke trail, three separate loops, wing overs, climbs and dives to win with a smooth but not ambitious effort. There was no inverted flying, multi-loops or figure eights demonstrated. This, in all fairness to contestants, we must offer as our one criticism of a well organised and smoothly conducted meeting, where literally no one fouled the lines!











### A 42 inch Span Flying Scale Model

### Hawker TYPHOON 1B

BY C. RUPERT MOORE, A.R.C.A.

Our "Aeromodeller" cover artist needs no introduction. Leading the flying scale field for 20 years or more he has tuckled many "impossible" problems not the least of which was this outstanding scale madel. We recently had the pleasure of seeing the original in flight, and found it indistinguishable from the full-size machine as the accompanying photograph so amply demonstrates.

A N aircraft is a meaningless affair without knowledge of its history. A new machine is just another step in progress but when it becomes old, it is either forgotten altogether or remembered for its exploits. The "Tiffys" exploits will never be forgotten. Designed in 1937, it was a bold venture destined to be one of the great aeroplanes of the war.

The cover painting depicts 245 Gold Coast Squadron destroying an early V.I. site before the V.I. attack was launched. So much for the "Tiffy" itself, and now we hand over to the designer who gives trimming and flying instructions for his fascinating model followed by full details of the ingenious retracting undercarriage. The latter can be applied to other types of scale models and certainly applies that final touch of absolute realism that is so often lacking in the flight.

Scale models are difficult to Design but once designed and flown over a considerable period the result is reliable, because all weaknesses have had to be replaced. The Typhoon is no exception, it is built on the principle of "knock-off-ability". I have now found that the model needs less power than stated and needs 12 strands 30 ins. long of 1 by 1/30 The airscrew is coarse pitched and heavily undercambered thus giving a power run of 36 seconds or more. What the glide is depends on the building and trimming. A word on trimming now would be best as it is an unusual model. The shock of landing is taken by the rubber trailing edge wing fixing, so first make sure that it reseats itself in Set the negative incidence of the tail perfect alignment. exactly as on the plan. Tie up the U/C legs and replace false nose and airscrew with equal weight of plasticine. Ballast to correct C of G—choose long grass and rig for glide put on 60 turns but don't try to stretch the motor by the airscrew, it comes off! Hand launch, trim and add 25 turns per trial. The power flight is controlled by thrust line only. Note the airscrew is Note with a street in the controlled by the street in the street one, so check side and downthrust. Not until the model is flying well and making good belly landings should the retracting mechanism be brought into use. The U.C. legs should be freed and 150 turns put on. Set small U/C doors and pull down arm G. Stand the model ready for take off. Stretch bands M onto prongs D. Lift the model with the left hand to imitate a take off and let the airscrew go. adjusted the whole sequence of retraction and detraction will be performed. Practise this until the whole drill is automatic.

The model was not an easy problem to solve as at the time it was built, as far as I know, none of the problems had been tackled. These were:—the very short nose making the desired C of G position very far forward; longitudinal stability with a very small tailplane, lateral stability with a low wing and little dihedral and a fully automatically retracting and detracting undercarriage including the tail wheel. The ordinary method of installing the rubber motor would have meant 4 oz. of ballast so the "Moore Diaphragm" was fitted.

Longitudinal stability was taken care of by an aerofoil section tail set at a negative incidence. Lateral stability by modified wing sections, washout and "invisible" slots.

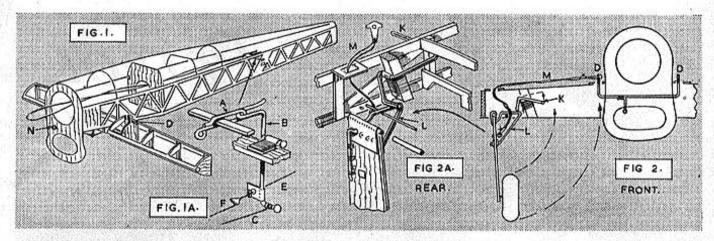
There are five distinct movements in the retracting mechanism and if understood are quite simple. 1. Two prongs D.D. on either side of the fuselage are made to

protrude through the stub spar by means of cable C connected to lever B, which is worked by the tension of the motor. When the motor is dead the rubber band N retracts the prongs Figs. 1 2 and 5 (if necessary a rubber band can be added at Z). 2. The undercarriage doors made from 1/16 3 - ply are hinged on to the wing panels which are free to hinge along the stub spar to absord shock (Flying Scale Models, Part 9, Figs. 6 & 6A). A rubber band M passes through the wing and is hooked on to prong D. The leg is held down against this force until after take off by catch Kengaging L (Figs. 2 & 2a). Catch K has a prong which protrudes forward between the top and bottom spars into the stub spar, but is NOT connected to it. Both catches K are tripped by the cranked ends of the H (Fig. 3.) when the lever J is pushed upwards.
4. J is struck by the "deck arrester" arm G. This is rubber loaded to swing forward into its trough when clear of the ground, the tension is adjusted by the threads under the T.E. of the wing roots until the arm, at rest, is in line with the fuselage bottom. bottom. J must not be held up by G. When the rotor runs out D.D. retracts (Figs. 4 and 5). When the rotor runs out D.D. retracts releasing bands M M when the legs tumble down and lock. 5. The tailwheel, which is very weakly rubber loaded, is worked by lever B and retracts automatically when model is wound up. In order that it can be down for take off a bypass is arranged (Fig. 5). Cable EF is not attached to lever B but passes through an eye in its bottom. A tin stop is soldered on to EF to engage the eye so that B pulls down the tail wheel for landing. Connected to the rubber anchorage on arm G is a loop of thread which is connected to F, adjusted so that the tailwheel is pulled down when the arm G is in the take-off position.

This mechanism depends on good soldering and is trouble free if well built. Boil all wire to be soldered in soda and water and tin well, i.e. melt solder on to each piece to be joined and wipe off with clean rag while molten. Bind joints together with fine copper wire (fuse wire), smear with fluxite and solder with a well-tinned iron. Use only Tinman's solder and never "cored" solder.

Adjustment also is vital, and to save readjustment every

Adjustment also is vital, and to save readjustment every time a rubber band is replaced, I buy a good stock of each size required and keep them in an airtight tin. Band M is attached to its lug by a loop of thread and the tension adjusted by the length of this loop. Tension on all rubber bands should be a minimum, just enough to do the job. Band N is possibly the only exception, the prongs D must go back smartly and band Z should be added only if necessary. At the earliest possible moment the mechanism in the fuse-lage should be tested and it can be done quite simply as follows. Instead of a rubber motor the "tail shackle" A is tied on to a loop of string which is long enough to pass right down the fuselage to the front bulkhead. "Tail shackle A" is a wire motor end (Fig. 1 and 1a), which has an oblong eye through which slots the rear rubber anchorage peg. The eye is of such a size that a certain amount of play is allowed in order that the motor has restricted backward and forward movement. This oblong eye also engages a hook on top of lever B. Rubber band N should be put in place and by means of the string loop the lever B can be moved, when the whole cycle of movement can be examined from prongs D to



the tailwheel. When installing the rubber remember very little pre-tensioning should be put on the rear third of the

motor behind the " plug ".

The working of trip H and arm G can easily be checked: the important thing is H should be free to drop by gravity. The bearings for H, like most others, are narrow strips of cocoa tin bent over the wire and cemented and bound to strip wood to give a cementing surface to stick to its particular spar. This allows a maximum of adjustment when building. It might be as well to mention here that a slow drying cement such as Durofix is desirable for this purpose. Another tip is, make a rubber band threader from wire about 6 ins. long and bend a tiny hook on either end like a crochet hook and use it in the same manner as that female weapon.

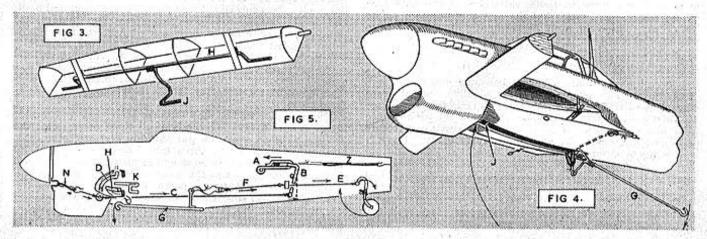
Now to pass on to the undercarriage legs themselves. These are made from 1 in. 3-ply and take all the loads. The hinge at the top is made by bending cocoa tin over, with the hinge wire in place Fig. 2A. This is thoroughly cemented and a row of dents made both sides with a centre punch to form a grip. A hole is drilled through this tin hinge and ply. through which is slotted the continuation of the triangular stop L. This is bent to form part of the L.E. of the U.C. door and is stitched and cemented to the ply door. (It is far easier to bind with a large darning needle attached to the thread.) The other end of stop L also passes through the U.C. door and is fixed to it by soldering a square washer on either side. Very great care should be taken to align the hinge pin. It will be seen that this pin is not square either in plan or side elevation, otherwise the leg would not retract behind the front spar. When this has been adjusted the door should be twisted in steam to fit the undercamber, pinned in place, so that it cannot come untwisted and allowed 24 hours to dry. The axle is fixed by taking a 1 in square of tin which is bent along one diagonal and folded over the bottom of the door to reinforce it where the axle is to go. This is cemented on and then drilled. The axle of 18 s.w.g. piano wire is bent at right-angles so that when pushed through this reinforcement it fits against this tin and can be soldered solid. The axles

should be carefully bent until the wheels have a true fore and aft running track when down. The wheels themselves are made of six layers of damp newspaper pressed into a greased plaster mould, layer by layer and stuck with Gripfix. tailwheel also is newspaper (3 or 4 layers, weight 1/32 oz.). When each undercarriage leg is fixed the 20 s.w.g. stop pins should be pushed through the spars, through the triangle of stops L into the 3 in. sheet flange against which the retracted doors sit. Catch K is now formed complete with bearing and cemented and bound to an overlong piece of 1 in. square hard balsa. This is temporarily pinned to the front spars and moved about until its correct position has been found. This is when the leg, when allowed to fall, locks itself with a minimum of play. The attachment for M is simply a pin pushed through the L.E. of the door (1 in. down from the hinge pin) then formed into an eye. Band M is tied to this loop, passes on the inner side of the stop pin, in front of Stop L, and through its celluloid reinforced hole in the top surface of the wing panel. A special shaped T end is attached to the top end of M to prevent it going back through this hole. (See Plan Figs, 6, 4, 5, and also wing plan), I do not propose to describe the 1/16 ply small doors but refer you to the plan.

Each wing panel hinges on two bamboo pegs, one behind the stub spar at the root and one projecting from its end in order to form a hinge. The rear anchorage is a rubber loaded wire rest. The rubber band taking the shock, which as shown on the plan, is made from \frac{1}{2} in strip, should be just short enough to ensure the return of the T.E. to its correct position.

It is wise at this stage to put on the wings and make all adjustments to the retracting gear and then to complete the rest of the structure before finally covering. I might mention here that the canopy is made from flat sheet celluloid. The rear half is made to take its shape by cutting a V in front of the wireless mast. The joint over the front of the canopy is carefully cemented with Durofix.

Detailed plans and full building instructions are available of the Typhoon, price 6/-, post free from the Aeromodeller Plans Service, Allen House, Newarke Street, Leicester.





### A Reminder for the Glow-Plugger.

This article is about control-line flying-boats, but before I start I want to tidy up my previous two articles on glow-plug work.

It is evident that my articles did not sufficiently stress two points, or may be people did not read them with the attention I had hoped for! Anyway, there are still people who say they cannot start their engines. It generally transpires that these modellers are trying to make do by using dry batteries to start. Further questioning clicits the fact in a number of cases that there is a sizzling noise from the engine and wisps of white vapour coming from the exhaust port.

Well, I did remark strongly on these points and gave reasons, which I have not the space to repeat here. These non-starters should use an ACCUMULATOR OF TWO VOLTS TO START. Dry batteries are a flop in my experience because of the great current drain of a glow-plug, and the constant renewal of batteries is far too expensive.

A "wireless"-type accumulator of two volts can be kept recharged, and ensures a proper glow. It proves far, far cheaper in the long run, and it should be of not less than about 45 amp. hrs. capacity.

The sizzling noise and white vapour means too rich a mixture. Shut the needle valve and swing the engine until it starts or clears away the unwanted fuel. If it does not start when the mess is cleared, open the fuel needle valve half way only, give one or two drops of fuel from the fuel can spout into the exhaust port and swing with a real he-man and vicious swing, for a G.P. engine is like a fully advanced spark ignition petrol motor to start. As the engine bursts into song, quickly open up the needle valve to its full run position, and take the accumulator leads away. Remember that a glow-plug engine requires a very accurate needle valve setting, the right plug to suit compression ratio, and the fuel bottle shaken before the event. The right prop. to encourage high revs. is also very necessary.

### A Control-line Flying-boat.

Like all good things, a surfeit becomes wearisome, vide Xmas fare. The average man eventually tires of stunt control-line flying when he has the matter well buttoned up. He then wants a rest, so that he can renew the performance later with a new zest. Last year I had a surfeit of flying all sorts of stunt models around my garden circuit. There it was on my doorstep, available at any moment, and when any visitor routed me out with C.L. aspirations. There was too much of it, and standard stunts began to pall once one had had the guts to master a few with their attendant early crashes. It even interfered with my usual free flight activities! There must be many like myself feeling the same, and desiring some new fillip to their control-lining. Well,

here is something which will give you control-line fiends a spice of variety for your stunt saturated senses.

I decided I would fly a control-line flying-boat off water. Here would be fun, and the skill of taking off water and landing on water. A new C.L. approach in new surroundings. Furthermore, I happen to love power-driven models, flying-boats, floatplanes, and speedboats. Living as I now do by that wonderful stretch of over 140 square miles of inland sea water, called Poole Harbour, with all its intriguing islands and lovely surroundings, I naturally spend quite a bit of time racing and sailing, interspersed with operating models from a dinghy powered with an outboard. On first thoughts it sounded a bit dull standing on the shore and solemnly flying a control-line model around my person, after the sporting hazards of free flight from and over water. But not a bit of it! It is really great fun and I warrant it will get you. Moreover, it is not as easy as you may imagine, to design and fly a successful C.L. boat, which all adds to the fun of achievement.

I confess that at first I went into the thing without much thought, and my first effort was to convert an ancient baby free-flight flying-boat to control-line work. This was a complete flop. Mr. Curwen; the well-known model car exponent, happened to look me up just as the flight trials were about to take place. He duly donned shorts and prepared to wade, as engine starter and boat releaser. However, we found these inspiring preparations were of no avail, for as soon as the little boat was released the weight and drag of the water on the lines slewed the boat inwards and sank the left sponson, with the result that the flying-boat was not able to get moving fast enough to plane. Retiring to lick my wounds, I thought the matter out more carefully, realising that any old free-flight boat would not suit controlline work. So a special C.L. model was thought out and built, and on the Sunday following Xmas Day, Dr. Thomas, the well-known control-liner and contributor to the Abro-MODELLER, arrived at the house with his brother, another of the medical breed. Needless to say all repaired to the water's edge off the local yacht club, for this Sunday morn was suitably calm, misty, and most inviting to those with controlline flying-boat tendencies, albeit cold enough to suit a brass monkey.

The new pipe dream took off time after time and landed intact under the guiding hands of all three of us, until the last round when everyone was suitably blue with the cold, and its master had to make a forced landing on the stony beach due to one of those annoying finales, which a diesel sometimes indulges in as the power dies, opens up, and dies again, and so on. Any way, just as I thought I had done the last "whip" over land to put her down on the extreme end of the water run, the infernal motor gave a last despairing cough which carried the boat over the dreaded rocky (scale

rocks) coast line. Some nasty scrapes and holes appeared in the balsa bottom, thus emphasising that a C.L. boat requires a plywood bottom.

The Technique of Off-water Control-line Flying.

A pond bank with grass edge and no concrete, or a sandy shore are required. The model is placed upon the bank at the water's edge "looking out to sea" with the engine man standing by. The control lines are laid along the water's edge with the pilot holding the control handle 45 to 50 ft. away also at the water's edge, or better still wading a short way in shallow water if it exists, for he then has a longer arc of water to frolic over. pilot therefore has a half circle in which to get his craft airborne, before the model crosses the coast. It is a good plan to place a cushion or square of sorbo rubber matting below the boat's hull to save damage to the bottom by a possibly over-enthusiastic engine-starter man. This individual now does his stuff, ensuring that the engine has settled down to full bore and no over compression if it is a diesel. He places the model upon the water facing seawards, and with no dishonest helping push, the pilot now takes over and the

boat gathers speed after release. For the first few feet the lines are held high to keep them clear of the "sticky" water, until the boat begins to skid over the surface of the water. Care must be taken not to pull the boat inwards before the forward fin gets a grip of the water and pulls the bows outward. I should explain that on my model there is a small forward fin below the water line made from 1 mm. ply

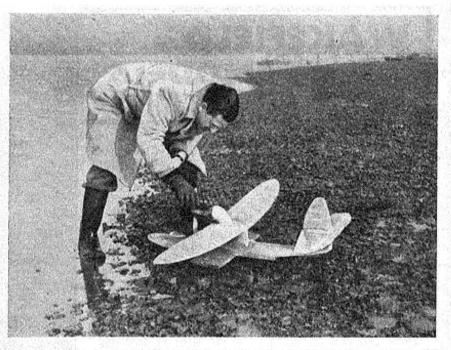
set to steer the model from the flying circle.

As soon as speed over the water rises, the model's control lines become taut and all difficulties of control fade away. The hull quickly rises on the surface and planes like an efficient tea-tray due to the fine angles of incidence which I now adopt for this particular type of water work. The forward fin and the "flat" planing surfaces can be seen in the photograph of the model in flight. Coarser angles are useful for rough water free flight, but are not suitable for the quick take-off that is so essential before the shore is reached.

As soon as the hull leaves the water the water drag suddenly releases the boat, which climbs sharply. This sudden release from drag is far more pronounced than from a wheeled undercarriage. In addition, I find that a rather nose-light balance set-up, judged by the average control-line model, helps water

take-off. I balance the boat about one-third back from the leading edge instead of the more usual C.L. position just behind the L.E. All this creates a stalling tendency as the boat takes off, unless the pilot is quick on the controls and holds the nose down at once.

If the model is a good planing craft, possessing a light water and wing loading allied to adequate power, and a really low pitch propeller, the take-off is accomplished well before land is reached. My boat "Grey Goose" is powered by a 2-4 c.c. Mark III E.D. diesel, which is a powerful small motor. I find that a 3½ in. pitch propeller gets the boat off easily, whereas a normal control-line propeller having a pitch of between 6 in. to 8 in. merely causes the boat to wallow and



build up a large bow wave. The critical moment of take-off is when the boat reaches its "hump" speed to get planing. This speed is low and requires a low-pitch propeller.

A steadying lap can be followed by rocketing climbs and

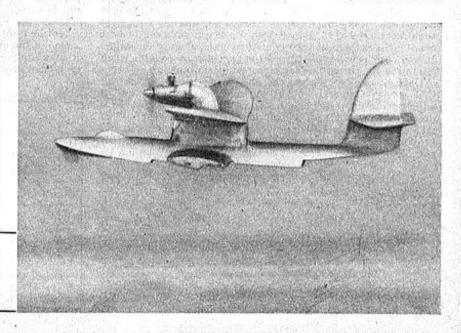
mild wing-overs even on this utility flying-boat.

A control-line flying-boat is a pretty sight worth watching, with the background of water, the spray at take-off and landing, the excitement of over land as well as over water flight, which all goes to make up an unusual spectacle. An 8 ft. span C.L. job will be my next venture, perhaps on 80 ft. lines.

This sort of flying demands skill and judgment greater than over land and it is fun to bring the boat down to water level at full bore, just touch and skim the surface and then

climb with a zoom.

When engine-cutting time arrives, the final thrill also turns up. If the motor cuts over the water near the beginning of the circle the landing is comparatively straightforward. The boat is held off and allowed to settle by dropping the tail step just as flying speed dies. This pulls up the model nicely. If the engine cut takes place just as land is reached a little gentle whipping must be indulged in. (To be continued.)



These photos show the author's "Grey Goose" in flight, and (top, right) being attended by our old friend F. B. Thomas. Note forward fin and long, flat planing surfaces to give a long waterline and adequate stability during take off.

### WAKEFIELD PART MODELS **FOUR**

BY R · H · WARRING

Trimming technique.

The 5-minute model will have approximately a 90-second power run, followed by a 3½-minute glide. This ratio figure (7/3 or 23%) is a very good value to aim for whatever the potential performance of a particular design. To put it in rather more useful form, if the power run is x seconds, the total flight duration should be 31 x—so that a minute's power run should produce a 3-minute 20-second flight. Where the emphasis is on climb (i.e., a more than average power motor), this ratio can be increased to 4:1. It should never be much less than 3:1.

Coupled with this must be a specified minimum allitude for contest work, which is about 300 ft. In other words, the climb should be such that at least 300 ft, in altitude is gained in still air conditions on "contest turns." For the sake of convenience we can take minimum contest turns as 80 per cent, maximum turns that the motor will take

These two criteria should form the basis of trimming technique and some sort of record must be kept if the job is to be done properly. For this the writer strongly advised keeping a "Flight Log" laid out on the lines of Fig. 5. details being filled in on returning home after an evening's flying-not leaving it until several days later.

As for trimming itself, the first and most important feature is to get the best possible glide, which means flying on, say, 40 to 50 per cent. maximum turns, trimming for the best glide first by eye alone and then actual flight times on a fixed number of turns. Flight ratio should be in the neighbourhood of 3:1. It is particularly important to trim with a replica of the motor you intend to use for contest work, in weight, at least, for another motor of different make or size may well

alter the glide trim by shifting the C.G. position.

The adjustments possible to obtain best glide are then as follows, in order of importance:

(i) C.G. position (vary by ballast or shifting wing position).

(ii) Tailplane incidence (vary by packing).

(iii) Wing incidence.

The latter is best left alone whenever possible, provided it is initially at least 3 degrees.

Trim corresponding to best glide position will be quite near the stall and a fairly close circle is advisable both to eliminate any stall building up in rougher weather and to give the best flight path for holding a thermal. A spirally stable Wakefield should turn in 150 ft. diameter circles as a maximum for best results. A very tight turn is neither necessary nor desirable. In any case it will probably lead to considerable trouble when trimming the thrust line for power-on performance.

Once having established the glide trim rigging angles and C.G. position should be left entirely as they are and all adjustments for power flight made by packing the noseblock down (downthrust) and to the right (sidethrust). The latter should never be excessive—2½ degrees being about the safe maximum. Starting with something like one half of this, use downthrust to eliminate any stall developing as

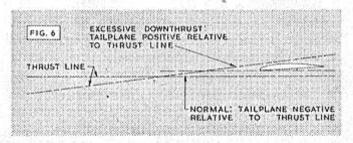




Photo above shows Eddie Chastencus with his 1938 Wakefield streamliner which but up the best performance of the British team that year, gaining him seventh place in the contest with an average of over five minutes. There has been little change in such streamliners even to the present day.

turns are increased, and aim for a steady right-hand circle of roughly the same diameter as the glide circle.

Sidethrust is used to overcome torque reaction tending to bank the model left and turn it in that direction. Downthrust can be regarded as balancing the tailplane rigging angle and cannot be quoted in general limits. The larger the negative incidence of the tailplane, the greater the downthrust required. Excessive downthrust will be extremely wasteful of power, tending to hold the model nose-down and fly it fast, instead of trimming out at the best flight attitude (i.e., nose up and near the stall) for best climb. If the thrust line setting on a shoulder-wing layout is negative with respect to tailplane incidence it is wasteful (see Fig. 6).

The fact that the thrust line is tilted down loes not necessarily mean that power is wasted as many people appear They confuse flight attitude with rigging attitude and lose sight of the fact that most models generally trim nose-up (see Fig. 7) and that the so-called downthrust may in fact be positive or upthrust with respect to the flight path.

One of the greatest sources of trouble in trimming is warps or inaccurate line-up of the model. More incidence on one wing than another, a warp in the tailplane or fin, all tend to

FLICHT LOC Pie s

No.	Motor	Turns	Duration	Trim	Remarks	Conditions
1		1	Barrier .			
2						Eq. (5.10)
3	ve ret					2-1
4						
5	W.76					
6			di.	114015		
7				34		1000

make it impossible to trim for steady circles throughout the flight. Also marginal stability in turning may make it advisable to open out the power-on circle—failing a cure at the source (inadequate spiral stability).

Contest flying.

For contest flying the rubber motor is the most important part of the model. Trim will have been established beforehand by test flying, and unless the motor is reliable and comes up to the mark the model might just as well have not been trimmed at all. The only practical way to check motors is by torque testing—failing flight testing with different specimens, which takes considerable time and may even require re-trimming. (When re-trimming for motors of different weights, adding ballast to maintain the same C.G. position is the simplest solution.)

The type of motor required should already have been decided during the trimming stage—i.e., the one giving at least 300 ft. in altitude and a desirable flight ratio—and must be matched carefully. At least two identical motors should

be available ready for use on any competition day.

Development.

The highly successful Wakefield is almost invariably developed through a series of models. The first off any new design is always capable of improvement, if only structurally. Little things show up during the course of a season's flying—some structural weakness here, a possibility of cleaning up the

aerodynamic form there, and so on.

Hence the Wakefield enthusiast who wants to get to the top must specialise in this particular type of model, even to the exclusion of others. The more experience one gets with a particular layout the more its peculiarities are appreciated, which often give the flier a distinct advantage over fellow-competitors in an important event. A series of models will develop a "character"—the object of the development being to weed out the weakness and emphasise the virtues, improving both performance and reliability all the time.

Models are a particularly good medium for experiment, being relatively easy and cheap to produce. Excellent results are generally obtained when a group of fliers concentrate on any one particular design, either building to one design and using their own trimming technique; or working to the same basic design and introducing various detail modifications to investigate their effects. The inevitable Jaguar again crops up, as being the standard Northampton club design. The knowledge gained by flying a considerable number of these in a relatively short period must have been extremely valuable—and note that ten Jaguars qualified for the "Wakefield 100."

The first of the writer's streamlined-slabsided Wakefields was built in 1945 and flew in the 1946 contest season. The actual machine was really only intended as a mock up to get data on weights of the various components, but it came out at just under the 9 ounce mark and lack of time prevented the building of another. It did extremely well and won a number of events and might, on the strength of its achievements, be considered a first rate contest model.

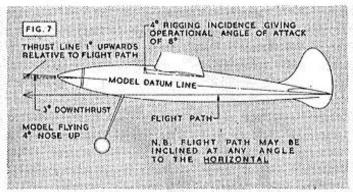
However, structural modifications were noted for subsequent use even before the first machine ever flew and the actual flight performance over the year indicated a number of

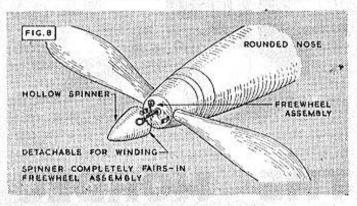
other desirable alterations.

In the first place, the glide was relatively poor. It had that sort of glide which seemed to invite thermals—if there was any lift around, it seemed to find it—but still air sinking speed was far too high.

Secondly, in concentrating on spiral stability, the stall characteristics were most unfavourable. Should the model be stalled, it would absolutely refuse to drop a wing and turn out of it. Any stall would be a prolonged "up and down" affair with very considerable loss in height. A stall at anything under 50 ft. would mean the model coming in.

One important point as regards structural design was also shown up during the flying season. The tailplane had a small section (1/16 in. square) top spar which served as an anti-warp spar. This was fractured during the course of one important contest, and the break was quite invisible. The effect was to give the tailplane a marked negative incidence at the tips,



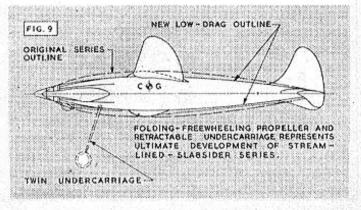


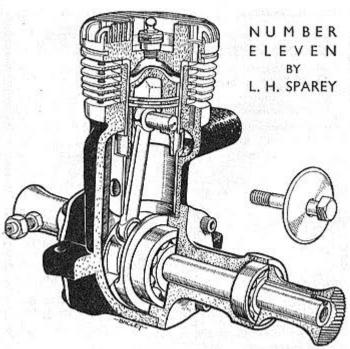
resulting in stalling—and it took quite a long time to trace the fault to the invisible break in the anti-warp spar.

Basic modification for the 1947 season consisted of shortening the fuselage by 4 ins. to reduce fuselage drag. The same thinnish Davis wing section was used and the tailplane shape modified to square tip with endplate anti-spin fins also acting as supports for take off (mono-wheel undercarriage).

The writer had time for very little serious competition flying that year and this particular model was not flown much until the latter end of the season. It showed a still air duration of around 3 minutes 45 seconds on 90 per cent. turns, but with the habit of turning in the odd flight of about half this figure. In other words, it was not truly consistent.

half this figure. In other words, it was not truly consistent. Experience with a high-wing model, which was purely experimental and featured very thin laminar-flow type wing section and freewheeling-folding propeller, indicated that too thin a wing section, whilst giving an excellent rate of climb, led to a poor glide. Hence the finalised aerodynamic design intended for the 1948 season featured thicker wings as the main aerodynamic change. Other modifications were basically structural. Still being undecided between monoand twin-wheel undercarriages variants were built with both. The mono-wheel arrangement saves both weight and drag, but is definitely less reliable for take off. Cont. on page 199.





# R.G. IO. RACING



LTHOUGH I have several glowplug versions of standard engines awaiting tests, this month's report deals with the first test to be published in these columns of a glowplug engine. The Nordec 10 c.c. engine is the largest yet handled, and the tests were carried out with considerable interest.

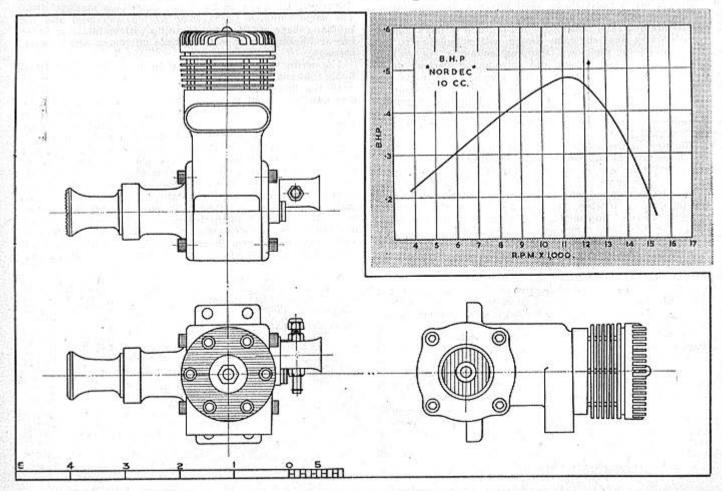
As it was anticipated that the Nordec engine would deliver considerably greater power than has yet been handled, the Torque Reaction Balance used for the tests was considerably strengthened, and certain parts re-designed to withstand anticipated strains. It will be appreciated that considerable stress is imposed on any engine mount when a large engine such as this is running "flat-out".

#### TEST

Engine: Nordec, 10 c.c. Glowplug ignition.
Fuel: "Rev" fuel, as supplied by engine makers.

Starting: Although, for convenience, pulley and cord starting was generally used in the tests, the engine was experimentally started several times by hand. Starting under all conditions was exceptionally easy, and once the carburetter control was mastered the engine never once failed to respond. As no tank is supplied by the makers, a gravity feed tank was used, as the position of the carbuetter seemed to indicate that this method of feed would be most suitable.

Running: The Nordec was one of the most pleasant engines





that I have yet handled, being free from all fussiness, and maintaining even speed over a very large range of r.p.m. Carburetter control was smooth and certain, and the engine responded well to adjustments. Long, steady runs were possible over the whole speed range, although, at the higher speeds, around 15,000 r.p.m., the fuel tank was emptied at an alarming rate-about 2 ozs. fuel per minute. No cut-out is provided on the engine.

B.H.P.: It was expected that a high power output would be developed, and, as may be seen from the curve, expectations

were fulfilled.

First test was made at a speed of 3,800 r.p.m. and a result of 213 b.h.p. was attained. Tests were continued at increasing speeds, until a maximum output of '480 b.h.p. was reached at a speed of 11,200 r.p.m. Further increases of speed yielded decreasing output figures, until, at 15,000 r.p.m. output was down to .200 b.h.p. Although the engine expressed willingness to revolve even faster, tests were discontinued at 15,000 r.p.m.

Power/Weight Ratio: '480 b.h.p. per lb.
Remarks: The power developed by small internal combustion engines is always, to my mind, remarkable, and it makes food for thought that almost & b.h.p. can be developed by a small engine that can easily be held in the hand. The performance of the Nordec, while in line with that of engines of other capacities, may be considered excellent, if not remarkable. Internal constructional features of the engine seem well designed to cope with the power developed, and it can be truthfully stated that the engine, after two days of hard work under exacting conditions, seemed none the worse for the experience.

### GENERAL CONSTRUCTIONAL DATA

Name: Nordec R.G.10.

Manufacturer: North Downs Engineering Co., Godstone

Road, Whyteleafe, Surrey. Retail Price: £12 0s. 0d.

Delivery : Ex-stock. Spares: Ex-stock all parts.

Type: Glo-plug.

Specified Fuel: 3 parts Methanol/1 Part Castor Oil.

Capacity: 0.60 cubic ins. 9.98 c.cms. Weight: Bare 16 ozs.

Compression Ratio: 10:1.

Mounting: Beam, upright and inverted.

Recommended Airscrew: Running in 12×12 ins. Sport

 $9 \times 10$  ins. Speed  $10 \times 10$  ins. Recommended Flywheel: 6 to 7 ozs.

Tank: No tank supplied.

Stroke : 0.875 ins. Bore: 0.940 ins.

Cylinder: Mechanite, attached by six 4 B.A. cap head

Allen screws 1 inch long. 2 ports.

Cylinder Head: D.T.D. 255 attached by six 4 B.A. cap head Allen screws 1 inch long.

Cylinder Liner: Mechanite.
Crankcase: D.T.D. 424 sand casting.
Piston: D.T.D. 287 discasting with deflection top and two

rings.

Connecting Rod: 2-L-40 drop forged.

Crankpin Bearing: Bushed phosphor bronze.

Crankshaft: 3 per cent. nickel steel, case bardened and

ground.

Main Bearing: 2 cage type ballraces. Little End Bearing: Plain 2-L-40. Crankshaft Valve: Disc type D.T.D. 424. Plug: 1 in.×40 T.P.I., K.L.G.

### Wakefield Models (continued)

Six Wakefields were laid down towards the end of 1947, of which one was a streamliner with the same wings, tail and propeller unit. Two streamlined-slabsiders only were finished at the time, basically as 1947 layout with slightly longer fuselage again, Joukowski wing section and one with mono-wheel and one with twin-wheel undercarriages.

There was little to choose between them. Both trimmed up to the 4 minutes 45 seconds mark on 1,000 turns and both had an excellent glide. The mono-wheel version was lost test flying just before the first Wakefield trials; the other flew away on the last flight in these trials. Only the former was ever recovered and that so badly damaged that it was

written off as a contest model.

The wings from this went back on to the original 1947 job, which immediately began to perform like the later models! Another twin-leg version was completed from the original line and trimmed for the "Wakefield 100." The weather was so atrocious between then and the contest day that trimming was rather incomplete-and a check flight early in the morning on the day in question resulted in the job flying away. Hence for the Trials only the 1947 job (with 1948 wings) was left.

This, too, as recorded, flew away on its first flight—the worst feature from the writer's point of view being that it came down on the D/T chute all right, but in such an area that it was quite impossible to locate it. It was a job which, trimmed as a reserve machine, had a performance very nearly

equal to that of the original contest machines.

The streamliner did not, on the whole, compare favourably with the streamliner-slabsider series. It was certainly inferior as regards climb and certainly no better on the glide. But it never received quite the same attention as regards trimming as the others at the beginning of the season.

Structurally the streamlined-slabsider layout now seems standardised. Built right down to weight, the fuselage has a weak point just in front of the wing box. This is only apparent in very bad landings-e.g., flying into a house at the end of the flight, but in most cases the models recovered after fly-aways suffered in this respect. This is a point which will receive attention by the addition of local bracing (i.e., a false longeron running inside the main longeron in this

region).

Aerodynamically, the design can only be cleared up in the region of the nose and the present method of construction (sheet balsa super-stringers) will probably be abandoned in favour of more stringers of smaller cross section. Nose entry will be improved by lengthening the spinner and enclosing the whole of the freewheel unit and winding loop inside the front of the spinner (see Fig. 8). Nose entry is very important as far as drag reduction goes-the drag of an unfinished spinner of, say, 13 ins. diameter, probably being higher than that of the rest of the fuselage.

The only other way to reduce drag would be to modify the fuselage shape. In view of the comparable performance of the streamliner it appears very doubtful that the circular section has any less drag than that of the present form. This leaves only reduction in wetted area as a source of

potential improvement.

This has been tackled in the manner shown in Fig. 9, which at present is being flight tested alongside a model to the standard layout. The same basic proportions of the original fuselage are retained, but both wing and chute boxes are taken outside the lines of the fuselage proper. This gives exactly the same rubber clearance as with the standard layout with a reduction in structural weight and considerable reduction in wetted area. The spinner length is even more exaggerated to fit in with the slimmer nose lines.

It now remains to be proved whether or not the form drag of the two bubble fairings is appreciable or, in other words, whether a saving in overall drag has, in fact, been made. If satisfactory, it is intended to develop this model with a folding-freewheeling propeller (i.e., one propeller which can be used either as a folder or freewheeler as conditions demand) and retractable undercarriage, which then represents about the aerodynamic limit to which the streamlined-slabsider

can be taken.

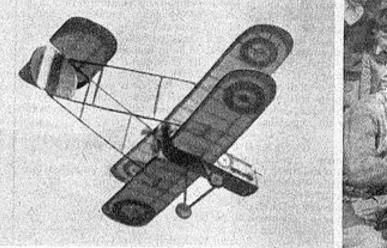


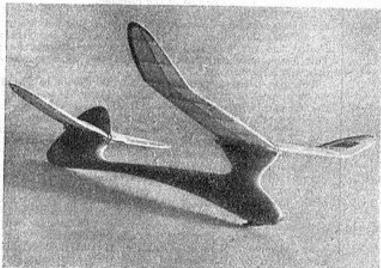
IFE has its ups and downs, but it's always the downs that
I have the last word, as Fliar Phil regularly finds out
when he takes a model out in any kind of a wind. In fact it's
probably lucky his flying makes his spectators spend most of
their time holding their breath.

Still, we leave the flying field for the camera and balsa corner, and for another Model of the Month that earns the highest marking for the constructor and photographer L.A.C. Ware, of Bramhall, Cheshire. The finish of this 1/66 scale Tudor VII leaves little to be desired and the cunning photograph possesses those little touches that make it really









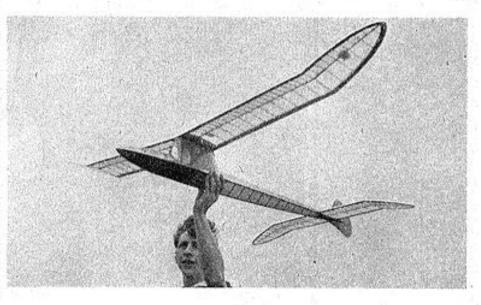
exceptional. Take the way that near wheel is lifting slightly from its reflection on the wet tarmac as the machine is nearly airborne and the airscrews, please note, are turning—thanks to the incorporation of a family of Electrotors in the nacelles. The fuselage interior is correctly lighted and built to the exact B.O.A.C. specification, and the whole model took three years' spare time work to complete. For photo fans—exposure was 40 secs. at f 16, indoors.

Left centre shows an interesting glider design by B. Pearce of Southampton, which looks as if the owner was once a Sunnanvind fan. The model has a span of 52 ins., 8-6 aspect ratio, weighs 9 oz. all-up, and the fuselage is sheeted. The wing features a box leading edge and mainspar. Best flight to date is over 8 minutes.

Unfortunately very few details were sent with J. A. Mountain's excellent shot of B. Roberts' flying scale Vickers Gunbus, taken at a Southampton







Club's scale competition last year. If it's a power effort Fliar Phil wonders how the flier swings the pusher prop.

Scots wha hae in centre right, where two Alistairs prepare to battle in the 1948 Scottish Championship. Left is Alistair Lamb, who took second place. and right Alistair Atterson, joining forces in starting their Frog powered entry An unusual model is P. Guilmant's glider illustrated bottom left, with its

power model pylon and diminutive span of only 20 ins. Its designer terms it "experimental" so we have no reports as yet on its performance.

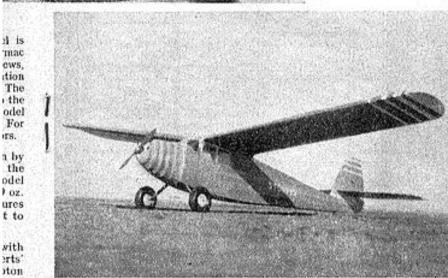
From baby to big brother, Eddie Caton's "Zephyr" glider, shown top right.

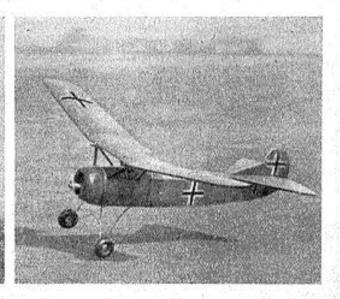
is 6 ft. span, with a loading of 5 ozs. per sq. ft. The wing section is his own design, based on the Marquardt S.2. The model is equipped with a parachute dethermaliser-which has only once failed giving a temporary lost model and a 60 minute flight!

Radio control being as much in the news as it is, readers will be interested in our American friend E. J. Weather's" Stopper" machine, descendant of his 12 ft. span model which won the Western States Open Radio Contest in 1946. The Stopper is 9 ft. span and powered with an Orwick 64, which gives it an amazingly high rate of climb despite its 1 lb. per sq. ft. loading.

Last on the map is Ed. Stoffel's excellent action photo of Sid Sutherland's (West Essex) Fokker VIII getting airborne. The realistic appearance of the model, only slightly marred by the "birdcage" undercart which proved necessary for successful power take-offs, does its builder much credit.

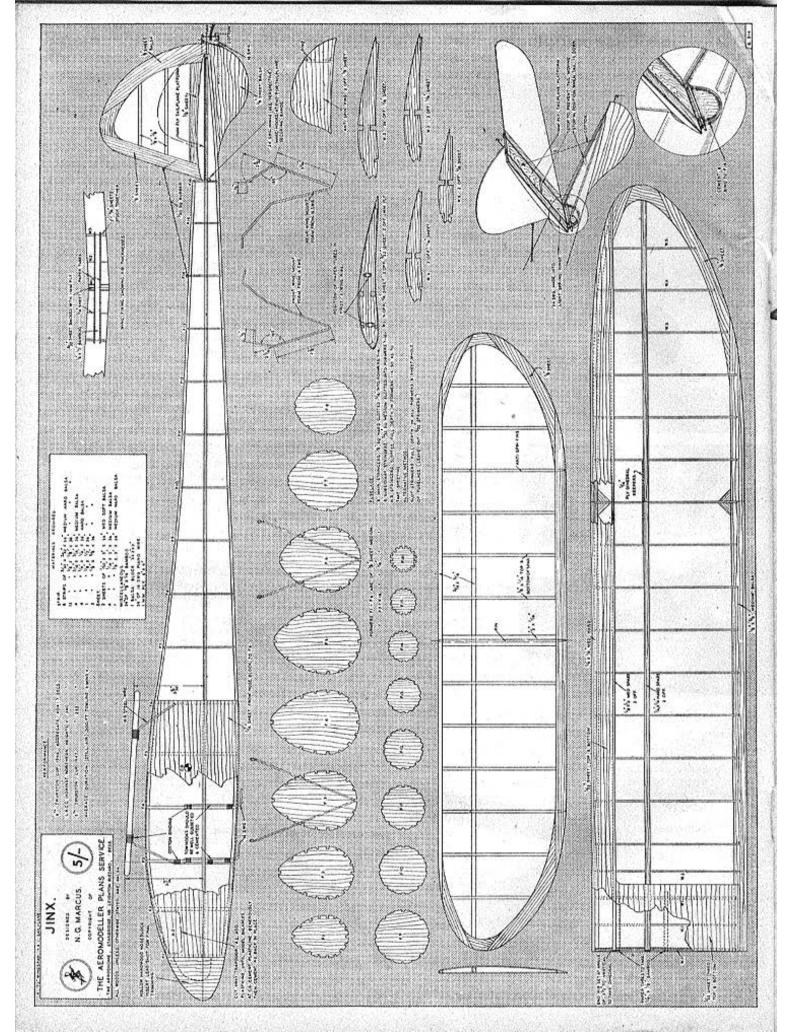
Well, here endeth the lesson till next month. Don't forget Fliar Phil's last lecture-how to send photos . . .





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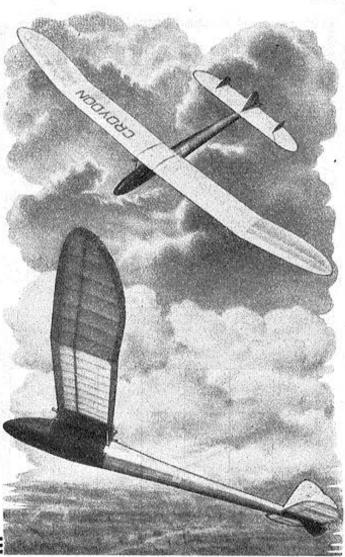
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### DESIGNED BY N · G · MARCUS 1946 INDIVIDUAL CHAMPIONSHIP HOLDER

THE DESIGNER: N. G. MARCUS . . . Engineering student at Kingston . . . started modelling 1942 . . . joined Croydon Club 1944 . . . won individual championship and British flying scale record (5:21.75) in 1946 . . . regular contest flyer . . . best flight 12:36 in 1945 with rubber lightweight . . now accomplished control liner.



THERE are many, many modellers who firmly believe that as far as models go, to look right is to be right, although there are many models of exquisite appearance and workmanship which have never given a performance off the top of the piano—from where they reign over the living-room jointly with the aspidistra in the window. However, there are also many, many examples to prove that more often than not the eye is right—and amongst these we must number this very successful example by a youthful and expert designer, N. G. Marcus, whose prowess has won several laurels for his local Croydon club.

With the present spider trend, which is rapidly drifting well away from the one-time ubiquitous lightweight, we are slowly allowing appearance to get back into its right perspective. Jinx proves once again that out-of-the-ordinary performance must not necessarily be coupled with out-of-the-ordinary and often horrible, designs. This model is almost completely orthodox, but that everything about it is right is

borne out by its consistent history.

The design first broke the shell in the 1946 Thurston cup, for which it was designed, and finished 6th with an aggregate of over 400 secs., the flight pattern being approximately 2 minutes, 3 minutes and 2 minutes. In the same year it flew in the L.A.C. Cup against Northern Heights, turning in 6 minutes for the three-flight aggregate, having flown in the usual British contest weather, graced on this occasion by a howling gale.

Dusted and renovated for the 1947 season it buttoned down on the Thurston and again placed, this time one better, 5th. Altogether, on every occasion when it has had the chance of showing its consistent flying qualities, which are perhaps its most valuable assets, it has come through with flying colours and a three-minute still air average.

The model is trimmed to the near-stall attitude popular with many fliers, where the machine is adjusted until an incipient stall appears, when rudder is applied until the turn is just sufficient to cure the stall. Here another valuable attribute of Jinx becomes apparent. Its inherent stability due largely to its long moment arm takes care of this critical trim and prevents unpleasant accidents. Should a real stall develop the long moment arm takes good care of it and rapidly damps it out.

The Jinx is not really a beginner's model, but no modeller with moderate experience need fear the construction, which is indeed essentially simple.

The fuselage, which is of orthodox streamline shape and peardrop in section, is built up with stringers on sheet formers and bamboo paper covered. The parasol wing mounting is of wire and provides little extra drag. A simple and efficient dethermaliser of the lifting tail type is fitted, to give any desired length of flight. The overall length is 45 ins. and the original fuselage weighed  $11\frac{3}{8}$  ozs. Wings are conventional with the exception that four spars are ysed, the leading edge sheeting being carried back as far as the front two. The wings are made in two halves to dowel together and weigh  $4\frac{1}{8}$  ozs. The remaining  $\frac{7}{8}$  ozs. is contributed by the fin and tailplane to make an all-up weight of  $16\frac{3}{4}$  ozs. which gives a loading of  $5\frac{1}{4}$  ozs./square foot.

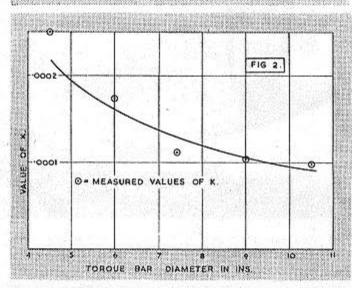
Full building instructions are provided with the 1/5th scale plan (see illustration opposite), obtainable, price 5/- post free, from Aeromodeller Plans Service, The Aerodrome, Billing-

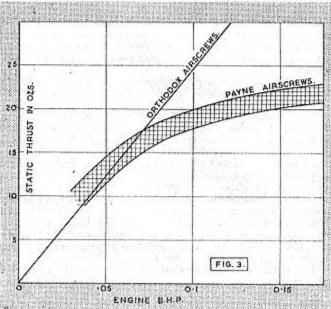
ton Road, Stanbridge, Nr. Leighton Buzzard, Beds.

# TECHNICAL TOPICS

F16 1

MATERIAL, HYDULIGNUM.





### The Torque Bar.

Standard fans or airscrews are the best type of load to put on an engine, but very few modellers are capable of making one accurately in a reasonable time: plain bars are easy to make but their use introduces engine overheating and a number of unknown effects which tend to reduce the accuracy of the result.

The square bar shown in Fig. 1 has been selected as the best compromise, and standard diameters of 4.5, 6.0, 7.5, 9.0 and 10.5 ins. will be used at first. The cross-section remains constant for all sizes. Tests on a number of engines have given satisfactory results, and although the writer would have preferred more exhaustive experiments, time, and a series of delays have prevented them. This does not mean that we anticipate any snags, but it is possible that the values of "K" given for the various bars will have to be amended slightly in a few month's time. Also it is hoped to introduce sizes more suitable for small engines.

#### Its Use.

To find the brake horse-power of an engine, select a suitable bar and measure the engine revs, with it in place. Lay a straight edge across the Nomogram on the opposite page and torque is given on the last scale. This can be converted into b.h.p. by using the simple Nomogram in the Christmas AEROMODELLER or by multiplying by n where n=revs./sec.

### Measuring R.P.M.

The vibrating reed rev. counter savours of genius in the simplicity of its conception, but unfortunately it is only accurate within about 10 per cent, or so, and gets even worse at high speeds. For ordinary use this does not matter of course, but an error of 10 per cent. in a torque bar measure-ment means an error of 30 per cent. in the final answer. Thus if really accurate results are required, some form of stroboscope should be used: it is interesting to note that even after trying three different stroboflashes, the L.S.A.R.A. find it necessary to take four calibration readings and check the mains frequently immediately after each measurement,

if an accurancy of 50 r.p.m. is to be obtained.

It may be argued—and justifiably—that as only a few modellers can afford a stroboflash, the torque bar fails to achieve all the qualities of a popular and accurate device. But the blame for this must be laid with the manufacturers, who will never concede that there is a market for "scientific" instruments. There is certainly no shortage of ideas, and the writer knows of one particularly neat gadget which can be used with a photocell or cheap microphone to measure r.p.in. on a voltmeter, which is about three times as accurate as a stroboflash and only costs a few pounds to produce. Probably it will never be produced commercially, but it is to be hoped that the inventor responsible-and others-will " come clean " in due course.

### Engine Testing.

The torque bar may be used in two ways at the moment :-

(1) The Engine Analysis reports will in future give r.p.m. obtained with the bar which allows it to run nearest the peak figure. Any owner of the engine described can then fit the same bar, and the r.p.m. obtained will immediately indicate whether his engine is more or less efficient than the Abromodeller one. Then using the Nomogram he can quickly find the b.h.p. developed.

(2) Full b.h.p. tests can be made by using the full range of bars, and finding the b.h.p. at the various engine speeds obtained. The 14 in. difference in diameters does not allow many readings to be taken this way, and "in between "sizes can be made if desired. The approxi-mate variation of "K" with diameter is given in Fig. 2. Further tests will allow a more accurate and comprehensive curve to be drawn.

### Engine Testing in General.

Testing procedure and accuracy have been improved to a remarkable extent in the last year or so, mainly due to the work of L. H. Sparey and the L.S.A.R.A. Both have found that an engine gives its greatest power output when cool, and Sparey gives the average improvement as 4 per cent, whilst the L.S.A.R.A. have detected as much as 10 per cent. Standard procedure now is to take measurements within 15 seconds of starting, and to allow the engine to get cold between tests. Accuracy in mixing the fuel is also essential, as small variations have a considerable effect on the performance. Finally, the L.S.A.R.A. discovered the snags entailed in using the vibrating reed rev. counters, and their new method of r.p.m. measurement has already been mentioned.

### Static Thrust.

Now that static thrust figures are no longer given in Engine Analysis, it seems appropriate to summarise the results. There is practically no scatter if thrust is plotted against D2b.h.p. (where D is the airscrew diameter) but Fig. 3 is more easily understood. Note that N.H.P. designs give very

VALUES OF K.

BAR DIA.	K (measured)	K (corrected)
4-5 Ins.	0.259	0-216
6-0 Ins.	0.1728	0-1594
7-5 ins.	0-1116	0.1275
9-0 ins.	0.1046	0.1063
10-5 ins.	0.0997	0.0911

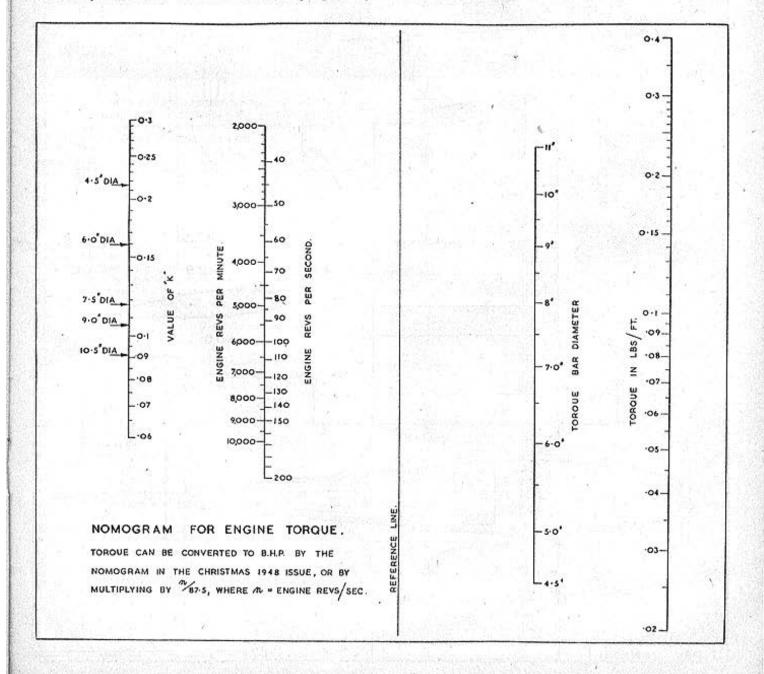
poor results with the larger engines, due chiefly, it is believed, to stalling at the blade root and test rig interference.

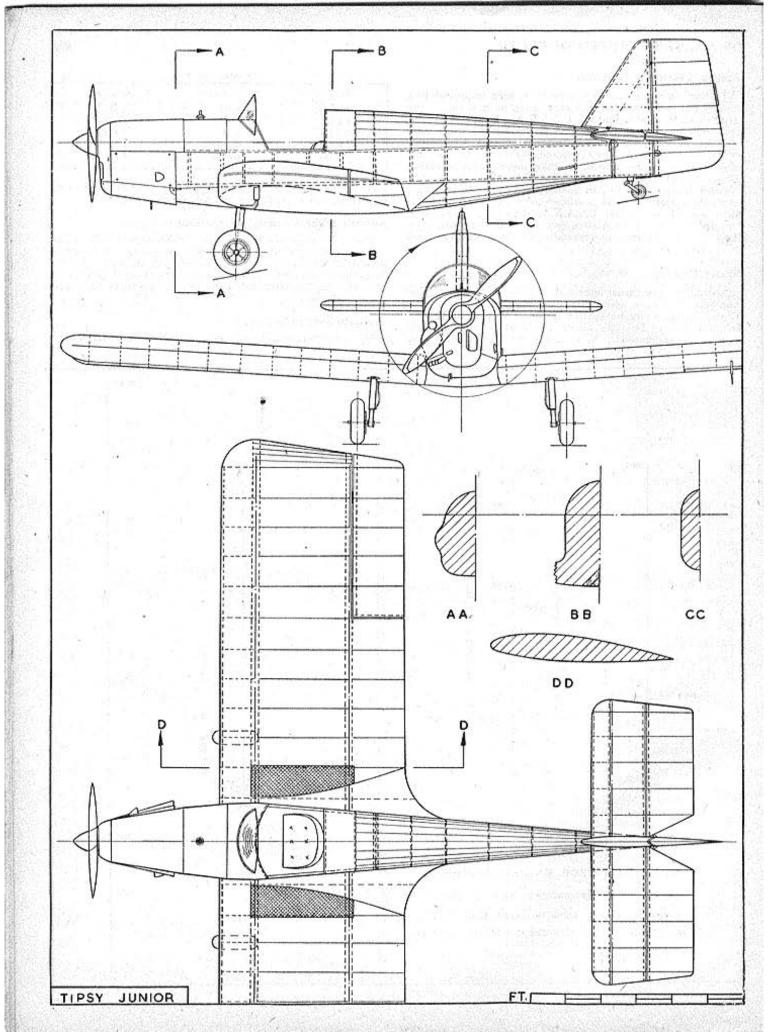
### Aeromodeller Annual. Correction to Page 19.

The "Airscrew diameter" scale of Nomogram No. 6 has been placed centrally between adjacent scales. Actually it should be 1.2 in, from the reference line, and only 0.547 in, from the r.p.m. scale, and if a new vertical line is drawn in this position, the divisions on the old line can be taken across horizontally to it.

### Thought for the Month.

Manufacturers ought to standardise crankshaft diameters.







THE name of O. E. Tips has been associated with the design of successful light aircraft since the middle 'thirties, and descriptions of some of his earlier machines appeared in the December 1946 issue of the Aeromodeller.

The latest Tipsy, or Fairy Junior as it has now become, represents what may yet prove to be the greatest step towards flying for The Man in the Street that has so far been made. It has been estimated that £1 per hour solo flying can be achieved without subsidy by any club utilising the Junior.

Some idea of the machine's size and manœuvrability may be gauged from our photographs taken near Maidenhead last summer, showing Peter Twiss of the Fairey Aviation Company

in various attitudes and degrees of proximity.

Last year two examples of the Junior were flying over here—
OO-TIT fitted with a Walter Mikron, and OO-ULA fitted with a 36 h.p. J.A.P. horizontally opposed twin cylinder engine. Judging by the letters on both these machines, there would appear to be some flexibility in the allocation of registration letters in Belgium!—the former is more or less self explanatory, and the latter was issued, we believe, in honour of the Ultra Light Aircraft Association, who supplied

the engine.

Construction. All wood. Semi-monocoque fuselage with stringers down the top and bottom surfaces carrying fabric covering. The one piece wing fits into the lower part of the fuselage, and is of the usual two-spar pattern, fabric covered aft of the front spar. The whole structure would seem to employ the word Simplicity as its keynote, there being no flaps or other devices. The cable operated wheel brakes work in connection with the rudder pedals. An 11 gallon fuel tank is situated immediately forward of cockpit. Power Plant: one 60 h.p. four-cylinder in-line inverted air-cooled Walter Mikron. Colour. Primrose yellow all over, aluminium rudder and

" Aeromodeller " Photos .:

tailplane and portions of wing aft of front spar. Blue registration letters and flash.

Specification. 60 h.p. Mikron.
Length: 18 ft. 6 ins. Span: 22 ft. 8 ins.
Height: 4 ft. 10 ins. Wing Area: 118 sq. ft.
Tare Weight: 415 lbs. Loaded Weight: 602
lbs. Max. Speed: 108 m.p.h. Cruising Speed:
98 m.p.h. Stalling Speed: 40 m.p.h.
Duration: 2‡ hours.
Owing to the dimunitive size of the Junior,

Owing to the dimunitive size of the Junior, the General Arrangement drawing has been printed to 1/36th scale. Half-inch to onefoot reproductions of it may be obtained price 1/6 from Aeromodeller Plans Service. Copies of photographs, at the usual rates, from Eaton Bray Studios.









### s.m.a.e. news page

All enquiries to the Hon. Secretary S.M.A.E., Londonderry House, Park Lane, London, W.I.



### EXTRAORDINARY GENERAL MEETING

At the request of some 14 clubs, the Society called an E.G.M. on Sunday, 16th January, at Londonderry House, to review the 1949 Competition Programme. The convening clubs had tabled two proposals; (A) asking for a more balanced programme for 1949 on the lines of the 1947 and 1948 editions, and (B) a scheme to be used in compiling future programmes whereby the Area Committees forwarded their views and suggestions to Londonderry House, where these would be collated and sent back to all Area Committees for them to vote upon.

The Chairman, Mr. A. F. Houlberg, opening the Meeting, stated that the Council was opposed to any alteration of the contest programme at this late date. It had, he said, been compiled on proposals requested from the Areas towards the end of last flying season, and the predominance of rubber and glider contests to F.A.I. specification was due to a considerable number of proposals being received requesting this. Furthermore the 1949 Handbook had been printed and any alteration to the programme now would entail both delay and expense.

The Chairman's points formed the basis of the arguments made by those opposing any alteration to the published programme.

For those supporting the proposal, it was claimed that there were a substantial number of modellers in this country who do not build to F.A.I. specifications, and in view of this the existing 1949 programme was unfair and unjust with regard to rubber and glider models and should be amended. It was felt that any National competition programme should endeavour to cater for all the types of models generally flown.

At this juncture Mr. C. S. Rushbrooke proposed that the second proposal be taken first, and this was agreed to.

The Chairman stated that the Council was opposed to the second proposal since it would entail considerable time, first to receive proposals from the Areas, then collate and send them to Areas for voting, and then, upon return, count them. The Council therefore suggested that in future the competition programme should be based on the results of a questionnaire sent out at the end of the flying season for clubs to vote upon the nature of questions requiring only a "yes" or "po" answer. This suggestion from the Council was later made an amendment to the original proposition.

The amendment was carried by 1,381 votes to 247, using

total membership of the voting clubs.

Proposal (A) was then put to the vote and lost by 46 votes to 151. On this occasion the voting power of each voting club was carried out as laid down in the Articles of Association of the Society, i.e., 1 vote per 10 members.

### THE NEW S.M.A.E. HANDBOOK FOR 1949

In the past the S.M.A.E. Handbook has come in for considerable criticism on the grounds of errors, late publication, duplication of rules within the book itself, and alleged hodge-podge presentation. This year real endeavour has been made to correct all these failings; it is out right early in the year, and the contents have undergone close scrutiny on the errors and duplication charges. But the presentation is the thing; the book may be said to be split up into nine easy-to-find compartments: General competition rules—Requirements for records—F.A.I. regulations—R.T.P. rules—Page by page contest calendar with space to record the results—F.A.I. and British record lists—Application forms for British records, merit certificates, F.A.I. competitor's licence, and affiliation—Model data sheets for you to use—and a complete index. All that adds up to a hefty 80-page booklet of convenient pocket size wrapped up in an attractive stiff paper

cover. Distribution is via Area Committees (for clubs) and the Trade. See your Club secretary or local dealer for a copy

### 1949 WAKEFIELD CUP NEWS

Even at this early date the Society has started on arrangements for the 1949 Wakefield Contest scheduled for the 31st July. Thus far, the following countries have intimated their desire to compete:—France, Switzerland, Belgium, Denmark, Sweden, U.S.A., Eire, and South Africa. The Society are preparing to play host to the foreign 7-man teams (6 competitors and manager) for the five-day period through the Contest. Countries unable to send teams but requiring proxy flyers will welcome the decision to select these proxy flyers from the boys who win through to our own Wakefield Final Trials, unless they wish to select their own proxies.

The venue has yet to be settled. Three venues close to London (a necessity since most visitors to Gt. Britain gravitate to London) are being investigated. The venue, of course, has to satisfy suitability, accommodation, and demands made by the International Power contests of the following day.

#### THIS RECORD BUSINESS

Two new British Records require special mention. First of these is the new Outdoor Helicopter time of 1 min. 6.8 sees. set up by Raymond Musgrove (new North Western Area secretary) on November 11th, 1948, at Hathershaw, Oldham. This considerably upped the previous record held by Ron Warring, and is being put forward for recognition as a World Record in the Special Aircraft section.

Most people know indoor work is strictly skill compared with outdoors and its attendant so-called luck element, so any record rise indoors calls for congratulations to the breaker. In this instance, it is Mr. E. C. Muxlow of the Sheffield Society of Aeromodellers, who on 10th December, 1948 moved the Class "A" R.T.P. record up to 6 min. 5 secs. Data on the ship that put up this fine record is naturally worth scrutiny:—

High wing tractor monoplane. 21½ in. span. 105 5 sq. in. area. 18½ in. overall length.

- '85 ounces.

#### MERIT CERTIFICATE AWARDS

The following Class "A" Merit Certificates were awarded during the past two months:

No. 248 J. O'Donnell
No. 249 S. A. Wade
No. 250 R. J. Johnson
No. 251 G. Wytcherley
No. 252 E. C. R. Hudson
No. 253 F. E. Smith
No. 254 R. P. Eagle
(Whitefield)
(Loughborough)
(Regent's Park)
(Five Towns)
(Saints)
("")

### CONTROL-LINE SPEED RECORDS

If you have ever done any U-control speed timing, you probably know or can imagine just how easy it is to miss a lap by counting "one" when the model passes the mark at the beginning of its timed run, and then going on from there. Of course, the right idea is, probably, to say "zero" or maybe just nothing at all, and start counting at the end of the first lap. All of which you'll no doubt appreciate is a discourse to timekeepers that it behoves them to get the number of laps right. If the timekeeper misses a lap, an unwarranted speed record might be claimed and perhaps thereby kill competition in the particular class for quite some time to come. On the other hand, one lap too many can deny a fellow who is turning in superior speed claiming a record.

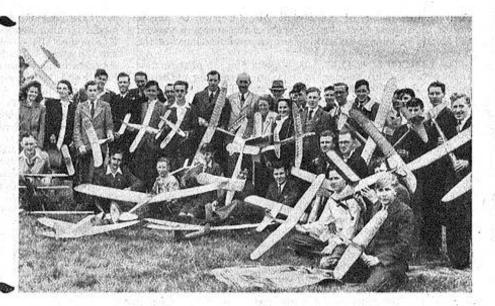
So it is a great responsibility for timekeepers to get this thing right.

E. J. Buxton, S.M.A.E., P.R.O.

## CLUB NEWS

BY CLUBMAN

Featured in this group are members of Plymouth M.F.C. and the Torquay and District Club.



THE aeromodelling movement seems to be getting on its feet in some of the countries that have so far been rather backward as far as centralised control is concerned. I learn that the Canadian boys have now formed their central association, based largely on American A.M.A. lines, and a central body to govern aeromodelling matters in Australia was recently inaugurated. To date a number of State groups had been conducting affairs, but the collating of all efforts should react to the benefit of the movement in both countries. Our best wishes go to these new Associations.

A general re-shuffling of Wakefield Team selection is taking place in America, Frank Zaic being of the opinion that thus far, a fliers place on the Team is felt to be too dependant on his ability to attend the Nationals—traditionally the scene of team qualification trials. "Although it is fortunate," Frank observes, "that our Teams have been of uniformly high calibre in the past, the Finals at Akron in '48 drove home the fact that we must put the very best available team on the field if we desire to regain possession of the Trophy".

He therefore proposes that all fliers who aspire to a place on the team advise A.M.A. Headquarters of their intention prior to April 1st, accompanying their registration with a fee of \$1. Records will be kept of the geographical locations of registrants, so that qualification events can be set up at various points according to the geographical distribution of entrants. Fees thus collected would go towards defraying expenses of elimination meets, any surplus going to the fund for travel expenses to England.

Study of the current list of American model records and rules makes interesting reading—and comparison with our own figures. Following a term of "free style H.L." flying, it is significant that R.O.G. has been reintroduced into the Outdoor Rubber Cabin class (straightforward fuselage type to us). Towline length has been increased to 200 ft. for gliders, whilst in the C/L classes lines must have a minimum diameter of

'001 for each 2 ounces of model weight. All record flights must be made outdoors.

Comparative times with our British records (where apparent) are:

Class	British	American
Outdoor Rubber	31 : 32.2	24:10.4
,, ,, Floatplane	8:55.4	2:49.8
" , Autogiro	: 39.5	: 43.8
,, Helicopter	1:06.8	8:55
,, Glider H.L.	6:57.5	24 : 02.6
Tow Launch	63 ± 46	23 : 24.4
Indoor Stick H.L.	18:52	28:42.4
,, ,, R.O.G.	8:42	25 : 54.6
,, Autogiro	: 32.8	3:53.7
, Helicopter	1:33	5 : 34.4

I refrain from comparing our power model times, as in my opinion no serious attempt has yet been made here to set up records in these classes. Our best C/L Speed time to date is some 4 m.p.h. under the *lowest* American time, but it is interesting to note that following changes in the method of alloting records, the whole of the R.O.G. Cabin and Control Line Speed classes will be cancelled and start off again with a clean slate.

The Annual General Meeting of the SOUTH WESTERN AREA decided to hold all Area contests at Exeter Airport Member clubs please note.

The MIDLAND AREA announces a good season through 1948, with financial resources considerably increased and in process of being devoted to the equipping of the Area with up-to-the-minute material for fully self-contained meetings. The A.G.M. was attended by some 150 members, who rounded off the business proceedings with a "high tea" and film show, the Technicolour Wakefield Film being highly appreciated as two Area members were in the Team.

A change of Secretary takes place in the LONDON AREA. Mr. Hellis of Brentford & Chiswick taking over from Mr. Page. Under the chairmanship of Mr. H. W. Hills (Croydon), an almost entirely new list of officers carries on the good work for 1949. A proposal was carried to concentrate all the L.A. contests into a one or two day Rally.

Welcome to the newly constituted SOUTH MIDLAND AREA, which operates in the counties of Beds, Berks, Bucks, Herts and Oxfordshire. Old-timer A. A. Courtney is Chairman, and arrangements are being made to hold Area contests at Haddenham Aerodrome, near Aylesbury.

My journeys last month took me to Manchester, Lincoln and Brighton. In the North I had the pleasure of attending the A. G. M. of the NORTH WESTERN AREA, a well attended and business like affair. Barry Haisman handed over secretaryship to Ray Musgrove whilst he disappears into college for a session. Decision to hold a Northern Championship Meeting on 4th and 5th June, was made in order to accommodate the many modellers who will not be travelling to Fairlop for the Nationals. For this meeting a would-be contestant

10 10 10 10 10 10	CONTEST CALENDAR	
March 27th	SURBITON & DISTRICT M.F.C.	
	GLIDER GALA	Epsom Downs
April 3rd	S.M.A.E. National Contest-	
	" GAMAGE CUP"	Decentralised
April 17th	S.M.A.E. National Contest-	
	"FLIGHT CUP" "MODEL	
	ENGINEER CUP"	Area
May 1st	S.M.A.E. National Contest-	Same and the same of the same
pris amor	" ASTRAL TROPHY " " HAL-	
	FAX TROPHY"	Decentralised
May 8th	BLACKPOOL & FYLDE M.A.S. RALL	Y
May 15th	WAKEFIELD TRIALS ELIMINATOR	Area
June 4th /5th	NORTHERN CHAMPIONSHIP	
	MEETING	Sealand
June 5th /6th	BRITISH NATIONALS	Fairlop
June 19th	WEST ESSEX GALA	Fairlop
August 14th	IRISH NATIONALS	
August 28th	All HERTS RALLY	
C 13	A CONTRACTOR OF THE PROPERTY O	

ISLE OF MAN RALLY

must be the holder of a S.M.A.E. Merit Certificate, and it will be interesting to study the result of this move in view of the steady resistance to making similar qualifications for the Nationals.

The LINCOLN & D.M.A.S. made a fine job of their first attempt at a Club Dinner, held in an interesting old-world inn which provided an amazing menu. Thanks, and con-

gratulations Lincoln-I'll come again!

Southwards to Brighton to judge (along with friend Cosh), the entries for the County Model Aircraft Exhibition organised by the SOUTHERN CROSS A.G. A goodly display of models took quite a bit of sorting out before the winners could be announced, and some tip-top specimens of aero-modelling art were on show. Overall prize went to an unfinished C/L Tempest, built by a pilot on the Berlin air run—an exceptional piece of work. The winning models were of a high standard, but when will the also-rans learn that exhibition work does not consist of skimped construction hidden under layers of high gloss dope and varnish. Sanding and smoothing wants doing before not after painting.

Originally scheduled for 1947, the first ever New Zealand Nationals took place on Dec. 30th, 1948, at Wanganui. Thirteen events were held, with some £200 of hardware going to the top men. Rain fell heavily on this occasion, but did not dampen the enthusiasm of the contestants. Top man of the meet was A. Macdonal of Aukland, junior champ being J. Woodley from the same club. The C/L events aroused much interest, but were held in a high wind which kept many on the ground; R. Olliver kept everyone interested with his perfect demonstration; even when he slipped and fell he

still managed to keep the model under full control.

Date for the St. Albans ALL HERTS RALLY has been provisionally fixed for August 28th. Youngsters of 10–14 are welcomed as associate members, provided with materials and taught how to build and fly. This should be a good investment for the club, and a scheme I heartily commend. Much hard work has gone into making a recently acquired clubroom habitable, where members meet every Thursday evening. Address 96 Victoria Street, St. Albans. (Henry J. is well "off the beam" regarding premises St. A—I know of at least five who beat you to it.)

Five clubs exhibited models in the MERSEYSIDE REGIO-NAL COUNCIL show in Liverpool from Jan. 10th to 24th, M/S Gosling and Haisman acted as judges, and awarded no less than three 1st places to D. Marsh of Crosby M.A.C. Other places were fairly evenly shared by Crosby and Wallasey.

The ROCHDALE & D.M.F.C. stole the thunder of the local political parties last December by booking the Town Hall for a Xmas Eve Ball, which proved a success financially, and served to give a touch of tone to the club's prestige.

Two excellent things have happened to the EVESHAM & D.M.A.C. The Mayor-elect of Evesham has accepted the office of President, and permission has been obtained for the use of a fine ground—even though model recovery more nearly approaches an assault course than did Honeybourne. Movement is afoot for the use of Pershore Aerodrome for rallies, etc. . . . I hear that the C.O. has built models.

The DAGENHAM M.A.C. is now approaching the fifty mark in membership, and has just completed a very successful season which saw a number of new records set up. One in particular concerned a model spotted by the C.O. of a local R.A.F. Station at 8,000 ft. some 15 miles away. Some new and interesting models on the way include a 7 ft. span twin-engine job, a cam controlled model, and a camera carrying glider. Out of the rut anyway.

SURBITON & D.M.F.C. wish to announce that their annual Glider Gala will take place on March 27th. Provisional site is Epsom Downs, and events will be for open and

team classes. Maximum line length 200 ft.

Indoor flying has caught on with the RAVENSBOURNE M.F.C., a recent contest with their neighbours, Petts Wood, resulting in a home win. Best flight of the event was made by J. Whittaker with 62 seconds, and a few comic incidents were witnessed, particularly the case of the boy who got so excited he forgot to attach the line. A very enjoyable club dinner wound up a highly successful year.

Whilst announcing a new club just formed in Newhaven,

the 1218 M.F.C., L. J. Patten advises the finding of a power model (minus wings), fished out of the Channel just off Newhaven. Powered by the popular 2 c.c. E.D. the model has the words "Bradden Angel II" written on the fuselage. Anxious owner please communicate with Mr. Patten at 2, Fort Road, Newhaven, Sussex.

Another R.A.F. Station to start a model aero club is MIDDLETON ST. GEORGE. These lads announce bags of facilities for modelling, and naturally a nice flying space. Current glider record is 7 minutes o.o.s. last May by an

APS " Fugitive ".

An interesting change is the reforming of the old Ealing club into the PIONEER SCALE AIRCRAFT CLUB. Membership is limited, the chief club rule being that all members shall concentrate on true to scale models. Not a bad idea to specialise, as far too many chaps dabble in everything and get nowhere.

Following a very satisfactory years flying, the SOUTH-

AMPTON M.A.C.'s records stand as follows;

Wakefield	(r.o.g.)	P. Cock	9:30
	(h.l.)	J. Churchill	5:39.6
Rubber	(ro.g.,	M. Coxon	8:57.4
	(h.l.)	V. Johnson	12:10
Glider	(F.A.L.)	M. J. Richards	19:52.4
	(Lightweight)	M. J. Richards	14:58.2
	(Tailless)	M. J. Richards	4:27
Power	(Class A)	J. A. Mountain	9:25
	(Class B)	J. Churchill	4 : 04.6
Indoor R.T.P.		M. J. Richards	3:20.8

The EAST BIRMINGHAM M.A.C. has been reformed, and will be pleased to welcome all old and new members at their meetings held every Monday evening, 7.30 p.m. at York

Road Schools, Hall Green.

A series of fine Sundays, apart from one when the field was flooded, has seen turnouts of the SOUTH NOTTINGHAM M.F.C. A flight of "Kandoos" are getting airborne, one member looping his first C/L model on its first flip. Dave Fox's 'Jaguar" leads a pride of these Wakefield lions, while Dennis Wade has a 50 in. semi-scale type which a "Bee" tootles around happily. This lad shook the hibernating pessimicts on Dec. 18th when he lost a glider off 150 ft. lines 2 mins. o.o.s. upwards into a cloud in cold and windy conditions at sunset. We live and learn.

There has been a lot of scaling down recently in the TEES-SIDE M.F.G. to suit the small engines now on the market. A 36 in. span Banshee has appeared, also a similar size Rapier, and both perform well. An indoor contest held on the 15th Jan. resulted in a win for E. A. Harrison who totalled 3:40.5, followed by G. Parker (2:49) and K. Austin (2:04).

Inaugurated in March 1948, the BY-PASS (Sutton) M.C. has grown to a present membership of 72, with some competent flying crowded into a few months as the following list of records shows:

 Power Rubber
 J. A. Pearce J. Wray
 7.09 ratio 2:21

 Glider
 J. Wray J. 1:50.2 J.
 1:50.2 J.

 R.T.P.
 B. Forward J. Wray J. 1:40.4 J.
 40.4 J.

 C/L Speed
 40 m.p.h.

PHOENIX M.F.C. rounded off the 1948 season in good style when M/s Brace, Elliot and Coxall took 1st 2nd and 4th places at the Western Area Rally Power contest in a downpour of rain. Since then flying has continued with the regularity of the Berlin Airlift, accent being on C/L. A. R. Bruce holds both the Rubber record (1:18) and Power (2:57), the glider honours being held by A. Way, (3:10).

The FOLKESTONE & D.M.A.G. can be seen every

The FOLKESTONE & D.M.A.G. can be seen every Sunday afternoon at the local Drill Hall competing for the Indoor Free-Flight Cup given by the club for the highest time set up during the winter. Favourites at the moment are A. Gains, L. Philpott and D. Francis, best time to date being 1:19 which includes dodging umpteen girders, lights, etc. Tissue covered jobs fare best, microfilm rather shirking such unyielding contacts.

Sunday, January 9th saw the inauguration of the "Bill White Memorial Cup" by the BLACKHEATH M.F.C. In spite of a cold and windy morning, ten clubs made entries, and some good flying was carried out in the best traditions of the movement. Forty-five entrants competed, and the

presence of many spectators was reminiscent of earlier days. J. B. Knight (North Kent) was never seriously challenged. and aggregated 6:04.1, followed by A. H. Agutter (West Kent) 4:27 and J. Howard (North Kent) 4:01.4.

The MANCHESTER M.A.C. ground at Baguley gets

smaller and smaller due to the encroachment of building estates. R. Booth (who works at Avro's) is concentrating on flying scale models of his firm's kites, his latest being an Avro 504K powered by an Amco. Also on the stocks is a "Com-modore". All have scale outline and dihedral, and are fitted with pendulum rudders.

Free-flight power and rubber events, in addition to all stunt and speed C/L classes, will take place at the WEST ESSEX AÉROMODELLERS gala (Fairlop, June 19th). Cyril Mayes is hitting the 80's with his Elfin powered assymetrical speedster, and also does consecutive figure 8's on 55 ft. lines in high winds. Boxcar designs are petering out, and being replaced with super streamlined stunters.

May 8th sees the BLACKPOOL & FYLDE M.F.S. Rally at that well-known holiday resort, with all the usual events taking place. It is hoped to make this an annual feature, and full details are available from Sec. R. Goodfellow, 6, Penrith Ave., Cleveleys, Lancs.

The PETERBOROUGH M.A.C. have acquired a clubroom, and make full use of it four days a week. Several members are taking an interest in radio-control, and one chap has designed and built his own equipment (3 valve receiver including batteries and controls weighs less than 14 ozs.) They are now busily preparing for their 2nd Annual Exhibition, to be held from April 20th-23rd.

Those of you who had already fixed your holidays and thus could not take in the 1948 Manx Rally, will be interested in the dates fixed for this year's affair. Arranged so that visitors can also see the Manx Grand Prix motor-cycle races, the model flying will take place on September 12th, 14th, and 16th. One full day's flying will be devoted to C/L work at a park in Douglas.

D. T. Woolgrove of 18, Quarry Close, Alcombe, Minehead, Somerset, is anxious for other enthusiasts in his district to contact him with a view to starting a model club in that area.

16-year-old W. F. Cook of "Rawal", Takapau, Hawkes Bay, New Zealand wishes to correspond with a chap of similar age on modelling matters. Any takers?

Well, that's the lot for this month fellows, and I am pleased to note the swing-over from out-and out freak types to more scale work. Undoubtedly more of the general public are witnessing model flying now that C/L jobs are all the rage, and better looking models will raise the prestige of the hobby in the eyes of the uninitiated. Radio control also bodes well for the game, and we should see some revolutionary events during this year of 1949. Go to it chaps, and let's show the great G.P. what we really can do. The CLUBMAN.

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H. C. Piggott, "Chatsworth" Parkfield Road, Parkfield, Uxbridge.

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R.A.F. MIDDLETON ST. GEORGE M.A.C.
L/A/C Nugont, R. I. Squadron, 2 A.N.S., R.A.F. Middleton St. George, Darlington, Co., Durham.

1218 (NEWHAVEN) M.F.C.
L. J. Patten, c/o 2, Fort Road, Newhaven, Sussex.

FAVERSHAM & D.M.F.C.
E. Large, 5, Wallers Row, Faversham, Kent.

BEAUMONT COLLEGE M.F.C.
Beaumont College, Old Windsor.

CAERPHILLY & D.M.A.C.
D. E. Davics, 10, Virginia Terrace, Caerphilly, Glam.

MERCURY A.M.C.
R. Bellamy, 79, Ravenscroft Avenue, Linthorpe, Middlesbrough.

ERRATA. We regret that owing to a typographical error the "E.R.E" diesel advertised in our February classified advertisements was incorrectly described as the "E.D." diesel. We offer our apologies to Mr. H. Balgnent, Manufacturer, and confirm that there is no connection between the E.R.E. diesel and the E.D. diesel, which is, of course, manufactured by Messrs. Electronic Developments, Ltd.

CORRECTION. L. G. Cramp's Fart II Gas Turbines.
The error occurs on page 37, col. 2, at " Now the Kinetic energy of the jet equals:—
WYI/I\*

ft. lb. per sec. where /l' should be deleted to give WVI1 ft. per sec.

#### CLASSIFIED ADVERTISEMENTS

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#### FOR SALE.

FOR SALE.

"Aeromodeller" back issues can be obtained from:—W. H. Forway, 353. Manford Way, Chigwell, Essex.

One "Juggernaut" standard jet engine (unused). £5. Bacon, 6, Telcote Way, Eastcote, Ruislip, Middlesex.

"A.F.P." Vols. III—VII inc., "Handbook of Aero Engines", two others, cost £10. For Mills Mark I or similar. Price, Westerland Cottage, Paignton.

"Majesco 45" complete £5. "Veron Stunter", Mills powered, £4. "Keilkraft Rover" minus engine, £2. "Paramount Antspants" less engine, £4. Nearly finished 6 ft. glider 30/-, also plans of cars and boats. Box. No. 190.

"Amco" Mark II complete, boxed as received. Reason for sale, two delivered one time, £3. Box. No. 186.

"McCoy 60" and "Sportsman Junior". Both new and unused. Best offer secures. Box 188.

One "Airflo Mite" powered by "Amco" £4. 15s. 0d. 102 magazines, "Aeroplane" and "Flight" (1946-8). Not consecutive, the lot for £1 15s. 0d. Box 192.

Italian Diesels. "Atomatic" 5 c.c. £6, and "Zena" 6 c.c. £4, with propellors. Freeman, 44, York Road, Canterbury, Kent.

"Frog 180"—August, 1948, hardly run. Offers over £2. G.H.
91, 45 lach Wakefield, complete, flown once, 39/-. Rhodes, Rothwell, Nortbants.

Brand new "E.D. Competition Special" diesel engine with

"Frog 180"—August, 1948, hardly run. Ohers over \$2. G.M. 91, 45 inch Wakefield, complete, flown once, 30/—. Rhodes, Rothwell, Northants.

Brand new "E.D. Competition Special" diesel engine with universal centrifugal clutch and flywheel. Cost £7 10s. 0d. in all, will accept £3 for quick sale. Send cash to Box No. 191.

"Slicker Mite" powered "E.D.", beautiful finish, excellent fler, offer over £4. 10s. 0d. secures to Plested, Hailey Parade, Hertford.

Stunt filer selling up. Winning ships and hot American engines—"McCoys", "Torpedoes", "Cyke", "Attwood", Particulars, Hewitt, 52, Woodland Road, Northfield, Birmingham.

"Mills" Mk. I with prop. Bench run only 5 mins. Box No. 193.

"Supertigre" 6 c.c. ball bearing, rotary disc valve. Very good condition. £6. Box. No. 194.

"ETA" 5 diesel. Bench run only, as new, £6. "Allbon" 2.8 diesel, modified for stunt control-line, £2. "Jaggers" "Speed King" fitted "Juggernaut" jet. Completely finished including dolly. Ready for flying. Offer nearest £10. Telephone: Leighon-Sea. 74766.

"Mechaniar" 5.9 c.e. Excellent working order, coil, 2 plugs and condensers. £8. 10s. 0d. Bryson, 47, Lightburn Avenue, Ulverston, Lancashire.

Ely a gilde at Bogbill Accodrame.—3 miles from Redbill, Surrey.

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Any number of "K Hawk" diesels, must be in good running order and have running instructions and both props. State price, no reasonable offer refused. J. Parfire, 3, Bournville Road, Weston-Super-Mare.

Back numbers of "Aeronautics" as follows:—Dec., 1940; July, 1942; April, Oct., Nov., 1943; May, 1945. Also complete "Aeroplane Spotters" from January, 1941. Box No. 189.

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experienced aeromodelier requires that time work at none, with workshop and drawing equipment available. Box No. 187.

Modeller, experienced all models, aircraft, boats, cars, railways, etc., and fully experienced retail trade, able to drive and first class mechanic, requires position with progressive model firm, preferably Birmingham area but consider any district if accommodation, available for self and family. Box No. 185.

TRADE.

"E.R.E." diesel 2.5 c.e., 93/- all in, money with order, direct from H. Baignent, 10, Beverley Gdns, Ensbury Pk, Bournemouth. How to get an engine on weekly H.P. Terms with minimum fuss and both; (1) Write, stating engine required, enclosing S.A.E.; (2) By return of post we send details of deposit required and easy-to-understand H.P. form; (3) on receipt of form and deposit all engines in stock are despatched by return of post. Call if you can and see your model running. The Model Stadium, 4, Village Way East, Rayners Lane, Middlesex. 2 minutes Rayners Lane Station. Phone. Pinner 6459.

The "Bipacer". A new super Stant Control-line biplane kit. Fully aerobatic, available shortly, Watch these pages for further announcement!! Send S.A.E. for full details and lists now to "Excelal Models", Mail Order Specialists, Tudor House, Tudor Street, Exeter, Devon.

Vices, Ideal for modellers. Detachable jaws, sensitive action 2½ in. 8/- post free, Model Engineering Co., 6, Common Road, Wombourn, Wolverhampton.

Victory Duralumin Airscrows, Will aeromodellers and traders please note that as the above are now subject to Purchase Tax they can no longer be supplied direct to the public. 

(conl. on page 224)

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203 PROOFER was first synthesised by two wellknown aero-modellers specially for their own prize-winning jet. found it so outstandingly successful, providing such an advanced degree of protection that it is now being made available to all aircraft modellers. One coat of 1-2-3 Proofer encases your model aircraft in a skin; a hard, thin glass-like armour which is completely proof against every known fuel, is waterproof, weather-proof, non-inflammable. And is feather light, The amount of 1-2-3 Proofer needed for the average 5 ounce model weighs only between 1/40 and 1/60 ounces.

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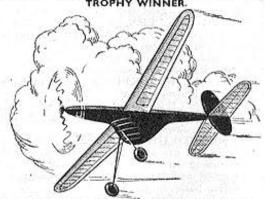
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WALTON THAMES (Illustrated above), 65 ft. to | in. to | ft. scale (32) in. long). Spacious cabin accommodation, revolving gun-turret, rubber diughy—a well-detailed design. Suitable for all forms of power. Petrol engine up to 7.5 c.c., diesel 5 c.c., or other motive power. On three sheets each 40 in, × 40 in. Price

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63 ft. tannch to \( \) in. to \( 1 \) ft. (31\( \) in, long). Full-scale appearance and lifelike wake with bows well-out of the water give this launch a tremendous arrowal. Revolving run-turet cabin, control appeal. Revolving gun-turret, cabin, room and twin dinghies. Suitable for all forms of power. On three sheets each 40 in. × 40 in. Price

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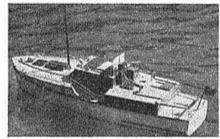
24 IN. STEPLESS HYDROPLANE

24 IN. STEPLESS Proceedings of the type of hydroplane (Illustrated on right).

A freelance design bazed on the type of hydroplane popular in the Lake District. It is of easy construction, having no step, and is an ideal beginners boat. Powered with a Mills 13 c.c. diesel or similar. It has a speed of 12/15 m.p.h., On two sheets 40 in. ×28 ins. and 40 in. ×30 in.

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Perfect.



3 N. SAILING SHARPIE A scale model of a 13 ft, Bermudan rigged three-quarter decked sailing sharple. Having no centre-beard is particularly suited to very shallow waters. On two sheets each 40 in. Price

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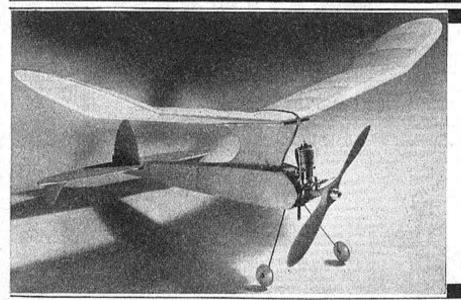
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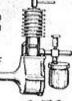
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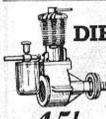
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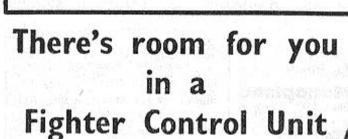
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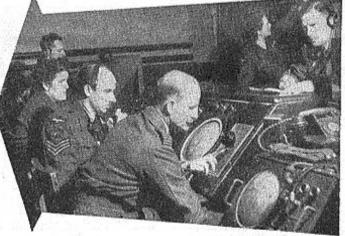
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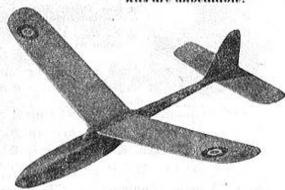
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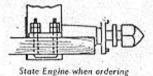
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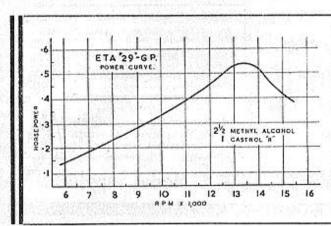
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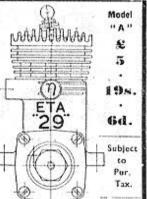
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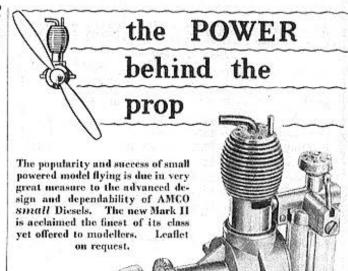
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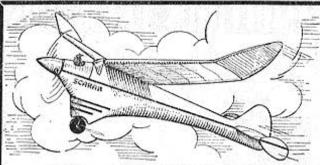
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