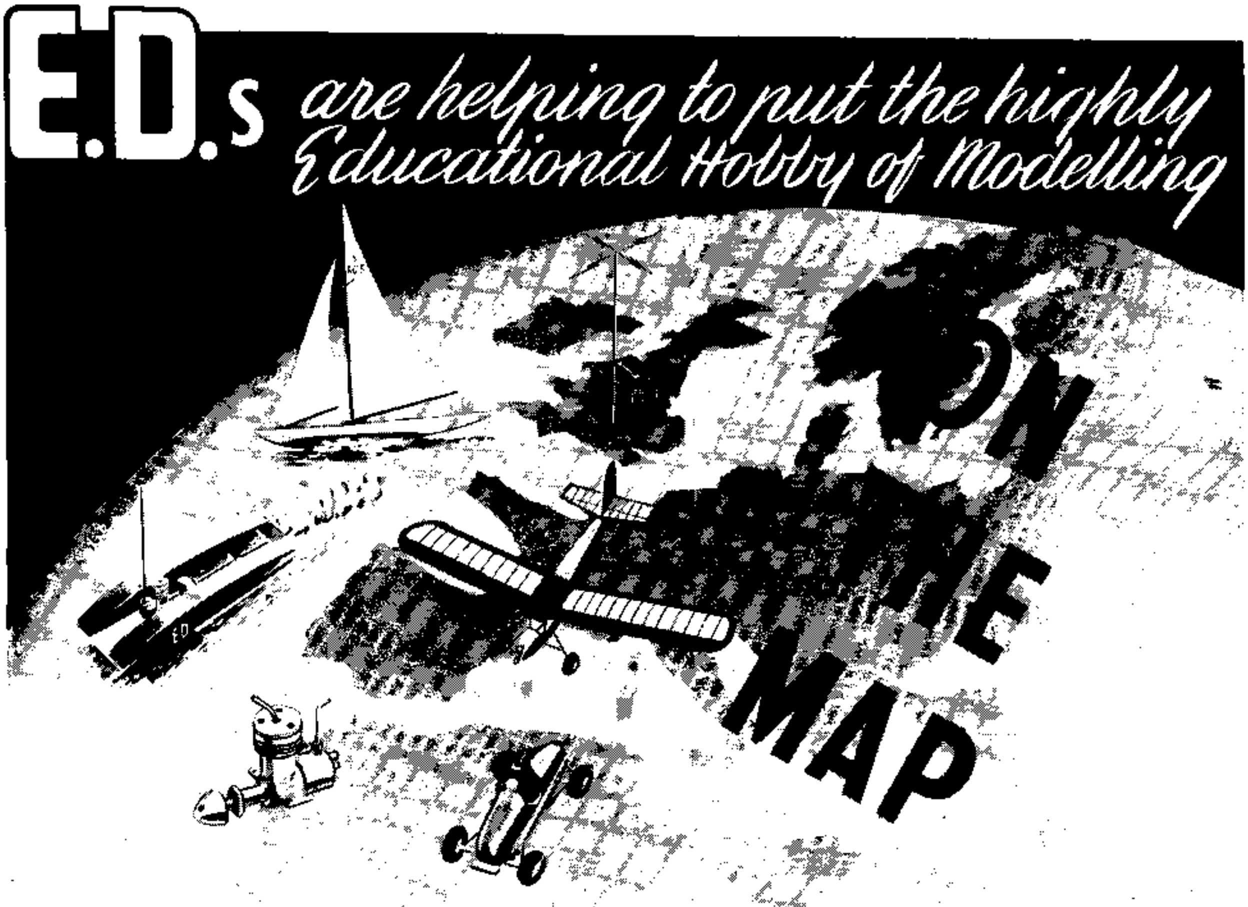
AEROMODELLER

NOV.
1950

1/6



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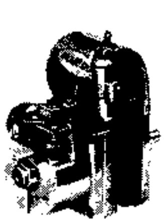

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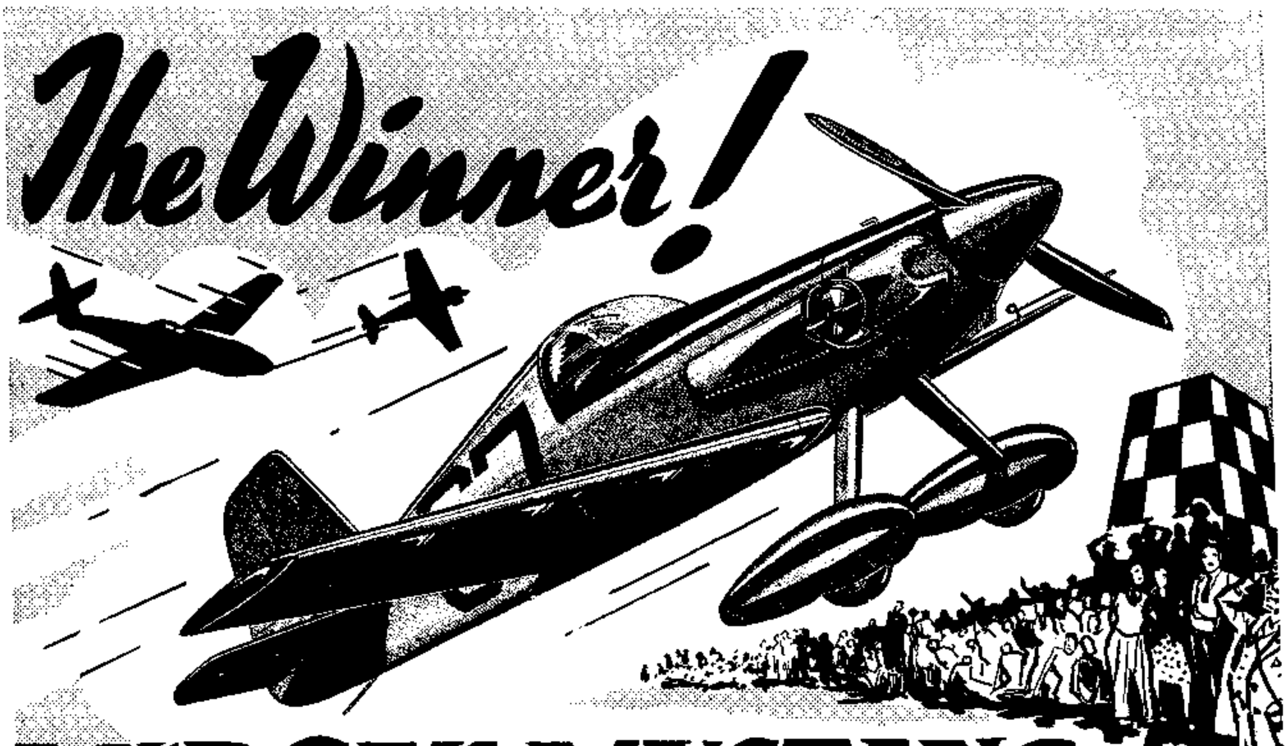

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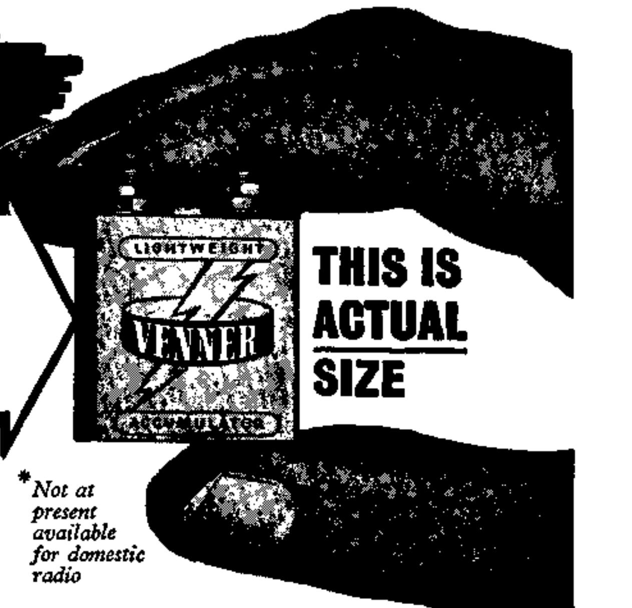

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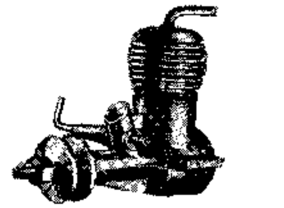

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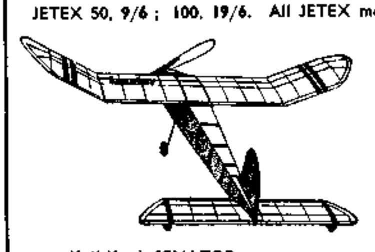

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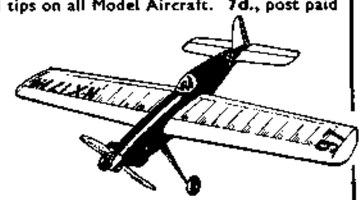

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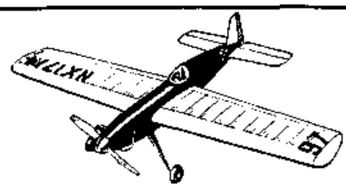

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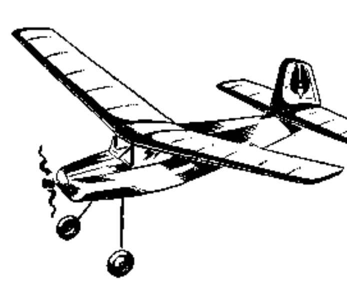

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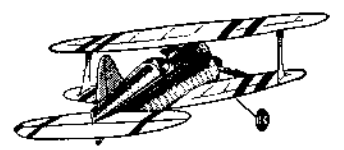

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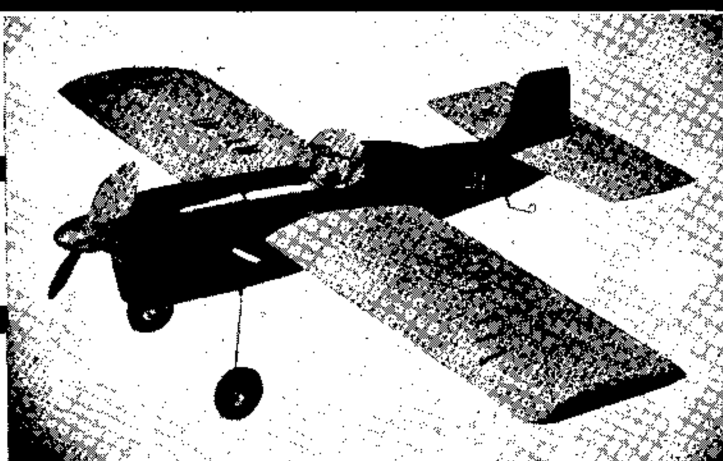

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AEROMODELLER
INCORPORATING "THE MODEL AEROPLANE CONSTRUCTOR"

OFFICIAL SUPPORT—WHAT DOES IT MEAN?

WHILST returning by B.E.A. from attending the 1950 Wakefield Trophy Contest at Jamijarvi, Finland, and pondering over the meeting, it occurred to us that one of the most outstanding features of the organization of this contest was the amount of " Official " recognition and practical support offered *to* the organizers, and provided *by* their own officers.

Firstly, there was the support given *to* the organizers—the Finnish Aero Club. There was the full, unrestricted and unhampered use of the whole of the Jamijarvi Gliding Club just for a start! Then there were the freely given services of quite a number of the members of the Gliding Club themselves. They served as marshals during the contest and at all other times there were a number in attendance to assist entrants accommodated in the various dormitories.

We believe we are right in stating that the whole of the catering, for about 100 contestants, supporters and visitors, was handled by women members of the Gliding Club. Oh, yes! quite a large percentage of women in Finland are glider pilots, and many of them have taken their final training at Jamijarvi.

Secondly, there was the support given to the contest by top officials of the Finnish Aero Club, and it is in this connection that the organization of certain other meetings in recent years are shown up!

The President of the Finnish Aero Club attended throughout the whole meeting; the Vice-President did likewise. The President of the Aeromodellers section of the Finnish Aeromodellers Club was also present throughout the contest. Several prominent industrialists—members of the Finnish Aero Club and men holding high governmental positions were also present. Last, but not least, the British Attache, Wing Commander Fleet, attended the whole of the contest.

We stress the expression—" the whole of the contest ". As all our readers know, the contest commenced on the Saturday evening and terminated early on the Sunday morning. It was followed by a period of rest and a prize-giving dinner on the Sunday evening, following which entrants dispersed from the Gliding Club during the following Monday.

All the officials to whom we have referred above were present at the Gliding School from the Saturday afternoon until the Monday morning.

Casting our minds back to the 1949 competition, we are compelled, with some distress, to recall the absence of officials from our own Royal Aero Club; and, let it be remembered, Cranfield, where the contest was organized, is only a mere forty miles from London—headquarters of the Royal Aero Club. Whereas Jamijarvi is some 150 miles distant from Helsinki where are located the headquarters of the Finnish Aero Club.

Casting our minds further back to the Wakefield Contest of 1948, we recall meeting at Akron, Ohio, several high officials of the American Academy of Aeronautics, although Akron is some 500 miles distant from New York.

We recall also the tremendous banquet given on the night of the contest at Akron's largest hotel, which was attended by many prominent men in the American full-size and model aviation world.

The question of the attitude of our own Royal Aero Club to the model aircraft movement in this country is not at all easy to determine. Recently, as is now well known, arrangements were made for the S.M.A.E., officially recognized by the Royal Aero Club as " the body controlling the model aircraft movement in Great Britain," to have certain accommodation made available at the Club's headquarters at Londonderry House. This accommodation is below ground—in the basement!

We believe we are correct in saying that there is no particular officer, still less a committee, specially appointed from amongst the officers of the Royal Aero Club to co-operate with the officers of the S.M.A.E. in the way of assisting the latter body in organizing National Contests held in this country. Admittedly, there is an officer appointed to attend S.M.A.E. Council meetings, but even he, in recent months, has not always been present, so we have been informed.

We believe that we are right in saying that no part of the Royal Aero Club's income or funds are devoted to assisting the S.M.A.E. in furthering the model aircraft movement in this country. We are therefore led to enquire just what, if any, particular interest is taken by the Council of the Royal Aero Club in the activities of the body which it is advertised as having " approved " ?

Pondering further beyond the relatively narrow sphere of the Wakefield Trophy Contest; and ranging wider to include in our thoughts the various other internationally sponsored contests which we have attended in several European countries during recent years, we see again the difference between the attitude of the Aero Clubs in these countries and that of our own. Invariably at these International meetings there have been present one or more officers of the " home " country's Aero Club; not so in this country.

Often some form of " practical support " in the way of army or air force personnel or equipment has been laid on with a view to assisting the organizers of the contest. In Finland this year it was troops to erect pens for the competitors, jeeps with drivers to retrieve lost and straying models, walky-talky units—complete with signallers—to maintain communications between contestants and their models flying over the adjacent forests.

Comparison with the complete absence of support of this nature at the 1949 Wakefield Trophy contest, organized at Cranfield, does not show Great Britain in a very favourable position. There were no walky-talky outfits, there was little or no assistance in regard to controlling spectators, and most of the retrieving of competitors' models was carried out by

Contents

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Jan Jango of Sweden's Hobbyfolk sends us this candid camera shot of globe-trotting Managing Editor D. A. Russell and Mrs. Joan Russell, watching the Wakefield birdies, this time at Jamijarvi. Note the cine-camera which it is his special pride to wield in the production of those annual all-colour Aeromodeller contest films so popular with club audiences. Mr. and Mrs. Russell between them handle all the "continuity", cutting, editing and splicing work involved in connection with these films.

cars and vehicles operated by certain model aircraft traders!

In a period of our history when so much, and increasing, stress is laid by high government officers on maintaining and strengthening the bonds of our international relationships, it seems odd to us that there should be what amounts to well-nigh total lack of support from our own Government and Royal Aero Club.

It is, we feel, a position which should be rectified at an early date. Next year, many organizations will have government support in making a contribution to our Festival of Britain, and much expenditure of time and money will be incurred in welcoming to this country visitors from all over the world. Would it not be appropriate for consideration to be given by the Council of the Royal Aero Club to arrange for one or more of its officers to attend in an "official" capacity the major S.M.A.E. and international meetings held in this country.

May we hope that as and when the blue riband of aeromodelling contests—the Wakefield Trophy—is next held in this country we shall have the pleasure of seeing present, in his official capacity, the President of the Royal Aero Club?

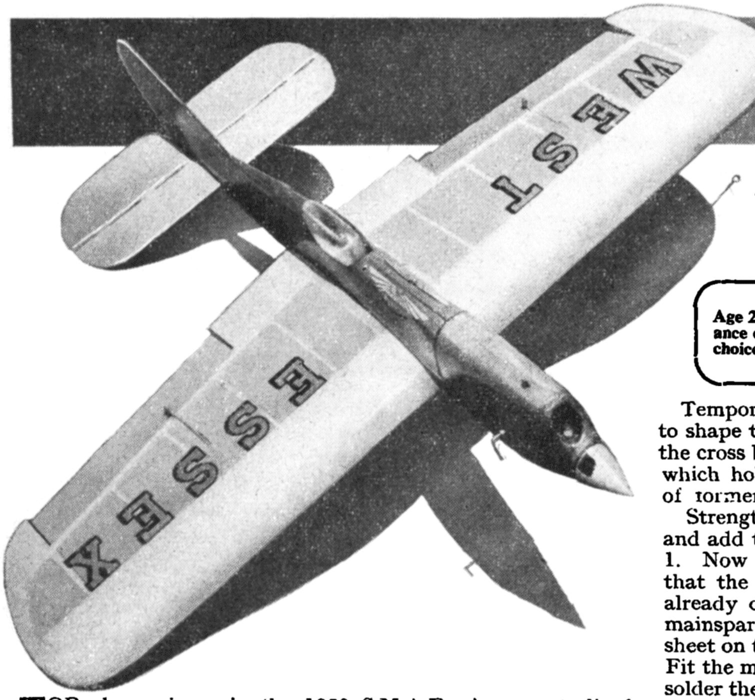
CAPTION CONTEST RESULTS

Only after several hours of deliberation was it possible to select the final twelve captions from a total entry of 298, and the names of the winners with their entries are listed below. The results are as follows :—

1	Now I'll do a rabbit	W. J. M. Chapman, "Woodview". Vincent Rd., New Milton, Hants.
2	"... the whole truth and nothing but ..."	D. Frost, 127, Hatfield Rd., St. Albans, Herts.
3	"... as pants the Hart ..."	B. Cullen, 31, Berry Street, Sittingbourne, Kent.
4	Digit Extracted	R. Fielding, 23, Julia Street, Rochdale, Lancs.
5	Tight Pants	R. B. Hobbs, 20, Ashton Road, Luton, Beds.
6	"Dr. Livingstone, I presume"	R. Powell, 88, High Street, Alton, Hants.
7	"Once more unto the breach dear friend, once more"	G. S. Ayres, 12, The Green, Totbury, Glos.
8	Braces buttoned to my suspenders again!	J. Allen, 220, Blundell Road, Bunt-Oak, Edgware, Middlesex.
9	"Macoodal Dihedral" Goose (Migratory)	L. G. Ling, c/o 38, Runnymede Gardens, Greenford, Middlesex.
10	See sketch attached	R. H. Warring, 10a, Hayne Road, Beckenham, Kent.
11	I lose more models this way ...	T. J. Hunt, 22, Brooksby Street, Islington, London, N.1.
12	Don't forget those two blokes are time-keeping	E. Clutton, 92, Newlands Street, Shelton, Stoke-on-Trent, Staffs.

We should mention that number ten was awarded to the subject in the photograph himself, and by way of explanation of "see sketch attached" we would state that the sketch was of a certain china receptacle in general use in the home. A mention should be made of the non-existent pictures numbers 13 and 14. These also received the attention of several entrants, the most amusing results of which were for No. 13, "Visibility Zero", and for No. 14, "Someone has blundered".

METEOR



A 38″ HIGH-SPEED STUNT MODEL BY KEN MUSCUTT

Age 26 .... Member West Essex Aeromodellers .... A Fire Insurance clerk .... Rabid control-line enthusiast .... Renowned for his choice of Fin profiles .... Currently interested in team racing.

TOP place winner in the 1950 S.M.A.E. Area centralized stunt contest for the London Area, and third place at the popular All Herts Rally, the Meteor presents a complete change in aerobatic design.

It is the outcome of a desire to get out of the box-car rut and an effort to combine high speed stunting with good looks to get those extra 20 appearance points, recently added to the S.M.A.E. stunt schedule. The result has pushed the wing loading figure way up to 17¼ ozs. per square foot; but with power of the calibre of the modern 5 c.c. glow plug engine, its 75 m.p.h. flying and stunting speed, turns the high weight figure to advantage, for never once have we seen the Meteor fluffed by wind or slack on the lines. Ken Muscutt's special manœuvre at contests bears out the success of his outboard flaps, for few models are capable of repeated square bunts, with really square corners and no slowing up, no matter how many are executed.

Construction. – Start by cutting the engine bearers to shape and drilling to take your chosen engine. Strips of 1 m/m. plywood, ⅜ in. wide, are Durofixed to the outside face of the bearers. Cut out the lower fuselage sides and bottom from hard ⅛ in. sheet. Formers A and B are from three-ply. Now bolt the bearers to the engine and Durofix the three-ply formers in place as shown in the sketch . . . Don't forget to pre-cement each joint where hardwood parts are used. Lock the heads of the engine mounting bolt with a piece of sheet brass or tin-plate soldered in place. When that has set thoroughly, remove the engine and fix the sides to the bearer unit. Start on the wing by cutting the ribs from medium ⅛ in. sheet and the port wing tip from hard ¼ in. sheet.

Assemble the wing upside down on the plan by first laying the top spar so that it extends to the port tip but falls short of the opposite tip by 1½ ins. Cement the two centre ribs in place so that the L.E. and T.E. will be at the same height as the building board. Fix the tip ribs in the same way and add the L.E. Add the rest of the ribs and the 1/16 square false spar. The bottom spar and lower half of the T.E. inboard of the flaps can go on next. Position the brass tubes for the lead out wires and add the port wing-tip parts.

Return to the fuselage and cement the bottom in place between the sides. The angles are filled with soft ½ in. × ½ in. from former B, back to the tail. Two tapering pieces of hard ⅛ in. sheet should be cut to fill the bottom forward of B, and a piece of ¼ in. sheet cemented to the inside and bottom of the fuselage forward of A.

Temporarily install the engine with a 1½ in. spinner fitted, to shape the lower nose. Secure the drop-out u/c tubes with the cross brace of hardwood or ply and add the plywood plate which holds the bellcrank pivot bolt. Add the bottom part of former 1.

Strengthen the wing centre section with lengths of ¼ in. × ¼ in. and add the ½ in. × 5 in. 1-m/m. ply between the spars at ribs 1. Now drill through the wing in front of the main spar so that the holes will line up with that in the bellcrank plate already cemented in the bottom of the fuselage. Web the mainspars from rib 1 to rib 3 with pieces of hard 1/16 in. sheet on the rear faces of the spars with the grain vertical. Fit the main lead wires with their ends turned up ⅜ in. and solder the bellcrank, with 3/16 in. wire exposed through the top of the bellcrank. Study the sketches for detail of fixing the flap bellcranks and make sure that there is no slack on the 22 s.w.g. lead-in extension to allow vibration to create flap movement.

Note that the port flap is connected only to the rear lead-in by means of a piece of 16 s.w.g. wire. Now add the other 1/16 in. square false spar and fill the space between with 1/16 in. sheet.

The flaps are made by cutting out four pieces of hard 1/16 in. sheet, and cementing lengths of ⅜ in. square to two of them. The sketches show detail of the mode of hingeing.

The flap horns are made from pieces of tinplate soldered together, and bushed with a 3/32 in. length of 16 s.w.g. brass tubing. Durofix to the flap bottom surface and add the flap pivots to the main wing structure.

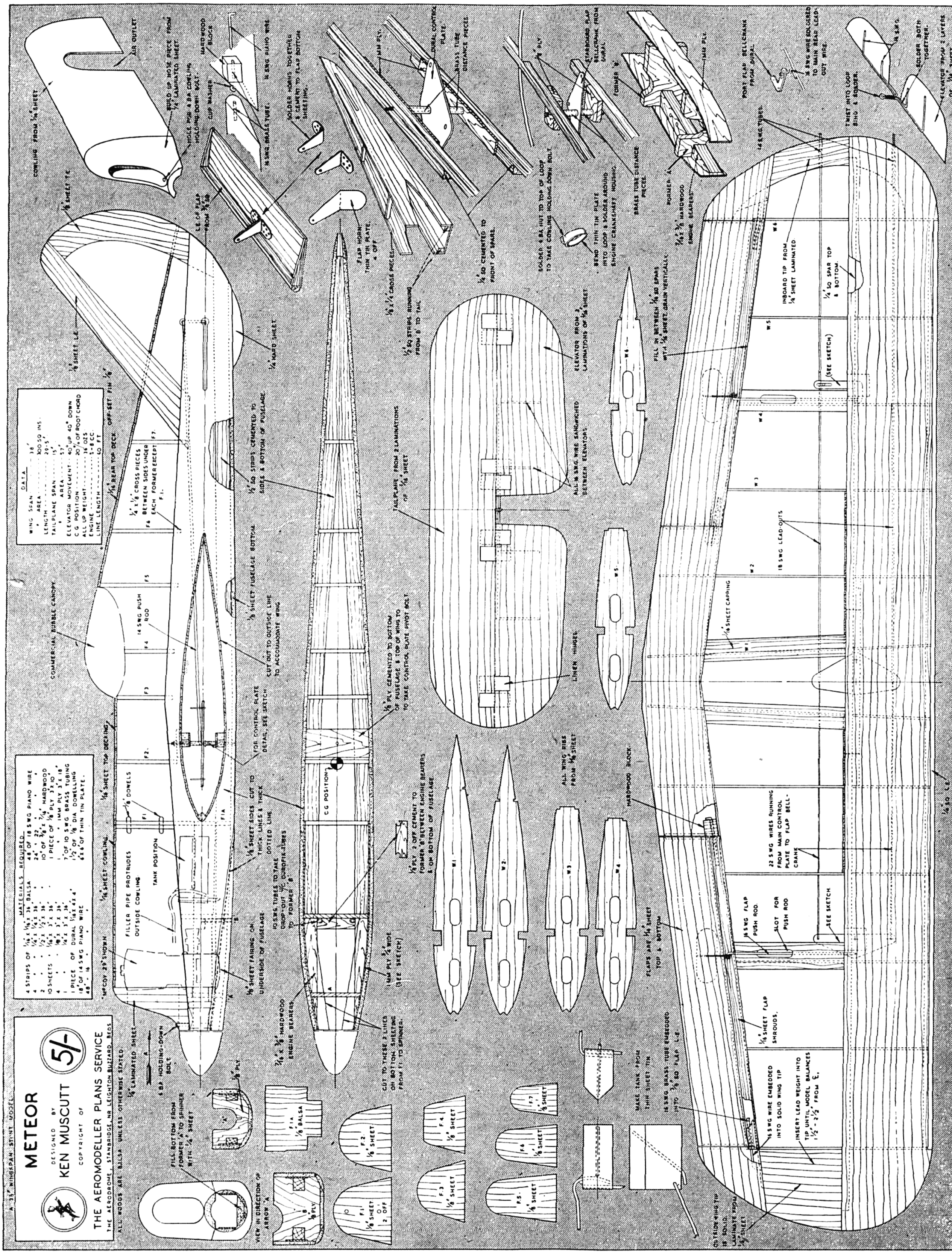
With the controls at neutral and the flaps temporarily in place, connect the flap bellcranks in the wing with the control horns by means of the 16 s.w.g. push rods. Make sure that everything lines up. Now finish the flap by adding the top surface, remove and apply a couple of coats of dope. The elevators are each made of two pieces of 1/16 in. sheet with the 16 s.w.g. control horn sandwiched between them. Attach to the tailplane.

With the flaps removed, slide the wing into the fuselage, re-fit the flaps and complete the bellcrank assembly by fixing the 6 B.A. pivot bolt. Connect the main push rod to the elevators, and trim for neutral by moving the tailplane backwards or forwards, before cementing in place. Now permanently fix all the control mechanism and fit the 1/16 in. sheet flap shrouds on top of the full spar, and cover the leading edge of the wing with hard 3 in. sheet. Add the cap strips to the ribs and the upper portions of the trailing edge when the wing has been glued in position.

A piece of 1 in. wide three-ply is cut to fit across the fuselage and to support the pivot bolt.

Cement ⅛ in. × ¼ in. spacers across the top of the fuselage at the positions of the top formers, making sure that they do not foul the push rod. Construct the fin and fit to the fuselage with packing to allow about ⅛ in. offset. The fuselage top is covered with soft 1/16 in. sheet in two pieces and a commercial bubble cockpit will add the finishing touch.

The original flew on 70 feet. of ·012 in. control line with a 9 ins. × 6 ins. fairly wide bladed propeller. With a reasonable engine this model will do all that you can think of—if your thoughts are fast enough !



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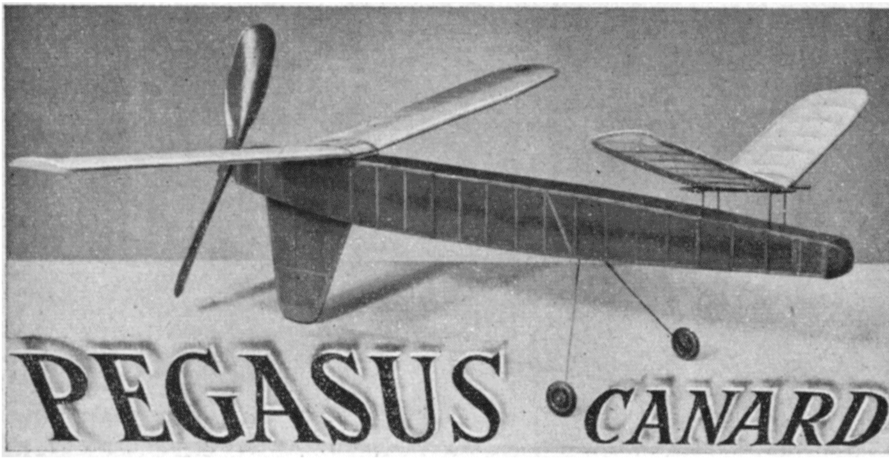


A 36" SPAN CANARD

by

G. H. HARRISON

Age 42 . . . . Secretary Hull Pegasus M.F.C. . . . . Motor mechanic . . . . Married with a family of five . . . . keen on club organisation and odd types of models . . . . Also a keen cyclist and gardener.

WHEN any model which is out of the usual fashion in model layout appears on the flying field, the chin-waggers and embryo critics will hasten to ridicule the experiment, but this model will really confound their views, for Pegasus is the seventh in a line of Canard, or tail-first, models, and has long since disproved the conservative theories of the unimaginative.

Designer George Harrison is no theorist, quite early in his short modelling career he spotted a Canard in action, thought he could do better and so built his first " in faith and hope." Incorporating the high elevator and lower fin, the first effort raised many an eyebrow among Hull clubsters, but flushed with success and frequent high-time flights exceeding the 1936 record of 1 min. 37 secs., Mr. Harrison developed the design until he finally settled on Pegasus. If you happen to have the urge for an " odd " type try this one—you will be surprised by the performance, by the good climb with good recovery from any stall, and the floating glide. Though no contest flier, the designer placed second at the Beverley Open Rubber Comp., beaten only by a Wakefield.

If the back-to-front special propeller looks difficult for you to carve, buy a standard commercial one of the same diameter and wind up the motor backwards.

Construction has been made simple as possible especially to encourage interest in the design.

The plain slab sides are assembled one above the other in the normal way over the plan. Cut the complete set of $\frac{1}{8}$ in. × $\frac{1}{8}$ in. cross braces while waiting for the sides to dry, and bend the elevator support struts from 18 s.w.g. piano wire, making absolutely sure that they are correct to the plan length. Lift the sides off the plan and separate with a razor blade, then join them with the cross braces, starting at the centre and working gradually to each end. If you wish to use a dowel for the nose rubber motor attachment, sheet the sides at this position with hard $\frac{1}{8}$ in. sheet, the grain arranged vertically. Otherwise fit the nose former made from thin plywood. The rear former is fitted likewise. Add the wing retaining dowels and their strengthening gussets, and bind the elevator wire struts against the respective uprights. Dowel rails can be bound to the wire struts and the binding smeared with cement.

The fin outline is assembled over the plan and while it is drying, cut formers F.1 and F.2 from 1/16 sheet and fit to the $\frac{1}{8}$ in. × $\frac{1}{4}$ in. top edge which should be notched and cemented to the fuselage bottom. Add the outline and finish this part of the assembly by adding the 1/16 in. × $\frac{1}{8}$ in. soft contour ribs. Bend the undercarriage from 16 s.w.g piano wire and bind to the fuselage braces. Add the strengthening gussets and smear the binding with cement for additional security.

The elevator has generous dihedral, a necessary feature of the design which should not be altered. Assemble the elevator by first placing 1/16 in. packing pieces under the spar and front edge of the trailing edge. Fit the ten 1/32 in. sheet ribs to the spar and trailing edge, then add the two outer 1/16 in. ribs and sheet tips before fitting the leading edge. When thoroughly dry, crack the leading edge, spar and trailing edge so that the tip on one side can be lifted through 30° or 5 ins. at the extreme tip. The three 1/16 in. braces, which should be hard but not brittle, can be added. On no account omit the foremost brace, since the elevator seating depends upon it for correct angle of incidence. Finish construction by adding the gussets and the centre rib.

Several airfoil sections have been tried in the development of this design, and the most successful so far is the Joukowski shown here on the elevator and a modified Clark Y with undercamber for the mainplane. The elevator must be kept entirely free from warps.

Begin the wing by packing the trailing edge with scrap 1/32 in. sheet and placing the spar over the plan. Add the 1/32 in. ribs and the outer 1/16 in. ribs before fitting the $\frac{1}{8}$ in. × $\frac{1}{8}$ in. leading edge. Cement the tip plates in place and then crack the leading edge, spar and trailing edge at the two places ready for the dihedral to be formed. Keep the centre section flat on the building board, and raise each tip 2 in. to obtain the 12° dihedral angle. Then add the two braces, needless to say of hard balsa, and finish with the addition of the remaining 1/16 in. ribs at the centre, and the gussets.

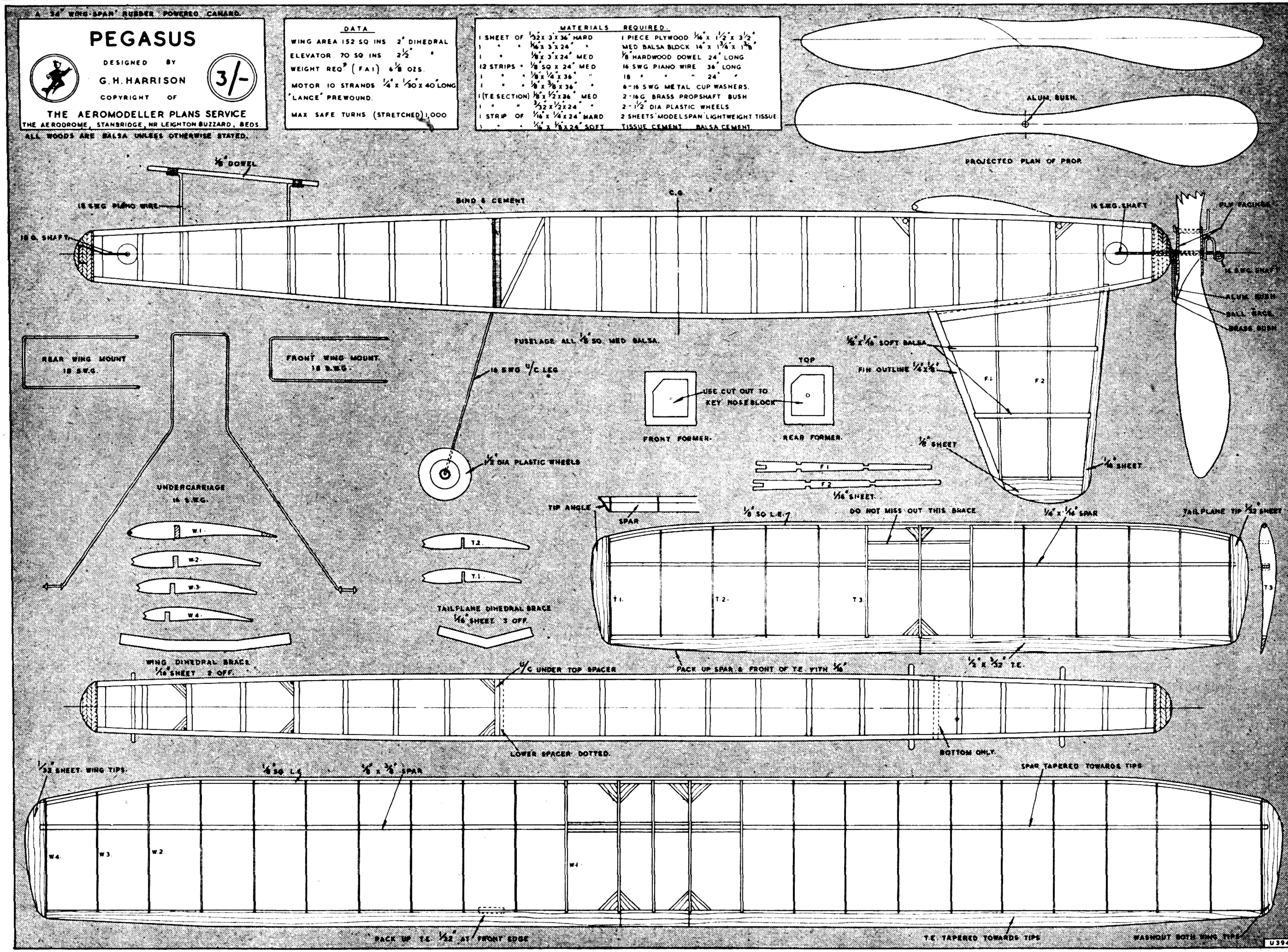
Nose and tail blocks can now be made up from laminations of $\frac{1}{8}$ in. sheet, noting that the centres of the nose and tail formers can be used for the shape and size of locating plugs. The 18 s.w.g. piano wire bobbin hook at the nose can be secured by bending over before adding the last lamination.

The 14 ins. pusher prop calls for extra thought and care, but providing one can remember that it is just the same as normal only it rotates in the opposite direction, carving should present no difficulties. Face at the centre with plywood and bend the hook from 16 s.w.g. piano wire.

Covering is quite straightforward, except that the wing must have 3/16 in. wash-out at the tips. This can easily be arranged by pinning the covered wing to a flat board before waterspraying and packing the trailing edge to the required height. Then, after water spraying, and leaving to dry, the wing should adopt the correct washout, which helps to keep lift equal along the length of the wing.

Flying. Trim for glide by moving the elevator backwards or forwards on its rails, or by packing the wing leading edge remembering that this model has a slow glide. Once satisfied with the glide tests, try with a few hand winds, and trim with side thrust, to obtain a slight left hand turn with power. Normal direction propellers will need packing on the port side of the tail block and pusher props on the starboard side. Up to 350 turns may be used with hand winding and 950–1,000 turns with proper stretch winding. Downthrust has never been found necessary on any of the designer's pusher models.

Best launching method yet found is to hold the fuselage with the right hand about the C.G. position and release the propeller tip with the left hand. It feels unusual at first, but is soon accomplished as naturally as the accustomed launch of tractor models.



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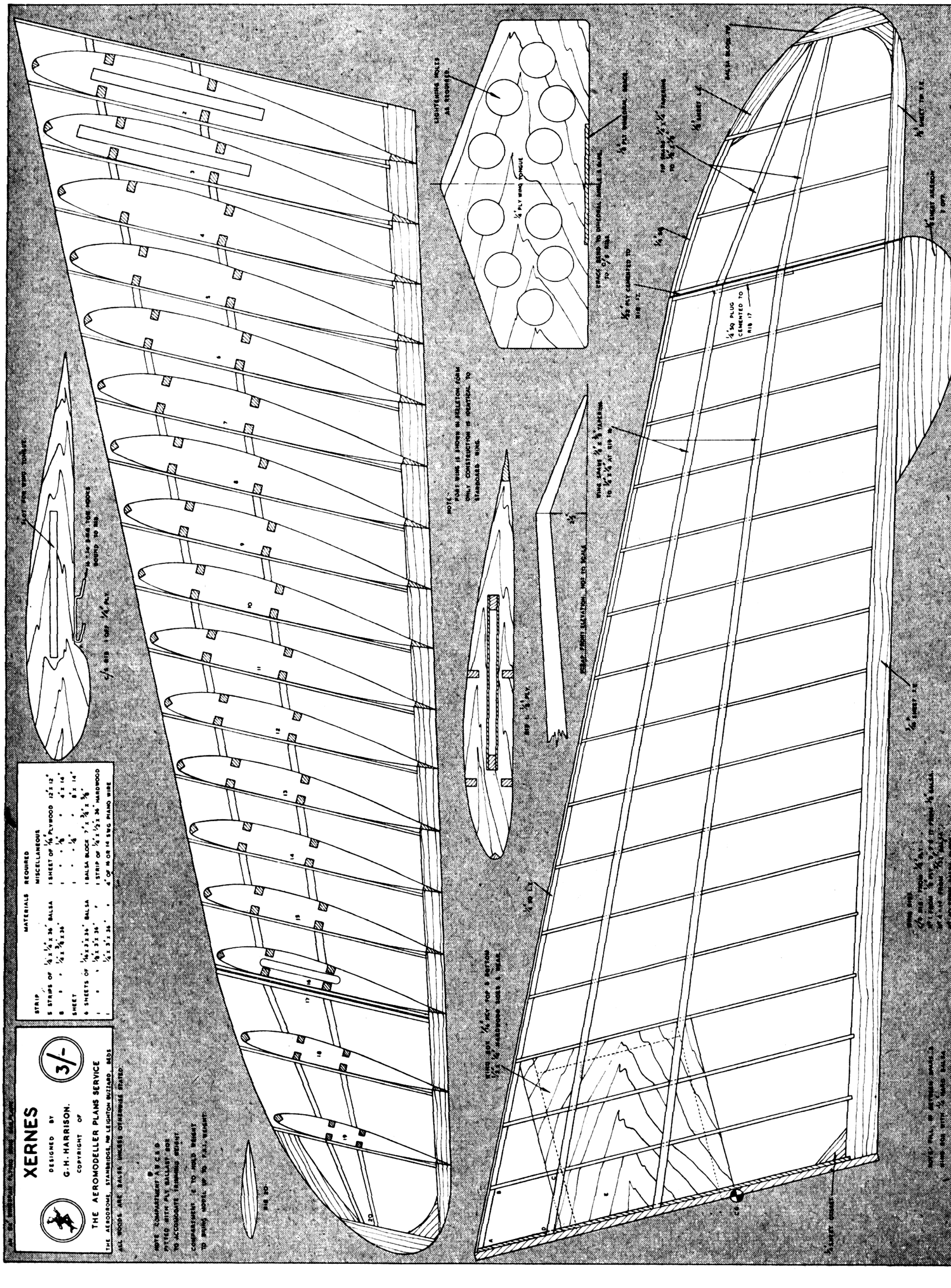

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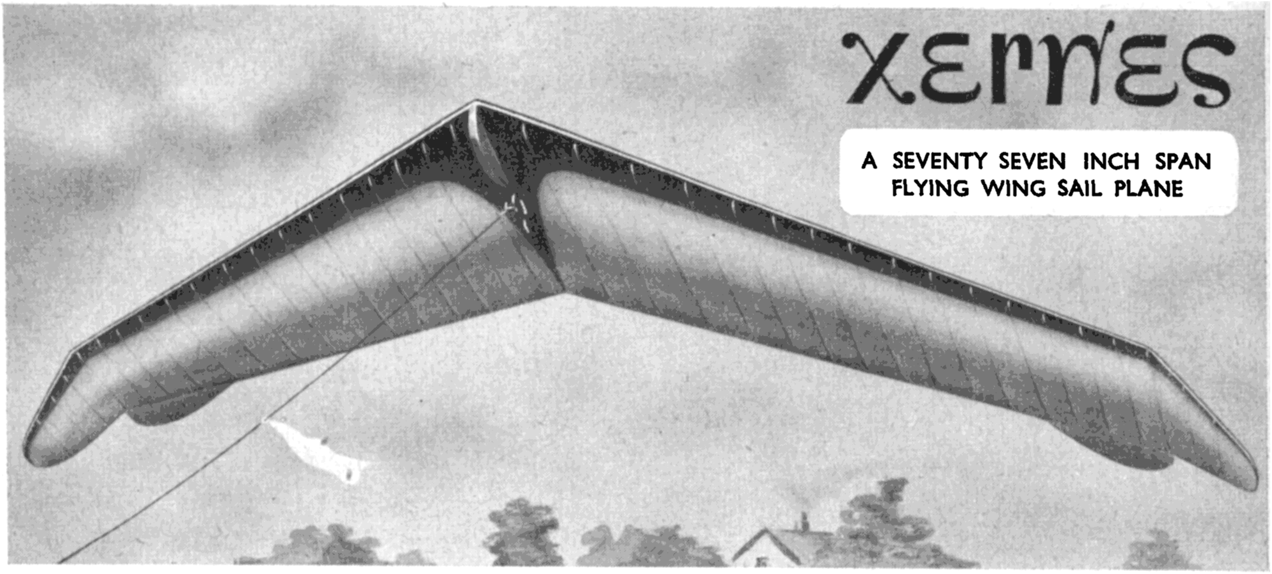


XERNES

A SEVENTY SEVEN INCH SPAN FLYING WING SAIL PLANE

BY L. C. HARRIS

The designer . . . began modelling in 1943 . . . joined Croydon Club in 1945 . . . 20 years old . . . Science student at present . . . has built all types except C/L speed . . . chief interest lies in Sailplanes.

ORIGINALLY designed and built four years ago, after some measure of success with a friend's tailless glider, Xernes is a conventional model with excellent flying characteristics.

No fancy wing section, or excessive wash-out towards the tips, knock-off tip panels to avoid damage and simple construction make this an ideal first tailless for any keen modeller.

Construction.

The airfoil used throughout the wing panels up to the detachable tip portion is Clark YH. Select hard balsa for the spars and cut the trailing edge from medium stock. Cut rib No. 1 from ⅛ in. ply and numbers 2, 3, 15 from ⅛ in. medium balsa. The remainder are cut from 3/32 in. medium sheet. Whilst it is preferable to cut these ribs individually to the accurate templates provided, it is possible to make them by the sheet-cum-block system though this will give each rib a bevelled edge due to the sharp taper of the wing.

The boxes are built from 1/16 ply, glued and slotted into the root ribs which are set for the dihedral angle. The wing panels are then built up in the conventional manner incorporating 3° negative incidence at rib 15. The space between the spars and the boxes is filled with hard ¼ in. sheet balsa.

It will be noted that rib No. 15 is slotted to incorporate a locating piece for the tips, which are detachable. On the original model the tips were built in one piece with the wing; but this arrangement proved unsatisfactory. Although amply strong for flying stresses the tips were vulnerable in hard landings when the model tended to cartwheel. Cover the centre section between ribs 1 and 2 with ⅛ in. sheet and face the trimming weight box with 1/16 in. ply.

With the exception of No. 15A, which is of ⅛ in. sheet, the wing tip ribs are cut from 3/32 medium balsa. A hard ¼ in. locating piece is cemented to 15A which must be adjusted to give the required anhedral angle. Fit the 20 s.w.g. piano wire hooks to the leading edges and trailing edges for rubber band attachment.

Centre Rib.

The centre section rib is cut from ¼ in. ply and incorporates a skid. Towhooks can be fashioned from a strip of 16 gauge dural and screwed to the centre rib. Cut the wing tongue from ¼ in. ply and crack and steam to give the required dihedral angle. This amounts to 2½ ins. at each side at the point rib 15. Then glue the wing tongue in the slot of the centre section rib, making lightening holes wherever considered necessary.

Covering.

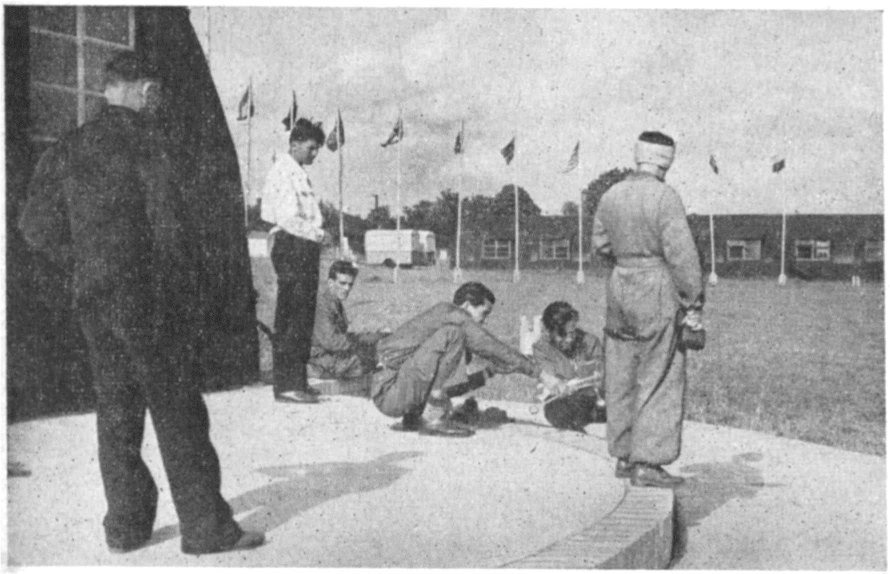
The prototype was covered with heaviest grade English tissue; but for a lasting job, the designer recommends silk

The designer with one of his more orthodox models.

or nylon. Four to six coats of glider dope can be used to give a good finish. Finally add the ailerons which are cut from ⅛ sheet and covered with tissue.

Trimming.

Check that the C.G. is in the region of 65–70% of the root chord. Then trim for the flattest glide by aileron adjustment and additional or less ballast. When you are satisfied with hand launch tests and one tow line flight, fix the ailerons by cementing firmly before making further towed flights.



FOURTH INTERNATIONAL WEEK

AEROMODELLER RALLY AT EATON BRAY

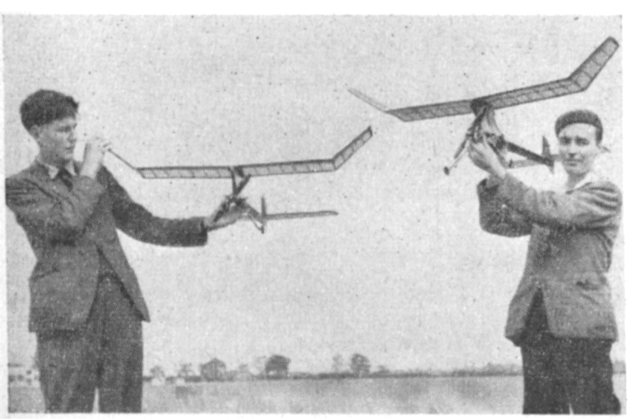
Left: Some of the Jugoslav visitors tuning up a speed model outside the main dormitory buildings, watched by Mlle. Odette Pin from Monaco. In the background the flags of the nations can be seen in front of the dining rooms and workshop buildings.

Left: Ron Yeabsley winds up his rubber model assisted by N. G. Marcus, an occasion when a single point assured his trophy success.

THIS year's International Week at Eaton Bray—fourth of the series inaugurated in 1946—took place under the sponsorship of the AEROMODELLER, which provided a prize list of £150 and made a substantial contribution towards the wellbeing of visitors. From the very beginning the meeting was approached entirely from the convenience of the actual contestants, the spectacle value of events and even the attraction of a large gallery being of secondary importance—what mattered most was a fair chance for every entrant, with adequate time for each flight, and a programme spread evenly over the period of their stay rather than concentrated about the week-end. It is not really surprising therefore that we can look back upon the meeting as one that moved without hitch and provided some of the finest flying yet seen on the aerodrome. At the same time both contestants and spectators voted it one of the most enjoyable in their experience.

By limiting numbers of visitors both from overseas and from this country to those who had already proved their skill in the contest field to the extent of placing within the first twenty in any national contest of the class they desired to enter, it was possible to keep numbers down and at the same time establish a standard of quality where any one of the fliers might with a little more luck have gained the leading places. Equally it was possible to feed and house both visiting foreigners and the main body of British entrants under the same roof, making for a greater degree of "get-together" so essential to this kind of meeting. In addition

Bottom left: Ipswich wizards! Left, Wyatt power winner and right, clubman Gorham who placed fourth. Below: P. G. Russell with his winning stunt model.



H. W. C. "Funf" Taylor makes high speed hand launch with his R/C model, during International Week.

J. G. Eifflaender with his Chilton scale stunt model—which took second place to Richmond's S.E.5.

Tony Noel who flew proxy so successfully for clubmate D. E. Jones of the Wayfarers.

to the British contingent who had come from all parts of the country there were representatives of France, Jugoslavia, Denmark, Monaco, New Zealand, and a Polish team composed of members now resident in this country and described as Independent Poland.

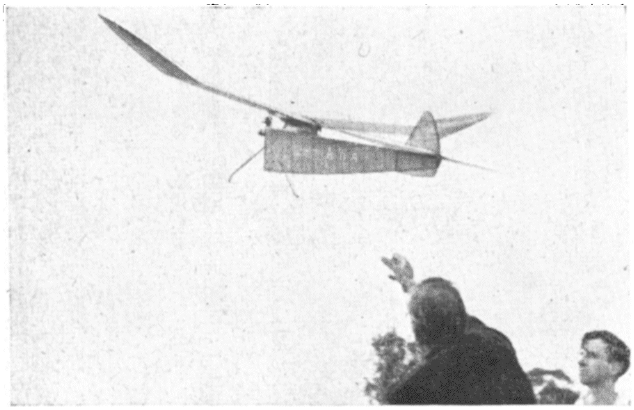
The new Eaton Bray camping accommodation came into full use for the first time on the occasion of this meeting, providing private rooms for team managers, with their own showers and toilets, whilst the main body of residents were housed in dormitories each holding twelve, with facilities for model building right on the spot. They too had showers, hot and cold water, and in fact all those amenities that have until now been beyond the powers of the organisers at Eaton Bray to supply. A separate dining room decorated with originals of some of Rupert Moore's AEROMODELLER cover paintings was provided for these guests, whilst the general public and day visitors fed in an adjoining hall. The workroom provided—well away from sleeping accommodation—strangely enough proved far less popular than more haphazard building operations actually in the dormitories!

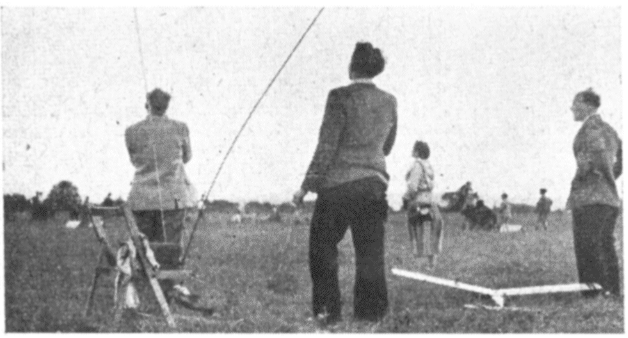
Contests were all run on the round-by-round basis that is the established continental practice and has also been tried for some time by the Midland Area we understand. By this system a fixed time is announced for the end of each round—entries must complete their flights within the time given without any excuse whatever being accepted. No second round flights take place until the time allotted for Round 1 has passed. Similarly, the final round takes place precisely within the time limits set. By this means no flier can hang back for thermals, whilst the day's flying weather is evenly distributed over the whole of the contestants. Whilst it may sometimes mean that a lost model in Round 1 means the flier is absent looking for it and misses Round 2—then he should have fitted a better dethermaliser!

First event on the list, after visitors had spent their first day settling in, was the F.A.I. Sailplane Contest. Thirty-four entries took part in appalling weather. In the first round only D. E. Jones of the Wayfarers, Watford, achieved anything like a flyaway with 263·4 secs., though twelve others managed flights of over a hundred seconds. Hinks of Luton scored a maximum in the second round, whilst fellow local Bateman of Dunstable was close behind. Again the general trend was to low scores with another dozen in the hundred plus class. Most of this round took place in intervals of drizzle between bursts of torrential rain and continuous high wind. Third round again produced one maximum by Bennett of Salford, but this time half the entry managed over one hundred seconds in improving conditions. Winner was D. E. Jones of Watford with a total of 538·7—a figure which would not have ranked higher than sixteenth on the occasion of the Nordic class event later in the meeting! Highest foreign visitor F. Neumann of Denmark, placed eighth with a total of 383·3. Tomic of Jugoslavia, flown proxy by compatriot Juresa, was eleventh with two flights only, totalling 364·5.

Dragan Hristic, who acted as interpreter for the Jugoslavs, holds his compatriots' model while the turns are piled on.

International interior—British, New Zealand, Danish and Monacan visitors at work in their bedroom-cum-workshop.



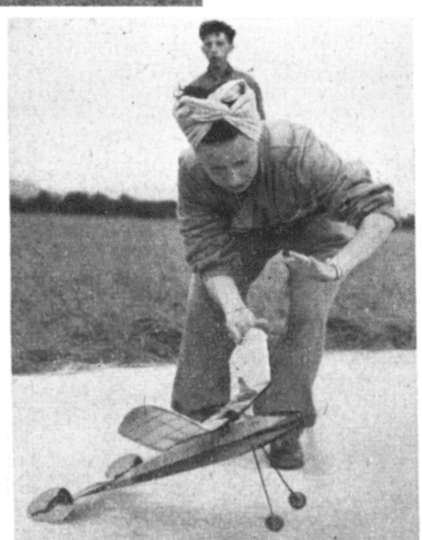


The Aerobatic Control Line event on the following day brought the promise of a battle royal between Eifflaender, who proved Champion of Europe earlier in the summer, and the runner-up, Serge Malfait, Champion of France. Malfait, however, had an off-day, managing no better than tenth place, whilst Eifflaender himself was narrowly beaten by the impeccable performance of P. G. Russell of Worksop. Glover of Portsmouth was third, whilst Alan Hewitt, brother of " Gold Trophy " Brian, came fourth. Quality of the first half dozen was excellent though by no means equal to their best, for high winds continued to do their usual wrecking. This wrecking spirit became even more in evidence with the start of the Scale Stunt Control Line, fought out by Messrs. Richmond, Eifflaender, Taylor and Butcher, who finished in that order. Models flown were S.E.5, Chilton, Boomerang and D.VII Fokker—the last-named enjoying a Viking funeral at the conclusion of its flight. Any one of these might have proved the winner under kinder weather conditions, all the high elevation manœuvres being particularly hazardous.

Saturday saw the Speed Control Line contests in their classes, which, with the exception of Class I, were all contested, though no award was actually made in Class VI, no times being recorded. In addition to class awards, a handicap decided ultimate winners on the same basis as that successfully adopted in the West Essex Gala. Again, handicap times in percentages proved close enough to prove the value of the formula. P. G. Russell completed a Stunt-Speed double by winning with his jet time of 125 m.p.h., at 83·32 per cent. ; Eifflaender came second with a Class II speed of 80·35 m.p.h., at 80·35 per cent. ; and well-known speedster F. E. Deudney third with Class IV speed of 102·27 m.p.h. at 78·6 per cent.

Main interest was centred about Sunday's Power/Ratio Duration contest. Conditions made handlaunch a wise decision of the Contest Committee and reduced the breakages to a pleasant minimum. P. Wyatt of Ipswich secured a commanding lead in Round 1 with a ratio of 18·06, followed by clubmate J. Gorham, who has been so widely successful this year. In the second round Gyorgi Zigic of Jugoslavia came to the front with 19·58, following a Round 1 figure of 9·6, flying his American-influenced high wing pylon job with automatic retracting monowheel u/c, voted the most outstanding model of the meeting. Others prominent at the middle stages included N. G. Marcus of Croydon, Allbon of Sunbury, Eastwell of St. Albans and Morisset of France. The Jugoslav model flew o.o.s. and was not recovered for some days so that

Top left: Alec Wilson launches—for once—a power model complete with tail. Centre: Managing Editor and other R.C. enthusiasts watch points by the transmitter. Left: Judges and Control Tower with spectators at the control line events. Below left: Neumann and Christiansen, Denmark, ready their rubber entry. Below centre: Odette Pin, Monaco R.O.G's. Below right: Jacques Morisset launches his New Look winner.

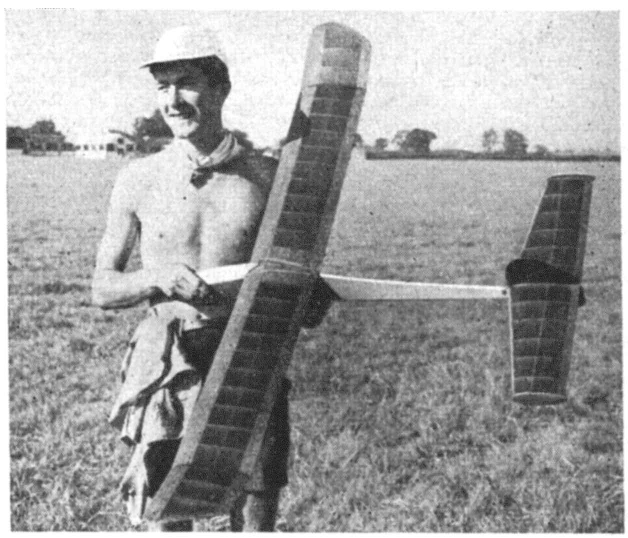


Zigic could do no better than fifth place. His compatriot Pracek made a last minute 13·71 to take sixth, but Wyatt, continuing with steady figures, was a winner at 11·083; Green of Men of Kent second with 10·806; Marcus third with 10·441; and Gorham fourth with 9·94.

Monday, 21st August, offered the one ideal day for flying of the whole meeting for the A/2 Nordic Sailplane event. Thirty-eight entries all put in times. Throughout the contest no less than twenty-one maximums were recorded, seven in Round 1, six in Round 2, and eight in Round 3. No-one achieved three maximums but Ron Yeabsley proved winner with a total of 821·8, and sprung into the lead for the Aeromodeller All-rounder Trophy, won by Morisset of France in 1948. Neumann of Denmark again proved best of overseas visitors with a total of 659·5 to secure fifth place.

Final day of the meeting was scheduled for the F.A.I. Rubber contest. The ultimate fate of the Trophy was still in doubt as any one of twenty possibles could take it by winning or high placing in this contest. For the first time Morisset found his real form and won easily with his famous " New Look ", totalling 602·75, local Wakefieldman Eric Smith coming second with 479, and that unlucky Wakefield Trials man P. J. Royle of Derby taking third place. A modest seventeenth place gained Ron Yeabsley one point to make his victory in the Trophy certain. A. G. Russell of Kentish Nomads was second, with nearest foreign threats from Morisset (fourth place) and Neumann, Denmark (fifth).

That evening the Aeromodeller acted as hosts to a bright prizegiving dinner at the Sportsdrome, when awards were presented by Mrs. D. A. Russell, supported by Managing Editor D. A. Russell and the Aeromodeller staff who had downed pens and typewriters during the meet to organise the events and generally act as hosts. In addition to the valuable prize list, souvenir plaques were awarded to all entrants who had scored one or more points towards the Aeromodeller Trophy, awarded on maximum points scored in all events. It is worth noting that no scorer gained points in more than three events—so that in the main prizes were distributed in the widest possible way. As the fourth meeting of its kind, the Aeromodeller Rally undoubtedly fills a place in the international calendar that remains unduplicated—being just that combination of model contest and " natter " that so exactly meets the mood of the holidaying aeromodeller no matter what his homeland. We look forward to many another opportunity to act as hosts.



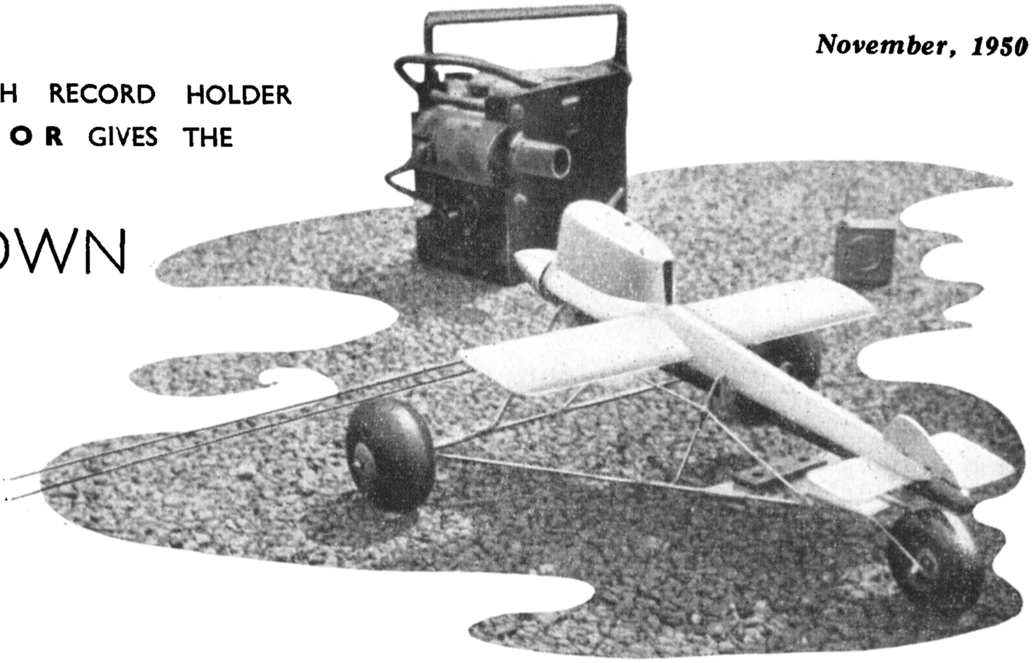
Top right: *Alan Hewitt with his team racer which performed quite creditably in its speed class!* ***Centre right:*** *Angus Macdonald who came all the way from New Zealand with his A/2 Sailplane entry conceived and built at Eaton Bray.*
Below left: *Eric Smith lets his Wakefield go for 2nd place.* ***Below centre:*** *Oh! la, la! Trouble at the launch in the Monacan camp.* ***Below right,*** *independent Polish semi-scale sailplane takes the air.*

CLASS VI BRITISH RECORD HOLDER

N. G. TAYLOR GIVES THE

LOWDOWN ON SPEED

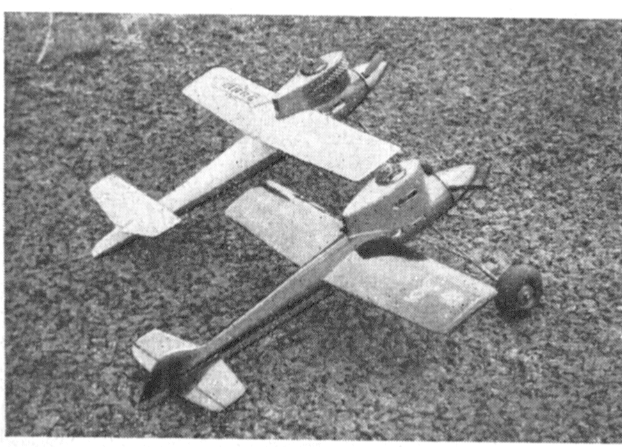
PART I



LOOKING back over past Speed Contests it seems to me that a great many competitors (including yours truly ! !) have experienced trouble of one kind or another which has prevented them turning in an official flight—in fact at some contests in 1949, any competitor who got off the deck and made a flight and a decent landing got a round of appreciative applause from the spectators.

I hate to see one model after another break a prop or " roll up the lines " and dash itself to pieces after unsuccessful attempts to take off. All this sort of thing wastes valuable contest time, gives the general public a bad impression of speed models, and above all, I feel that scores of would-be speed flyers have been discouraged after this happening. I know, because I have been through it all myself, but being somewhat " pig headed " I stuck to it and have now developed a class VI model which established the original British Record for its class. A further development of this model, " Lazy Bones III," shattered its own record at the S.E. Area Control Line Championships last Easter at a speed of 132·4 m.p.h., the fastest official time ever recorded in this country of an internal combustion engine C/L model.

As I see it, speed control line flying in this country would receive a terrific boost if every model at every meeting got into the air and turned in a contest flight. Strange as it may seem, actual speed is of secondary importance to the one dominating factor for good contest work—reliability. What is the use of a super " hot " fast model if you are not sure of getting it into the air ? Of course, if you get a fast model that IS reliable, then you have got something ! !



In this article an endeavour is made to pass on a few hints to speed flyers, both beginners and experts, on how to get your model into the air.

Take Off Gear. By far the most important accessory to a speed model ! ! I personally favour the two-wheel " drop-out " undercarriage, as used on all my " Lazy Bones " models. (See August AEROMODELLER.)

I will not launch a full scale attack against the three-wheel " dolly " because obviously this type of take-off gear has a great many supporters, and I am rather keen on living a few more years if possible ! But this much I will say—at the next contest take particular note of the successful take-offs and note the gear they use. You too will then go home and make for yourself a " drop-out " undercarriage.

Width of wheel track should be equal to or slightly less than wing span. Never use a " drop out " gear with the wheels tracked inwards—this is fatal. Make sure that the wheels are tracked OUTWARD approximately three degrees. Many of our speed flyers seem to fail to realize that for the last all-important yard or two of take-off run the whole weight of the model is on the INNER wheel : this uneven weight on the wheels, together with the drag of the lines, causes the undercarriage to " whip " inwards. Remember to allow for this strain on the inner wheels, which really amounts to a backwards push, so track your wheels with the inner wheel pushed back as far as it will go—this, I find, is the only way to get correct tracking for take-off conditions. Do not have high pressure in your airwheels. Atmospheric pressure is sufficient ; the soft wheels eliminate excessive " bouncing " on the take-off run.

Operational Requirements. Light yet strong construction, reduces weight and drag to a minimum.

Access to glow plug for a quick change without removing any part of cowling.

Fuel filler and vent pipes must lead to outside of fuselage for re-fuelling without removing any part of model.

Extra strong control plate and pivot fixing to withstand competition pull-test.

Test Flying. If possible the test flights should be carried out a week or so before the contest. This will allow the average modeller time to carry out any modifications which may be found necessary. Get to really know your model, but remember that speed model airframes and motors deteriorate

Heading Photo shows Pete Kelsey's McCoy 49 model ready for starting, the priming Valvespout and mechanical starter nearby. Featuring a weighted dolly and one-bladed prop, it won both the decentralised and centralised S.M.A.E. speed contests this year at low speeds of 97 and 88 m.p.h. in class V. Left are Cyril Shaw's 1950 class V and VI designs featuring the two wheel drop out u/c with narrow track.

rapidly, so make every test flight *count*. Do not fly your model more than is absolutely necessary to test for trim or the effect of a change in fuel or props.

To prevent damage to the model which you have taken so long to build, the surface over which the test flights are to be made is of the utmost importance. If possible, choose a flat grass surface, and remember to keep a written record of the details of each flight, *i.e.*, speed, needle valve setting (rich or lean), prop used and weather conditions. This log of your test flights (and also of contest flights) will prove invaluable for future reference.

Contest Flying. First and foremost, keep to the rules as laid down by the organizers, and if these rules state " one helper only " then let there be one helper only and not about half of your club helping you in the flight circle, as is only too often the case in many of our contests.

The helper is an important person. He is really just as important as the pilot, so choose a friend for the job who is really keen and who knows something about the business of speed flying.

Upon arrival at the field, get your entry in, lines checked and model " processed " as soon as possible. This helps the officials who prefer a steady flow of models to check and not one mad rush at the last possible moment. Make sure that your lines are in perfect condition and are the thinnest possible within the rules of the contest. Check your tool kit, which should be as light and as neat as possible, to make certain that you have everything you may need. Take your complete tool kit with you to the flight circle, then you will not have to rush off back to the " pits " for that spanner or fuel can that you find you suddenly need ! !

Have a plug spanner and a spare prop, spinner and glow plug (out of box and with washer in position) at the " ready " in your tool box for *immediate* use. You will find that this precaution will save precious seconds should you have the misfortune to break a prop or burn out a glow plug while getting the motor started. (Plugs have a habit of burning out at most inconvenient moments !)

Do not let a large audience " fluster you." Before the contest go over every detail of what you will do in the flight circle, and when you get there—do it ! ! Here is the general " drill " for a contest flight :

Place model in correct position for take-off—this should be with the tail pointing directly into wind. A correctly designed model should be capable of taking off in approximately a quarter of a lap, thus the wind will be blowing on the side of the model, keeping the lines tight during most of the take-off run, and the model should be just airborne at about two feet altitude, under perfect control when coming into wind.

Snap on lines, and reel out to centre of circle, connect to handle and test controls with the aid of your helper, who will hold the model in flying position on ground. To prevent confusion over which line is which, it is a good idea to dope all connecting hooks on the model, lines and handle, GREEN for UP and RED for DOWN. This is easy to remember and ensures getting the lines the same every time you connect up.

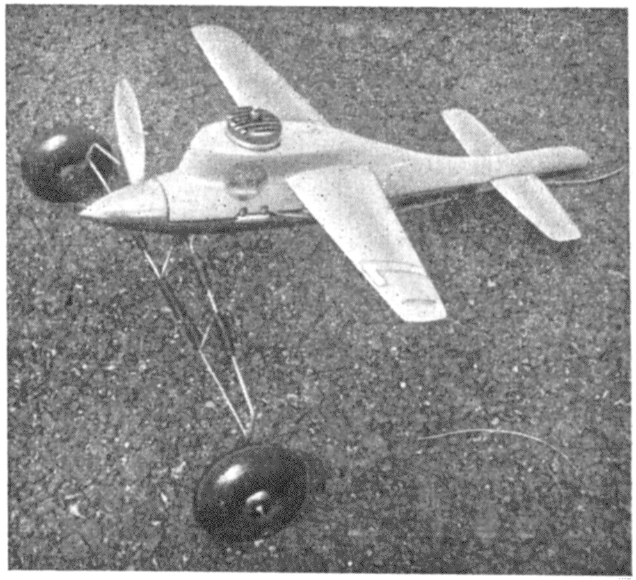
Adjust the height of the anti-whip pylon to suit your arm, and if you are flying a model in Class V or over I strongly advise a bandage round the right wrist. Some pylons have no protective rubber covering and leave one's hand almost dropping off after a flight ! !

In most contests the five minutes allowed for starting commences from the time the model is in position with lines out and controls tested. At this stage announce to judges or timekeepers that you are ready to start—you now have five minutes to get airborne. If you have confidence in your motor you should have adequate time to fuel-up and take off well within the limited time. Leave filling the tank until the last moment, especially in hot weather. On the other hand, if your motor is a little " temperamental," come to the flight circle fuelled-up ; this will give you a few extra seconds. If a mechanical starter is used there should be an understanding between pilot and helper as to procedure, and a starting drill rigidly adhered to.

When you have got your motor running and adjusted correctly, get out to the centre of circle as quickly as possible, but please, oh please, don't rush up the lines so fast that you have to " skid " to a standstill after over-running the handle and have to come back and search for it ! ! This gives the spectators a bad impression, and loses you seconds with your motor running on the ground and maybe overheating. Every movement in the flight circle when starting and getting out to the handle should reflect controlled speed and complete lack of " panic " on the part of the pilot and helper.

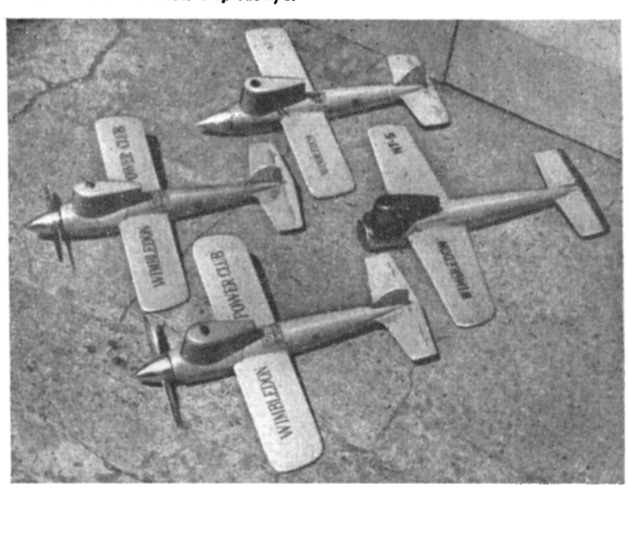
For a contest take-off, pick up control handle in right hand and hold anti-whip pylon yoke in left hand. At no time during take-off or flight should you actually look at the pylon —taking your eyes off a fast moving model for even a fraction of a second may prove fatal. Hold onto swivelling yoke of pylon all the time with left hand during take-off, turning it round as you fly, then when ready, bring your right hand up and into the yoke. I find that with the bigger class models the pylon is a definite aid to flying, because you will find that it is possible to " sight " the model through the yoke, but with the smaller classes with shorter lines and therefore faster rotating speeds, it is somewhat more difficult, and good footwork is necessary.

(Continued next month.)

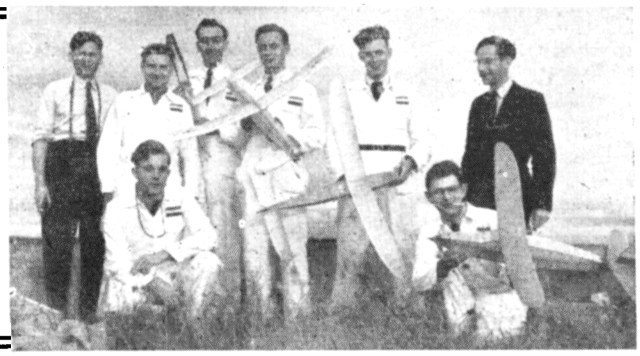


Above is S. C. H. Davis's class VI Hell-razor with one-bladed propeller and an extra wide drop out u/c. Without rigid plug-in tubes, such a wide track is inadvisable for ground stability. The long skid protrudes aft of the fuselage and locks the u/c in place until the job is airborne.

Below are the author's 'Lazybones', still in one piece after many a contest flight. Development of the series can be seen in the four different shapes. All these models use the two-wheel drop out u/c.



F.A.I. RUBBER INTERNATIONAL CONTEST HELD AT CORMEILLES en VEXIN, SEPT. 10th, 1950



The winning Dutch team. The three holding models are from left to right, De Jong, Dykstra and Seton. On the extreme left are our old friends van de Caay and de Kat.

SIX nations competed in this new International Team event for the Challenge Cup presented by the French National Aero Club. Restricted to FAI rubber models and to teams of from three to six members, Great Britain narrowly lost first place to Holland after losing a model—and a team member !—in the first round.

Great Britain was represented by the three leading Wakefield team members—E. W. Evans, H. R. Stevens and R. H. Warring—flying the same models as used in Finland. The contest was decided on the overall average of the team member's flights, with a minimum of nine completed flights. Britain, missing one flight in the second round, completed only eight flights and thus had their total divided by nine under the rules, whereas their actual average time was 187·07 seconds—or just three quarters of a second behind the Dutch (winning) average ! Had that missing flight been taken, a time of 194 seconds or better would have put the British team in top place.

Just how Warring came to miss his second flight was a matter of incomplete knowledge of the rules—and the fact that Warring himself was away so long trying to find his model after his first flight that he did not get back until the second round flights had been completed ! It was not until then that it was made clear that a substitute model could be used and the team just had time to scramble through their last round flights !

The aerodrome at Cormeilles en Vexin, situated some fourteen miles out of Paris, was just about ideal for model flying, with plenty of open country around. The weather, however, was not too kind. In the morning rain showers were frequent, whilst heavy cloud persisted for most of the day and wind drift was considerable. The flying started at 11.45 a.m. with the threat of rain to come and a wind strength of some 20 m.p.h.

Of the first flights, those of the Dutch team members were particularly good and it became evident that a high average time would be necessary to win the event. The Dutch team, in fact, were obviously our most serious rivals. The majority appeared to be flying Wakefields of the Korda type, or similar designs possibly under Wakefield weight. The Swiss had a young team, selected from those who did well in Finland. The Italian team was quite different from their Finnish Wakefield team and flew most unorthodox FAI rubber models of considerable size and with very long fuselages. One with a fuselage length of some 5 feet had a return gear system with a motor run in excess of two minutes. It did not attain any altitude under power, however. The French team consisted of a mixture of Wakefield and FAI rubber designs, the latter being particularly conspicuous with their slim fuselages. Their leading man (Morisset, who won the FAI rubber event at the AEROMODELLER International Week at Eaton Bray) flew a Wakefield.

Both Warring and Evans made excellent first flights for Britain. Warring's model reached a considerable height by the time the dethermaliser cut in and it was obvious that it had travelled a considerable distance downwind. Evans' model landed within bounds, whilst Stevens' model was slightly out of trim and plagued with rubber bunching.

After a two-hour break for lunch, and the start of the second round, Warring was still out searching for his model. In actual fact by this time he himself was lost about six miles downwind ! However, the French organisation was more than capable of taking care of this. One of the aero club pilots took Stevens aloft in a light plane to make a hedge-hopping aerial search for Warring—and his model—and spent nearly half an hour criss-crossing the fields and woods downwind of the aerodrome. Meanwhile Warring had returned—without his model.

By the time things had sorted themselves out and the position of the British team with a lost model determined, the second round had closed. Thus whilst a substitute model was allowed, a second round flight was forfeit. Just a piece of bad luck which, nevertheless, does not detract from the merit of the Dutch win. On individual scores they placed first and second, with Evans third. Warring's two flights were good enough to place him fifth. Stevens, who did not get his model in proper trim until the last flight, placed eighth. Thus all three members of the British team placed well up on the final lists.

Three splendid flights by Ted Evans only served to confirm that in the " Vansteed " he has one of the best Wakefield models in the world today. His two last flight times might have been longer, as both were terminated by dethermaliser near the limit of visibility. Even more pleasing, perhaps, is the undoubted esteem with which British Wakefield models and British fliers are held by the Continental countries.

TEAM RESULTS

1.	Holland	average flight	187·82 secs. (18 flights).
2.	Great Britain ...	,, ,,	166·28 (eight flights only, divided by nine).
3.	Belgium	,, ,,	102·08
4.	France	,, ,,	87·8
5.	Switzerland ...	,, ,,	51·2
6.	Italy...	,, ,,	29·22

INDIVIDUAL PLACINGS

1.	Dykstra	... Holland	aggregate	713 secs.
2.	De Jong	... Holland	,,	650·6 ,,
3.	Evans ...	... Great Britain ...	,,	628·6 ,,
4.	Lippens	... Belgium	,,	520·0 ,,
5.	Warring	... Great Britain ...	,,	453·4* ,,
6.	Morisset	... France	,,	445·4 ,,
7.	Gerland	... France	,,	430·4 ,,
8.	Stevens	... Great Britain ...	,,	414·6 ,,

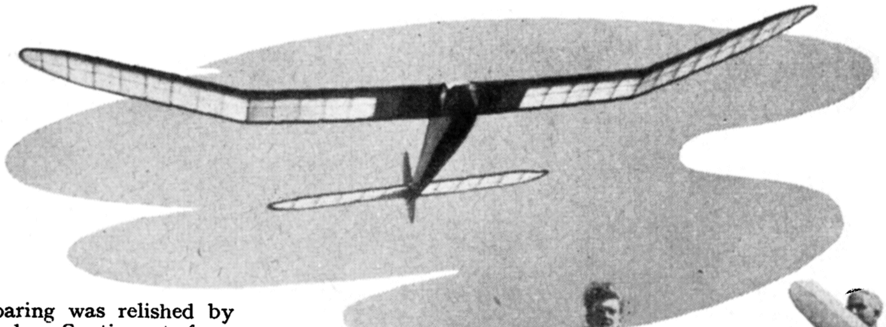
* 2 Flights.

BRITISH TEAM SCORES

Name	1st Flight	2nd Flight	3rd Flight
H. R. Stevens	124·0	120·0	170·
R. H. Warring	244·4*	—	209·0
E. W. Evans	203·2	211·4	214·0

* Model lost.

Around the RALLIES



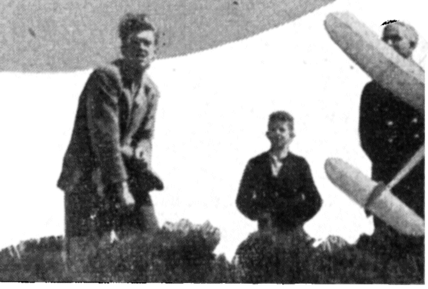
REPORTS AND PHOTOGRAPHS FROM SOME OF THE MANY RALLIES WE HAVE ATTENDED OF LATE.

The 8th Clwyd Hills Meet

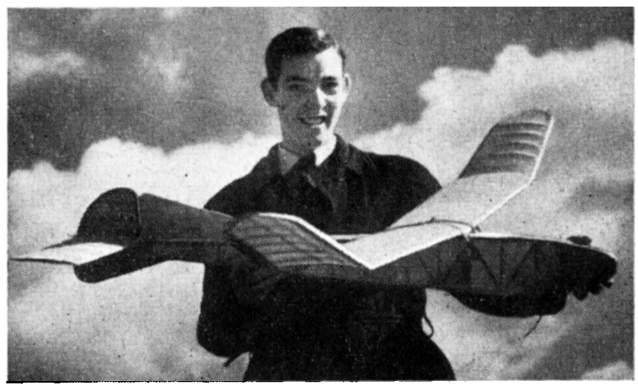
A VERY enjoyable day's slope-soaring was relished by some forty entrants and their friends. Contingents from Southport, Chester, Crosby, Mersey, Wallasey and Liverpool clubs were present—not to mention a very hard-working timekeeper (Mr. A. G. Taig) who turned out to be from the Bristol & West club !

A record or two usually goes west at Clwyd, and this year the deed of the day was performed by John Done, of Liverpool. He flew a " Nordic " job of his own design and raised the H.L. Nordic record (subject, of course, to official confirmation) to 205·0 secs. The model, which weighs 15 ozs., uses one of the *Benedek* sections and is 64 ins. span, with polyhedral and tapered tips. The fin area is 1/7 of the *wing* area and was extremely effective in keeping the model into wind. By far the best Junior performance of the day was that of young G. Fynn, who was also flying a Nordic model. The Chester heavyweight-fiends were out in force again, Frank Wilde flying another tailless but unable to even approach his own record set up last year.

Everyone was very pleased with the day's outing—despite the hard-going up what seemed to be near-vertical heather-covered mountains, and the number of people who are planning new dorsal-finned models is indeed legion !

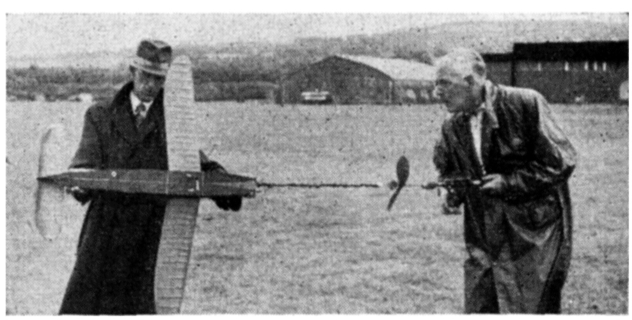


Above: Geof. Philips of the Liverpool M.A.S. gets his Thermalist away to a good start in the Clwyd Hills event, whilst below, the winner, John Done of the same club, looks well pleased with himself. Note his auxiliary fin. (Photos D. R. Hughes.)



South Midland Area Rally

HELD at Halton Aerodrome, Bucks., by kind permission of the R.A.F. and in conjunction with the R.A.F.A., Aylesbury Branch, the Rally was blessed with good competitors' support and dreadful weather conditions. In addition to the M.E. Cup, Astral Trophy and Farrow Shield events, there were Stunt Control Line and Team Racing contests. The Battle of Britain Cup (Top individual score in the Farrow) was won by Dan Bateman of Luton. Apsley Club seem to have gone in for gliders in a big way, (accent on the big), and put up some excellent times in the M.E. Visitors predominated in all the power events, and the Area enjoyed its first sight of team racing with Bushey Park and West Essex battling it out in the final. One pleasing aspect was the participation of R.A.F. clubs, who made a good showing in some of the events.



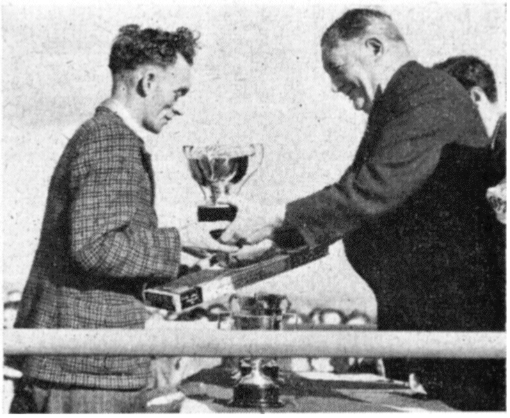
Daily Despatch Rally

I ALWAYS enjoy a visit " oop t'North ", and to be able to combine this with a visit to my old flying ground at Woodford Aerodrome doubly increases the pleasure. It was therefore no hardship for me to rise early on the morning of August 13th and motor up to Cheshire for the occasion of the 1950 Model Aircraft Rally, sponsored by the Manchester " Daily Dispatch " and organised by the N. Western Area.

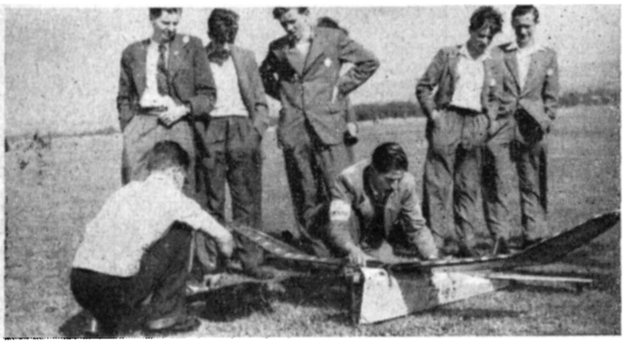
Organisation was first class, and in my opinion the forerunner of things to come in contest procedure. Adequate preparation coupled with a firmness of control produced smooth-running events, and I was very pleased to witness the firm action taken by the committee in temporarily suspending all flying at one period until such time as the competitors and spectators obeyed instructions.

A wide programme of events produced all types and sizes of models and some very good flying was witnessed. I was particularly interested in the scale model event in which some fifteen near-scale models competed for the " E. J. Riding

Centre: Courtney of Oxford holds for Alec Houlberg who managed to make one of his rare appearances as a flyer at the S.M. Area Rally. Right, Sullivan of Luton guides his pylon job down a narrow take-off board.
Photos K. Wingrove.



Above: right, J. Bridgewood receiving the "Eddie Riding" Memorial Trophy from Sir Roy Dobson, Managing Director of A. V. Roe Ltd.; left, Bridgewood with his Dornier D.O.24 and F. D. Ward and his Sopwith Cub display their models for the benefit of young enthusiasts at the "Daily Dispatch" Rally. Below: popular Ethel Dillon of Liverpool beams as she carries away the "Ladies' Cup," only to be told a few minutes later that a mistake had been made, and that another competitor had beaten her to it for yet another year. Bill Archer of Cheadle and his "Cosmic Rave" attract a deal of attention. Bottom left: general line up during the Radio Control Event with Sid Allen in the centre foreground. Bottom right: D. James of the Flying Saddlers shows the dire results of a backfiring Jetex. As a D.T. it should be effective!



Memorial Trophy," recently donated by the AEROMODELLER to the North West Area, the Manchester district being where Eddie Riding commenced his aeromodelling career. Some very good examples of workmanship were to be seen, and the winner, J. Bridgewood of Woodlands (Doncaster) put up a very fine show with his near-scale Dornier D.O.24, the model r.o.g'ing from a dolly to make a remarkably fine, stable flight which placed him well ahead of the remaining competitors. The main troubles experienced in this contest were connected with engine starting, and it would appear that in future, competitors would be well advised to give their engines as much attention as the concours finish on the models!

The terrific entry (I understand over 700), plus a large and well-behaved crowd of nearly 5,000, were well spread along the contest area, with all events running simultaneously from different starting points. The radio control models under the able direction of Max Coote naturally attracted a great deal of attention, and it was a pity that the bright weather was spoiled by an uncomfortably high wind which prevented the standard of flying which we have come to expect from the more experienced radio flyers.

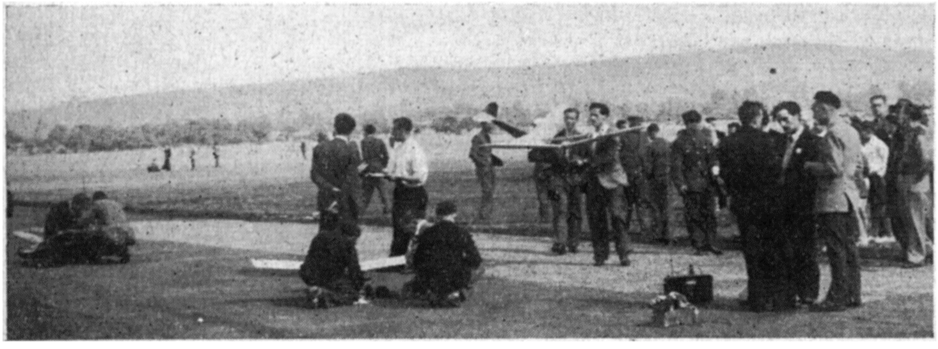
Full marks must go to Barry Haisman and his committee for steering an enormous entry through a multiplicity of events, and actually finishing some minutes ahead of schedule. My only black mark is recorded against the supreme clot who started up a Dooling powered control-liner just out of kicking distance from the microphone!

All in all a very fine meeting which gave both competitors and spectators a thoroughly enjoyable day out.

Northern Area Rally

SEPTEMBER 10th, the occasion of the Northern Area Rally at Baildon Moor, near Bradford, was fine but fairly windy, but this did not prevent a goodly entry from putting in some very fine flying, particularly in the Hand-launched Glider contest, which has become an institution at this event.

The locals, however, were bemoaning the fact that only the day before they were enjoying a perfect model fliers' day, with a hot sun and practically no wind at all. However, the fact that it was comfortably warm (and did not rain) made this



At the Northern Rally: Above: Henry Tubbs (Leeds M.F.C.) scored a five minute maximum on his first flight with this modified E.D. powered Banshee. Centre: Ted Muxlow (Sheffield) with an outsize in 'timers', awarded him as winner of the H.L. Rubber event at Baildon Moor. Right: J. G. Joyce (Leeds M.F.C.) concentrates on his A/2 entry in the Hand Launched Glider event at Baildon. The model established a new record of 3 min. 40 secs. (subject to confirmation). At the Southern Counties Rally: bottom left: Doc Richardson-Jones, at right, checked team racer tanks. Finalists, the Taylor Bros. (West Essex) aided by Laurie Glover, extreme left, appear concerned; but were well within the 30 c.c. limit. Centre: Jim Plank of West Middlesex M.F.C. won the rubber event, though not with this model. Right: winners of the ten mile team race were Betty Cheek, Ron Moulton (West Essex) and Henry J., whose famous 'diesel' flick' was much in evidence. Model is a Mercury Mk. I with E.D. IV diesel.

year's trip to Yorkshire quite a pleasant change from previous visits, and I can record the 1950 affair as the only time I have been to Baildon without getting wet!

Under the directorship of Ron Calvert, three events were held during the day, including the above-mentioned Glider contest, rubber and power, both the latter being hand-launched in view of the nature of the field. With the launching points along the top of a high ridge, turbulence over the top handicapped some of the fliers, but the conditions apparently well-suited the glider boys, for the H.L. A/2 Glider record was well beaten during the course of the meeting by J. G. Joyce of the Leeds M.F.C., whose nicely trimmed model clocked 3 min. 40 seconds. (Another flight of over six minutes was witnessed during the day, but unfortunately the required two timekeepers were not in operation!)

Henry Tubbs of Leeds recorded a maximum when winning the Power event, but this figure was achieved by no less than four of the rubber-powered entries, though surprisingly enough, the winner did not reach the five-minute mark once! Ted Muxlow can always be relied upon to produce good, consistent flying, and his three flights were models of stability. Many other good flights were witnessed, far too many being cut short on the watches owing to the downwind ridge preventing sighting the models to the end.

It was at Baildon in 1934 that I won the first glider event held in the North—time 36 seconds! A week later I won the National model glider event with a time of 67 seconds, so it is very evident that model gliding at least has made enormous strides within the last decade. Altogether, a very enjoyable day out, and the Northern Area are to be congratulated on a pleasant meeting.

C. S. R.

Southern Area Rally

EXPOSED directly to a 38-knot gale force wind from across the English Channel, free flight events at Thorney Island were completely blown out. Thanks to two semi-derelict hangars of mammoth proportions, the team race ran according to schedule, as did the C/L Stunt, which was held in the doubtful lee of the huge buildings. During the whole day the windsock retained its rigid 90° posture, and any success with a power model or rubber job in the dangerous take-off stage, resulted in a dash for the boundary which unfortunately was very wet and deep enough to verify the description of Island to Thorney.

Despite the impossible conditions, the attendance at this Rally amplified its importance to Southern England. Group Captain D. J. Eayrs, C.B.E., D.F.C., the commanding officer of the R.A.F. station, announced his amazement at the enthusiasm of aeromodellers when he presented the prizes, and promised the use of the vast aerodrome for future occasions.

The steady development of team racing technique was well shown in the faster than ever results of 10 miles covered at an average speed of 54 m.p.h. including two pit stops.

(Results on page 735)

TOMBOY

DESIGNED ESPECIALLY FOR THE BEGINNER THIS 36" POWER MODEL BY VIC SMEED, IS DESCRIBED BY THE REV. F. CALLON. CAN BE BUILT IN TWO SIZES EITHER AS A FLOAT-PLANE OR LANDPLANE.

A—PLUG-IN MAIN FLOATS
B—UNDERCARRIAGE BOX
C—DETACHABLE TAIL FLOAT
D—HOLE FOR CHOKING ENGINE

JUST before starting on the building instructions I want to say how lucky I think any beginner is to have a model like the TOMBOY to start on. It is so easy to build—and presumably you have had at least *some* previous experience of modelling by now—that the instructions will not need to be quite so lengthy as usual, particularly in those parts which are identical in method with glider or rubber models.

A glance at the plan of the TOMBOY is sufficient to show that Mr. Smeed is a man of ideas—one of which is to use up all the available space on the paper! As you will see, he has catered for a variety of engines, both as regards make and capacity, calling for different grades of wood and different sizes in wing and tailplane. There is even the alternative of making the model a floatplane, with interchangeable land or water undercarriage! For the sake of those who are building this as their very first power model, I think that the best plan will be to standardise on the following layout: E.D. Bee engine; 36 ins. wingspan; land undercarriage—the wheels to be detachable or not according to choice. (If they are detachable, they can later be replaced at will by floats without effecting the rest of the model.) Right? Then here we go!

Perhaps the slowest part of building a model is the cutting out and sanding of all the ribs and the fuselage formers. Personally, I always like to get this over with right at the start, so I suggest that we do it now.

First of all the ribs. The method applies to both wing and tailplane ribs. Lay a piece of semi-transparent paper—grease-proof will do—over the rib outline as marked on the plan, and trace it onto the paper, including the place where the spar cuts through the rib. Now use carbon paper to trace this outline onto a piece of thin plywood—1 mm. if you have any, otherwise $\frac{1}{16}$ in. The outer grain of the ply should run from end to end of the rib shape. Cut out the ply rib, and sand accurately to shape, checking by laying it onto the plan rib as you proceed. Use this rib as a template, round which to draw all the ribs needed onto $\frac{1}{16}$ in. medium sheet balsa; 20 for the wing rib, 9 for the tailplane. Cut these out roughly *without* cutting out the spar slot, and sandwich them side to side against the accurately finished ply rib. Push two straight pins from each side right through the "sandwich" to hold them firmly, and sand until they are identical with each other and with the ply rib. Then use a small hacksaw to cut right through all the ribs together at the spar slot; one cut down each side of the slot as already cut in the ply rib is sufficient; the loose pieces can then be scraped out.

Formers. These are traced out first onto greaseproof or similar paper over the plan, and then transferred by means of carbon paper onto the $\frac{1}{16}$ sheet balsa—or plywood in the case of Former 1 and 1A. With balsa, the grain should be running along the *length* of the former, *i.e.*, from end to end, rather than from side to side.

The outlines of the ply formers 1 and 1A are best cut with a small hacksaw; the curve on the top of F1 can be finished off with a rough grade of sandpaper wrapped tightly round a hardwood block. The two rectangular holes for the engine bearers are quite easily cut by drilling a series of $\frac{1}{16}$ in. holes as close together as possible just *inside* the lines traced on the wood. Then remove the inside piece with a razor blade, and use a small file—a nail file will do—to clean up the edges of the apertures. Keep trying the end of the engine bearer into the aperture as you go along with the filing, and stop when it will *just* push inside—a really tight fit. The same method of drilling holes can be used for opening out the circular choke hole in F1.

We are now all ready to start the construction proper.

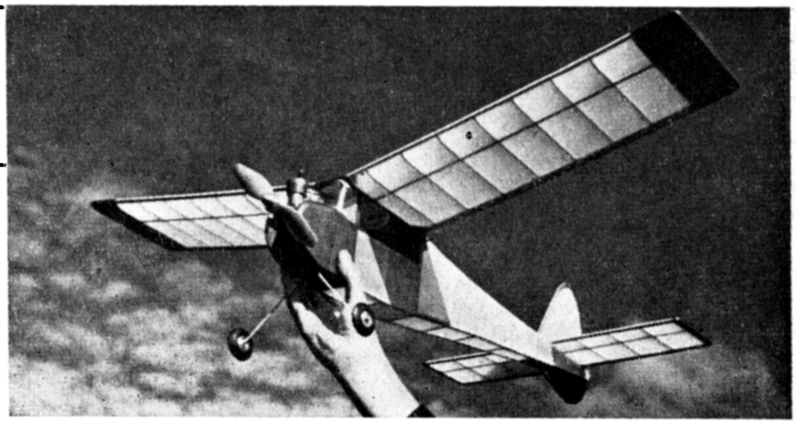
The Fuselage. Cover the plan with grease-proof paper, and pick out five lengths of *medium* $\frac{3}{16}$ in. square strip. The four softest of these should be used for the longerons.

Pin down the first two longerons over the plan, using straight pins on alternate sides, *not through*, the strip. Crack the top one at the point indicated, but if possible do not actually sever it. Add all the spacers, etc., and the $\frac{3}{16}$ in. gusset against the shoulder where the top longeron was cracked.

Work down the next pair of longerons between the upright pins and push down onto the previous pair. Complete the side in exactly the same way as the first one, not forgetting the shoulder gusset. The longerons can be trimmed off accurately at the tail, but should be left overlapping a little at the nose end of the model. Fig. 1 shows the construction at this stage, with the ribs, formers, etc., all laid out ready.

Give the cement a few minutes to dry, then remove from the

TOMBOY is one of the most amazing models we have handled at the Aeromodeller offices. The float version took off without difficulty in approximately half of the width of the Grand Union Canal, and we succeeded in losing it, complete with floats, from a 20 second engine run. It is simple to build, easy to fly and as intended, an ideal beginner's model.



plan, sand edges, and slice the two sides apart. Cement formers 3 and 4 in position to *one* of the two sides, making sure that they are at right angles to it; see Fig. 2. When dry, push the second side into place against the formers and cement it there—see Fig. 3. Now cement the two sides together at the tail, and add all the top and bottom spacers.

Former No. 1 and Undercarriage. You must here make up your mind whether the undercarriage is to be detachable or permanent. If at a later date you think you may want to change over to a floatplane, then you will have to make the wheels detachable. The method for this is slightly more complicated, but is well worth the trouble if only for the extra simplicity of transport.

Detachable undercarriage. Cut three strips of 1/16 in. ply about 1/4 in. wide, and use Durofix or some similar hardwood glue to cement them down the sides and across the top of former 1A. Then cement this unit against the *front* of F1, so that the ply strips form a box between F1 and F1A. Since Durofix is slow drying, the unit should be left for some hours under pressure—either in a table-vice or with a weight resting on it. When dry, it should be cemented in position at the front of the fuselage, after which the overlap of the four lower longerons can be trimmed off.

Bend the undercarriage wire carefully to the shape shown on the plan. The " U "-shaped bend in the centre must be a push fit into the ply " box " between F1 and F1A. The arms of the " U " should be slightly splayed out for preference, so as to grip tightly by pushing against the sides of the " box ".

Permanent undercarriage. Cement F1A against the *back* of F1 ; no packing strips are necessary. When the Durofix has set, bend the undercarriage wire as shown on the plan ; the centre section in this case is more rectangular than " U "-shaped. Place this centre section symmetrically against the front of the lower part of F1., and mark its position. Remove, and drill a double row of holes (1/16 in. or smaller) round both sides of the marked line. Actually the spots for drilling are marked on the plan. Now replace the undercarriage wire between the double row of holes and use strong twine and a large darning needle to bind it in place, the thread passing through the holes and over the wire. Finish off with a thick smear of Durofix all over the twine and the wire. F1 can then be cemented in position against the front of the fuselage, and the overlap of the four lower longerons trimmed off. The wheels must be attached by soldered cup-washers.

Engine Bearers. Cut two similar lengths of hardwood 3/8 × 1/4 in. spar as shown on the plan, and mark the places (also shown on the plan) where they have to be drilled for the engine bolts. Make sure that you choose the right size of drill for the particular bolts you are using. The hole should be very slightly *smaller* than the thickness of the bolt, so that the latter is a tight screw fit into it. A 3/32 in. drill will be about right for 8 B.A. bolts, but the safest way is to test it for yourself by drilling into a piece of scrap hardwood, trying various drills until you find the correct one. Then drill the four holes through the engine bearers, making sure that the drill works quite vertically through the wood, and checking the spacing of the holes against their opposite numbers in the metal flanged shoulders of the engine itself. I have found it quite a good idea to widen these bolt holes to 1/8 in.

Now push the engine bearers into place through former F1 ; they should be a tight fit, and if so will remain rigidly in place. Check them for alignment both vertically and horizontally, and then push the starboard (right hand) bearer about 1/16 in. further into former F1. This will mean that the engine when mounted will have a small degree of natural right thrust. Liberally cement the joints on both sides of F1.

Former F2 and the cross-grained laminated cabin top should now be cemented in place. Fig. 4 shows the front part of the fuselage at this stage.

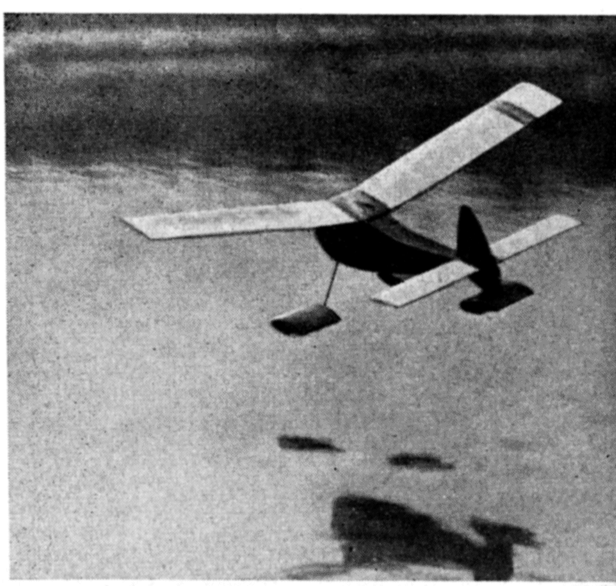
Finishing Off the Fuselage.

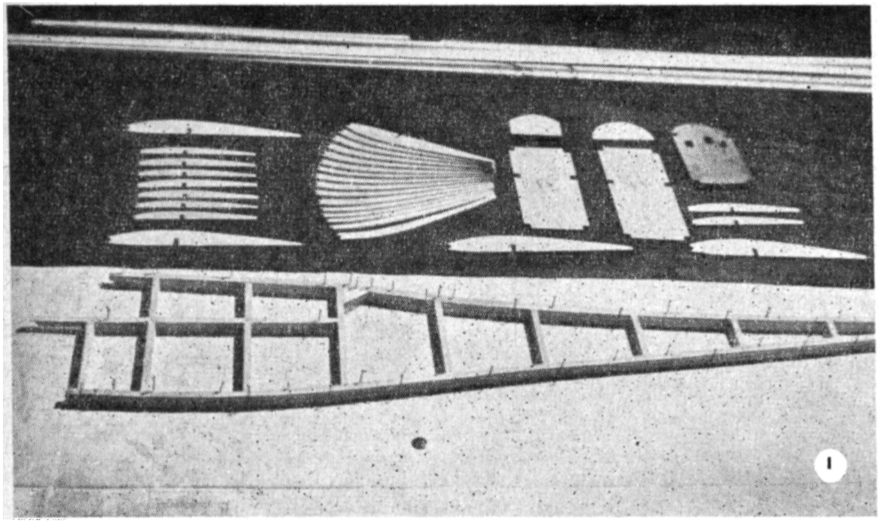
Sheet in the sides and bottom of the front panel with 1/16 in. balsa, and also the curve of the cabin windows. Cartridge paper or thin card should be used for covering the curve from the top of F1 over F2. Make the choke-hole in the starboard side panel big enough to admit your particular size of first finger without any effort.

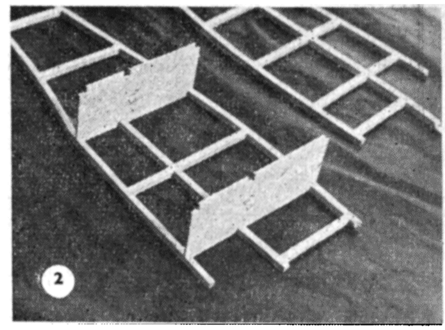
Cement a strip of 1/16 in. sheet to the outside edge of both the engine bearers ; screw the bolts in place from below, and drop the engine itself into place over them. Then trace the side cowlings onto 1/4 sheet and cement them against F1 and the packed bearers. If the undercarriage is detachable, the side cowlings will have to be shaped to fit round F1A and the undercarriage box. Fig. 5 illustrates this point, being a shot of the underneath part of the front unit. (Gussets were used here, as an alternative to sheeting in the front lower panel.)

Now sheet in between the lower halves of the side cowlings. It is important to leave the engine in position while this is done to make sure that the space between the bearers is not widened or lessened during the process.

Trace the windscreen from the plan onto grease-proof paper ; cut it out, and paste onto the celluloid ; then cut the celluloid windscreen round the edge of the pasted grease-proof template. The plan suggests cementing the windscreen in place, then cutting two holes for the wing dowels, which are to be pushed through and cemented under the cabin top after the windscreen has been added. Personally I found it simpler







to cement the two front dowels in place *first*, and cut two " U "-shaped pieces out of the top of the windscreen to accommodate them when it was *later* cemented in place. The side-windows of the cabin can be cut out as separate rectangles of celluloid.

The rear wing dowel is pushed through the fuselage after $\frac{1}{8}$ in. holes have been drilled in the gussets at the " cracked shoulder ". Sheet in the last two panels at the tail, top and bottom, and add the fairing of scrap balsa to the top of the cabin roof. Trace the sub-rudder onto $\frac{1}{16}$ in. sheet with the grain running lengthwise, and cut it out. Since it is more than 3 ins. long, two pieces of sheet will be needed to cover it when the grain is running the opposite way in making the cross-grained lamination. These two pieces can be cut out as rough rectangles and cemented against the accurately traced first piece ; when set they can be easily trimmed to this shape. Cement the sub-rudder in place—and don't spare the cement.

The Fin and Trimming-Tab.

Trace the trailing edge and lower portion of the fin onto soft $\frac{3}{16}$ in. sheet and cut them out. Build the fin, including the trim-tab, as a single complete unit over the plan—see Fig. 6. When quite, dry, cut out the tab—Fig. 7. Then push a piece of soft wire or thin aluminium sheet into the upper part of the hingeing edge of the tab, and replace the tab against the main fin, forcing the projecting portion of the wire or aluminium into the hingeing part of the fin. In Fig. 8, *two* pieces of soft wire are being pushed home, one towards the top, the other towards the bottom of the tab. However, a single piece near the top will be sufficient. Note too the straight pin which is ready to be pushed up through the horizontal spar on which the tab is to rest. This pin will act as a pivot, when it and the tab itself have been pushed home—see Fig. 9. It is a good idea to round off the turning edge of the tab before replacing it, so as to allow of a free side-to-side movement.

The rear peg—a short length of $\frac{1}{8}$ in. hardwood dowel—can be added now. Sharpen one end, and push it firmly into one of upper longeron ends. Pull it out, squirt cement into the hole, and replace peg.

Fig. 10 shows the completed tail unit (less the tailplane) ready for covering, but as a matter of fact the fin should not be cemented in place until both it and the fuselage have been covered.

The Tailplane.

This is perfectly straightforward. Before laying it out, hold the centre three ribs side to side, and cut out a $\frac{1}{8}$ in. square notch for the short top spar.

The Wing.

Trace and cut out the ply dihedral brace, and cement *both* halves of the $\frac{3}{8} \times \frac{1}{8}$ in. mainspar against it, trimming off the lower flat centre section. Pin down the port half of the main-spar over the plan, leaving the starboard half sticking up at an angle, and proceed to the ribs—see Fig. 11.

The mainspar notch of the four centre ribs will have to be modified to fit over the ply dihedral brace—see Fig. 12. When all the ribs of the port side have been put down, add the port half of the leading edge—*hard* $\frac{3}{16}$ in. square. Push it well into the rib noses, and secure it there with pins—see Fig. 13. When set, remove from the plan and pin down the starboard half of the mainspar, propping up the completed port half with a couple of books.

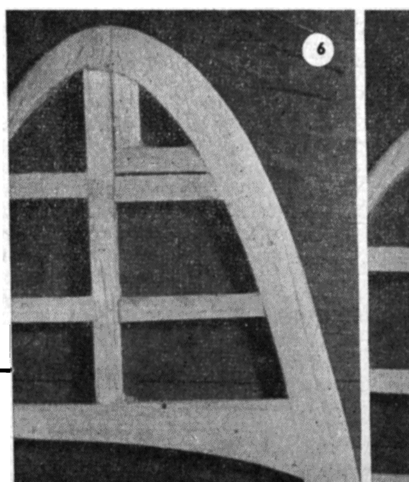
The centre section is best done as follows. When both halves of the wing are completed, pin down the level centre section of the dihedral brace flat onto the plan, propping up the wingtips on both sides. The short missing portions of leading and trailing edges can then be cut to size and cemented in place. Personally I added gussets on both sides of these centre ribs against the leading and trailing edges—see Fig. 14. Remember that the two centre ribs have to have $\frac{1}{16}$ in. trimmed off along their upper curved surface, so that the $\frac{1}{16}$ in. sheeting will not stand up higher than the leading and trailing edges. This trimming should of course be done before the two ribs are cemented in place. Add the $\frac{1}{16}$ in. over the top of the centre section, with the grain running in the same direction as the length of the wing. All that remains is to cement the wing end-pieces from soft $\frac{1}{4}$ in. sheet.

When I had reached this stage—ready for covering—I went over every joint in the entire plane, adding a tiny spot of cement in each corner by way of reinforcement.

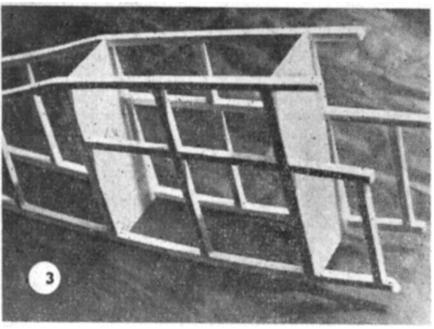
Covering.

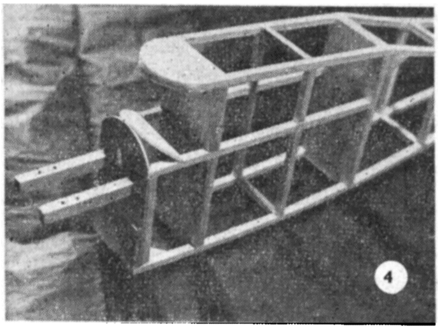
The TOMBOY is as simple to cover as a beginner's glider. Lightweight modelspan will do, though personally I used heavyweight and have not regretted it. Modelspan *can* be water-shrunk, although with the lightweight variety this is not normally necessary, as it shrinks well under the influence of dope.

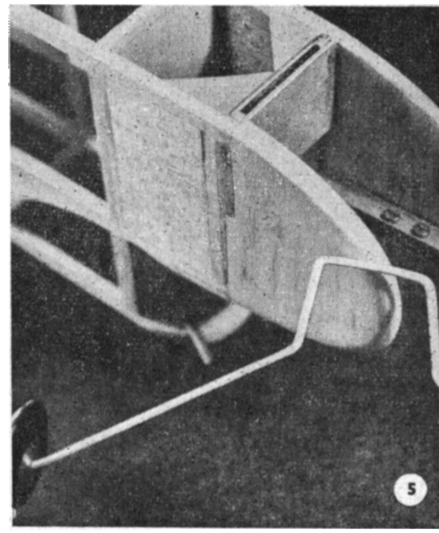
Cover the fin as a single unit, ignoring the trim-tab for the present. The best time to cement the fin to the fuselage is after the whole model has been covered, but before any doping has been started. Check the size and shape of the curve in the fin base by laying the tailplane in position across the rear of the fuselage and lowering the fin over it ; the leading and



Figures 6 to 10 illustrate the sequence of making the fin and the trimming tab.







trailing edge extremities of the fin should rest on the fuselage, and the curve should just clear the tailplane. Remove the tailplane, and cement the fin firmly in place.

Two coats of clear dope were given to the entire model, with a third for the fuselage. This was followed by an over-all coat of banana-oil. The colouring (put on before the banana-oil) was polychromatic blue. With a red Tru-flex prop. and white undercarriage wires, the appearance was smart enough to earn favourable comment from a variety of quarters.

The final job is to "cut out" the trim-tab. Use a razor blade to slit through the fabric down the hinge and along the lower edge of the tab on both sides. It will then be possible to move it from side to side as required.

Mounting the Engine.

It is presumed that before this you have had the engine running on a test bench, and have got into the way of starting and regulating it.

The prop. MUST be a Keil-Kraft TRU-FLEX—and I have not got shares in the firm either ! This particular prop. is more flexible than most, and so tends to give slightly less thrust. To use a wooden prop. or one of the stiffer plastic ones, such as the E.D., would be to ask for trouble at this early stage. Moreover, for the first few flights even the Tru-flex must be "toned down" by putting it on *the wrong way round*, *i.e.*, with the more rounded sides of the blades nearest to the engine.

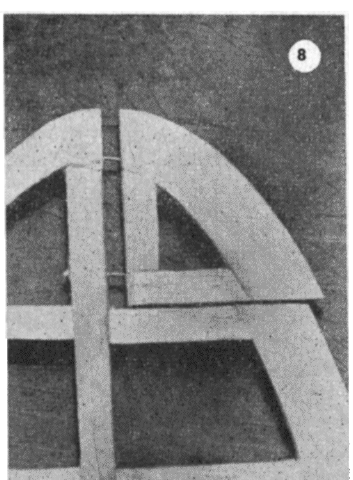
For the actual mounting of the engine, a small tube spanner will be found most useful; buy one now if you have not already got one, and make sure that it fits your size of nut. In the case of my own model, the circular choke-aperture in former F1 was found to be slightly out of position, and had to be enlarged with a rat-tailed file in order to make room for the air-intake of the engine. The only real modification from the plan was the fact that the lower sheeting under the engine and between the side cowlings was left out altogether. This allowed easier access to the engine bolts from below, and also let any excess fuel blow away instead of lodging in the sump. Make sure that the nuts are all screwed down tightly.

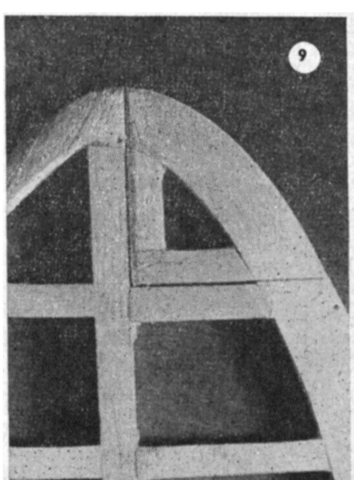
Trimming the TOMBOY.

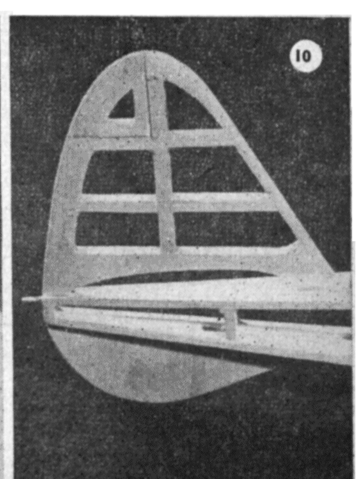
Attach the wing by means of four *strong* rubber bands stretched diagonally across the centre section. Both wing and tailplane must be absolutely rigid. The latter is held by two or three smaller rubber bands. Pass these first over the fin and sub-rudder round the fuselage; then slide the T.P. under the fin, and pull the bands back over the top of the fin and anchor them round the rear peg. Check wing and T.P. for alignment and stability, and ensure that the model balances when supported by two fingers beneath the mainspar.

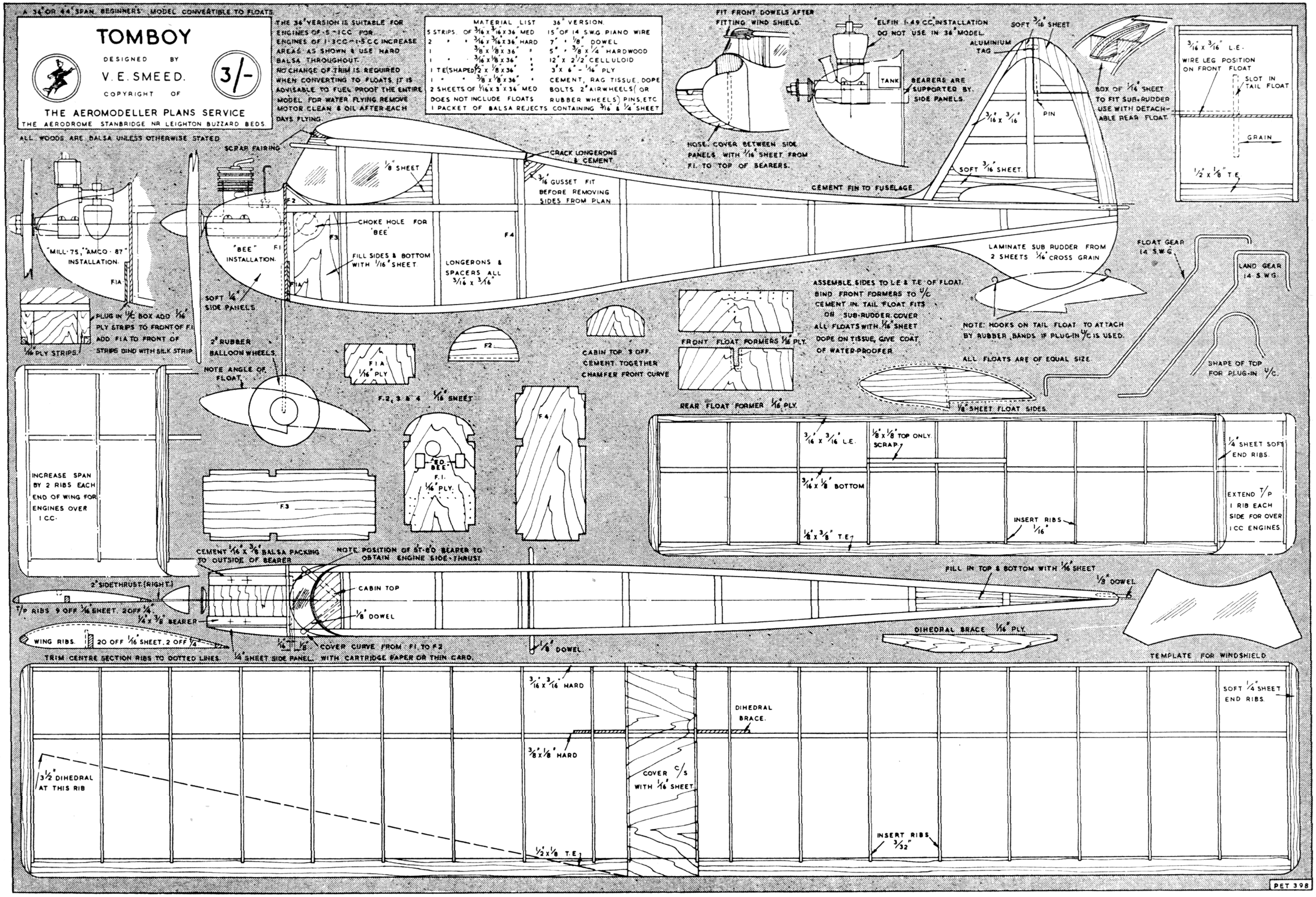
Choose a day when there is very little wind, and hand-glide the model into what wind there is. You will have to throw it quite hard compared with the average lightweight glider or rubber model; the ideal to aim at is of course the plane's natural flying speed, and once it is in the air you will soon find what this is. Don't be over anxious to trim for an extra long slow glide at this stage; the thing to avoid at all costs is any tendency to stall. If there appears to be any danger of stalling pack up the leading edge of the tailplane with a piece of $\frac{1}{16}$ in. scrap. Put about 30 degrees of right rurn on the trimming-tab, and adjust if necessary until a steady glide with a slight right turn is obtained. Only then should you consider trying the model under power.

Flying the TOMBOY. Well, the great moment has come, and if your hand is steady you are better than most ! Perhaps the best way of dealing with this section is to describe exactly what happened when I first flew my TOMBOY.









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

High winds were the order of the day for some time after the model was completed, so it was not until about a week later that the trials took place. The weather then was perfect—warm, with the merest suggestion of a breeze. Hand glides were almost too good to be true, the flight path being quite level and with a slight natural right turn. So the first flight under power was attempted with the trim-tab neutral.

With the Tru-flex prop. the wrong way round, I filled the tank, started up the engine, and tuned it down to half revs.—as slow as it would go while still running evenly. I held the model until there was very little fuel left in the tank, and then launched it into the breeze. The result was a very gradual, steady climb in left-hand circles, followed by a lovely glide in very wide right-hand circles. As these latter were rather too wide, the next flight was made with about 30 degrees of right trim on the tab, and the engine still on half revs, as before. The model climbed slowly in wider left circles, but glided when the engine cut in extremely tight right-hand circles—so tight that most models would have gone into a spiral dive.

The right turn on the trim.-tab was then reduced to about 10 degrees, and a third flight attempted. The result was perfect: a steady climb to the left in 150-ft. circles followed by a right-hand glide in slightly smaller circles. On an engine run of about 25 seconds, TOMBOY climbed to some 100 feet and landed within two or three yards of the place of launching.

The next step was to speed up the engine. With the prop. still the wrong way round, but with the E.D. Bee buzzing as fast as she would go, TOMBOY behaved beautifully: a fast, steep climb to the left followed by the usual excellent glide. The climb was not quite up to contest standard, but fine for ordinary sport flying, and turned in a two minute flight on an engine run of about 20 seconds.

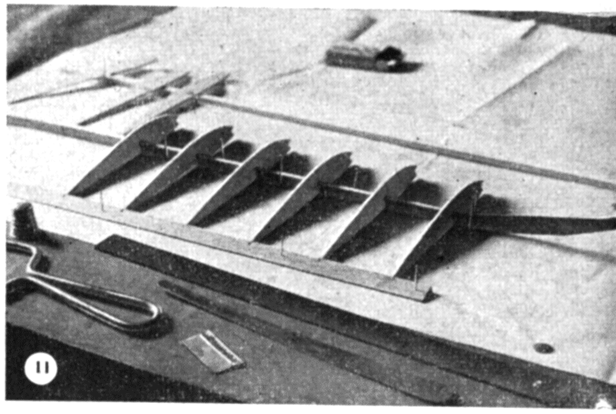
Postscript: Float Conversion.

For more advanced modellers, or beginners with a little experience, details for a floatplane version of the TOMBOY are shown on the plan.

Vic Smeed, who has flown the model in this form with great success, says that it only needs a few feet of water for taking off—a slow-running stream or a clear pond being ideal. The float arrangement is such that the model will alight and ride well on water, so that sea flying may be carried out in safety; while the robust nature of the float construction permits repeated landings on dry land without damage.

All three floats are of the same size, so that the first step in building them is to cut *six* sides from $\frac{1}{8}$ in. sheet. Join these sides over the plan with the $\frac{1}{8} \times \frac{1}{8}$ trailing edge and the $\frac{3}{16}$ in. square leading edge, making sure that the assemblies are correctly aligned and squared up. Cut the centre formers from ply; the front ones are "sewn" to the 14 s.w.g. legs after bending the wire over the plan. The rear float cements onto the sub-rudder when finished, so the slot in the ply former should be on top when this is cemented between the sides. A small nick must be made in the inner sides of the front-floats to accommodate the wire.

The formers may now be cemented in place, taking care to align them accurately. When set, cover the floats with medium to soft $\frac{1}{16}$ in. sheet, grain running across the floats. Sand smooth, and dope on rag tissue. Apply two or three coats of clear dope, and any colour that may be desired. The floats are actually reasonably watertight at this stage, but as an additional safeguard a flowing coat of banana-oil or fuel-



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proofer should be brushed on. If you intend to fly the float version of the model, you may care to fuel-proof it all over as a means of waterproofing. This applies particularly to sea-flying.

The front assembly is now bound to F1. A slot $\frac{1}{8}$ in. wide must be cut in the centre top of the rear float in order to position it on the sub-rudder. Once the fit is satisfactory, it may be cemented firmly in place. Check that all floats are at the correct angle by comparison with the plan.

Interchangeable Landing Gear.

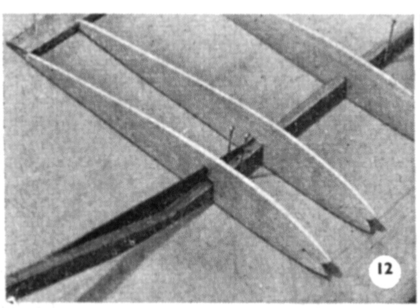
If you have built a "box" between F1 and F1A, then either float or wheel undercarriage may be plugged in at will. The actual box should be liberally cemented and reinforced. It should be constructed as a unit before affixing F1 to the fuselage, when a piece of old silk stocking can be bound round the box to prevent it splitting open under stress. The rear float may be made detachable by opening the slot in the top to $\frac{1}{4}$ in., and fitting in a $\frac{1}{16}$ in. sheet box which fits the sub-rudder. This ensures that the float remains watertight. Two small hooks can be cemented immediately before and behind the ends of the slot/box, and a single rubber band passed from the front one, over the tailplane, to the rear one. The designer's own model used this system, and no trouble was ever experienced.

Trimming the Float Version.

This is just as simple as trimming the landplane version. In converting from the landplane, $\frac{1}{16}$ in. packing under the leading edge of the tailplane and a little less right rudder were the only changes required in the original. It is best to test-glide over long grass before getting everything wet, and for your first hydro take-off PLEASE pick a windless day, when the water is almost unruffled.

Take-off is simplicity itself. Start the motor, place the model gently on the water, and release. TOMBOY, when fitted with an E.D. Bee will hop off in three or four feet, and has the prettiest take-off imaginable, as it will skim for a few feet just above the surface of the water before getting into its proper climb.

A word of warning: keep your motor run short until you are familiar with retrieving over water, and run the engine and wipe it down carefully after each day's flying.



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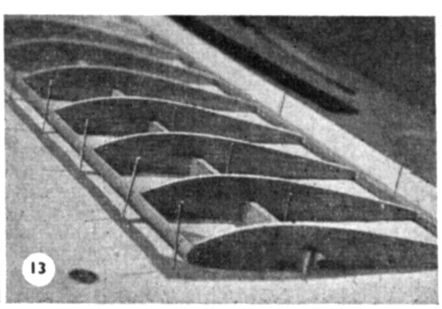

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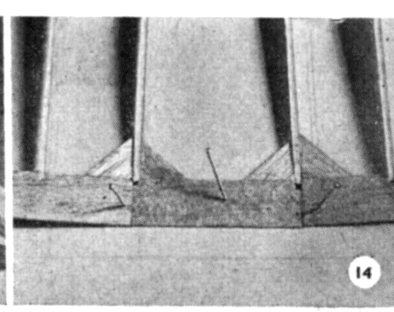

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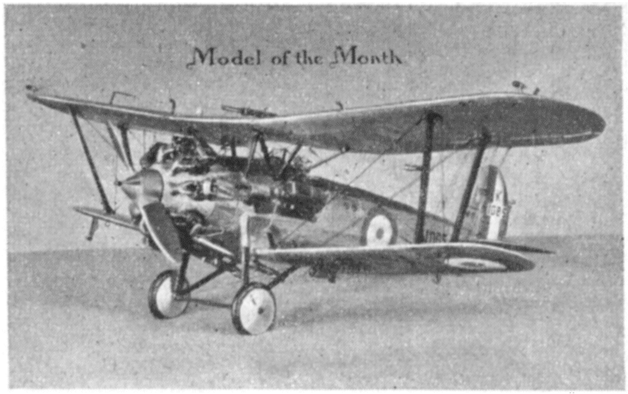


FED up with envy of wealthy car-owner aeromuddling types and their neat electric engine starters, Fliar Phil has at last produced an economic unit which should be within the modest of aeromod's means.

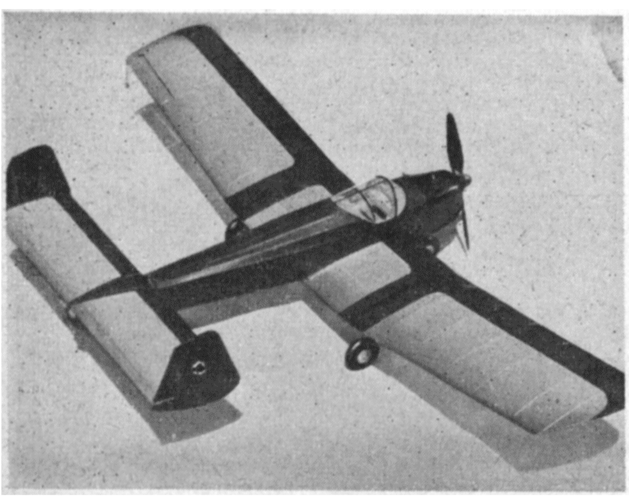
Note the sheer ingenuity of the job, it's even possible to make a cup of tea while you whistle away the five minutes starting time !

Choice of this month is a tip-top solid of the Bristol Bulldog by I. O. Newton of the Luton Club. Complete in detail to the nth degree, this model narrowly missed the Bristol cup for 1950, but has gained a well earned silver medal. Panel beating in miniature, with tiny rivets and screws, give the metal nose cowlings a realism rarely seen in models. The Jupiter engine and its exhaust system are also reproduced in perfect form, even to the weld seams on the pipes.

Resting fresh and immaculate after flight tests, the Stentorian, at left, is a combined effort by Stanley Ward, instructor at Air Service Training, Hamble, and Pilot Officer Durrani of the Royal Pakistan Air Force. Fitted with P./O. Durrani's own radio equipment, the model has an ETA 5 diesel. Linguistic aeromods might interpret the Urdu name " Shaheen ", which Mr. Ward assures Fliar Phil, means King of Birds, and more than somewhat taxed his paintbrush abilities, in fact, F. P. gathers that it is much more difficult to inscribe such a name than it is to make the whole model. P./O. Durrani is hoping to take this model back to Pakistan, so watch out Karachi—you'll be seeing something !

Scale enthusiasts will remember Ray Booth's Avro 504 k which appeared in last Christmas issue in plan form. Ray's latest is another Avro, naturally enough, being a Mancunian member of Avro's design office, and this time he has chosen the neat little type 638, known as the " Club Cadet ". Shown

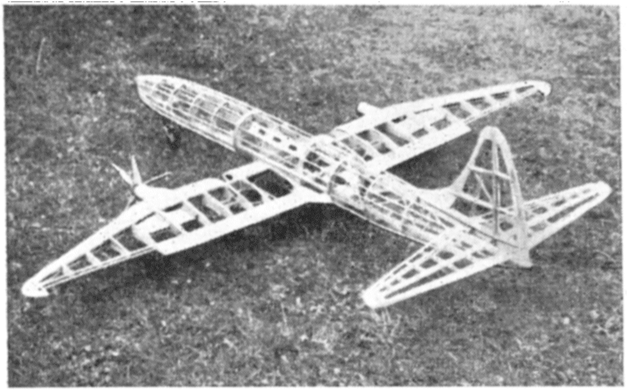
here in the uncovered state, the model is only 22½ ins. span, being to the scale of ¾ in. to the foot. All-up weight is 6 oz. and the elevators are pendulum controlled. Using a Kalper ·32 c.c. diesel to represent the full size Cirrus-Hermes IV, Mr. Booth has a power unit no less than 1/19750th part of the capacity of the real thing !

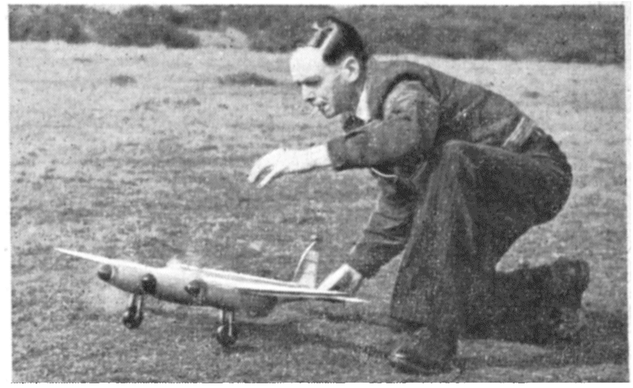


G. W. Dodwell of Mitcham has designed the attractive low-wing semi-scale model at left. Powered by an E.D. Bee 1 c.c. diesel, the model weighs 12 oz., has 273 square inches of wing and is 42 ins. span. With those figures in mind, and the AEROMODELLER " It's Designed for You " series to hand, it should be a simple task to design a similar model for your 1 c.c. motor, with the wing in the unusual low position. F. P.'s eyes have become so accustomed to the flow of conventional high wing, cabin and pylon models, that a low wing job rings the changes effectively enough to urge a new purge on the building board . . . Stand by for Timberrrrrrrrr !

Incidentally, Mr. Dodwell uses lightweight celluloid wheels, and overcomes the tendency to split their centres by brushing them with ¼ in. diameter hardwood dowel.

Top left is another model with a difference, to spin the

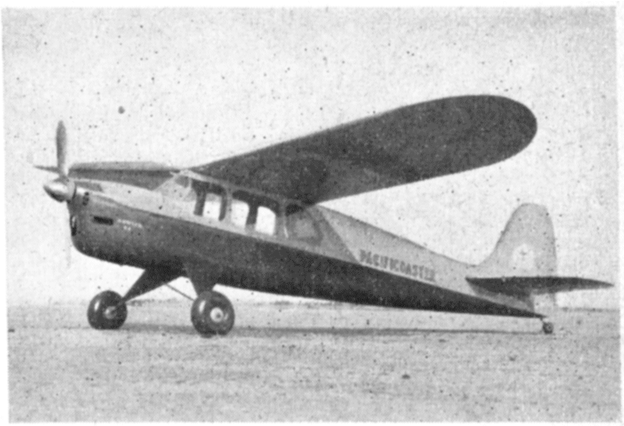




wheel that keeps your scribe moving, and what a difference it is to see a semi scale " Brabazon ". 56 ins. span and 48 ins. long, it is expected to weigh nearly 6 lb. when finished, no wonder designer C. J. Peacock of Aylesbury has doubts about its flying prospects. The little E.D. Bee is dwarfed inside the fuselage, where it drives the two inboard motors by means of gears and other wondrous mechanical devices. Of course, it's a control-liner, but Mr. Peacock did have free-flight hopes at first. All wheels retract, and flaps are fitted to operate when the undercart comes down. Ailerons are pendulum operated and the outboard props. will free wheel to help maintain appearances . . . some effort, but pity the poor BEE !

Top right is a nice action study of one of our A.P.S. designs getting away for a successful flip. Built by W. H. Potten of Worthing, this is the ¾ in. to the foot scale version of the famous De. H. Mosquito. This photograph, taken at 1/250th @ f.8 on Super XX film is by Mr. J. H. Court. Hope you wound the motors evenly Mr. Potten.

Elbert Weathers of Inglewood, California has always been

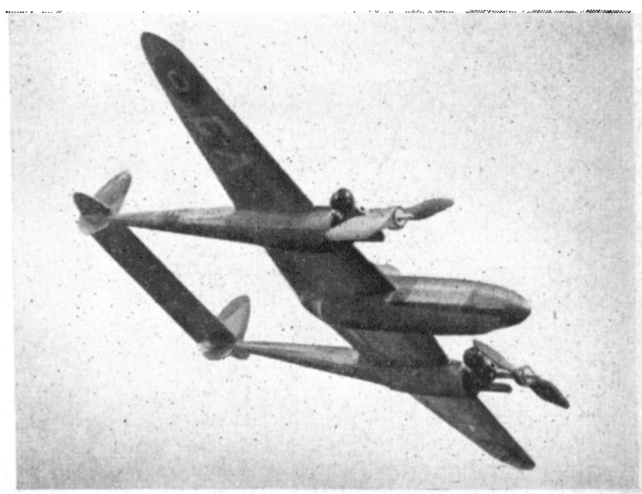


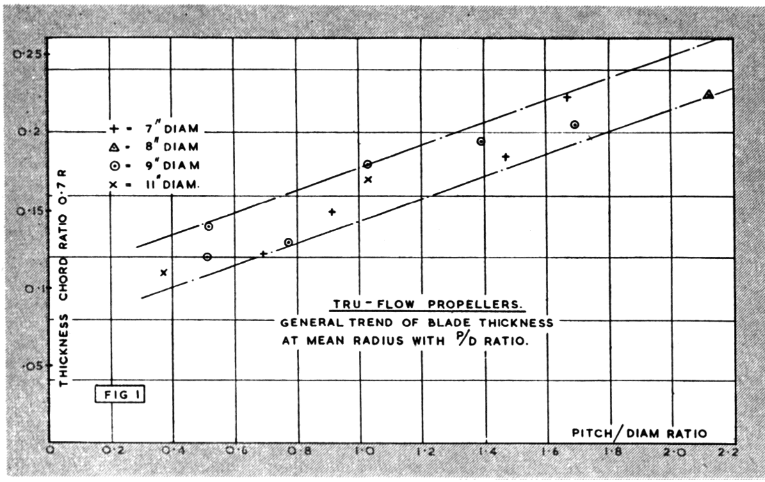
renowned for large and beautiful models. Right you see his latest " Pacificoaster ", which though free-flight, has a wing loading of 1 lb. 5¾ ozs. per square foot. The first Pacificoaster appeared three years ago, and this one still has the same small 60 ins. span, yet is powered with the hot-stuff Orwick 64 petrol engine, of over 11 c.c. Another plane with the same engine, but whose fortunate owner lives in London, by name of Pete Westbrook (Zombies) is shown above. Unfortunately this fine large scale stunter has gone the way of all flesh, but it was of a Stearman P.T. 17 trainer as used by the U.S. Air Force. Span was approximately 48 ins., which gives plenty of area for aerobatics.

W. Gilmour, an Amco fan, has incorporated two of the 3·5 c.c. diesels in his scale Lockheed Lightning shown at right. A tricycle drop-out undercarriage is used to take off, separate fuel tanks feed the engines and it flies on 50 ft. lines. Designer Gilmour, who hails from far north Dunfermline, Fife, reports that it can complete consecutive loops and do wingovers, but he has yet to try the rest of the book on it. Span is 42 ins. and weight 35 oz. With that much power the P.38 should be quite a nice proposition for high speed stunting ; but fancy pranging two motors at once . . . ugh !

Readers will remember the collection of '14–18 World War 1 scale models by P. E. Norman which featured as Models of the Month in September. The following explains itself :—

Woe is the lot of Fliar Phil,
Whose aircraft rec. : was all to pot,
The " Pup " he sold you, had a hump,
it was a Camel, was it not ?
Then, not content with that mistake,
he barked up yet another tree,
D.7 Fokker was a six,
Apologies from Fliar P.





L.S.A.R.A. PROPELLER TESTS Part II

BY P. R. PAYNE

IN the July issue of the AEROMODELLER, N. K. Walker, B.Sc. and J. Foley, B.Sc. (Eng.), described the difficulties that have been encountered in getting the prop. test wind tunnel into operation. The next two articles will be concerned with actual tests on a selected number of propellers from those tested and described in the static test articles. It will be remembered that in this series the efficiency of a design was given by the expression

$$\frac{\text{Pitch} \times \text{Thrust}}{2\pi \times \text{Torque}}$$

and we have chosen propellers ranging from poor to good on this basis for wind tunnel tests. In addition all designs which "looked interesting" have been included for good measure. The whole constitutes a representative selection of the designs submitted by the various manufacturers.

In concluding this introduction it is perhaps not out of place to mention that R. H. Warring and N. K. Walker will shortly be co-operating in a much needed series of tests on Wakefield propellers.

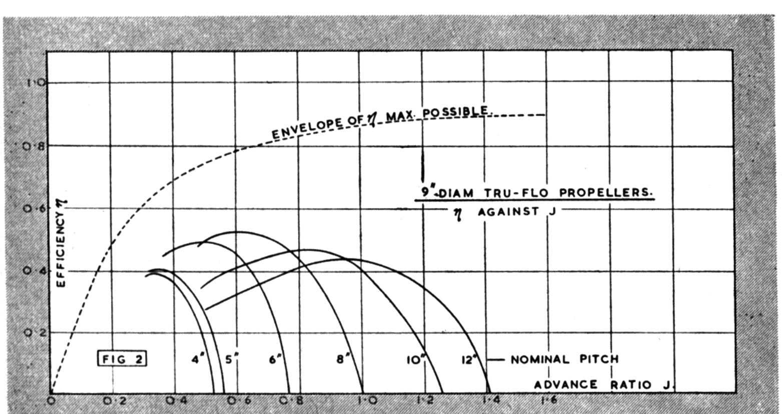
Tru-Flo Propellers.

As mentioned in the Article dealing with the static tests of this series, they are a good example of the better type of power prop. In all, 36 were submitted, made from hydulignum and with an excellent finish. The nominal pitch quoted on the hub does not necessarily bear any relation to the mean pitch of the blades, and the local pitch may vary as much as 100 per cent. from the root to the tip, but as this undesirable phenomenon is common to all commercial propellers so far measured it should not be taken as adverse criticism of this particular type. One big disadvantage is that in the case of experimental work the pitch variation has to be measured on each design tested, and included as part of the results.

The mean value of blade thickness (t/c) for performance purposes is that at seven tenths of the radius (0·7R) and since the *shape* of the thickness variation curve along the blade is reasonably consistent for all Tru-flo props., it is a useful simplification to consider only the value of (t/c) at 0·7R for the ones tested. Immediately a very interesting fact springs to light: namely that the manufacturing technique of E. Keil & Co. Ltd. is such that t/c increases regularly with the P/D ratio (Fig. 1). It will be shown later that the relative efficiency of Tru-flo props. is lower for the higher values of P/D, and it seems very likely that this is due; in part at least, to the thicker blade sections. A further contributory reason is that whilst the low pitch props. have Clark Y type blade sections, these tend to fatten out into something like R.A.F. 30 for the high pitches. The 8×12 (P/D=2·12) has completely symmetrical blade sections. Modellers who have tried their hand at prop. carving will realise just how difficult it is to maintain a flat under-surface, and to this extent the variation is understandable, although unfortunate if it does in fact affect performance.

Aerodynamic Measurements.

Thrust and power absorption were measured for a complete set of 9 in. diameter propellers, and it was found that these are in agreement with the predicted values in L.S.A.R.A. Tech. Note No. 3 as far as the actual values of the coefficients are concerned, but the value of J for zero thrust (Jo) is in every case considerably lower than we should have expected. This may be due to a combination of scale effect and poor blade sections.



The variation of efficiency with J for the 9 ins. diameter series is given in Fig. 2, together with an envelope of the maximum efficiency possible with perfectly carved designs (obtained from L.S.A.R.A. Tech. Note No. 3) since.

$$J = \frac{\text{flying speed (ft./sec.)}}{\text{revs./sec.} \times \text{diameter (ft.)}}$$

we can say that if the 9×5 were being turned at 9,000 r.p.m. (150 revs./sec.) the flying speed of the model for maximum prop. efficiency would be

$$\text{V ft./sec.} = \frac{150 \times 9 \times 0.35}{12}$$

$$= 39{\cdot}37 \text{ ft./sec.}$$

Readers may find that the substitution of actual values in this manner will help to a

better realisation of the physical meaning behind these test results.

For a given prop., the ratio of the maximum efficiency obtained to maximum possible at that value of J (given as $J\bar{\eta}$ in Table 1) may be termed the "Relative efficiency". This quantity is useful because on a basis of true efficiency it would not be fair to say that the 9×12 was a better prop. than the 9×4 because its efficiency is higher, for the reason that $\bar{\eta}$ max does increase with J and therefore with P/D ratio. On a basis of relative efficiencies, however, the 9×4=60·5 per cent. and the 9×12 is only 51·5 per cent.

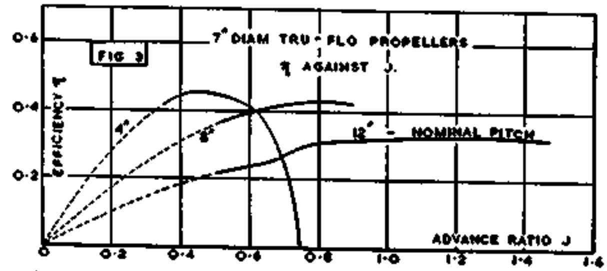
Efficiency curves are given for other diameters in Figs. 3, 4 and 5. Of special interest is the 7×12 prop, in Fig. 3 which does not seem to have any real peak efficiency. This was the worst prop. tested.

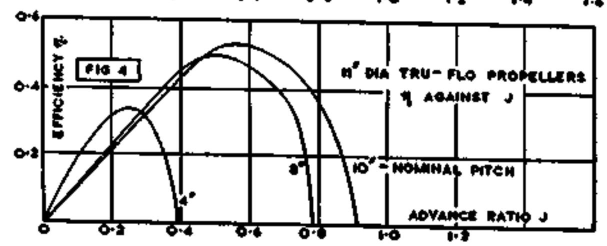
In Figs. 4 and 5 it was found possible to extend the J range right down to zero (static case), first by shutting off the wind tunnel motor so that the airspeed was only that induced by the propeller, and secondly by opening the tunnel windows so that there was zero airspeed. The 11×10 was the best prop. tested, the actual maximum efficiency being 52·5 per cent. at J=0·58.

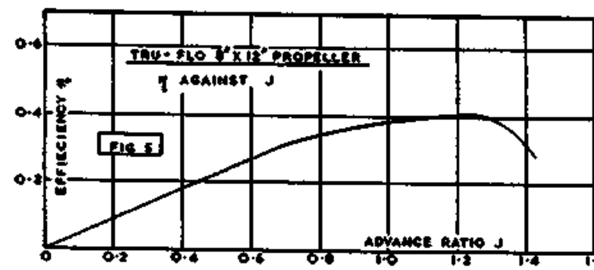
All these results can be effectively summarised by plotting relative efficiency against P/D ratio as in Fig. 6 remembering that for a given prop.

$$\bar{\eta}\ \text{Relative} = \frac{\max \bar{\eta}\ \text{Measured}}{\max \bar{\eta}\ \text{Possible}}$$

As mentioned above, all the props. tested whose P/D is less than 1·0 are consistently good. The four examples with a P/d greater than 1·0 are relatively poor, the 7×12 being very poor indeed. It should be noted that Fig. 6 applies to the Tru-flo tests only and does not illustrate anything more fundamental than a variation in manufacturing technique of E. Keil & Co., as far as is known.







Nacelle Interference.

The tests described were all made on "Nacelle 'B'" a drawing of which appeared in the July issue. With a frontal area of only 2·16 square inches the interference from this would be much less than anything to be expected from an actual fuselage. It will however affect the measured efficiency of a small prop. more than that of a large one, and therefore the effect must be allowed for. Nacelle interference is fairly well understood in "full size" prop. theory, and in Table 2 the values of $\bar{\eta}$ max and the corresponding J have been corrected on this basis to "free air" conditions, (*i.e.*, nothing at all behind the prop.). This correction is probably of the right order, but as comprehensive fuselage effect tests are being done for part 5 of this series definite conclusions will have to be reserved until then. Thus the last two columns in Table 1 are advanced on a very tentative basis only.

TABLE 1
TRU-FLO WIND TUNNEL TEST SUMMARY

Prop.	Dia.	Pitch	P/D	t/c	T.A.F.	Z	$\bar{\eta}$ max	$J\bar{\eta}$	Jo	$\bar{\eta}$ rel	$\bar{\eta}$ c max	$J c \bar{\eta}$
7×4	7·04	4·90	0·696	0·123	338·0	1·78	0·46	0·46	0·473	0·639	0·474	0·467
7×8	7·04	8·98	1·270	—	276·5	1·77	—	—	—	—	—	—
7×12	7·04	11·73	1·670	0·223	217·2	1·75	0·33	1·15	—	0·377	0·341	1·167
8×12	8·0	16·93	2·12	0·225	249·0	1·81	0·405	1·26	—	0·458	approx. 0·415	1·274
9×4	9·0	4·60	0·511	0·120	357·3	1·805	0·39	0·34	0·53	0·605	0·397	0·343
9×5	9·0	4·65	0·517	0·140	347·2	1·87	0·40	0·35	0·56	0·616	0·406	0·353
9×6	9·0	6·95	0·772	0·130	292·0	1·725	0·49	0·50	0·76	0·662	0·499	0·505
9×8	9·0	9·20	1·022	0·180	269·0	1·735	0·53	0·61	1·01	0·68	0·539	0·616
9×10	9·0	12·53	1·393	0·195	292·2	2·02	0·47	0·84	1·26	0·56	0·479	0·848
9×12	9·0	15·26	1·695	0·205	212·8	1·753	0·44	0·95	1·41	0·515	0·449	0·959
11×4	11·0	4·15	0·337	0·110	351·0	1·93	0·34	0·25	0·39	0·162	0·344	0·252
11×8	11·0	8·98	0·817	—	248·3	—	0·495	0·51	0·783	0·665	0·501	0·514
11×10	11·0	11·3	1·028	0·170	255·0	1·955	0·525	0·58	0·915	0·682	0·533	0·585

Definitions.

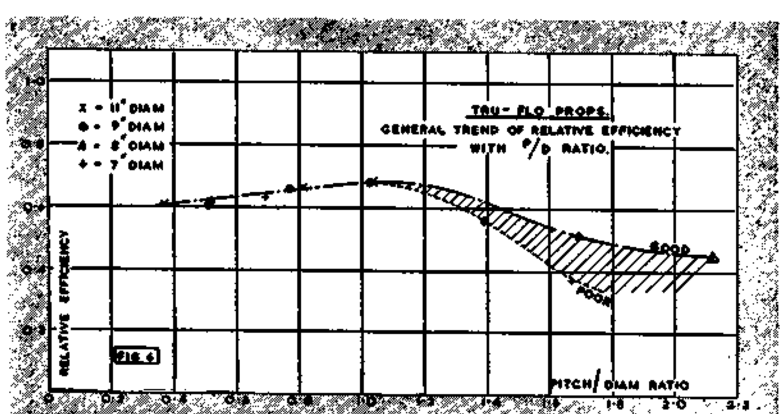
$$\text{Advance Ratio } J = \frac{V}{nD}$$

Efficiency

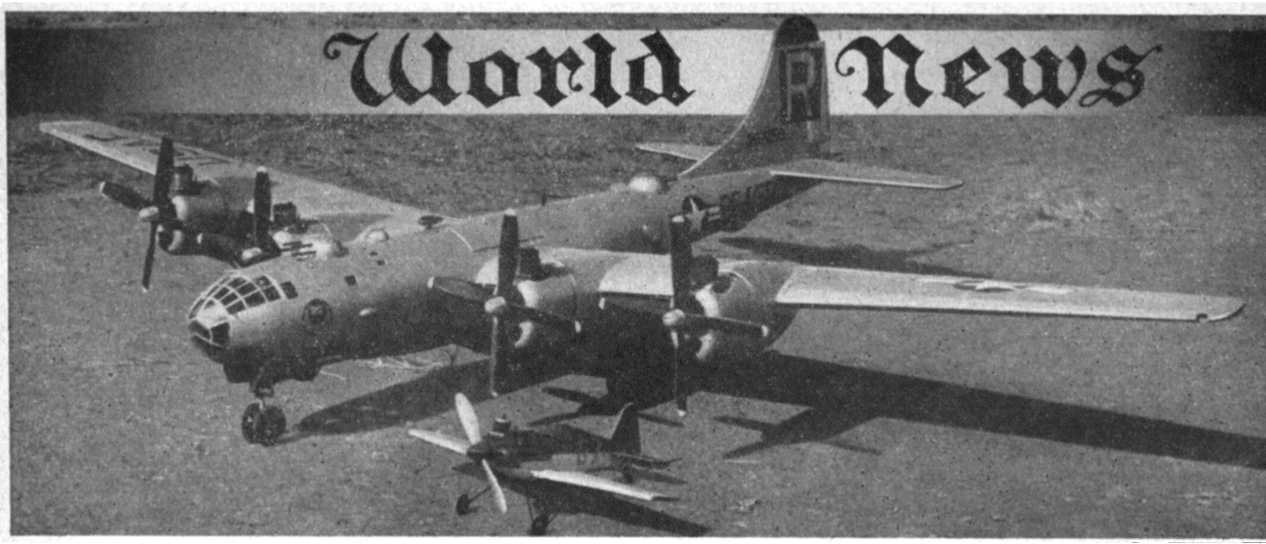
$$= \frac{\text{useful work done by propellers}}{\text{work done by engine}}$$

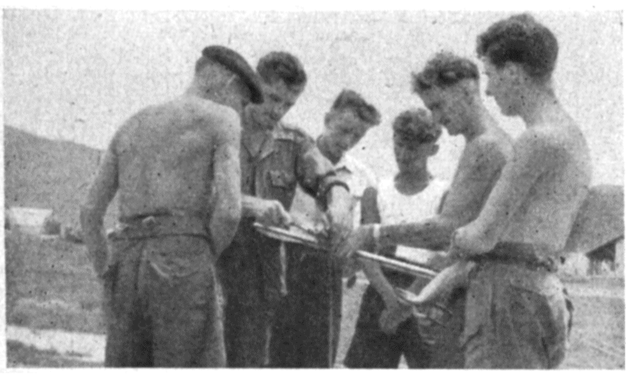
$$= \frac{TV}{P550}$$

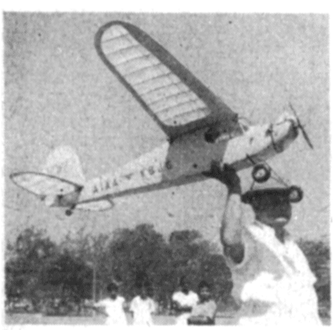
Where
- V = forward speed of prop. (ft./sec.)
- n = rotational speed in revs./sec.
- T = Thrust in lbs.
- D = prop. diameter in ft.
- P = power absorbed by prop. (B.H.P.)



World News







Mamiya's "Superfort" makes an impressive heading photograph. The amount of detail on this flying model is noteworthy and it must be quite something on the end of the lines.
15 Field Park Squadron (R.E.) M.A.C. Hong Kong members, with one of their Control Line models, the "Scrap Heap". Treasurer Cpl. Atkinson adjusts compression.
Left, holding Radio Control "Stentorian" is Hon. Secretary K. L. Roy of the All India Aeromodellers Association. He is on the Maidan, Calcutta, just prior to the first R.C. flight of the model.
Bottom photo shows the A.I.A.A. team at work, at the moment of launching the "Stentorian".

THE compiler of this feature always hopes that his daily post will bring something new and unusual for WORLD NEWS, if possible, from a modeller in a country which has not been previously reported. This month that hope is realised, and he is pleased to include both news and photograph from . . .

Japan. Hideya Ando, 20 year old model 'plane designer and aviation writer of Tokyo, sent the picture with an interesting letter, after reading his first copy of the AEROMODELLER.

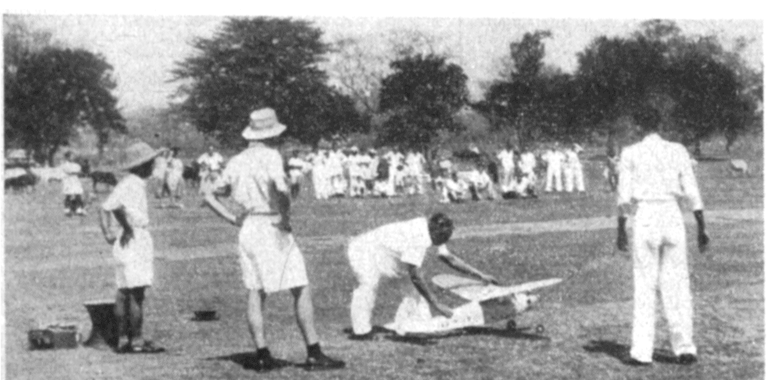
The control line B-29 " Superfort " which Mr. Ando describes as " . . . one of the masterpieces in Japanese model airplane circles," was constructed by S. Mamiya, one of Japan's leading exponents. This outstanding model has a span of 8 ft. 3 ins., is 6 ft. long and weighs 15¼ lbs. It is powered by four 10 c.c. ignition engines, also constructed by Mr. Mamiya, and flies successfully every Sunday outside the Imperial Palace at Tokyo. Further points of interest are that the model has retractable landing gear, working lights and what our correspondent describes as " self-timer ", which we take to apply to engine cut-out. Altogether a very fine effort.

The more normal-sized model beside the " Superfort " is a " Cosmic Wind " racer.

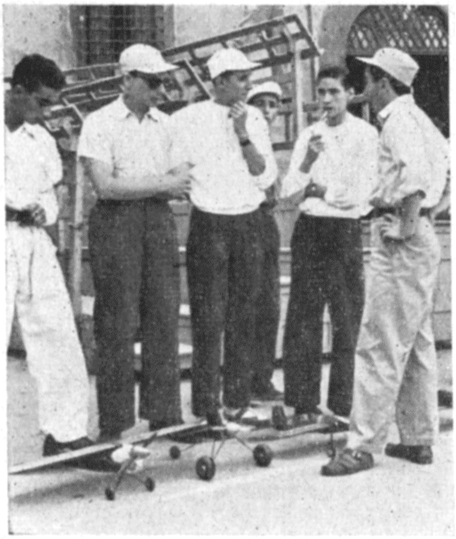
Hideya Ando has offered to send further news of aeromodelling in Japan, and we await this with interest.

Hong Kong. In the Far East, though a little nearer home, is Corporal J. D. McHard of the 28th Photographic Squadron R.A.F., stationed at Kai-Tak. He sent news and pictures of one of the local Service model clubs, the 15 Field Park Squadron (R.E.) M.A.C. Inaugurated in June of this year, it was fortunate to obtain a grant of 150 dollars (£8. 13s. 4d.), from the P.R.I. to assist with getting things moving. The unit is small in numbers, but the M.A.C. has ten members, each of whom pays one dollar (1/4) a week subscription. This buys cement, tissue, props and other sundries for distribution as required. The wood is bought in bulk direct from the U.K. as that available locally is "pretty gash". The Club is on a sound financial footing, so the Treasurer would seem to know his job. The Hon. Sec. is S.Q.M.S. Merrin (" The Cue ") and the Treasurer Cpl. Atkinson (" Acky ").

There are plenty of projects under construction, amongst which are two five foot span Piper Cubs, one of which has Radio Control, a Dronette, Buccaneer 36, three free-lance controliners, two with E.D. Comp. Specials, the other with a Mohawk Chief.



One member is building a 4 ft. boat to be steam-driven, another is engaged on locomotive castings and is fortunate enough to have access



Left is line-up of Italian Control Line fliers, from l. to r., Brotto, Stunt man, Ferin, Stunt, Marcenaro, Dynajet Speed flier, Bovo, Schneider and, with left side to camera, Gottarelli. The photo above shows Gottarelli with two Team Racers, that on the left, Supertigre 19 Glo powered, on the right, Ohllson 29 Glo powered.

At right is Mr. Shlomo Yarkony, leading Isrreli aeromodeller. A pilot in the Israel Air Force he has published a number of plans for beginners' gliders which are extensively built by members of the Israel Aero Club and A.T.C. Groups. He is seen here towing up a sailplane with the aid of a bicycle wheel.

to a lathe. The Club's pride and joy is the Radio Controlled Piper Cub mentioned above. It was built by Major Edwards and is a model of the Far East Flying Schools' Cub, which the Major pilots. No dihedral is incorporated as with the full-size plane, and the lateral stability is taken care of by pendulum operated airlerons which work smoothly. The Receiver used is the latest E.D., the transmitter being Major Edward's own design. The model will be powered with either an ETA 5 or an Ohlsson 29 ignition, the tailplane has variable incidence and the elevators are equipped with horns and control rods for future use, if practicable.

This promising small club has its own Nissen clubroom and is a really keen crowd.

India. Moving Westward another eighteen hundred miles or so, Calcutta is the next source of news, our correspondent being Mr. K. L. Roy, Hon. Sec. of the All India Aeromodellers Association. His report on " India's first Radio Control Model Aircraft Flight " shows the evident excitement and satisfaction of success after a lot of work by various clubs colleagues and himself.

The project was got under way early this year, with a team of five handling the various departments. These were divided into Construction, Receiver Operation, Transmitter Operation, and Equipment and Fuel. The five officers of the Association were respectively Messrs. K. L. Roy and B. Banerjee, G. A. Baker, J. W. Easson and G. C. Roy.

The model used was a Veron " Stentorian ", modified to the specifications of Phil Smith, Veron designer, and the assistance of Model Aircraft (Bournemouth) Ltd., was greatly appreciated by the team.

The completed model was first shown to the public in February, at the National Air Rally, where the operation of the Radio was demonstrated, but there was no intention of flying until a later date. During the intervening period a newly-arrived E.D. Mk. IV was installed, in place of the original ignition engine.

The date decided upon for India's first R.C. Flight was the 26th March, and all was prepared by then. The location was the Brigade Parade Ground on the Maidan, Calcutta, a large open grass space in the centre of the City, and the temperature at 10 a.m. when the final check was made, was 104 degrees Fahrenheit. The team demonstrated their co-operation in these last-minute details and in the R.O.G. take-off itself. The flight was of ten minutes duration up to 1,500 ft. and the model was sufficiently under control for it to land near to the take-off point and the end of the glide. A great deal of justifiable satisfaction was felt by all concerned, the only slight regret being that no photograph of the flight was obtained.

Italy. Gianni Fiorini of Bologna wrote a letter and sent two pictures to his friend Ron Moulton, a member of the AEROMODELLER staff, and some of the contents were certainly of interest to " World News".

He had just returned from a control line exhibition at Pisa, (Leaning Tower of which you may have heard), which was sponsored by the Aero Club and the E.N.A.L. The show was given in the famous Piazza dei Cavallieri (Square of the Knights) and lasted some three hours. Italian control line was well represented, such exponents as Brotto, Ferin, Gottarelli, Guesi, Rudy Schneider, and Marcenaro with his Dynajet, participating. Unfortunately the C.L. circle was too close to trolley bus wires, which caused the write-off of several models, but a show of stunt flying was given. The high spot of the Exhibition was, apparently, the two-in-a-circle Team Race. Fiorini writes that it was hoped to hold a Team Race Contest at Salsomaggiore, where a general C.L. Competition took place in August. We still await news of this, and hope for photographs also.

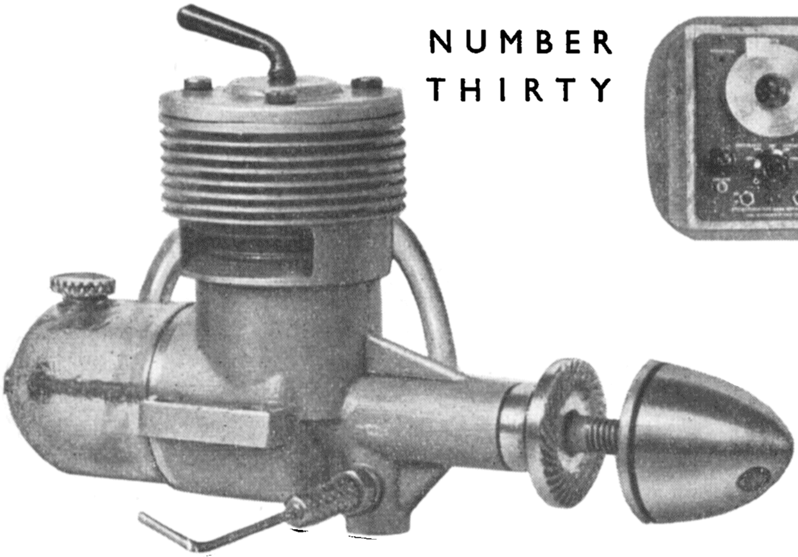
Belgium. For the second time M. Jean Bocque of Brussels, Radio Control enthusiast, has sent us interesting news of doings in that direction in his district. The first Belgian R.C. Contest was held at Bierset on the 15th August, and three contestants entered. If this number is thought to be small, it should be remembered that the country itself is small, and there have not been the opportunities for the popularisation of this branch of the hobby. Each of the contestants had built his own radio equipment, and each model had its team of radio man and modeller.

The winners, Gobeau and Dubuisson, of Mons, flew a " Super Buccaneer ", 6 ft. span, powered by a 5 c.c. diesel. Receiver a five valve regenerative ; escapement clock-work powered. The 30 watt transmitter obtains its power from a 12-volt car battery through a rotary converter. The plane was very manœuvrable but the rudder movement was too great, causing a spiral dive into the ground.

In second place was Lippens of Brussels, with a six foot pre-war " Corsaire ", powered by a McCoy 29 G.P. Radio was a super regenerative detector with RK 61 valve and transmitter 2 watts. Although this model was a good performer, it made only one flight, as Lippens was away searching for our correspondent's model after this.

Bocque, himself, placed third, with a five foot span plane of his own design powered by a 2·8 c.c. Micron diesel. The receiver was also an RK 61 super regenerative and the transmitter 2 watts. The plane, a lightweight, was lost o.o.s. due to the wind, but found later in the day.

It is anticipated that the next Belgian R.C. event will have a larger number of entrants, but this one was valuable experience, and, by next year there should be a marked improvement in the standard.



NUMBER THIRTY

THE DAVIES CHARLTON D.C. 350

THE new Davies Charlton "350" engine is a typical example of the modern trend in small aero engine design—from appearance to performance.

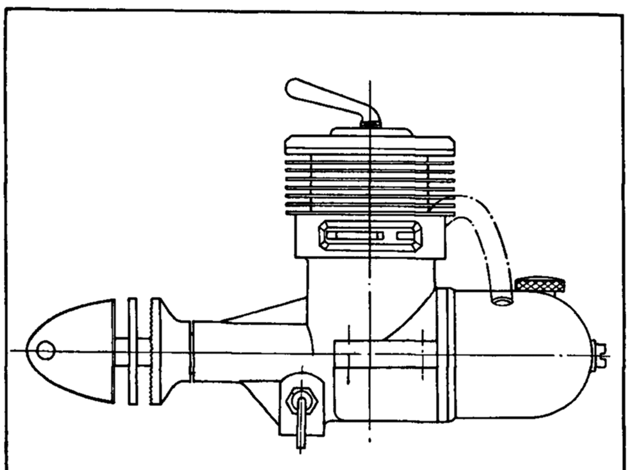
In the first place, every advantage is taken of the die-casting process, so that the crankcase, cylinder and, apparently, the cylinder head, are all formed in this way. This fact accounts for the very neat and clean appearance of this engine, and its freedom from the loose bits and pieces which were so often a prominent feature on engines of a few years ago.

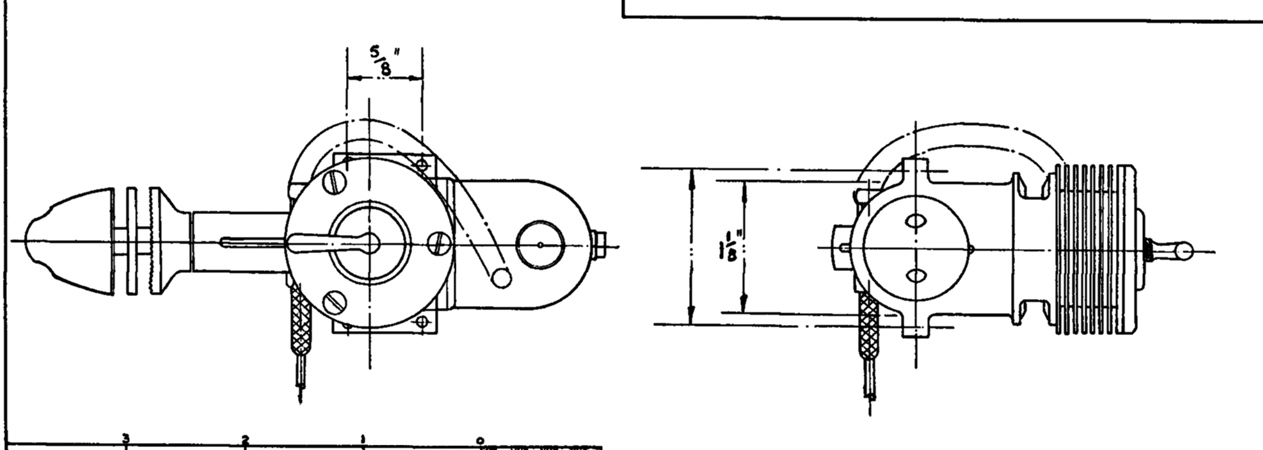
Those modellers who have entered the pastime within the past two years or so would find it difficult to imagine what a complicated, oily mess was the power-driven model aeroplane of pre-war days—with its tangle of electric wiring, switches, timers and batteries. More often than not, most of the time on the flying field was occupied in trying to start the engine, in cleaning contact-points, and in changing the plug! All this is now a thing of the past, and it is due entirely to the small diesel that it is so. The model diesel engine is undoubtedly the most simple and reliable of all internal combustion engines—full size ones not excepted—and it is good to see that manufacturers have carried these virtues to their logical limit.

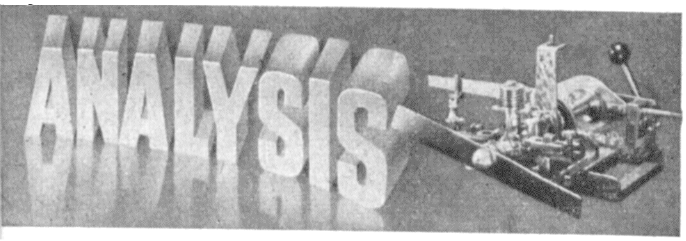
The die-casting on the DC. 350 engine is as good as any that we have yet seen, and surpasses that of many American engines of to-day. In addition, the compression is extremely good indeed, and may account for the easy-starting which this engine displays.

The modern trend is also evident in the short-stroke design in the ample porting arrangements, and the transparent plastic tank attached to the rear of the crankcase. Such features give the unit a squat, compact appearance, which is in marked contrast to the excessive height which was at one time considered to be inseparable from compression-ignition engines.

A very marked feature of this new engine is the very flexible fuel control, and also the economic fuel consumption. At 7,000 r.p.m., at which speed the engine was run-in for one hour, the fuel consumption was measured, and it was found that on 30 c.c's of Mercury No. 8 fuel the engine ran for

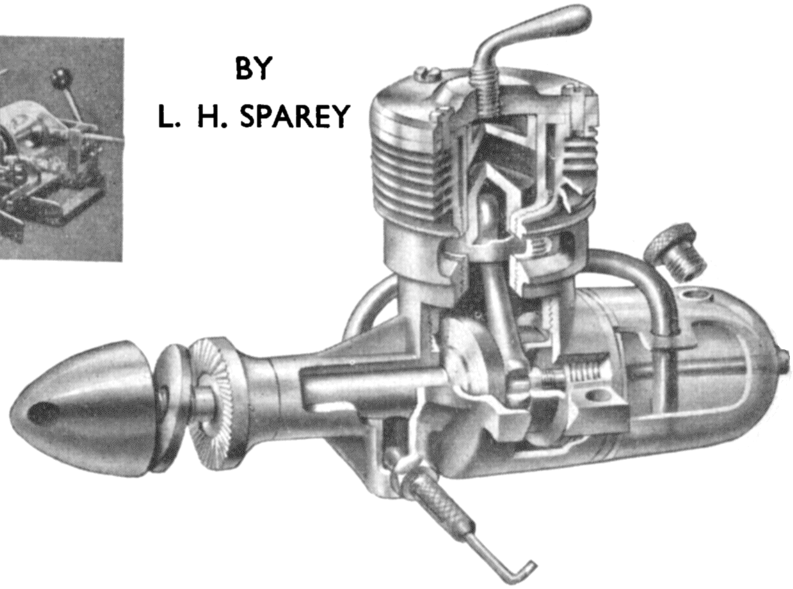






BY

L. H. SPAREY



3 mins. 40 seconds. At higher speeds the consumption was, naturally, greater, and with the inadequate cooling conditions available under test, it was felt inadvisable to run the engine for such prolonged periods at its peak speeds. A fairly accurate estimation of about 3 minutes per 30 c.c. was arrived at. One noticeable feature was the remarkably smooth running of the unit. We have come to accept vibration as part of the sacrifice towards higher performance with most of the modern diesels produced to date, but it would appear that yet another step forward has been achieved in British engine design.

TEST.

Engine : DC. 350 Diesel ; 3·5 c.c. **Fuel :** Mercury No. 8.

Starting : Excellent at all times.

Running : Extremely good and steady at all tested speeds. The engine ran remarkably well at the very low speeds (below 4,000 r.p.m.), a rather unusual performance for such a short-stroke unit. Fuel control was extremely flexible, and made correct adjustment quite simple.

B.H.P. : The curve obtained from this engine is extremely good, not only because of the high maximum output, but because of the flat character. We thus see that at 7,250 r.p.m. the power output is ·200 b.h.p., yet the gain at 11,000 r.p.m. is only ·070 b.h.p. This means that the engine may be considered to be running efficiently over a very large speed range, and quite large variations in speeds between 9,000 and 11,500 would make little *perceptible* difference to the performance of the aeroplane.

Maximum output was ·270 b.h.p. at 11,000 r.p.m.

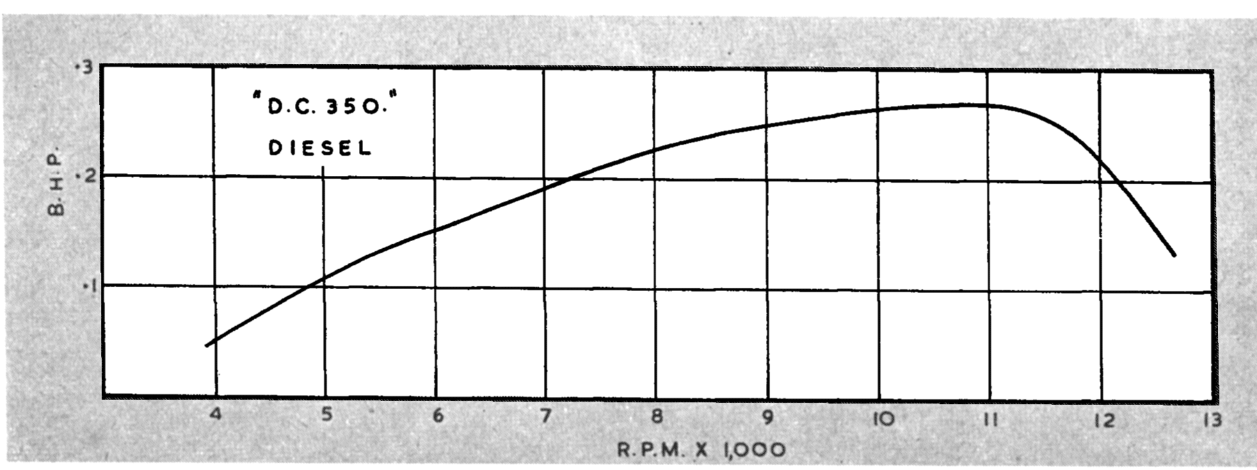
Checked weight : 5·7 ozs., with tank.

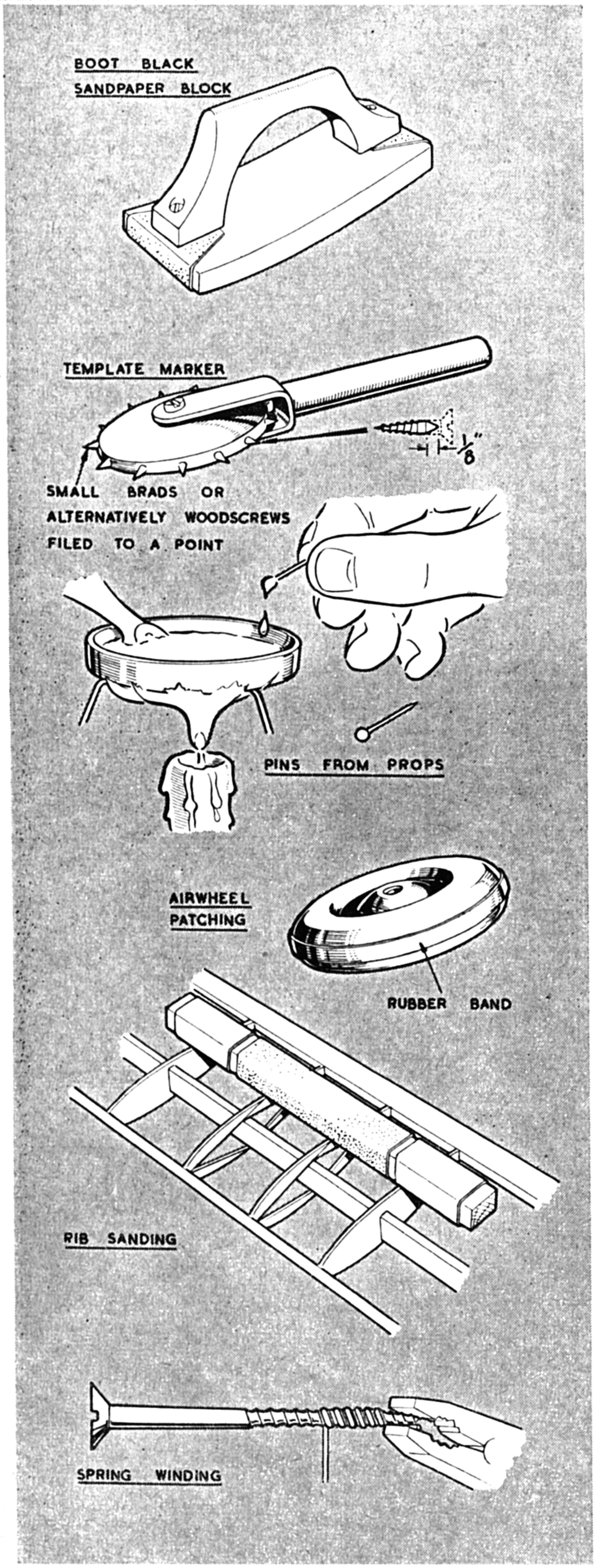
Power/Weight Ratio : ·835 b.h.p./lb.

Remarks : In view of the excellent power output, high power/weight ratio, flat power curve, and flexibility of control, this engine should be very suitable for control-line flying. The low fuel consumption should be extremely useful for team racing.

GENERAL CONSTRUCTIONAL DATA

Name : DC. 350.
Manufacturers : Davies-Charlton & Co., 13, Rainhall Road, Barnoldswick.
Retail Price : £3. 10s. 0d. **Delivery :** Ex stock.
Spares : Ex stock. **Type :** Compression ignition diesel.
Specified fuel : Mercury No. 3 or No. 8.
Capacity : 3·44 c.c., ·21 cu. ins.
Weight : 5½ ozs. including tank.
Compression Ratio : Variable.
Mounting : Beam, upright or inverted.
Recommended Airscrew : Free flight, 10 ins. × 6 ins. control line 9 ins. × 8 ins.
Bore : 11/16 in. **Stroke :** 9/16 in.
Cylinder : Cast in one piece with crankcase.
Cylinder Head : Held with set-screws.
Crankcase : Die-cast D.T.D. 424.
Piston : Plain. Meehanite. Ground and honed.
Connecting Rod : Forged aluminium turned from solid.
Crankpin Bearing : Plain.
Crankshaft : Nickel chrome. Hardened, ground and lapped.
Main Bearing : Plain. **Little End Bearing :** Plain.
Induction : Rotary crankshaft valve.
Cylinder Liner : Nickel chrome.
Special Features : Only three screws are used in the assembly of this engine. The exhaust is partly shrouded. Low fuel consumption. Extreme flexibility of control. Engine bearer mountings are to be enlarged in future production models.





GADGET

TIRED of sandpapering? . . . then why not try D. B. Williams' idea of using Mum's old black-lead brush as a SANDING BLOCK? You'll find the grind of rubbing down large surfaces all the easier for the pressure a decent sanding block offers. And what could be cheaper on the pocket than that derelict wreck in the brush cupboard? First knock, prise or otherwise force out the last obstinate bristles, and saw the ends of the brush square, taking care to sand off rough corners. Then unscrew the handle and get the piece of sandpaper to wrap around so that it overlaps the handle screw holes. Replace the handle, piercing the paper with the screws, and there you have a most useful article . . . look out balsa ! ! !

Ever lost your temper when trying to trace formers or ribs from a model plan onto balsa ? Fed-up with slippery carbon paper and freehand mistakes, reader K. Polyblack suggests his idea for a TEMPLATE MARKER which operates after the style of Mum's fancy pastry cutter. Easily made with a balsa disc wheel, suitably spiked with sharpened brads or screws, mounted in a brass yoke and fixed to a simple handle, the marker can follow the plan line without spoiling the paper unduly. Position the sheet balsa beneath the required template, follow the line, and . . . presto ! ! . . . you have accurately marked the sheet with small prick marks.

A man after Consus' economic heart is A. J. Bunting, who has found a marvellous use for fragments of " unbreakable "—ahem !—propellers of the soft plastic variety. Glass headed pins have already proven their hundredfold advantage over the common needlework type, but they are not always easy to obtain. So, thanks to Mr. Bunting, we now have PINS FROM PROPS, complete with nice large finger-prick proofed heads. First find a small tin lid and hold it over a gas flame which is turned as low as possible. Consus suggests a candle might do the trick with ideal heat. Then melt the plastic prop in the tin-lid and when it reaches the runny state, dip your pin, preferably of the large winkling type, into the solution, twirling the pin so that the head collects a small blob. Remove the pin quickly, and mould the blob to a suitable shape with the fingers. When the plastic hardens on the pin, you'll have something you can push into the toughest board.

Many an airwheel has found its resting place on the scrap heap thanks to a small puncture or a split seam. E. Pidgeon suggests a method of AIRWHEEL PATCHING which has proven successful on his own wheels and also formed a " re-tread ". Obtain a $\frac{1}{4}$ in. wide elastic band of the exact wheel diameter and fix same with ordinary patching solution to the tyre, making certain that the leak is well covered.

G. Woolls is by now a regular contributor to the Consus columns and must surely have a workshop full of gadgetry. His method of RIB SANDING has a multitude of applications. Often the case crops up where ribs or formers must be sanded down to a level equal to that of templates which must not be damaged. Mr. Woolls arranges the sanding block so that a width of sandpaper capable of covering the parts to be worked on is exposed, right side up, on the block centre. Outside of this paper, he reverses a piece of sandpaper of the same grade, so that the same thickness is retained along the sanding block. Also applicable to this scheme, is a method of constructing ultra lightweight wing ribs from scrap, and sanding the contours accurately between solid template ribs as shown in the sketch.

Yet another idea from Mr. Woolls is a gadget for SPRING WINDING using an ordinary woodscrew. Fix the end of the piano wire and the screw in the pair of pliers and start winding the wire onto the screw from the pointed end. To start from the other end would constitute a grade "A" black mark, for though the effect looks the same, it is often impossible to wind the spring off the screw.

Current accent on Team Racing in control-line quarters brings forth an idea for pressure refuelling from B. G. Buttress. His PRESSURE FILLING CAN is an easy conversion of that most useful item—the Valvespout can. By boring a hole in the top side of the can, and soldering a Schrader bicycle tyre

REVIEW

valve in place, it is possible to connect a pump to the can and put considerable air pressure on the fuel within. It is advisable not to fill the Valvespout completely, which means that about 70 c.c. is the maximum amount of fuel the can will effectively deliver.

Procedure would be as follows :—Three-quarters fill the can, seal the Valvespout and pump air pressure to your own satisfaction. Disconnect the pump and connect the can to the filling pipe on the model, release the Valvespout. The 30 c.c. tank will be filled in a split second. A frequent inspection of the Schrader valve rubber is advisable.

Engine bearers with two purposes are submitted by Mr. M. R. Williams. Firstly, they can be used to mount your motor as a quickly detachable unit, suitable for several models, and secondly these SLEEVE ENGINE BEARERS can be slipped over the jagged ends of snapped wooden bearers to give the airframe another life after a crash. The sleeves are made of 26 s.w.g. stainless steel in Mr. Williams' original sample ; but due to the box girder structure, much softer and more malleable material can be used with near equal strength. Some " springy " quality is desirable in the metal to be used, for it is essential that the sleeve clamps to the wooden bearer as the rear bolt is tightened.

Form the sleeves around a metal original of the same shape, but of smaller cross section. Drill to suit your engine, and drill the transverse hole which takes a peg to lock the sleeve to the wooden bearer, and there you have a unit that will outlast many a model.

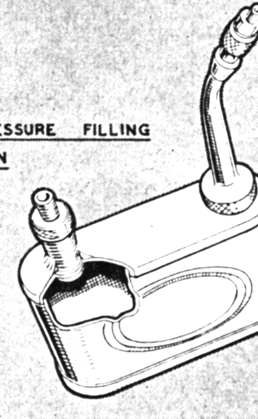
From far over the other side of the globe comes an idea for an ADJUSTABLE TOW-HOOK which Australian Ivor F. Stowe has fitted to his A.P.S. Lulu sailplane. The main slide is bent from a 9 in. length of 18 s.w.g. piano wire, and the actual hook from a 4 in. length of 20 s.w.g. Wind the hook wire tightly around a spare piece of 18 gauge wire and bend it to wrap in another single coil around the upper part of the main slide. You will find that though it is easy to slide the hook back and forth, when tension is applied, as in the case of a tow, the hook locks in position on the slide. For larger sailplanes than the " Lulu " Consus recommends heavier wire gauges in both parts.

A novel C/L REEL FROM TIN-LIDS comes by way of P. Watkins. It is made with two large size distemper tin lids, some stout cardboard and a few odd nuts and bolts. The cardboard is cut to the same diameter as the lip of the lids, and the lids are bolted together with the lips on the outside and the cardboard between them. Soldered hooks will retain the line ends, and an elastic band will hold the other line end when the line is reeled on.

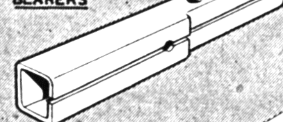
Instead of fiddling with crocodile clips for his GLOW-PLUG CONNECTIONS, J. T. Stewart has found a way of using plastic fuel tubing to do the job. First, bare the end of the insulated glow-plug lead for approximately ¼ in. Slip a 1 in. length of 2 m/m inside diameter fuel tubing over the wire and fray out the strands. Then press the frayed strands onto the top of the glow-plug ball and slide the plastic fuel tube down over the plug top. With repeated use, the fuel tube will adopt the shape of the glow-plug and will hold the electrical contact perfectly.

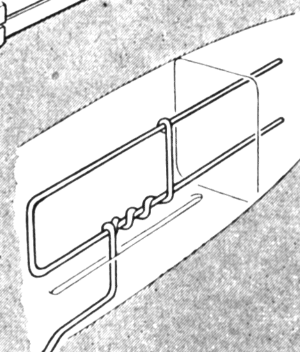
Now we know our Engine Analysis expert has frequently complained of engines coming to pieces before his eyes and without human assistance, but many a model bod has had the same disconcerting experience with unscrewing cylinder heads. Vic Smeed presents a simple answer for BARREL TIGHTENING with the aid of a leather or webbing strap and an odd piece of wood for a handle. The ends of the strap are securely screwed to the wood forming a loop attached to the handle. The loop is dropped over the loose (or tight) barrel, or cylinder head, and the remainder of the doubled strap wound in the direction of the required rotation. The leverage will shift anything, without even a scratch mark, Mr. Smeed assures Consus. Oh . . . just a moment, readers . . . Mr. Sparey . . . pass me the Stillson please !

PRESSURE FILLING CAN



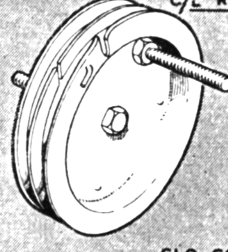
SLEEVE ENGINE BEARERS



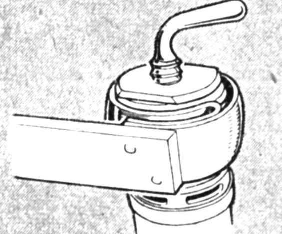


ADJUSTABLE TOW HOOK

C/L REEL FROM LIDS



GLO CONNECTOR

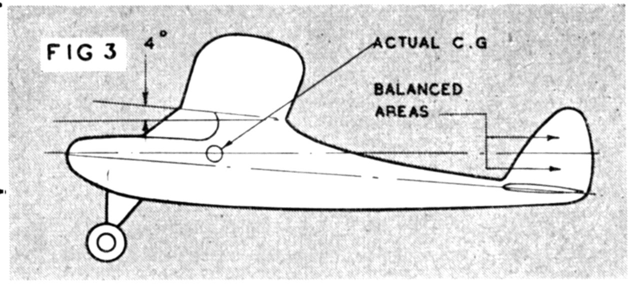


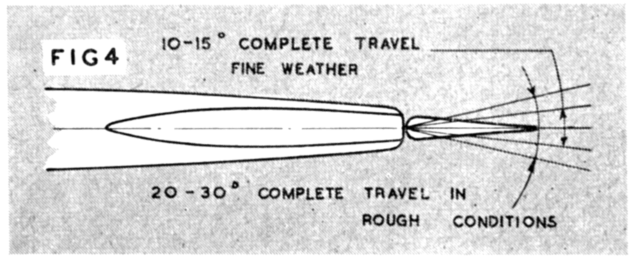
BARREL TIGHTENING

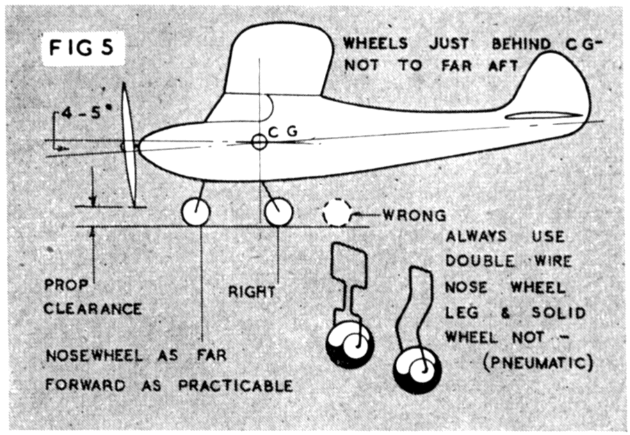
It's DESIGNED for YOU!

NUMBER SIX - - PART TWO

RADIO CONTROL MODELS







THE outline design we have suggested is an orthodox cabin-type high wing layout, this giving greater latitude in proportions, adjustment and control in turning flight. There is no reason why a shoulder-wing or low wing machine should not prove equally successful, but it would be more tricky to produce and less suited to a " generalised " layout. About the only differences in outline design between this model and an orthodox free flight cabin model, are the reduced tailplane area and increased fin area. The latter is still a debatable point — whether good stability in turns will come from smaller or larger vertical surfaces. But since we have witnessed definite spiral instability troubles directly traceable to too small a fin on a radio model, we prefer to err on the large size.

More theoretical-minded readers who have read C. H. Grant's articles on his C.L.A. theory and placement of side areas, may care to adopt his design suggestions for ensuring a level or nose-up reaction when the model is rolled into a turn. The theory is a little too lengthy to deal with here, but many modellers have adopted it with success on radio designs.

We are suggesting a similar but purely practical rule for determination of fin area distribution—Fig. 3. Very good results are achieved if the fin area is balanced about a horizontal line through the *actual* C.G. of the model, when the model is inclined at its *actual flight attitude*. The latter is difficult to determine, and so here we must work on a " guesstimation." The figure adopted is a wing angle of attack of between 4 and 5 degrees.

Many present radio control models suffer from the fact of having too much rudder area, or too much rudder movement, or both. Yet at the same time, unfortunately, different conditions demand different rudder power. More rudder power is desirable in windy weather, for example; and the response to rudder under power is different to that on the glide. Regarding the latter, there is something to be said for using endplate fins and rudders, where the rudders are clear of the slipstream and should have a more nearly equal effect under power and on the glide.

A total vertical tail surface area of 10 per cent. of the wing area should be adequate for directional stability. Of this area certainly no more than a quarter, and preferably a fifth, should be rudder area. Five degrees rudder movement in either direction should then be adequate to produce turns, although for various reasons it would generally be advisable to double this travel. It is desirable to be able to lose height by holding on a turn, but if every turn results in excessive speed being picked up, then neutralising the control and letting the model level out again will generally tend to nose it up into a stall. This is partially relieved by flying the model slightly, but definitely, under-elevated.

If there is too little rudder power, the model will be slow to respond. Control will have to be held on for some time before any appreciable effect is seen and there will be the danger of over-controlling, which does not make it easy to fly out a pre-determined flight pattern.

Correct rudder power is very important and well worth a considerable amount of time spent on its adjustment under flight tests. The exact amount of movement required will vary with different models, even to the same design (on account of slight rigging differences) and it may be found advisable to have alternative high and low power (large and small movement) for different conditions—Fig. 4.

Although rigging and balance is seldom critical, a radio model needs just as much trimming out and careful adjustment as any duration machine—if best results are to be obtained. Rudder neutral must coincide with straight flight, and it is quite a good plan to incorporate a trimming tab on the rudder itself, or the fin, to trim out any asymmetric rigging. Glide path with neutral rudder should be straight, although some fliers prefer a wide circle on the glide in "neutral" as a safeguard should the model fly out of transmitter range.

STRUCTURAL DATA

Model	Type	WINGS: Leading Edge	WINGS: Spar(s)	WINGS: Trailing Edge	WINGS: Covering	FUSELAGE: Type	FUSELAGE: Longerons	FUSELAGE: Covering	UNDERCART: Two Wheel	UNDERCART: Tricycle
A	Monospar Two-spar	3/8 sq. 3/8 sq.	3/4×1/4 1/2×1/4	1×1/16 'V'	Modelspan	Box	3/16 sq.	Sheet nose silk	2″ wheel, 3/32 wire 'V'	2″ wheels, 3/32 front leg, 14g rear
B	Two-spar Multispar	1/2 sq. 1/2 sq.	3/4 & 1/2×1/4 1/4 thick	1×1/4	Modelspan or silk sheet L.E.	Box crutch	1/4 sq. 1/2×1/4	Sheet nose silk	3″ wheel, 1/8 wire 'V'	2½–3″ wheels, 1/8 front leg, 3/32 rear
C	Two-spar Multispar	3/4 sq. 1×3/4	Built up box 1/4 thick	2×1/8 'V'	Sheet L.E. and silk	Box crutch	3/8 sq. 1×1/4	Ply sheet silk	4½″ wheel, 1/8 wire 'V'	—

Similarly, under power the model should fly straight in neutral*. Having first established the trim for straight glide in neutral, any adjustments to power-on trim can be made by giving the motor sidethrust, as required.

To combat sideslipping in turns, a dihedral angle of about 10 degrees should be used on the wings. Anything less is likely to lead to trouble, particularly on the smaller models. There is, actually, considerable evidence to support the use of a polyhedral wing with a tip rise equivalent of 12½ to 15 degrees straight dihedral as giving smoother turning flight.

Structurally the model can follow conventional free flight practice, but strengthened up all round, particularly the wing centre section and the fuselage forebody. The undercarriage especially demands careful treatment. On theoretical grounds, the nosewheel or tricycle under-carriage is undoubtedly the best proportioned as shown in Fig. 5. This has far less tendency to bounce than the conventional two-wheel type. Unfortunately, it has several practical disadvantages. The nosewheel must inevitably be long to give adequate propeller clearance, which at once makes it more vulnerable. Even if the gear is proportioned so that all three wheels touch down at about the same instant on a normal landing approach, on any poor landing approach the nosewheel takes the whole landing load initially. In other words, in any bad landing, the nosewheel takes a really hard knock. Even with the toughest steel wire the leg will be bent back, in use. A bad landing will wrap it around the bottom of its fixing former and it is always advisable to leave an opening in the bottom of the fuselage into which the wheel can be knocked without structural damage.

Provided you are willing to accept the fact that a bad landing *will* bend the nosewheel leg in this manner, a tricycle undercarriage can be used quite satisfactorily on models up to 6 ft. span and 6 lbs. weight, but larger models should employ a rigid leg with some form of springing.

Orthodox undercarriages appear to be more favoured for the smaller models—one particular advantage being that they are lighter, but again need to be more rigid than that of a free flight model counterpart, and 'V' wire legs with a spreader are not uncommon—Fig. 6.

Another type which is proving very successful in practice is the inset monowheel, also illustrated, used for landing only. The model is normally hand launched, although a drop-out undercarriage similar to that of a control line speed model can be used for R.O.G. take-off.

From the point of view of structural efficiency, a four component assembly is best—Fig. 7. The wings are in one piece, which is generally stronger and lighter than a two-piece wing joined with dowels. The motor unit is complete and detachable, so that any damage to the bearers, etc., in a crash landing is restricted to this component; also thrust line adjustments are simplified. The fin and rudder are built as an integral part of the fuselage, which is complete with all radio gear, batteries, etc. The tailplane is the fourth unit.

Practical limitations, e.g., transport, may dictate certain modifications, e.g., a two-piece wing in the larger sizes; or it may be thought advisable to mount the motor unit integral with the fuselage, especially with spark ignition.

Access to the radio grear, batteries and actuator is very important. It should be possible to reach all these components for adjustment, checking or replacement with the model completely assembled. In other words, it should not be necessary to take the wings off, for example, to adjust the receiver relay. This generally means that access doors or hatches have to be cut in the fuselage and it is very necessary to do this *sensibly*. Cut-outs should be made as small as possible, without making adjustment or access awkward, and main fuseage members should never be cut through at these points. The doors or hatches when fitted should fit *tightly* so that they will then restore the fuselage strength under compressive loads. Obvious weak points in the structure can be strengthened up locally, one of the main things to avoid being an abrupt change in loading where a relatively strong part of the fuselage continues as a simple box frame—Fig. 8.

* Straight flight should be obtained from *both* neutral positions of the activator. It is a common error to get *two* neutral positions due to not setting up the activator and rudder linkage accurately. This can prove most annoying in flight.

FIG 6

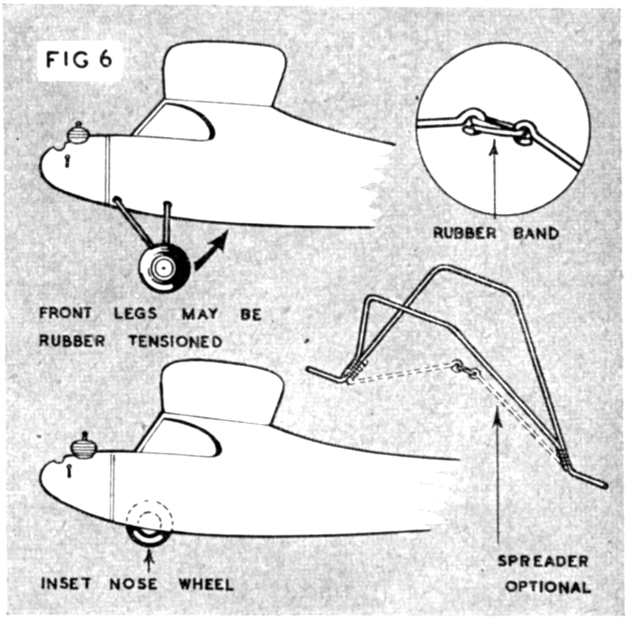


FIG 7

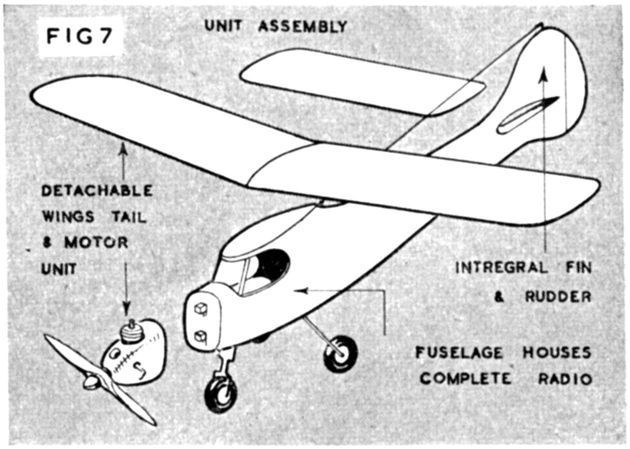
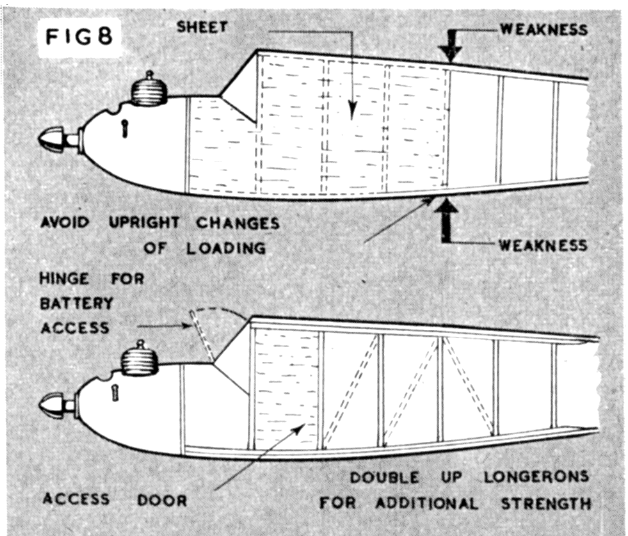
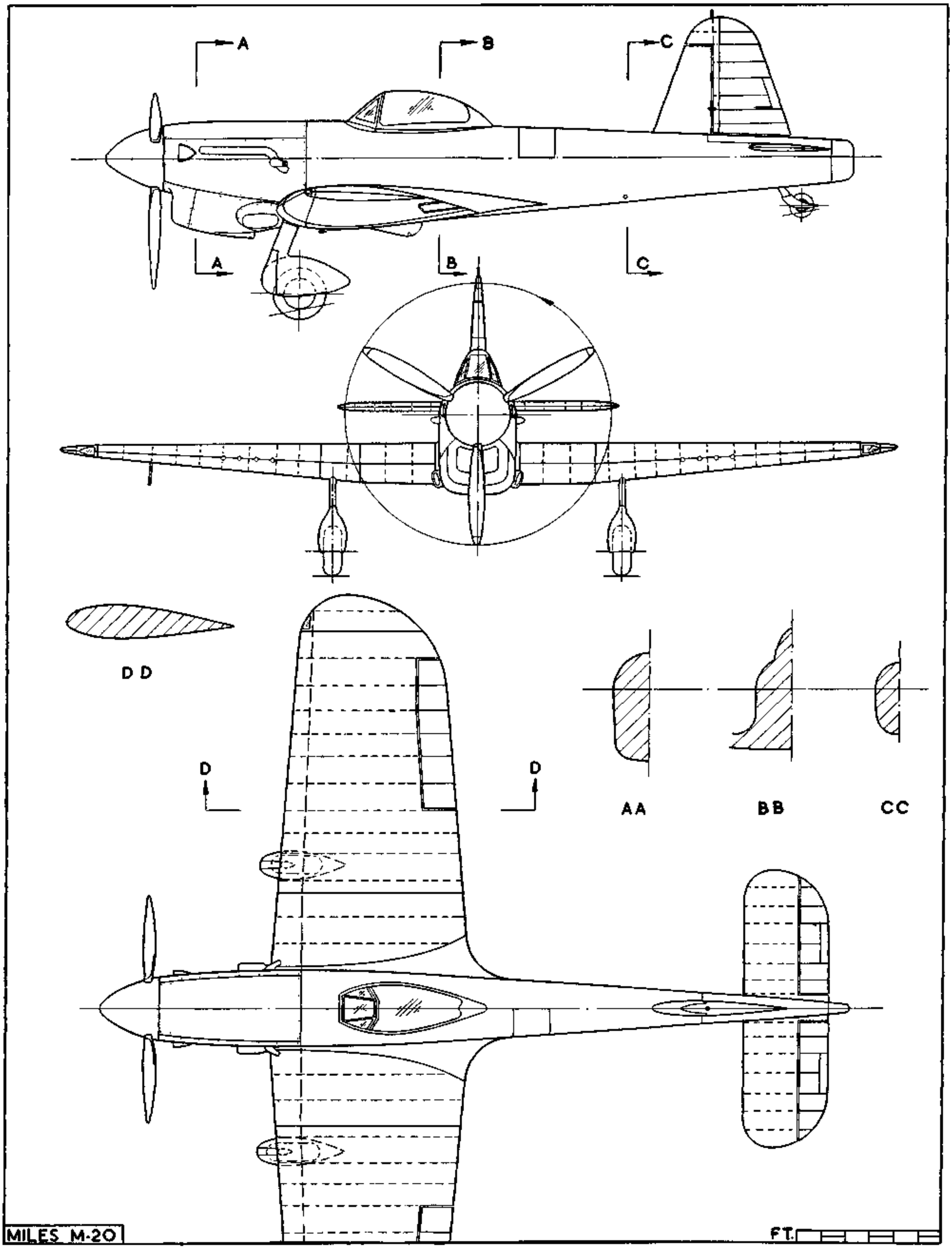


FIG 8




A
B
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AA
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CC
MILES M-20
FT.

AIRCRAFT DESCRIBED

NUMBER 36 BY G. A. GULL

The MILES M.20

Right: The naval prototype, which is also shown in the drawing opposite, and below, two views of the fighter intended for the R.A.F. with short fuselage in which form it made its first flight.

SINCE the advent of control line team-racing many modellers have searched their memories for a full-size machine of which to build a miniature team-racing version. An eminently suitable subject which seems to have been continually overlooked is the Miles M.20 fighter, with its simple streamline form, deep cowling and fixed faired undercarriage.

No fighter aircraft could have been brought to birth in more appropriate conditions than was the M.20, for it was the Battle of Britain that caused its conception and the aircraft was built in the " battle-area ".

In August, 1940, with the Battle of Britain being fought daily over Southern England and, at times, over their own works at Woodley, the Miles brothers saw the danger of the flow of new and repaired Spitfires and Hurricanes to the R.A.F. fighter squadrons becoming inadequate to stem the Luftwaffe formations. As a result the idea formed of a new single-seat fighter capable of dealing with all raiders, which could also be built quickly and in great numbers.

The Miles Master, which was in production at the time, was stressed for a high performance and so much design work was done around parts and detail fittings available from the Master production line.

To further simplify and, consequently, speed production, the drastic decision was taken to employ a fixed undercarriage and so avoid the complication and vulnerability of a hydraulic U/C retraction system. This emergency measure was further justified when servicing time on the hard-pressed squadrons was taken into account.

The greatest aid in this all-out effort to speed construction was in the choice of power unit. Then in production was the 1,260 h.p. R.R. Merlin XX power unit for Beaufighters and Lancasters, and two such units, complete with Rotol propellers, radiators and cowlings, were diverted from Beaufighter II production to Miles Aircraft.

The M.20's fuselage was designed to follow-on from the firewall of this unit and, to give the fast rolling qualities whose value was then being demonstrated daily overhead, a sturdy low aspect-ratio wing was designed with a thick section and deep spar to take the loads from the 8 Browning guns and wide-track undercarriage. This design also gave plenty of space for wing tanks and the absence of wheel wells further enhanced the fuel stowage position.

Weight saving resulting from the all-wood construction enabled more fuel to be carried than by the Spitfires and Hurricanes and 5,000 rounds of ammunition could be carried: greater than in the current versions of those famous fighters. A new feature was the incorporation of a sliding " teardrop " cockpit hood, made in two halves and joined down the middle, and which set the fashion for all succeeding fighter designs.

Nine weeks after design work started, the first prototype was finished and after two days of ground testing the new silver doped M.20 flew for the first time. From test-flying of this machine, which was allotted the prototype No. U-9, it was decided to move the tailplane aft. When this modification had been carried out the fuselage had been lengthened and the tailwheel also moved rearwards, slightly decreasing the ground angle.

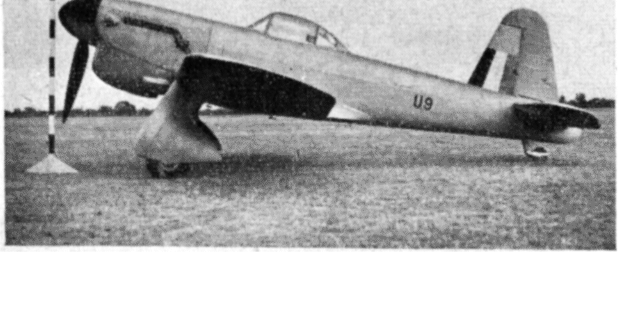
These revisions were incorporated in the second machine which was completed as a deck landing fighter with faired catapult spools under the wing roots and a further pair under the rear fuselage.

On this prototype, which was numbered U-0228, the undercarriage spats were re-designed, a slightly different cockpit hood and pointed spinner were fitted, but the original early type Beaufighter II flame damping exhausts were retained as fitted on the land based prototype, which later became AX 834.

By the time the prototypes were flying it was clear that the battle was almost won and so the M.20 was never needed. However, produced as it was in nine weeks and with a greater speed than the Hurricane, and longer range than both Spitfire and Hurricane, the M.20 will forever be the classic example of what a British aircraft firm can do in an emergency.

Construction: *Fuselage was a ply semi-monocoque with spruce longerons and stringers. Wings had spruce-boom and ply-web box spars, and were covered with ply, as was the tail unit.*

Dimensions: *Span: 34 ft. 7 ins. Length: 30 ft. 8 ins. Height: 12 ft. 3 ins. Wing area: 235 square ft. Weight empty: 5,910 lbs. Weight loaded: 8,000 lbs.*



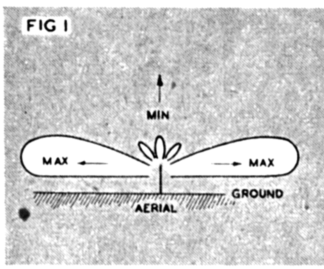
RADIO CONT

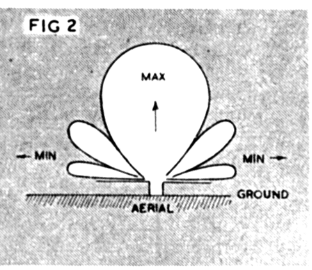
A LOT of people have made the statement that the range of radio control equipment is much greater in the air than on the ground. Up to now, no one has produced any diagrams to illustrate this, so we welcome some notes on the subject from Cpl. Johnson, a Wireless Fitter in the R.A.F. who is at present serving in Germany. He starts off with the vertical aerial, and this is what he says.

The polar diagram is shown in Fig. 1. The lobes show the strength of signal in any given direction all round the aerial. It is obvious then that the maximum signal strength will be around the aerial, and minimum above it. The aerial being a quarter wave-length long, and fed at the bottom end. It's advantages are that it is small, (about nine feet long for 27 mc/s.) and it can be coupled direct to the transmitter, that is to say no feeder wires are necessary, it is light and portable.

For a horizontal aerial, the polar diagram is shown in Fig. 2. The lobes show that maximum signal strength is above the aerial, which is more suitable for aircraft. It is more bulky than the vertical type, but can be readily supported on spring steel masts held by two guy ropes at each end. This aerial will normally be a half wavelength long, which in the case of 27 mc/s. will be about 18 feet, and it is fed in the centre.

Note here that the length of any half wave aerial is about 0·47 of the true wavelength in metres. 27 mc/s. = 11·1 metres and 465 mc/s. = 0·65 metres.

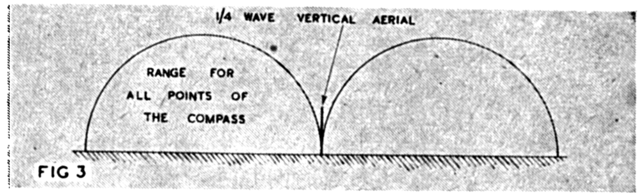




The writer is under the impression that what Cpl. Johnson says is the popular belief, but is of the opinion that it is not all true. For instance, Fig. 3 shows the sort of pattern to be expected from a quarter wave vertical aerial, with the transmitter standing on the ground, and earthed, which is the usual condition for radio control, according to the Amateur Radio Handbook. This same handbook gives a diagram very similar to Fig. 2, only if the aerial is three quarters of a wave-length above the ground, and looked at end on to the aerial. For an aerial fixed horizontally one quarter wavelength above the ground the pattern is much the shape of a ball standing on the ground. According to the various diagrams in the Handbook, the range on the ground will be greater than the range in the air for vertical aerials, and greater in the air than on the ground for horizontal aerials. Since a radio controlled model is normally flown at various heights near the transmitter, and not usually low down at a distance, the most generally useful aerial seems to be a horizontal type one quarter wavelength above the ground. If a switching arrangement could be fixed up to change over to a quarter wave vertical aerial, all conditions would be covered. All directions can be covered about equally by using a short aerial, say about one eighth wavelength, but the power radiated will be less. Whatever aerial is used, what is gained in one direction will be lost in another.

The writer believes that the diagram of Fig. 3 is more likely to be correct than Fig. 1. When flying with an experimental receiver on one occasion, the range on the ground was about a hundred yards, but about 50 feet up in the air, the model went out of range at 60 or 70 yards. The control system used incorporated a built in left turn with no signal so the model made its turn and came back into range at about the same distance. This kind of thing has happened at other times also.

Mention has been made of changing over from a horizontal to a vertical aerial, and this brings up a query from Mr. D. Fry, who has asked how to connect up a single pole vertical aerial to the transmitter described by Mr. Dews in

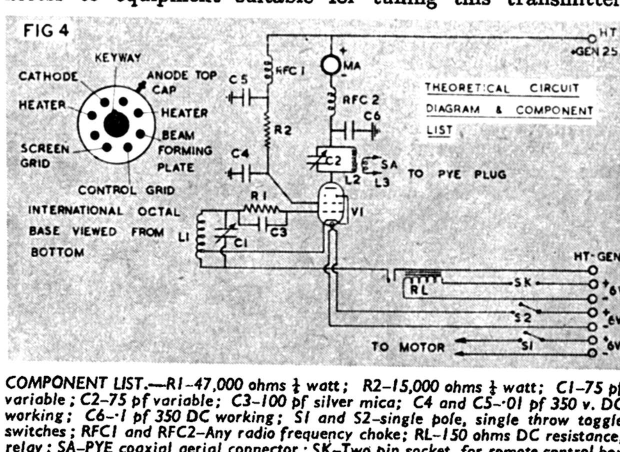


the AEROMODELLER for October 1949. Fig. 5 will help to explain the difference. *5a* shows how each end of the aerial coupling coil is connected to the inner ends of the half wave di-pole horizontal aerial. *5b* shows how one end of the coupling coil is taken to the bottom of the vertical aerial, and the other end goes to the earth, which generally means the point where the low tension and high tension battery wires are fixed to the transmitter. This point is usually connected to the chassis if this is metal, and is "earth" with regard to the transmitter, whether or not it is connected to the ground.

While on the subject of aerials, let us go back a bit to receiver aerials. In the March AEROMODELLER, the writer stated that a resonant aerial would give a greater signal strength than a non-resonant aerial. Mr. F. W. Borders of Brixton, who has a very good knowledge of radio, considers that a resonant aerial would not allow a super-regenerative receiver as used in model control to operate. As explained by Mr. Borders it sounded reasonable, but since such an aerial would be rather long, even for an 11 foot span Dakota, the matter has not been taken any further by the writer.

Let us now hear some more from Cpl. Johnson, this time on the subject of his home-made transmitter.

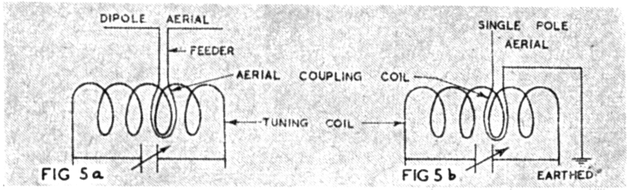
This transmitter was designed to work from the 6 volt battery in the Morris 8 that was used to transport the radio equipment and other gear including one wife and son. (Does he leave another wife at home to get the dinner ?). Using the 6 volt accumulator allows the use of a 6 volt valve and a motor generator for supplying the high tension. This particular motor generator is described as "Transformer rotary, H.T. 32 watt No. 1 (Sender) Ref. No. ZA15148, 11·5 volts input, 490 volts 65 m/a output". With a 6 volt input it will give an output of 250 volts at 30 m/a, which is more than needed. With everything switched on the current drain on the accumulator is 3·5 amps, and with key switch (or push button) released the current is 2 amps. The valve chosen was an Osram TT11, but any beam tetrode such as a 6V6G would do. The circuit is the Electron Coupled Oscillator, and is shown in Fig. 4. It should be tuned to the correct frequency by a radio engineer. Anyone else having access to equipment suitable for tuning this transmitter



COMPONENT LIST.—R1–47,000 ohms ½ watt; R2–15,000 ohms ½ watt; C1–75 pf variable; C2–75 pf variable; C3–100 pf silver mica; C4 and C5–·01 pf 350 v. DC working; C6–·1 pf 350 DC working; S1 and S2–single pole, single throw toggle switches; RFC1 and RFC2–Any radio frequency choke; RL–150 ohms DC resistance, relay; SA–PYE coaxial aerial connector; SK–Two pin socket, for remote control box or push button; MA–0—50 milliameter; V1–OSRAM TT11 (or any 6v filament beam tetrode); Grid coil L1–6 turns 1½" diam. 1" long; Anode coil L2–6 turns 1½" diam., leave ¾" gap in centre, total length 1¾"; Aerial coil L3–2 turns 1½" diam. to "swing" in centre gap of L2. All coils wound with 14 gauge copper wire, self supporting (diameter of wire = ·08").

ROL NOTES

H. BOYS



correctly will no doubt already know how to do the job.

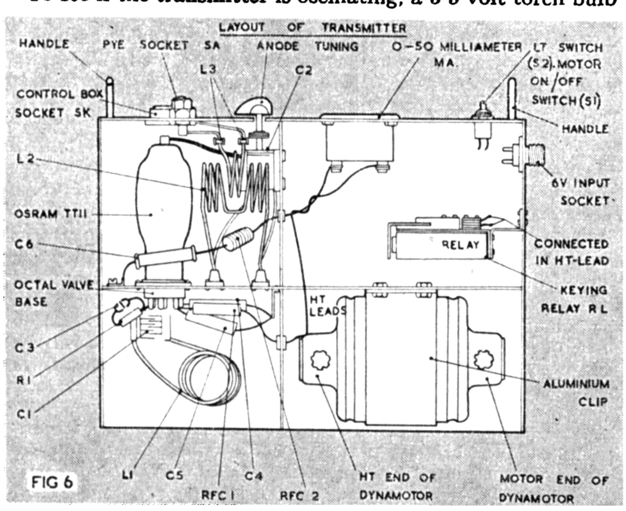
A very important part of a transmitter is that where the energy developed in the oscillator is transferred to the aerial. This transmitter uses the transformer type of coupling between L2 and L3. On each end of L3 a loop is formed to take a 6 B.A. bolt which passes through a corresponding loop in the 14 gauge connections to the Pye plug. This loop will then swing in and out of the gap in the centre of L2. This can be seen in Fig. 6. The further L3 is swung into L2 the tighter the coupling, and by this adjustment the aerial and anode circuits are " matched ". When the transmitter is tuned, the aerial coupling coil L3 should be adjusted so that the meter reads 20 milliamps with the voltage of 250. This gives the 5 watts input which is the maximum allowed for model control. If the motor generator used should give less than 250 volts the current could be higher. For instance, at 200 volts the current could be 25 m/a. Check at the same time, to ensure that the watts do not exceed five.

The aerial feeder consists of nine feet of 80 ohm co-axial cable with a Pye socket at each end. One plugs into the transmitter and the other into the aerial. A co-axial cable consists of a centre core surrounded by insulating material such as polystyrene which is in turn surrounded by another conductor usually in the form of a wire mesh. The centre core goes to the socket centre, and the outer conductor to the socket frame. The inner end of each aerial leg goes to a Pye plug, one to the centre and the other to the frame.

The keying relay RL is put in to keep the negative lead as short as possible to aid frequency stability, and allows any convenient length of lead to the push button or control box.

The transmitter is very stable once the operating temperature is reached, so it is advisable to have the completed chassis in a case to keep all temperatures constant. The drawing Fig. 6 shows the general construction, the overall dimensions being 11 ins. × 7 ins. × 4 ins., though it could be made smaller providing screening plates were employed. On the original transmitter a screen is used between the motor generator and the grid circuits. The anode tuning condenser is mounted on a plate on the top of the chassis, though the condenser itself must be insulated from the chassis. The shaft is in two parts connected by a flexible insulated coupling.

To see if the transmitter is oscillating, a 3·5 volt torch bulb



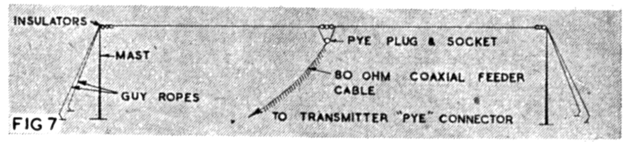
can be connected across the ends of a loop of wire. If the transmitter is oscillating, the bulb will light up when the loop is brought close to the anode coil L2.

Note that the cathode of the valve does not go to earth direct but is connected up approximately two turns from the earth end of the grid coil L1. The radio frequency chokes can be made by winding about 60 turns of thin wire to a length of 1¼ ins. on a ¼-in. diameter former, or they can be purchased. These chokes and their associated condensers C5 and C6 stabilise the circuit and help prevent parasitic oscillations.

The G.P.O. regulations state that (1) Every precaution should be taken to ensure that all radiated signals are within the specified frequency bands and (2) Adequate means of stabilizing the carrier frequency will be necessary.

In this transmitter the valve is a stable oscillator and it is adequately screened. A keying relay is employed, the supply voltages are constant, and temperatures are reasonably constant, and these points all help to stabilize the carrier.

The aerial is a half wave dipole, 18 feet long including the centre insulator, and it is supported 9 feet (one quarter wavelength) above the ground by means of a steel mast at each end, with two guy ropes to steady it. The masts rest on the ground, and it should not be necessary to sink them in. The aerial should be kept as still as possible. The wire used is 18 gauge hand-drawn copper. The general scheme for the aerial is shown in Fig. 7.



Cpl. Johnson's transmitter has quite a lot in common with the writer's latest. This uses a 6C4 valve, and the six volt accumulator is carried in a separate compartment of the transmitter case. On the end of the motor-generator is fixed a rotary switch to work the writer's proportional control system.

On the subject of frequency stability, a letter has been received from Mr. G. Honnest-Redlich, who is one of the best radio men in this model control business. Do you remember how he attended the first International radio control contest in France last year, and put up such a good, in fact outstanding, performance that he was given a special prize? He criticises Mr. Dalton's transmitter and maintains that, mechanically, frequency stability would be impossible unless it was kept unmoved in a glass case. He also challenges Mr. Dalton to tune his transmitter by his method and have the frequency checked with instruments giving an accuracy of 1 per cent. The accuracy required by the G.P.O. works out at plus or minus half per cent. Mr. Honnest-Redlich has recently had correspondence with the G.P.O. on the subject of frequency accuracy and they have stated politely but firmly that if any interference from Radio Control is noticed at all, then Radio Control will stop. Just like that. It is therefore essential that everyone using a transmitter for radio control should be very careful about the frequency. When Mr. Dalton sent along his instructions for tuning the transmitter there was no time to enter into correspondence about it and the writer let it go, believing that anyone who knew enough about radio to follow those instructions would know enough to tune the transmitter accurately. The writer assumed that Mr. Dalton intended the half wave aerial mentioned to refer to a Lecher wire system. In an American book called the Radio Amateur's Handbook this system is described and mentions checking a super-regenerative receiver. This handbook gives the impression that it is possible to obtain an accuracy of decimal one per cent. The system will not be described as it is so much easier and satisfactory to have the frequency checked by a reputable radio engineer.

For keeping a check on the frequency of a transmitter, the Radio Controlled Models Society recommend the constant use of a good frequency meter. This Society have published details of such a meter that can be made at home quite cheaply, and hopes to include them in a future issue.

PER 'BONO' AD ASTRA

(A rubber-powered model, sporting a bone propeller, has recently been observed at Fairlop.)

Angus McLean, a Medical Student,
Without a bean, and most imprudent,
Had a very foolish failing
—Apart from slicing up the ailing—
Since a toddler he had been
An aeromodeller—very keen.

While fellow quacks, with bloated purses,
Donned Sunday slacks to court with nurses,
Angus would in haste repair
To taste of Fairlop's thermal air,
So forgetting all mishaps
And ills besetting Homo Saps.

Yet felt he glum—a rank outsider—
With his one and only glider,
Envying those whom wealth endowed
With Wakefield models—rubber powered.
And saw himself as Cinderella,
Too poor to buy a large propeller.

He brooded thus the day he carted
The carcase of a soul departed
From the morgue and through the lab
To the operating slab.
And on this grim and gruesome biz
An idea struck him—simply wiz!

The Dissecting Room that very night,
Plunged in gloom and cold moonlight,
Made Angus shiver as he sought
The ribs of some dismembered morte,
And carefully graded two of which
Were widely bladed—medium pitch.

So when at Fairlop you might spy
A bony prop away up high,
And receive a cheery nod
From a laughing, happy bod,
Then be sure you've met " His Nibs ",
And what is more—his " floating ribs ".

L. RANSON.

DEAR SIR,

Having read the AEROMODELLER every month since November, 1943, it seems, to my mind at any rate, that the design of model aircraft has sadly deteriorated. " Aeroplane " is the wrong word for these contraptions as they bear little or no resemblance to the full size job. They are only flying machines, some of them the most ugliest designs ever.

Another point I would like to bring up is that I cannot understand why the models of today have such a flimsy undercarriage, in some cases just a piece of wire protruding from the underside of the fuselage. As a matter of fact, the Rev. F. Callon mentioned in the AEROMODELLER a month or two ago in his articles for beginners, that the function of an undercarriage is primarily only to arrest the flight and prevent the propeller from breaking, no matter whether the 'plane, turns over on landing. Surely, the beauty of the flight of a model is not only the flight itself, but the way it takes off under its own power and the way it makes a perfect three-point landing.

I myself have built many models, all of which are scale replicas of full size machines, all with a sturdy undercarriage. I would add that my next model is to be a replica of the Avro 504 K.

My father, a keen aeromodeller of the Wimbledon and District Model Aero Club in 1913 (and also a club-mate of one of your correspondents, D. A. Paveley), is appalled at the way the design of models has progressed, though " progressed " seems to be the wrong word in this case.

Lastly, I feel very strongly about control-line flying. Why the craze for models travelling at 150 m.p.h. so that one can barely see them ? What pleasure does one get out of it, holding on to two pieces of wire valiantly trying to control the angry monster at the other end which seems to be doing its level best to plough into the ground. Here again I come to design. An enormous fuselage, stubby wings and tail, and undercarriage wheels out of all proportion to the model.

Why can't people build models to be proud of, models that resemble the real thing, and *fly* like the real thing ?

I would like to have other people's views on this subject.

Epsom, Surrey. S. V. TUCKER.

Dear Sir,

Writing in the AEROMODELLER of August, 1950, Mr. R. H. Baylis complains of the short life of the Hivac XFG1.

May I point out that the valve is experimental and, compared with the RK61, exceedingly cheap. Nevertheless, the life of the valve is considerably in excess of 3 hours.

I have been using RK61's for 5 years, and have found that with reasonable care, 20 hours life can be expected. I have used XFG1's since the prototype stage, and find that I am able to get a minimum of 15 hours life from them. I have one that, after 43 hours of flying, is as good as when it was purchased.

Short life is nearly always the fault of the user. The valve must be used with great care. When switching on the filament battery, the variable resistance should be set to minimum current first, and the current should be slowly adjusted to a maximum of 1·4 ma. This value should *never* be exceeded, even for a moment. When switching off the reverse procedure should be followed. The resistance should first be set to minimum current, the H.T. battery should then be disconnected, and only then should the filament be switched off.

Shortage of life is very often an illusion on the part of the user, and is attributable to the particular circuit and its constants. Many people have brought so-called exhausted valves to me, which I have demonstrated to have many hours of life left in them, merely by changing the constants of their circuit. Unfortunately, no English manufacturer has taken this point into account in the manufacture of their sets.

I consider that, although the life of these valves is shorter than that of a hard valve, the last paragraph of Mr. Baylis' letter is unwarranted. With a correctly designed receiver adjusted to the critical point of the valve, working at 1·3–1·4 ma. using a good and reliable relay, preferably of the " Sigma" type, correctly adjusted, perfectly reliable Radio Control can be enjoyed in flights of an hour and more, with ranges in excess of 4 miles. Can this be claimed of any hard valve receiver of reasonable weight?

I have had hundreds of hours of R.C. flying with thyratrons and my only instance of loss of control was upon an occasion at Fairlop in 1948, when a battery lead broke loose. I consider that nearly all R.C. failures are to be traced to inefficient circuits, bad relays, poor mechanical operation of the control surfaces, and general ham-handedness on the part of the operator. Attention to these details will ensure perfect control of a machine for long flights over a long period without valve failure.

May I add that I have no interest in Hivac apart from a feeling of thankfulness, that they have relieved me from the necessity of paying a high price for American valves.

Stockwell, London, S.W.9. F. W. BORDERS.

CLUB NEWS

BY CLUBMAN

THERE seems to be a great deal of uncertainty regarding the future of the Wakefield Models Specification, particularly in view of an editorial published in our contemporary which gave some of the views considered by the F.A.I. at their last conference. The snag is that official releases from the F.A.I. have not become available, and it is futile to conjecture on changes until some official ruling has been made known.

The proposed changes are, in my opinion, very sound, the adoption of a combined wing/tail area allowing for a much wider application of design than under the old specification, where in almost every case the flying surfaces were all of fixed proportions in relation to each other. The adoption of a standard minimum fuselage cross section will also help but there is still apparently some misunderstanding of just what does and does not comprise wing area. The current method of mensuration as shown in the current S.M.A.E. Handbook is not fully understood, there still being some misgivings in just which designs the wing plan form is carried to the centre datum line.

Quoting from page 21 of the 1950 Handbook, C. Dimensions—Loading characteristics of models, states . . . " In the case of wings and empennages attached to the body of the machine the surfaces taken will include the complete centre of the fuselage(s), the normal contour lines of the surfaces being supposed extended until they meet the plane of symmetry of the machine in plan view." This seems clear enough but reference to the sketches shown on page 23 indicates a qualification of this ruling, for it states . . . " In cases where the wings are faired liberally into the fuselage their contour lines are continued, etc., etc." This matter needs clearing up promptly for there are a great many modellers currently labouring under a misapprehension, and it would seem the best method would be to adopt the written ruling in its entirety and without exception. (This will of course create a further controversy between the high-wing and shoulder-wing boys, but there is no doubt that an official ruling one way or the other is required without delay.)

The **SOUTH WALES AREA** August Rally at Fairwood Common was well attended, but a high wind spoilt what was otherwise a really fine day. Entries were fairly small in spite of the number present, and only 29 gliders competed for the sailplane event. The breeze moderated slightly for the rubber event later in the afternoon, and the day rounded off with power flying. " Bud " Morgan showed how to get 'em upstairs in no uncertain fashion, his first flight of the day being his last! Results were :—

Glider	**Neyland, B.**	**Swansea**	**694.8**
	Reason, R.	**Cardiff**	**631**
	Blackmore, J.	**Cardiff**	**583**
Rubber	**Modern, K.**	**Swansea**	**—**
Power	**Verney, M.**	**Swansea**	**403.2**
	North, P.	**Cardiff**	**378**
	Twomey, R. A.	**Cardiff**	**370.2**

Another Area to hold an Autumn Rally was the **WESTERN AREA,** and as with many other Areas, the National comps. of September 3rd filled the programme. Thanks to the Swindon M.A.C. and the C.O. commanding Wroughton Aerodrome, a fine field was available, but the weather did not co-operate, and rain was on the fall nearly all day. Four models were lost o.o.s., but the rain and consequent poor visibility kept times and ratios down. Results :—

Astral :	**Staines, J. R.**	**(Bristol Aces)**	**5.01 ratio**
	Hillman, R.	**(South Bristol)**	**4.32 "**
	Fisher, B.	**(Glevum)**	**3.86 "**
M.E. Cup :	**Hewitt, P.**	**(Trowbridge)**	**287.2**
	Newman, B.	**(Swindon)**	**287**
	Pocock, M.	**(Trowbridge)**	**146.4**
Farrow :	**Billows, G.**	**(Bristol & West)**	**230.8**
	Woolls, G.	**(Bristol & West)**	**180.5**
	Price, J.	**(Bristol Aces)**	**130.8**

Lastly, the **MIDLAND AREA** made September 3rd the occasion of an Autumn Rally, the meeting being held at Loughborough College Aerodrome. Though low clouds and high wind spoilt many flights, fortunately the rain held off until the end of the meeting, and not too many models were pranged. Dennis Braes of Flying Saddlers had bad luck, losing his power model on its first flight after a ratio of over 14. His time was 4 : 40·6 from an 11·5 seconds engine run, and it meant taking second place on a one-flight performance. Ted Evans had an off day, his model piling in on its first take-off. Four maximum's were scored during the course of the day, two in glider, and one each in the rubber and power events. Results were :—

. . . not so dusty, either, eh, Mr. and Mrs.? Genial Barry Haisman, Chairman of the N.W. Area Committee, takes time off from the honeymoon to run the Daily Despatch rally and collect a wedding present.

Astral :	**Wickes, P.**	**(Northampton)**	**8.71 ratio**
	Braes, D.	**(Saddlers)**	**7.55 "**
	Fulwell, G. J.	**(Sheldon)**	**5.15 "**
M.E. Cup :	**Hanson, M. L.**	**(Solihull)**	**699.3**
	Smith, D. C.	**(Loughborough)**	**519.5**
	Whittall, L.	**(Birmingham)**	**496**
Farrow :	**Royle, J.**	**(Littleover)**	**561.8**
	Adams, J. F.	**(Northampton)**	**521.2**
	Royle, P. J.	**(Littleover)**	**508**

It will be seen that British Team members for 1950 did well, Hanson showing that his place in the A/2 Team was no fluke, even though he was out of form at the finals. Adams had ironed the bugs out of his repaired Wakefield, but "unlucky" P. J. Royle had to give way to father on this occasion!

" The Torquer "—new club magazine of the **CHEADLE & D.M.A.S.**—has plenty of meat for its members, though I wonder what H.J.N. thinks of his " new kit." As one writer states, " Radio Control is not a practical proposition on 2/6 a week. If you want to get anywhere you need a pal who knows radio, and you yourself must know a bank manager! " (Wouldn't do me any good—my bank manager knows me only too well!) Several members had a good day's fun at Blackpool fishing models out of the boating pool, one glider in particular having a much improved performance after such a ducking! A new type of indoor activity is to be tried out this winter, i.e., r.t.p. team racing. Models must be scale or semi-scale and have cockpits; timing over 75 laps, including winding, etc. Sounds like fun.

John Done of the **LIVERPOOL M.A.S.** won the 1950 meeting at Clwyd Hills, his winning time of 3 : 25 H.L. with an A/2 glider being claimed as a new record. (This was later beaten at Baildon, when G. J. Joyce of Leeds clocked 3 : 40). Three members travelled to the Isle of Man Rally, complete with car and travelling workshop—thus enabling Bill Ford

to complete his entry for the concours ! !

The newly-formed **KENSINGTON M.A.C.** is flourishing, and a silver trophy has been acquired. Several models are under construction, but the lads have to catch up with the feminine section, the most successful glider to date being the work of the one and only female member . . . which only goes to show !

The **ISLE OF WIGHT** combined clubs had a day out at Lea Airport, with (naturally) a high wind to liven things up. Sailplanes proved the most popular class of model, but many spent a long time in an adjacent copse. J. Surbey won the C/L Stunt Class, R. Stone, Jnr., the Sailplane event, and A. White the Power ; all three being from the Medina club.

BLACKPOOL & FYLDE M.A.S. met a knife-edge defeat at the Bolton Rally, Ashton finishing thirty seconds ahead of the seasiders. Bert Lee placed the club on top in the power event, but main interest was on the team rubber affair, where motors and nerves frayed in company. C. Davey leads the rest in the Club Championships with 386·1 points, but S. Newton is chasing him hard.

Having gained a means of transport at long last, the **BARGOED EAGLE POWER CLUB** is going through a " great revival " and intends to make its presence felt in the near future. As a preliminary the club journeyed to Fairwood Common for the Welsh Rally and won the Team Race event ; Ron Morris, the club sec., winning with a " Frog 500 " powered original design. This bunch are producing planes that look like planes, the " box-car " era having definitely passed with them ! !

The **BRIGHTON DISTRICT M.A.C.** South Coast Gala was held on the Chattri in beautiful weather, apart from a gusty wind which sprang up after lunch. Four cups were awarded and all contests were for power models, divided into classes according to engine capacity, and some 67 entries from 17 clubs had plenty of keen competition. I. C. Lucas of the local club unfortunately lost his " Sailplane " at his first attempt, and had to be content with third place in Class C with only one flight. A demonstration of R/C by the Hook Bros. was much appreciated by the considerable number of spectators, this show being augmented by Alec Wilson's " Manx Queen ". Results were :—

Class A	Marcus, N. G.	(Croydon)	620.8
	Jays, V.	(Manor House)	473.8
	Knight, J.	(H. Nomads)	395.9
Class B	Ladd, N.	(Croydon)	512.1
	Marcus, N. G.	(Croydon)	452.3
	Clark, C.	(Sutton)	435.5
Class C	Marcus, N. G.	(Croydon)	521.3
	Mussell, A.	(Brighton)	501.4
	Lucas, I. C.	(Brighton)	300

Gala Champion : N. G. Marcus (Croydon)

Now that Fairlop has become the venue for many major events, the **ILFORD & D.M.A.C.** has developed an efficient recovery service—and certainly meets some interesting people ! The club secretary asks, however, that " lost model owners " adopt the following simple rules when making enquiries : (a) send written authority to the club to collect your model (it's no joke for the retriever to be told, " yes, the model is here, but we have no sanction from the owner to let you have it ") ; (b) do at least send a letter thanking the people who notify you of your model's whereabouts. Seems to me that aeromodellers must either be the most impolite section in the country, or just plain damn thoughtless. So, see to it, will you, chaps—if your model is lost from Fairlop, do at least help the Ilford club when they try to collect same for you, and don't forget also to thank the bods who have done this service for you.

Heavy rain and high winds completely ruined the **HULL Y.M.C.A.** Club Rally at Leconfield on August 20th. However, supported by stalwarts from Goole, Scarborough, Leeds and Tankersley, 39 entries were attracted, and the winners are to be congratulated on putting up such a good show under almost impossible conditions. Only three entries were received for the C/L event, and this was eventually scrubbed. Results :—

Power	Cross, P.	(Scarborough)	2 : 55
	Beverley, M.	(Scarborough)	2 : 43
Rubber	Cameron, G.	(Leeds)	3 : 59
	Smalley, E.	(Hull Y.P.I.)	3 : 37
Glider	Stork, W.	(Scarborough)	4 : 27
	Turner, G.	(Goole)	3 : 22

After prodigious efforts of organisation, and a club night devoted to careful drilling of officials and timekeepers, the secretary is reported to be slowly recovering from an attack of broken-heart !

For the third year the **SOUTHAMPTON M.A.C.** beat Portsmouth in the " Hobart Cup " contest the final score on August 27th being 26 points to 12. Doug. Gordon was the man of the day, placing first in the power and glider events, and second in the rubber class.

The **EDINBURGH M.F.C.** Gala Day held at Edinburgh Airport was an all-round success, good weather being a helpful factor. The standard of flying was very high, with little or no help from thermals, and J. Addison of Dunfermline won the glider even easily with a best flight of 3 : 05, flying a " Dreambogy ". Peter Montgomery (Kirkcaldy) won the rubber comp. flying his Wakefield model seen earlier this year at Fairlop, his best flight being 3 : 25, just five seconds better than the next man, R. Taylor of Glasgow, who caught the only thermal of the day and lost his model o.o.s. In the free-flight power class D. C. Gibson of Edinburgh placed top with a best flight of 2 : 05, whilst M. Wallace of Bathgate won the C/L event.

Poor weather has seriously curtailed flying in the **COVENTRY & D.M.A.C.**, necessitating some quick changes in the contest calendar. The members' Rally was run off in anything but ideal conditions, but this did not prevent 23 stalwarts from contesting top honours. M. Patrick won the sailplane event with 2 : 34, B. Roberts the rubber with 6 : 23, and B. Kemp the power class with 2 : 35·6 (engine run 20 secs.). The return fixture with the West Coventry club resulted in a tie, both clubs gaining two firsts and two seconds.

L. Whittall, steady Wakefield and glider flier of the **BIRMINGHAM M.A.C.**, clocked 1,791·7 seconds with his Nordic glider on July 9th, this setting up a new National record, and of course wiping the board in the club list. Model did a " round tour " of Sutton Park, eventually returning to within some 75 yards of take-off point. On another flight later in the day the job was lost after a flight of 10 : 00 o.o.s. (J. Hudman did over 30 minutes unofficial the same day—but

NEW WORLD RECORDS

Ref. : F.A.I. Information Circular No. 45. Paris, 6th July, 1950. The following World and International Model Aircraft Records have been promulgated :—

WORLD RECORD. Speed in circular flight :

G. Laniot (France), 22nd April, 1950. 201·177 km/h. (125·698 m.p.h

INTERNATIONAL RECORDS. Speed in circular flight :

AEROPLANES	Class i	M. Vassiltchenko (U.S.S.R.). GAML-K-1 motor) of 1·963 c.c. Moscow, 14th May, 1950. 89·938 km./h. (56·21 m.p.h.)
	Class ii	M. O. Gaevsky (U.S.S.R.). MB-650 No. 01 motor of 9·966 c.c. Touchino, Moscow, 18th April, 1950. 145·382 km./h. (90·868 m.p.h.)
	Class iii	G. Laniot. (France). "Micron 60" of 9·87 c.c. Cachan, 22nd April, 1950. 201·117 km./h. (125·698. m.p.h.)
ROTOR PLANES	Class	M. N. Tvoregov (U.S.S.R.). TSAML-50 motor of 1·886 c.c. Maoumane, Moscow, 17th April, 1950. 51·876 km./h. (32·42 m.p.h.)
	Class ii	M. N. Tvoregov (U.S.S.R.). K-16 motor of 4·421 c.c. Moscow, 20th April, 1950. 43·7 km./h. (27·31 m.p.h.).
FLYING WING	Class i	M. I. Knoukhra (U.S.S.R.). TSAML-50 motor of 1·889 c.c. Moscow, 28th April, 1950. 66·080 km./h. (41·085 m.p.h.).
	Class ii	M. O. Gaevsky U.S.S.R.). MB-63-F motor of 4·637 c.c. Touchino, Moscow, 25th April, 1950. 84·068 km./h. (52·290 m.p.h.).
	Class iii	M. O. Gaevsky (U.S.S.R.). MB-65-OIF motor of 9·955 c.c. Touchino, Moscow, 23rd May, 1950. 163·447 km./h. (102·155 m.p.h.).
JET		M. M. Charov (U.S.S.R.). Leningrad, 21st December, 1949. 129·96 km./h. (81·2 m.p.h.).
JET		M. Vassiltchenko (U.S.S.R.). Moscow, 14th May, 1950. 144·025 km./h. (90·015 m.p.h.).

of course no timekeepers !) Ray Monks cleaned up the D.D. Rally at Manchester, whilst P. Whittall—younger brother of L.—became junior champion of the Midland Area at the September meeting. R/C is going strong in this club, with many successful models being well and truly tested in readiness for next year.

Quite a change is the report of the **BOLTON M.A.S.** Rally at Affetside, the weather being near-perfect, and encouraging an entry of 185 from 27 clubs. Members of the home club were only allowed to enter the rubber comp., thus bringing a certain amount of assistance into being ! The rubber event also formed an inter-club affray for the Greenhalgh Trophy, eventually won by Ashton with 1,441 points against Blackpool's 1,411·8, Bolton placing third with 1,275. Individual comp. results were :—

Rubber	Clarke, F.	(Bolton)	10 : 59
	Wyatt, C.	(Ashton)	8 : 13
	Ward, S. A.	(Ashton)	7 : 50
Glider	Hepworth, J.	(West Yorks)	7 : 54
	O'Donnell, H.	(Whitefield)	7 : 00
	Walker, B.	(Whitefield)	6 : 55
Power	Lee, B.	(Blackpool)	4 : 47
	Farrance, E.	(West Yorks)	4 : 03
	O'Donnell, M.	(Whitefield)	3 : 44

A stormy breeze did not exactly help fliers at the Third Annual Rally staged by the **HUDDERSFIELD AIR LEAGUE M.A.C.** Nevertheless, 150 entries were taken and some 2,000 spectators visited the aerodrome and saw the following do their stuff :—

Glider	Farrance, W.	(West Yorks)	8 : 22
	Bennett, D.	(Whitefield)	7 : 47
	O'Donnell, J.	(Whitefield)	7 : 07
Rubber	Woodhouse, R.	(Whitefield)	6 : 40
	Ruston, —.	(Burnley)	5 : 27
	Wyatt, C.	(Ashton)	5 : 14
Power	Hadfield, W.	(Ashton)	5 : 21
	O'Donnell, H.	(Whitefield)	5 : 02
	Hindle, —.	(Accrington)	4 : 09

A. Rowley of the **OLDHAM & D.M.A.C.** carried off first place in the H.L. Glider event at Baildon, flying his A.P.S. "Hoverking" which has been turning in consistent flights of over two minutes slope-soaring. It is hoped to fit R/C to this job later.

H. Timperman of Budastraat 56, Kortrijk, Belgium, wishes to correspond with chaps on this side interested in solid modelling, his main interest being fighters. Any offers ?

And so we come to the end of yet another Club News section, and I hope that by next month we shall have more reports for you. There is always a falling off during the active season ; apparently P.R.O's also wanting some time off to do flying ! There is no doubt that the club movement is stronger than ever in this country, and though the odd group does fall by the wayside, the number of stable clubs is definitely on the increase. Keep it up. THE CLUBMAN.

NEW CLUBS.

BARRY M.F.C.
K. E. Gardiner, 23, College Road, Barry, Glam.
DAGENHAM M.A.C. (formerly Dagenham & D.M.A.C.).
J. W. Bell, 255, Dagenham Road, Romford, Essex.
EPSOM & D.M.F.C. (formerly Ewell M.C.).
M. A. Shepherd, 47, Stag Leys Estate, Ashstead, Surrey.
DEVIZES & D.M.A.C. (formerly Moonrakers M.A.C.).
J. G. W. Alexander, "Mayfield," Nursteed Road, Devizes, Wilts.
WEST HANTS AEROMODELLERS' ASSOCIATION.
H. M. Dick, 5, Wakefield Avenue, Northbourne, Bournemouth, Hants.
STEVENAGE & D.M.F.C.
R. J. Lintott, 61, Stanmore Road, Stevenage, Herts.

SECRETARIAL CHANGES, ADDRESSES, ETC.

NORTH WIRRALL M.A.C.
W. Platt, 418, Woodchurch Road, Birkenhead, Ches.
CRESWELL & D.M.F.C.
T. E. Myatt, 44, West Street, Creswell, Nr. Worksop.
AINTREE M.A.C.
S. M. Pike, 70, Rhodesia Road, Aintree, Liverpool, 9.
STOCKTON & D.M.F.C. (formerly Teeside M.F.C.).
A. Martin-Robson, 24, Coniston Road, Stockton-on-Tees.
DERBY M.A.C.
R. Adamson, 224, Burton Road, Derby.
SOUTHPORT M. & E.C.
T. Nelson, 41, Hawkshead Street, Southport, Lancs.
AYLESBURY M.F.C.
A. T. Jeffs, 124, High Street, Aylesbury, Bucks.
FURNESS M.A.S.
R. Moon, 8, Norfolk Street, Barrow-in-Furness.

RALLY RESULTS

Clwyd Hills

1st	Senior	J. Done	Liverpool M.A.S.	205·0
2nd	"	G. Lees	Merseyside M.A.S.	183·0
1st	Junior	G. Fynn	" "	155·0
2nd	"	B. Rigg	" "	64·0
Nordic		J. Done	Liverpool M.A.S.	205·0

(N.B. Six official flights are permitted, the best of which—not the aggregate—counts.)

South Midland Area

Astral :	Wright, L.	(St. Albans)	8·42 ratio
	Clark, T.	(Luton)	7·3 "
M.E. Cup :	Holland, W.	(Apsley)	486
	Smith, D.	(Bassingbourne)	342·5
Farrow and Battle of	Bateman, D.	(Luton)	386·75
Britain Cup:	Clements, R.	(Luton)	376·25

Daily Dispatch Rally (results given last month).

Northern Area Rally

Open Rubber :	Muxlow, E. C.	(Sheffield)	529 agg.
	Ward, S. A.	(Ashton)	505 "
H. L. Glider :	Rowley	(Oldham)	357 "
	Martin	(Blackpool)	284 "
Open Power :	Tubbs, H.	(Leeds)	575 "
	Farrance, E.	(West Yorks)	502 "

Southern Counties Rally

OPEN GLIDER (13 entries)

			Total of 2 flights
1.	Wells	Chichester	92·3 secs.
2.	R. Smith	Croydon	71·0 secs.

OPEN RUBBER (19 entries)

1.	J. Plank	W. Middlesex	254·3 secs.
2.	N. Marcus	Croydon	144·0 secs.

OPEN POWER (23 entries)

1.	F. S. South	Alton	56 points
2.	Baker	Bad Penny	38·8 "

OPEN C/L STUNT (9 entries)

1.	C. Bates	Luton
2.	Piaciantini	Salisbury

TEAM RACING (12 entries)

Run in three, five-mile heats and one ten-mile final.

1. R. G. Moulton, B. C. Cheek, H. J. Nicholls (W. Essex).
2. K. Muscutt, K. Marsh, D. Allen (W. Essex).

The compleat "Control-Liner"

AEROMODELLER ANNUAL 1950

ONE in four of our readers have either one or both of our previous *Aeromodeller Annuals* on their shelves. They hardly need reminding that *Aeromodeller Annual* 1950 is coming out as usual in time for Christmas—the personal present that wise aeromodellers give themselves, and the better sort of uncle and aunt distribute with confidence. This year's issue will contain generous helpings of those features that have proved so popular in the past—nearly fifty plans of outstanding models of the year from all over the world, including Iron Curtain record breakers, and full measure of control-line, radio control, free flight power, gliders, jetex, rubber, by the best of the world's experts. Countries covered include France, Denmark, Jugoslavia, New Zealand, Australia, Sweden, Poland, Czechoslovakia, Switzerland, Italy, Germany, U.S.A., and of course Great Britain.

INTERNATIONAL experts writing in *Aeromodeller Annual* 1950 include Per Weishaupt, Denmark, Just Van Hattum, Holland, C. S. Rushbrooke, Ron Moulton, W. H. C. "Funf" Taylor, "Pop" Wright, U.S.A., J. B. Knight; and many others' fully dimensioned plans and projects. Articles on all aspects of the year's flying and future prospects. Special features on Team Racing, A/2 Sailplanes, Radio Control and the Thyratron Valve, Piano Wire Glider Launch, Rubber Propeller Assemblies, Chromium Plating Pistons, Rev-counter, etc., etc. Reference features covering contest results of the year, engine analysis, governing bodies, records, etc. Brimful as ever with gen—the book that can be a constant source of inspiration when seeking for ideas on next year's super-model and provide the answer to the problem of the moment.

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7/6

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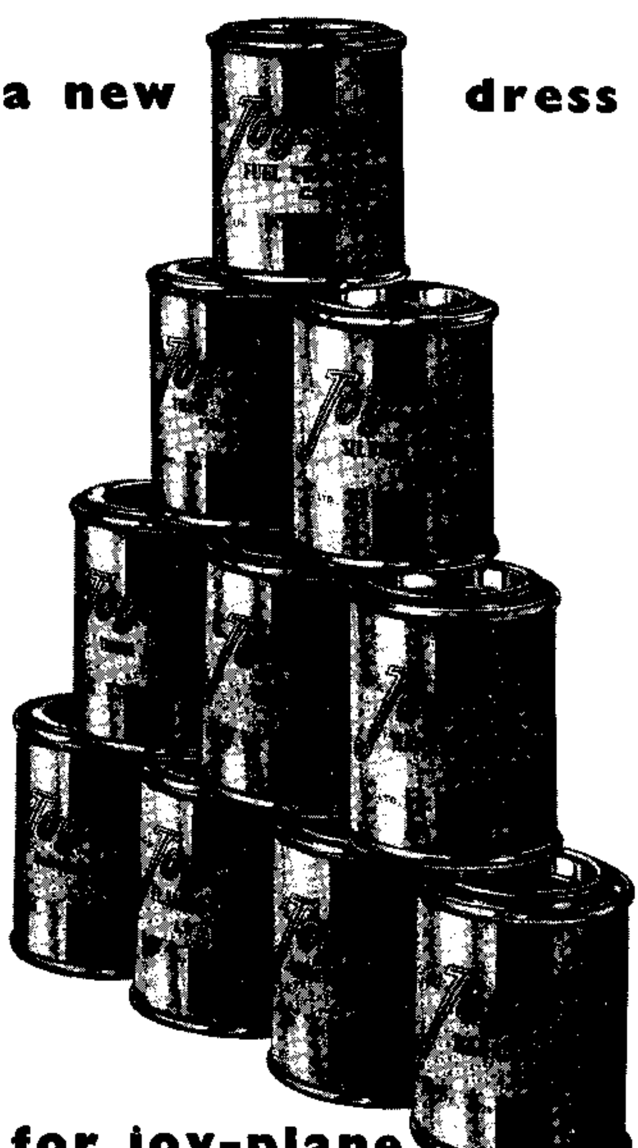

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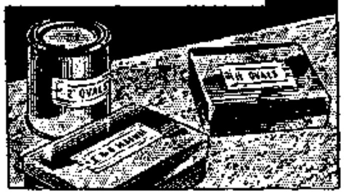

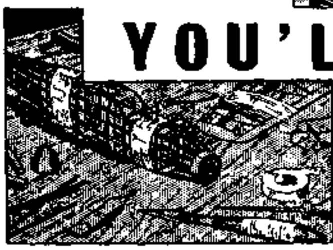

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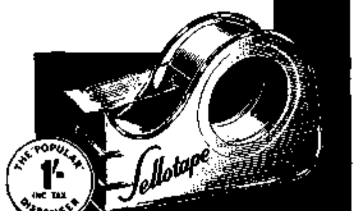

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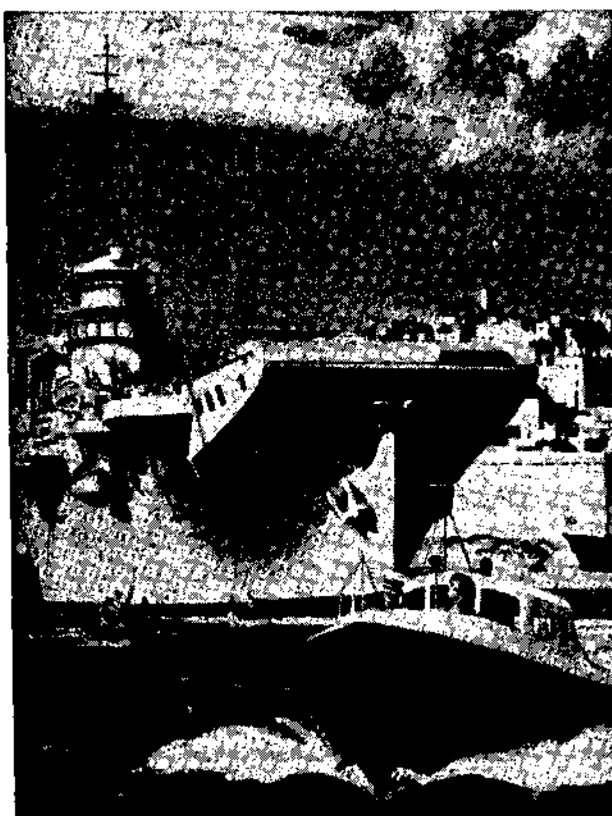

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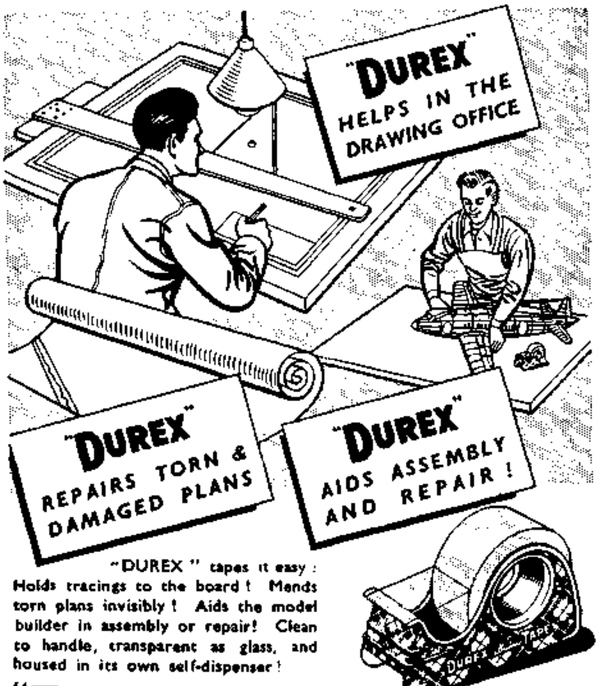

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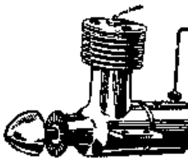

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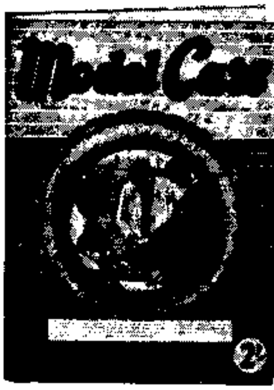

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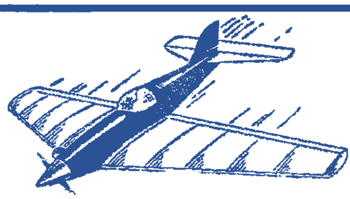

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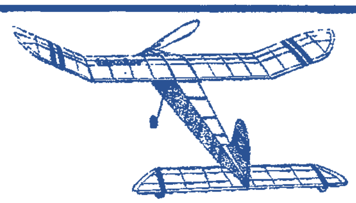

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