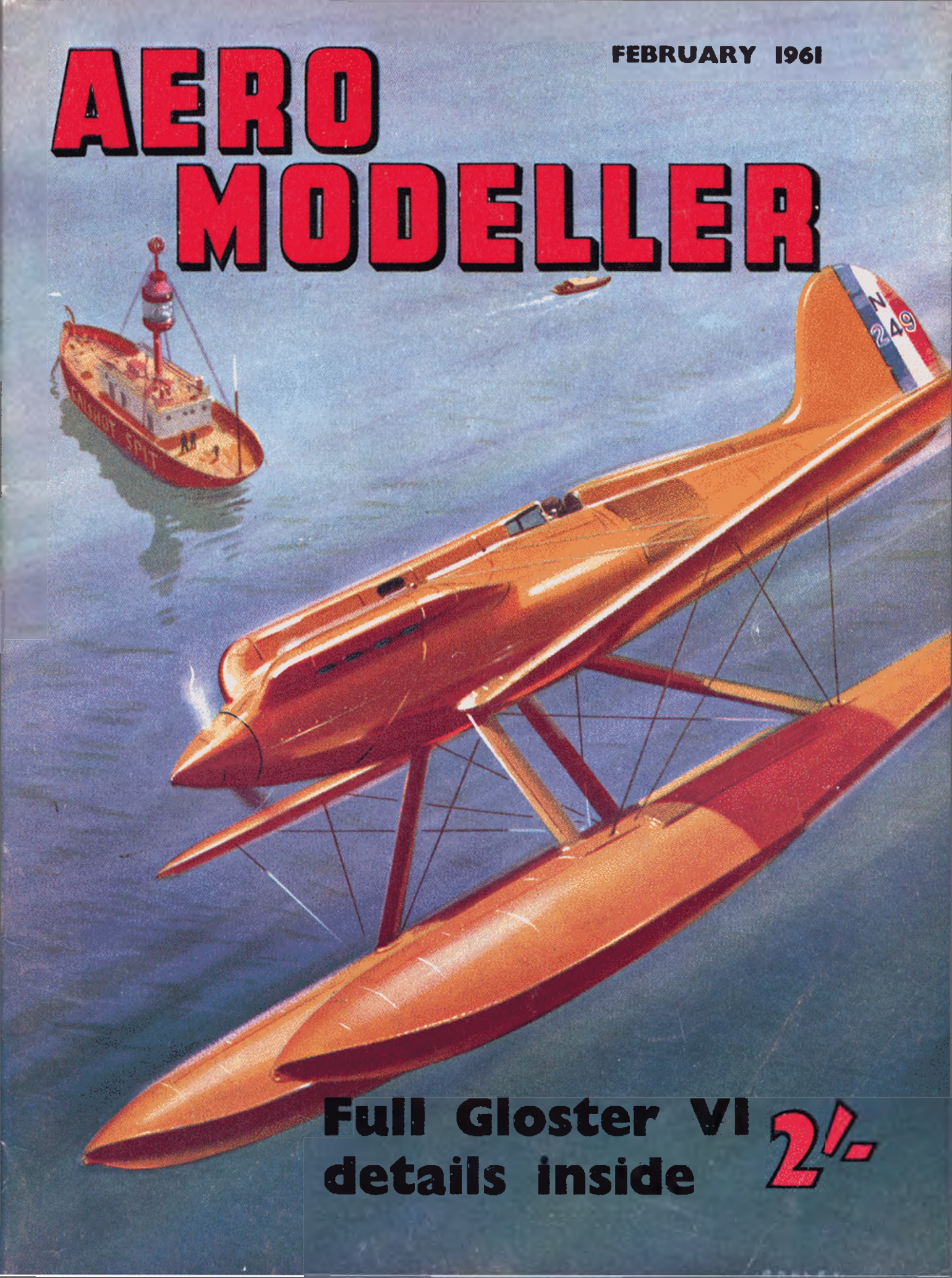
# AERO MODELLER

FEBRUARY 1961

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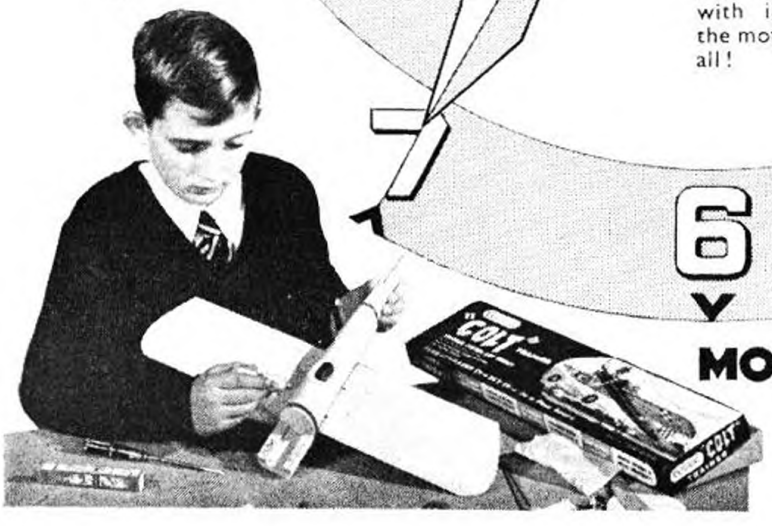


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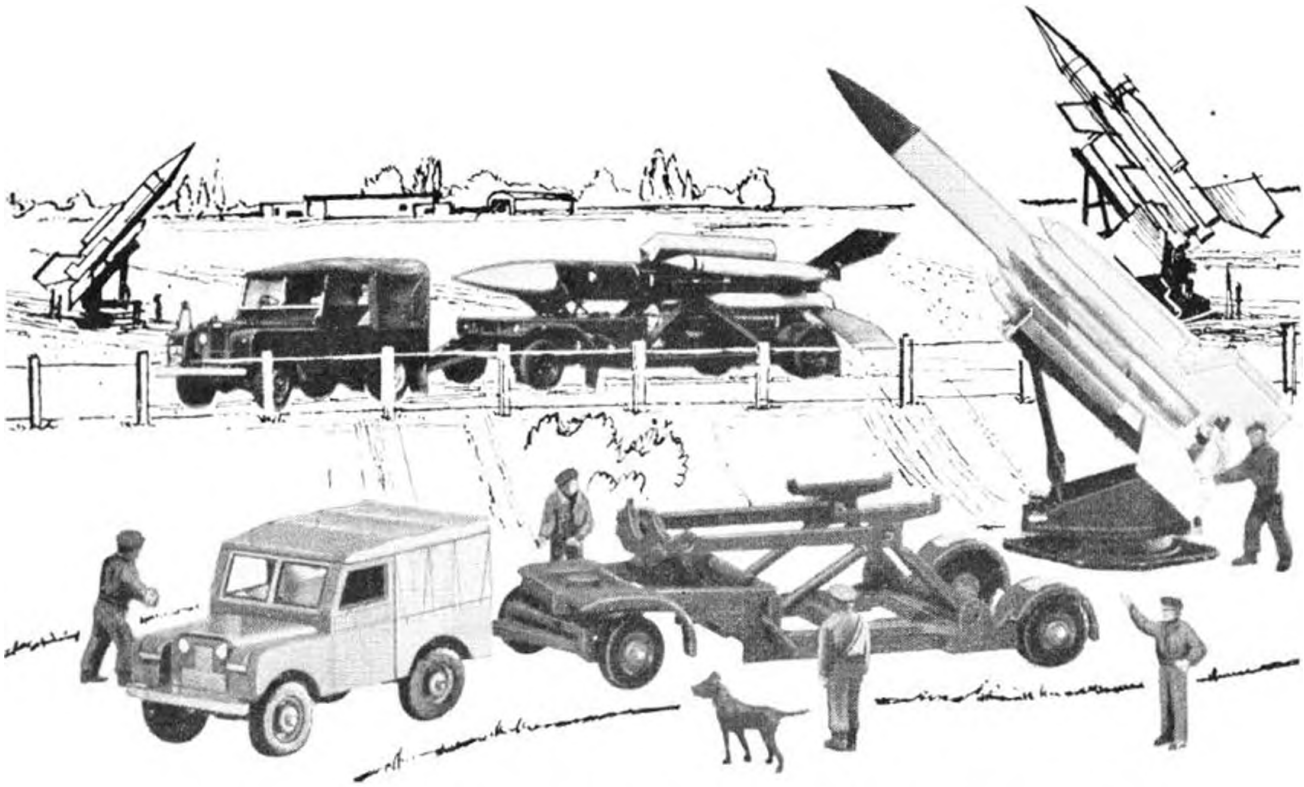

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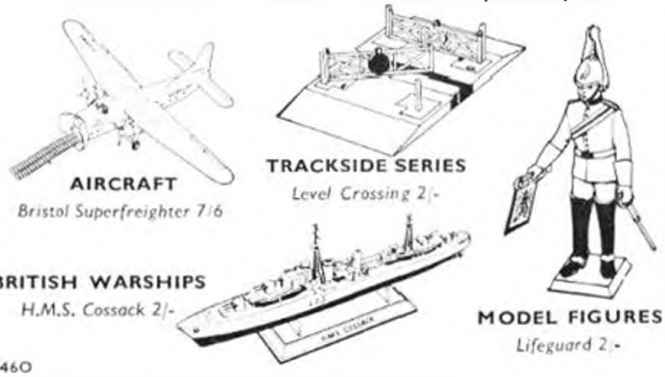


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# The choice of the champions . . .

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His conclusion is the same as that of the world's leading racing motorists : there is nothing to equal CASTROL in any highly stressed engine.

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The Rivers Silver Streak 2.5 c.c. racing diesel. One of the world's most successful Team Racing motors.

## FOLLOW THE LEAD OF THE CHAMPIONS AND ASK FOR CASTROL BLENDED FUEL BY NAME MERCURY

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VOLUME XXVI
No. 301 FEBRUARY 1961

CONTENTS



ON THE COVER

*Artist Laurie Bagley captures all the essence of speed as the Gloster Golden Arrow rounds a turning point over Calshot Spit Lightship. Full details will be found on pages 84 and 85.*

AEROMODELLER Incorporates the MODEL AEROPLANE CONSTRUCTOR and is published monthly on the 15th of the previous month by the MODEL AERONAUTICAL PRESS LIMITED

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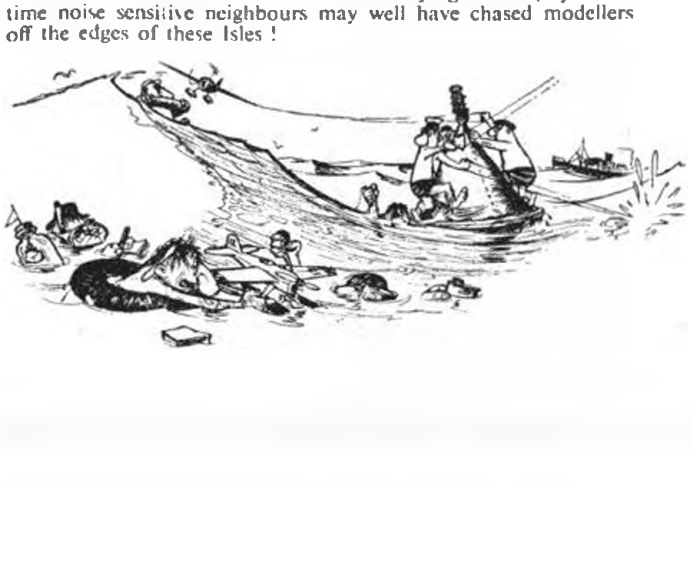
## Public relations

ONE OF THE MORE interesting occupations of the editorial staff of this magazine is that of reading the many area and club news sheets and bulletins that arrive from all quarters of the world, and provide one with an intimate view of the happenings among aeromodellers. Some include well-prepared drawings of outstanding models and we always endeavour to reproduce as many of these as we can in our World News feature. Often the published comment reveals less attractive political views, or is sternly critical of National Association inactivity. Rulebooks are regular scapegoats and quite frequently the comments border on libel. These are small circulation bulletins, but collectively they represent the voice of all the active and enterprising clubs. The fact that they air dirty linen in semi-public manner is good, for only by such criticism can the weaknesses of the movement be revealed.

What is not appreciated is that all these bulletins are produced at considerable sacrifice in time and trouble by keen volunteers. The amount of work required is incredible. A three-view drawing of a contest type might take five hours to stencil, and that is a lot of modelli • time for a keen man to sacrifice.

We are most surprised, therefore, to learn that the production staff of the particularly good Northern Area news sheet were recently curbed in their enthusiasm. No doubt those who raised objections to expansion of size and circulation did so with good intent; but most certainly they must have been people who do not appreciate the value of Public Relations. They should try to visualise the amount of goodwill the voluntary effort is bringing to their group, and also to take into account the instructive value.

Speaking on this subject of public relations reminds us that the Noise Abatement Act is now *fact*. Over a year ago we forecast consequences for the model world, but we have yet to learn of any silencer production to meet the problem. Perhaps Roland's cartoon below will serve to illustrate a forecast of flying in 1965, by which time noise sensitive neighbours may well have chased modellers off the edges of these Isles !



## New Engine

Exactly a year ago, this column issued a challenge to the first modeller making a glow plug version of the Epitrochoidal engine and this month we are very happy to say that the first such example has been successfully tested in Poland.

From *Modelarz* magazine we learn that Stanislaw Gorski has made a 12 c.c. capacity version which has developed 1·5 horse power at 10,000 r.p.m. It is emphasised that this is a prototype only, based on the Felix Wankel engine, but obviously, if it can be made to work in such small sizes, there is room for opportunity among experimenters.

In brief, the motor is rather like a sealed crankcase with a triangular rotor revolving via planet gearing over the shaft in the ratio of 3 : 1. There are three firing strokes for each revolution of the prop shaft — no piston and cylinder, and very few working parts. The design is being developed by N.S.U. in Germany and Curtiss-Wright in the U.S.A. for vehicle and aircraft purposes.

## S.M.A.E. Changes

Following the annual elections in the S.M.A.E. and the Annual General Meeting held in Birmingham on December 4th, the Council of the Society now has two new names among the officers, and doubtless there are to be a few changes among the area delegates. Our own C. S. Rushbrooke was returned unopposed as the new Vice-Chairman and in his place as the new Records Officer comes R. L. "Dick" Taylor who is well-known for his speed flying interests and also as the son of the Society Secretary. Joining Dick as a "new boy" on Council is Sid Smeed from the Surbiton Club, a veteran model flyer and someone with a unique experience as far as the Society is concerned, that of organising athletic meetings. This "apprenticeship" will stand Sid in very good stead when it comes to dealing with the vagaries of our contest programme. In the vote, Sid Smeed received 62 votes to Mrs. Freda Shirt's 11. Voting for the post of Technical Secretary was more close, Sam Messom beating Stewart Uwins by 37 to 35. Sam also gained the necessary two-thirds majority in the ballot for the S.M.A.E. Fellowship, so he now joins the honoured brethren.

The Annual General Meeting was poorly supported in spite of the central venue. It may well be that the present generation of modellers do not realise that this is their opportunity for joining in active discussion on Society policies by expressing their opinions and bringing up matters at the end of the meeting. Arising from this year's A.G.M. we learn that competition entries were 20 per cent. up on those for the previous year (1959), reaching a total of 4,100, the average entry in glider events being 125, in power 102 and in rubber 88. There was general agreement with the suggestion that more F.A.I. events are required to improve the standard but few are in favour of an all-F.A.I. programme. The suggestion that competitors should be required to make at least one flight in each team trial with their reserve model was not unfavourably received and might well be implemented. The work of the F.A.I. sub-committees, specialising in the three main classes, might well be followed by the S.M.A.E. in view of the growth in size of the National Championships and the number of International trial meetings. It could mean that separate competition secretaries will be needed to deal with the three main classes. On International matters, the point which deserves most serious attention is that concerning the standard of judging in World Championships for radio control and control-line aerobatics. As far as Great Britain is concerned, the first step must be that of training more judges for our National events.

But where are the judges to come from? Our appeal for qualified judges in the September, 1959 issue Hangar Doors columns met with no response and until the Society receives more voluntary effort from those willing to qualify to judge such events, the situation will remain as it is today.

## R.A.F.M.A.A. Changes

Now that Flt.-Lieut. Ted Norman has returned from his overseas posting in Singapore and is at R.A.F. Thorney Island, he has resumed his former office of Competition Secretary in the R.A.F.M.A.A. This was decided by vote at the A.G.M. on December 16th and Sqdrn.-Ldr. Eric Cable, who took over for the past year, is now Assistant Comp. Secretary. R.A.F. Championships this year are set for the provisional dates of 6th/7th May, at R.A.F. Debden and an innovation in the Association is the acceptance of associate membership for those related to holders of R.A.F.M.A.A. cards. The postal contest system is to be continued through this winter, the next one at the end of January being for F.A.I. team race and power and for the one at the end of February for ½A team race and ½A free flight power, plus open rubber. With prizes such as Cox Olympic engines and Veco Mustang kits being offered, this should encourage greater activity at local stations. The R.A.F. M.A.A. is also offering to run ½A team race at the British Nationals and we hope that this will start the ball rolling for more voluntary effort on the part of S.M.A.E. clubs and areas this year.

## Many Thanks

The Editor and staff would like to thank the many kind readers who were good enough to tell us how much they enjoyed our enlarged December issue, and also sent us so many Christmas cards, bringing an air of festivity into the offices. It shows that at least *some* of our readers like what we have to offer even though we do drop occasional clangers including the quotation of 60 x 100 mm. cross section dimensions for team racers instead of 50 x 100 in the F.A.I. Meeting Report, last month. Sorry if we sent anybody into a panic; but then we suppose that the cross-section area was enough to cause sufficient fuss for most people to overlook our little error!

## R.Ae.S. acquisition

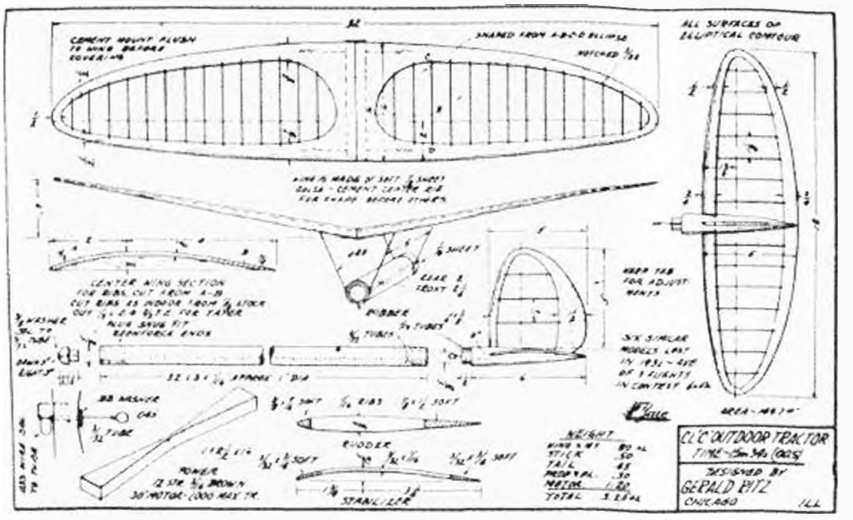
Conceived during the Presidency of Sir George Edwards, and fostered by succeeding Presidents Sir Arnold Hall, Mr. Peter Masefield and Dr. E. S. Moult, the long awaited Lecture Theatre of the Royal Aeronautical Society was formally opened on December 2nd, 1960 before a large gathering of who's who in aviation.

This new hall is beautifully designed, and embodies the very latest in equipment for the projection of slides, films, etc., whilst the general arrangement of the public address system permits speech from any part of the hall with perfect clarity to all. In fact the acoustics are the best we have experienced, and we foresee a bright future for this extremely useful addition to the Society's facilities.

Lord Brabazon performed the opening ceremony with his accustomed verve and humour, his own contributions to British aviation being touched upon later in the proceedings by reference to his "pigs *can* fly" episode. Presentations were made to the above mentioned Presidents, "Brab", and the architects who carried out the complicated work involved.

We congratulate the R.Ae.S. on the success of its appeal which made this project possible, and look forward to occupying a seat at many future lectures on our favourite subject(s).

# RITZ wings



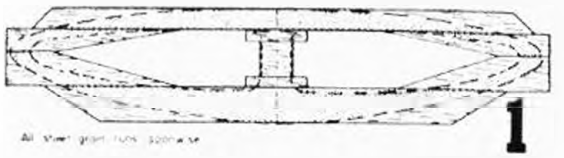

THE WING CONSTRUCTION which has become known over the past 25 years as the "RITZ Wing" is one of those odd cases where the by-product — in this case, the construction — has become well known, while the primary reason for the development of this construction has remained in the background.

It was while searching for a construction that would enable me to use the ultra thin airfoil sections that I was developing at that time that I also developed the wide-arched sheet balsa outline with tips joined in an elliptical outline. The wide arched leading and trailing edges gave good load bearing qualities despite their thinness, while the joined tips helped to give sufficient torsional rigidity.

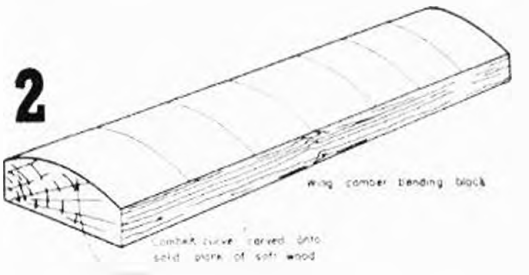
The first wings of this type were all for rubber-powered models, as this was in the pre-gas era in the early 'thirties.

Basic construction of these units was a glued-up outline of $\frac{1}{8}$ in. medium soft quarter-grained balsa. The leading edge was about 1 in. wide at the root, tapering to $\frac{1}{2}$ in. wide at the tip, while the trailing edge was about $1\frac{1}{2}$ in. wide at the root, tapering to $\frac{3}{4}$ in. at the tip. The outline was usually a $\frac{1}{3}$ - $\frac{2}{3}$ ellipse to keep the centre of pressure line on an approximate straight line from tip to tip, thereby minimising torsional forces. To make a wing such as this, proceed as follows:

The whole wing outline is glued up in one piece, and the centre section is also filled in with the sheet balsa as in *Fig.* 1.



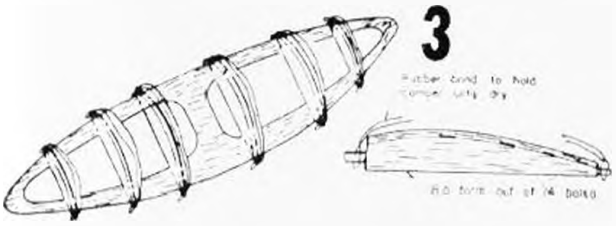

To put the proper camber into the wing, the frames are soaked in hot water and bent over solid forms that have the desired undercamber carved in reverse *Fig.* 2. A somewhat simpler method is to cut a few heavy rib forms to the undercamber shape and bind the frames to these after they are soaked in hot water. See *Fig.* 3. The frames are laid on top of these forms, being careful to line up the high point of the forms with the wing tips. The frames are then bound on to the form with wide elastic tape, and the whole unit set aside to dry at least overnight.




When dry, remove the frames, and cut slots, about $\frac{1}{8}$ in. deep in both leading and trailing edges for the ribs. Wax the form, replace the frame on top of it, and pin it in place. The ribs are cut from 1/16 medium balsa like "indoor" ribs. Trim the ribs to length by cutting off the rear, and glue into place. When the glue is thoroughly dry, remove from the form, and taper the trailing edge from the top with a razor plane. Using a wide sandpaper block, carefully sand the airfoil to shape. Now the wing can be cut in half in the centre, the ends bevelled for dihedral, and glued together. Be sure to cover the bottom first, using thin cement so that when the tissue is doped it will not pull loose from the ribs.

When wing loadings for Wakefield were increased to 8 oz. after the 1936 Championships, the wood for the wing was gradually increased to $\frac{1}{4}$ in. with max. thickness for the airfoil section of about 5/16 in. The wing design, a double ellipse of 7 in. centre chord with a 42 in. span, was kept standard for many years, and over 30 Wakefields were built with this wing. The airfoil had evolved to the section, which had an overall height of 7 per cent. with an undercamber of 4 per cent.

Using the thicker balsa for the leading and trailing edges, I no longer bent the curve in, but carved the

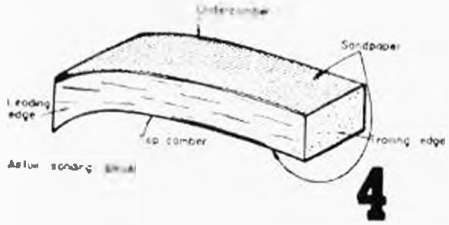



underside of the wide trailing edge with a razor plane to fit the template. The tips, however, when properly thinned down, were still soaked and bent, as the rest of the frame was pinned down to the form and assembled. I had learned by this time that the best way to get the airfoil section to the exact shape I desired was to band saw and sand 3 in. wide blocks to upper and lower templates, glue sandpaper to the face, and sand the wing to perfect section with these blocks.

When I started flying the A/2 class seriously, of course I used this same type of construction, except that it was enlarged considerably. On the first Nordics, the leading edge was ⅜ in. x 1¼ in., with the trailing edge ⅜ in. x 2 in. Wing span was 72 in. of double ellipse shape with an 8 in. centre chord. This made a very good windy weather model, but as I worked toward better still-air time, I found that it was advantageous to thin the rear of the section, as this seemed to increase lift and decrease drag, to accomplish this, the leading edge was upped to 3 in. of medium soft stock. At this time the wing centre chord was dropped to 7¼ in., with the additional area being worked in nearer to the tips to make a planform fuller of form than an ellipse. This setup proved to have many advantages. First of all, the hard leading edge took shocks very well and stood up wonderfully under punishment that would have pulverised an ordinary wing. Also, the soft trailing edge stock was easy to shape to a good section, while the bulk of the large trailing edge kept the whole wing quite true. Next it was found that these wings had very little tendency to warp, even under bad conditions. It was analysed that this was due to the fact that the balsa structure covered most of the curve of the airfoil section, and since the covering did not have to be pulled over curved parts, there was very little incentive to warp. It was a simple job at this point to fit these wings to tongues, as all that needed to be done was to replace the four centre ribs with 3/32 in. ply ribs with slots cut in to fit the tongue. This construction was very simple, and the strength and durability were excellent, so I determined to build all future models along this pattern. The centre ribs were filled in around the tongue with soft balsa before covering to make handling easier.

It was in Autumn of 1958 by the time this Nordic model was quite well developed, and I had been having quite good luck with it. I flew it considerably all through 1959 and 1960, and it won first place in 14 contests in that period. It has not been beaten in any contest to date! Important wins included the King Orange Internationals, and, of course, a place on the U.S. Nordic team in 1959.

When I won the place on the team in the Spring of 1959, I set out to design a calm weather job to fit the milder European weather. After much thought, I was

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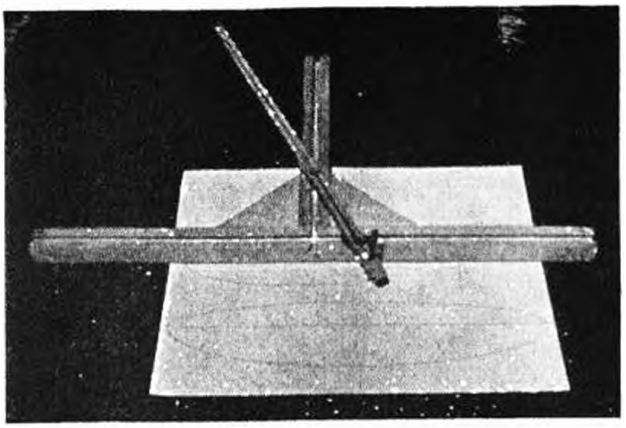


finally forced to depart from the elliptical type planform, as I just couldn't work anything practical into the span I desired. So for the first time the planform was straight for the main part of the centre panel, with only the sharply dihedralled tips being joined in the elliptical planform. The structure of the wings was kept nearly the same — the leading edge being of 5/16 in. x ⅜ in. hard balsa, with the trailing edge of 3/16 in. x 2½ in. medium soft balsa. The airfoils were again carefully sanded to shape with the curved blocks *Fig* 4 to new sections which I had recently developed.

All of my wings have been covered with silk for the last few years, as I have found that it stands up much better, does not add much weight, and flexes better with the wings in rough weather. The 1959 U.S. Central States semi-finals for the International Team were flown in a 40 m.p.h. gale, and I think I was the only one of the flyers who didn't bust a wing. At times in the tow the wings flexed to about 90 deg. dihedral (some of the flyers swore that the tips nearly touched), but the structure held.

For the future, who knows? All of the models on the board at present — Wakefield, F.A.I. Power, and Nordic, use this type construction, which means that after about 30 years of usage I am just as sold on this type of wing as ever.

**Gerry Ritz**

**Photos show Wakefield and A/2 with Ritz wings and ellipse "machine" above, commercial equivalents are available from artists' supply shops**


**Join the Combat brigade with this hot design from two leading USAFE flyers**

**Don Pinckert**

**and**

**Gus Johnson**

# DONGUS

30½ inch span for 2·5 to 3·5 c.c.

THE NEAR DOMINATION by numbers of "wing" type combat models is in itself a challenge to design talent. Add to that the many years of control-line experience of Americans Don Pinckert and Gus Johnson and what should come up but a model with a tailplane !

This is no ordinary model. It screeches around behind a fast Fox 201, Veco or ETA 19 and is popularly known locally as the *Razor Blade Eater* or anti-oil-burner. Tough, with built-in fail-safe features and a degree of manoeuvrability at high speed that matches the tail-less birds, Dongus is a type that many are looking for, and we expect to see loads of them at the Nationals. The simplicity of construction permits quick replacement — though, in actual fact, it bounces off most prangs with impunity. It depends on the individual building it, of course, as to how tough the Dongus becomes. Silk, Nylon or Terylene covering make for extra strength and the structure permits plenty of dope without warps.

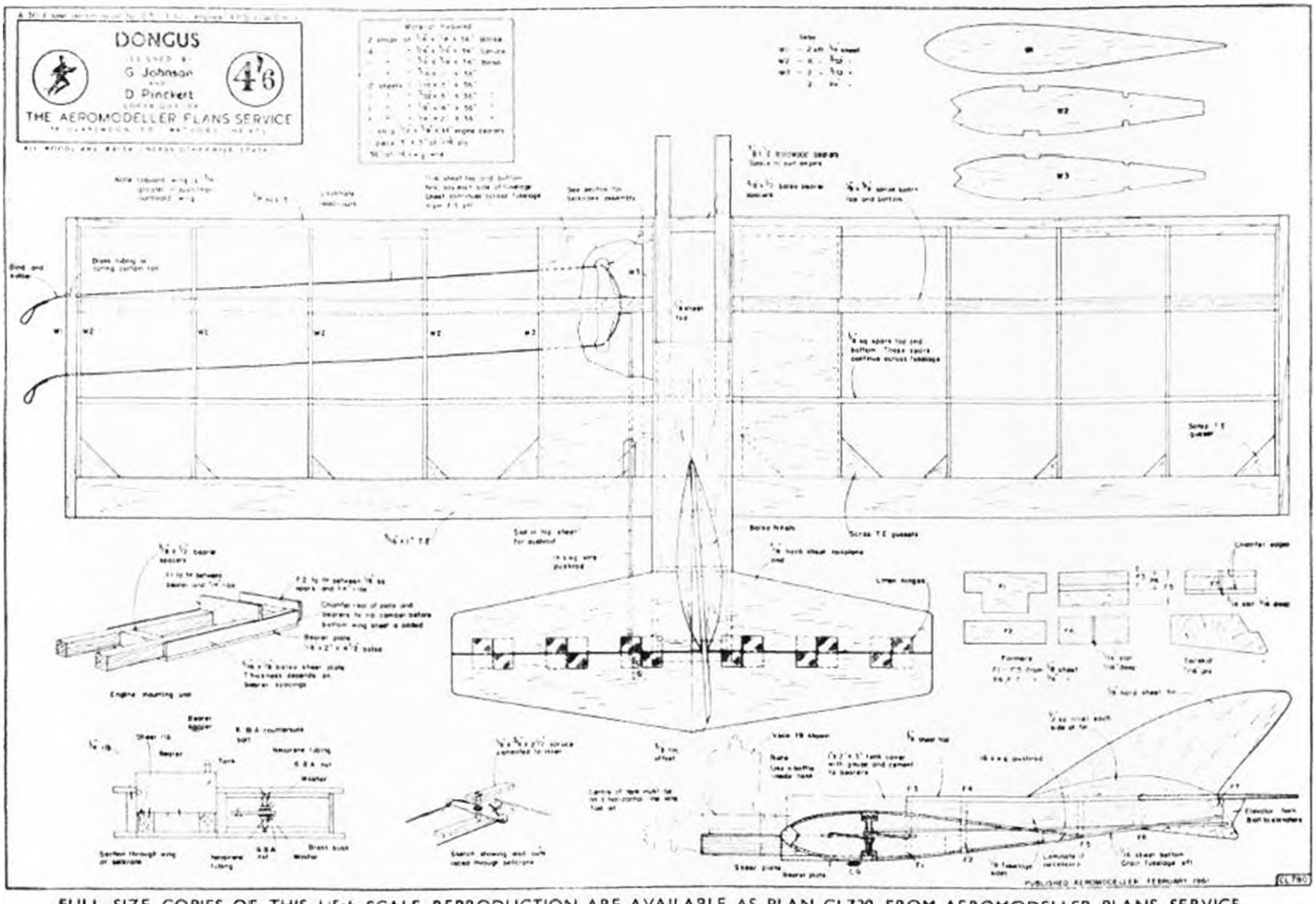
Standard average speed of Dongus prototypes using K-K Methanex 30 per cent. Nitro and Standard 3 per cent. mixed in equal parts, is 86 m.p.h., which is faster than most of the opposition. A fleet of them will be in full operation by the newly-formed FASTE (First all speed team—Europe) — in the coming season.

Cut hardwood bearers ¼in x ⅜in. x 6½in. Glue to balsa plate measuring ¼in. x 2in. x 4½in. for engine spacing. Now glue ¼in. medium balsa plates to each side of bearers to bring mounts up to 2 inches wide. Cut and notch two ¼in. ribs plus ten 3/32 in. ribs. Remove 1/16in. from four centre ribs to accept 1/16 in. centre section planking. Mark heavy reference thrust lines on the two ¼in. ribs for motor mount alignment. (Mounts will align with these marks when in place.) Lay out the wing. Ensure *inboard* panel is ¼in. longer than outboard side. Align and glue engine mounting unit to ¼in. centre ribs. Install controls. Glue gauze to tank then *glue* the tank in place. Cover the wing, tank and bearers with any good grade of nylon. Cut fuselage sides using a rib template for correct thrust alignment for tail. Install ¼in. x 2in. x 5⅜in. fuselage top and formers, then align and glue the tailplane in place. Glue rudder and ¼in. balsa fillets to top of fuselage with ⅛in. offset.

Use nylon strips at all wing, rudder, tail and motor mount junctions. Cover fuselage, rudder and tail with Jap tissue. Dope and fuel-proof the entire model until all the pores are sealed. Install the engine with at least 5 *degrees right thrust*. Use any good glowplug 19 and an 8 x 6 nylon prop. Good fuel is 12 per cent. nitromethane, 30 per cent. Castrol "M", 10 per cent. Nitro Benzine, and 48 per cent. methanol (or mix record Methanex and Standard—50 per cent.). By all means modify anything, but *keep*:

(*a*) Thick, well-rounded leading edge.
(*b*) ⅞ inch wing offset.
(*c*) Leadouts as indicated.
(*d*) Plenty of engine offset.
(*e*) Weight no more than 15 oz.

Then this aircraft will *go* ! *go* ! *go* ! Happy hunting.




FULL SIZE COPIES OF THIS 1/5th SCALE REPRODUCTION ARE AVAILABLE AS PLAN CL730 FROM AEROMODELLER PLANS SERVICE PRICE 4/6 PLUS 6d. POSTAGE

## what's the answer?


**A Question on preparation of undercarriages for take-off and touch down**

WE LIKE FREE-FLIGHT sports models in our club and we are lucky enough to have a local 'drome to fly on, complete with runways for take-offs. Our main trouble is undercarriage design. One group believes in wide spaced undercarriages with the wheels well forward to help the model keep upright when landing. Another section say it is all wrong and you want the undercarriage well back for a snappy take-off. But their models nearly always turn over on landing. What's the answer?

*What would you do in a case like this? Turn the page for the solution to the problem, printed below.*

*Answer.*—For *good* take-off you do want the undercarriage well back so that the wheels are not very much in front of the centre of gravity — and a fairly narrow track. However, as you say, such a layout does tend to make the model turn over when landing because there is no pilot aboard to "flare out" the last bit of the approach. You just cannot have it both ways! You just have to find the best compromise for a particular model, bearing in mind that to expect a model to make a perfect landing on anything but really smooth ground is really unfair. A good design of tricycle undercarriage might, however, be your answer !

# Jagdstaffel Markings

## Useful scale details from A. IMRIE

Richthofen standing beside his Fokker Dr I, note the light coloured undersurfaces. (Pale blue)

INFORMATION ON THE markings and colouring of the German Jagdstaffeln of 1917 and 1918, have always been extremely hard to find, in the past many rough guesses have been made as to the nature of these, with the result that a great deal of incorrect data has been presented. Most writers on German World War One aviation prefer to gloss over the subject, by saying that the German scouts were painted "all colours of the rainbow!" This does not help the modeller who wants to finish his models so that they are replicas of the actual machines that were in use over the lines, it is hoped however, that the following descriptions will serve to show how some of the German scouts were finished when they came on the strength of various Jastas.

Readers will be familiar with the factory finish of the period, this has been excellently covered by P. L. Gray in his articles at the commencement of the *Decor Detail* series (*Nov. and Dec.*, 1957), also in his more recent writings on the lozenge pattern printed fabric. The markings which follow were applied over the standard factory finish when a machine was collected from the Aircraft Park and allotted to a Jasta.

The first Jagdstaffeln were formed in the autumn of 1916, and by June, 1917, 37 were in existence, this number had further increased to 81 by March, 1918 and stayed at this strength until the Armistice. Many of these Jastas did not have a unit marking, also many pilots did not use any individual marking, but this was generally early in the period. With the increase in scout activity and the deployment of large formations, unit and personal markings were most common, and were in fact a necessity for identification in the air.

Normally all machines in the Jasta carried the unit marking, also most pilots had a special marking of their own which was carried in addition to the unit marking. These markings were generally neatly painted on, but some photographs show rather rough markings which have obviously been hurriedly applied.

If these markings obscured the machine serial number, it was not normally re-marked, sometimes even the fuselage cross got in the way and was obliterated! Differences in the application of the unit marking are apparent, it being obviously left to the individual rigger to interpret the instruction relating to the marking as well as he could. Some pilots had special schemes of their own, and these could be in complete contrast to the marking of the unit to which they belonged. Lt. Weiss of Jasta II, who flew a Fokker Dr. I (545/17) painted completely white except for the plain black crosses at the usual positions, is an example of this (May, 1918). Many leaders had their own colour scheme, in fact most Staffel leaders used contrasting schemes to their units so that they could be quickly identified in the air. Some Jastas used their original markings without change throughout their career, while others changed their marking several times during the few months of their existence, this is also true of the individual markings, some pilots used the same marking regardless of aircraft type or unit, other pilots again changed their personal marking at will. It might be added that when speaking of a particular unit marking, the period should be mentioned.

One of the first Jastas to use a special unit marking was the famous Jasta II led by Manfred von Richthofen, he had his Albatros DIII painted all red, so that he would be more easily identified by his pilots as their leader, and the unit flew in this manner for some weeks, but, because his all red machine become so well known the other pilots in Jasta II felt that the enemy might set a trap for the red flier, and pleaded with Richthofen to let them share the red colour, he only agreed to this however, if the other pilots used a distinguishing mark in another colour, this they did, and describing the unit marking (Spring, 1917) Lothar von Richthofen writes: ". . . my brother's aeroplane was all red, each of us others had a special marking in another colour, Schafer for example, had a black painted elevator, rudder and rear fuselage, Allmenroder the same in white, Wolff green and myself in yellow." Lothar goes on to say that yellow was the correct colour for him since he had come from the Yellow Dragoons. It is a point worth noting that many pilots who transferred to the Air Service from the Army flaunted their old regimental colours on their machines. Jasta II retained this red colour for the rest of its career, although most machines in the unit only had touches of red applied, Richthofen himself sometimes flying machines which were not all red painted, as an example he scored his 66th victory (18th March, 1918) on Fokker Dr. I 152/17, and in his combat report describes his machine as follows: Red upper surface top wing, red cowling, red wheels and red tail unit. The remainder of the machine being left in the factory finish of dark olive green on upper surfaces and pale bue underneath. Photo *(above left)* shows Richthofen standing beside his Dr. I and the light coloured under surfaces can be seen.

The following Jagdstaffeln have been selected to show how varied both unit and personal markings were, several individual pilot schemes have also been included.

### Jagdstaffel 6. August 1918

**Fokker E.V./D. VIII**

This unit was completely equipped with Fokker E.V./D. VIII fitted with 110 H.P. Oberursel-le Rhone rotaries on the August 5th, 1918. An acute shortage of castor oil led to lubrication difficulties, and in ten days the unit experienced 30 forced landings due to engine failure,

this, coupled with the well-known wing defect caused the E.V./D. VIII to be withdrawn, and Jasta 6 reverted to Fokker D. VII biplanes on August 21st. Although only in use for the short period mentioned, the markings of the unit when using the E.V./D. VIII are interesting.

These machines were covered with the lozenge pattern printed fabric, the tailplane and elevators carried the well known black and white stripe marking of the unit, as shown in *Fig.* 1, previously carried on Fokker Dr. I and Fokker D VII, wheel covers were also striped, in black and white. The engine cowlings were painted red and white "petal" pattern as opposite. The machine shown is Fokker E.V. 148/18 and at the time the photograph below was taken the pilot identification marking had not been applied.

**Fig. 1. Unit marking of Jasta 6. (Summer 1917 - Autumn 1918)**

Pilot identification markings consisted of stripes and bands carried on the fuselage, four examples are given opposite in *Fig.* 2.

(*a*) White flash;

(*b*) Black and white band completely encircling fuselage;

(*c*) White Stripe extending aft to the stern-post;

(*d*) Black and white bands completely encircling fuselage (Personal marking of Lt. Wenzel).

Lt. Richard Wenzel joined the Richthofen Circus at the beginning of April 1918 and flew for a short time with Jasta 11 on Fokker Dr. I. His personal marking consisted of black and white fuselage bands. This marking was in proportion to the Iron Cross ribbon, but was painted in reverse (i.e. black on the ribbon was white on the fuselage and vice versa). Wenzel had used this marking earlier in Jasta 31, he was transferred to Jasta 6 on 15.5.18, and continued to use this marking on Fokker D VII, and as mentioned above on Fokker E.V./D VIII.

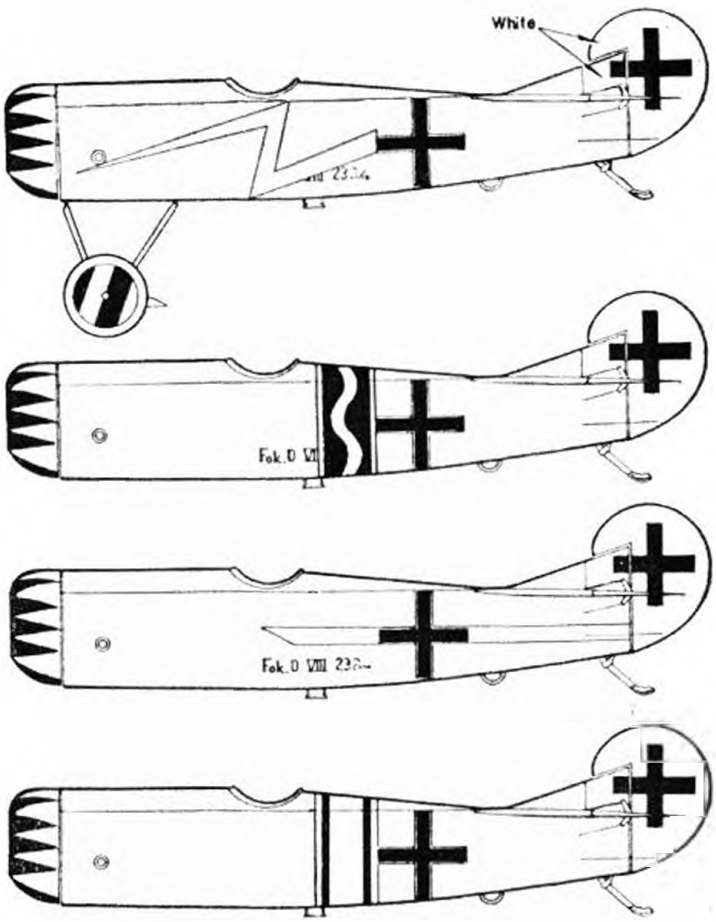



**Fig. 2. Examples of pilot individual markings, Jasta 6 (August 1918)**

## Jagdstaffel 21. Summer 1917

**Albatros D.V. and D.Va.**

At the beginning of Summer 1917 all machines of Jagdstaffel No. 21 had the normal olive green and mauve upper surfaces, under surfaces being light blue.

Some had the fuselage painted olive green, others had olive green decking only, the remainder of the fuselage being left in the natural finish, others again had the whole fuselage left in the natural finish (varnished plywood).

The unit marking consisted of a black and white ribbon going completely round the fuselage just aft of the cockpit.

Pilot identification was by means of various insignia carried on the fuselage sides, in most cases this was carried between the ribbon and the fuselage cross, however, one photograph shows an insignia in front of the ribbon which is painted on the fuselage further aft than normal.

Three examples are given in *Fig.* 3 overleaf.

(*a*) Black monogram with white border carried between ribbon and cross on Albatros D.V. 2072/17, this machine had a natural finish (varnished plywood) fuselage.

**Photographs. Top left: A Fokker E.V. of Jasta 6 (148/18) August 1918. Below left: Lt. Wenzel's Fokker Dr.I. Jasta 11, showing reverse Iron Cross ribbon insignia (April 1918)**

# ENGINE ANALYSIS No. 79

**"Gig" Eifflaender's latest diesel includes a lot of "know-how" and offers loads of power for a comparatively modest price**

# P.A.W.

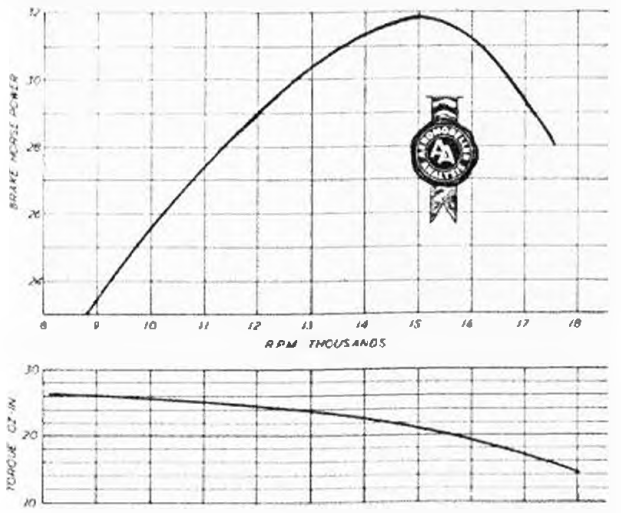
## 2.49 c.c. Mark III

**reviewed by R. H. Warring**

THE P.A.W. SPECIAL is a custom-built engine, produced and designed by J. G. ("Gig") Eifflaender and shows every evidence of the care and attention it receives as a consequence, as compared with conventional mass production techniques. It is a "class" motor aimed at top performance in the 2.5 c.c. category and since it was introduced in 1956-57 the design has been somewhat modified in detail, the current model available being the Mark III version which shows a considerable increase in performance over the original model tested (AEROMODELLER, December 1957).

The general design and appearance remains the same. The Mark II differed from the original in a revision to the exhaust ports. The Mark III retains this modified exhaust porting but also with revised intake and transfer porting. Also the front end of the shaft has been redesigned —this being a weak point on the Mark II—and there are material specification changes.

Test running was a pleasure. The engine behaved splendidly throughout, started easily, could be adjusted positively to optimum settings with a minimum of trouble and was most consistent in performance at all load speeds. The only point we could criticise at all would be the compression screw which is small and stiff to operate—and hence could be a little awkward at times adjusting for high speed running. Hand starting was accomplished in one or two flicks hot or cold (after priming) and there was no particular "bite" until 7 inch diameter propeller sizes were reached. Hand starting was still readily possible on 6 inch diameter sizes.




Running was smooth at all speeds up to about 15,000 r.p.m. on straight fuel and consistent running could be extended well beyond this with a little more care and adjustment. For higher speed running a nitrated fuel proved beneficial in giving a little more flexibility to settings and a very slight improvement in performance. A certain tendency to vibrate was noticed between 9,000 and 10,000 r.p.m., but since this speed is well below normal operating speeds this has no significance. The engine sounded happiest—and certainly ran very smoothly—at higher speeds and was equally consistant in the region of 20,000 r.p.m. as at peak. Propeller test runs down to 8,000 r.p.m. were run with the same high degree of consistency throughout.

Test figures indicate a peak B.H.P. figure of nearly .32 achieved at 15,000 r.p.m. We feel that this is not flattering the engine in any way as there was possibly a certain amount of residual stiffness holding the peak r.p.m. back slightly. With extended running in—and the P.A.W. Special would appear to like several hours—prop figures could possibly be extended a further 500 r.p.m. or so and the peak h.p. improved in consequence. In any case, even the test figure achieved represents a remarkably high performance for any 2.5 c.c. engine. Torque is also well sustained at higher r.p.m. figures. It should be noted that .29 b.h.p. is available from 12-17,200 r.p.m. and .31 b.h.p. from 13,500-16,200 r.p.m.

### Free running shaft

Although the P.A.W. Special has the appearance of a plain bearing engine it does, in fact, incorporate a single ball race at the rear end of the crankshaft. This is housed in the crankcase casting and the shaft itself is deliberately

made a free fit in the race. The remainder of the bearing length is supported by a Meehanite bearing bush inserted in the crankcase casting, reamed and honed to finish.

The crankshaft itself is of large diameter (.375 in.), stepping down forward of the bearing to a ¼ in. diameter threaded length. The large induction port is rectangular, with chamfered ends, opening into a .2 in. diameter hole in the crankshaft. The Meehanite bush has a matching rectagular port opening, although the bottom of the choke tube finished in a normal round hole and is not reworked in any way. The shaft is of high tensile steel and fully hardened. Crankpin diameter is .203 in. and crank web diameter .780 in., cut away for counterbalance. Web thickness is a substantial ⅛ in.

The cylinder, which is undoubtedly the "heart" of this motor, is of fully heat-treated high tensile steel. Outer surface is perfectly cylindrical with the three radial exhaust ports cut through the walls. Oval shaped transfer passages—three in number—are formed inside the walls, extending upwards to overlap the tapered exhaust ports. The bottom section of the cylinder walls are chamfered to a depth of some 3/16 in. which leave virtually a minimum thickness to but against a ledge in the crankcase casting for gas sealing, and no gasket is used (nor would it be practical to use one in this instance). The crankcase "ledge" has also been reduced to minimum matching thickness so as to offer no obstruction to free gas flow through the transfer passages. A considerable amount of careful work is obviously done on each engine to arrive at the final porting, much of it tricky by nature and virtually unthinkable on a mass production job. Honing the cylinder, in particular, would appear to present a nasty problem—although with years of experience on "rebore" service, no doubt this comes easy to "Gig" Eiffliender!

The piston is conventional, with a conical top and press-fitted gudgeon pin assembled below the surface of the piston walls. Piston material is Meehanite. The connecting rod is machined from solid dural with plain bearings at each end and a lubrication hole in the big end bearing. The cylinder jacket is also dural, held down by three screws, which appears a perfectly adequate method of holding the cylinder in place. Since there is no positive positioning for the cylinder, however, dismantling of the engine must be avoided after running in. If this has to be done, cylinder position must be marked before disassembly and the cylinder reassembled in exactly the same position as before.

Construction of the P.A.W. Special is robust throughout, yet the resulting unit is not unduly heavy (5 ounces). From the engineering point of view a very desirable feature is the extended length of mounting lugs which provide both a firmer base for mounting the whole engine but also wider spacing of the hold-down bolts, making for more rigid mounting throughout. The generous bearing length carries the propeller disc well clear of the choke tube and the spraybar is also angled back (to the left) for better accessibility of the needle valve. The original form of propeller driver, which was in the form of a hollow cylinder enclosing the front of the bearing, has been replaced with a conventional dural disc driver locating on a taper length of the crankshaft.

The crankcase unit appears to be unchanged. This is a gravity die-cast aluminium alloy unit yielding about 1/16 in. wall thickness in the crankcase itself and nearly ⅛ in. wall thickness over the bearing length. No webs are incorporated, nor are they necessary, since the bearing length is well supported by the extended lugs and general form of the casting. The choke tube is a little unusual these days in being perfectly vertical—and also fairly far forward—the thick pillar extending between the choke tube and the lower cylinder housing accommodating one of the hold-down screws. The spraybar unit is of brass, also the needle thimble fitted to the steel needle (and latter ground to a fine taper). Friction locking is provided by splitting the thimble.

Summarising, a really high performance engine which has been carefully developed and must now be approaching ultimate performance for the layout. The P.A.W. Special is also a well made engine, each one receiving a considerable amount of individual attention. If it costs more than a normal "stock" engine, it is still remarkably cheap at the price for the amount of skilled workmanship involved and represents excellent value for money. The excellent handling characteristics should make it well suited to contest work.

## SPECIFICATION

Displacement: 2.46 c.c. (.15 cu. in.)
Bore: .595 in.
Stroke: .535 in.
Bore stroke ratio: 1: 1.09
Weight: 5 ounces
Max. power: .318 B.H.P. at 15,000 r.p.m.
Max. torque: 26 ounce-inches at 9,000
Power rating: 121 B.H.P. per c.c.
Power weight ratio: .0635 B.H.P. per ounce

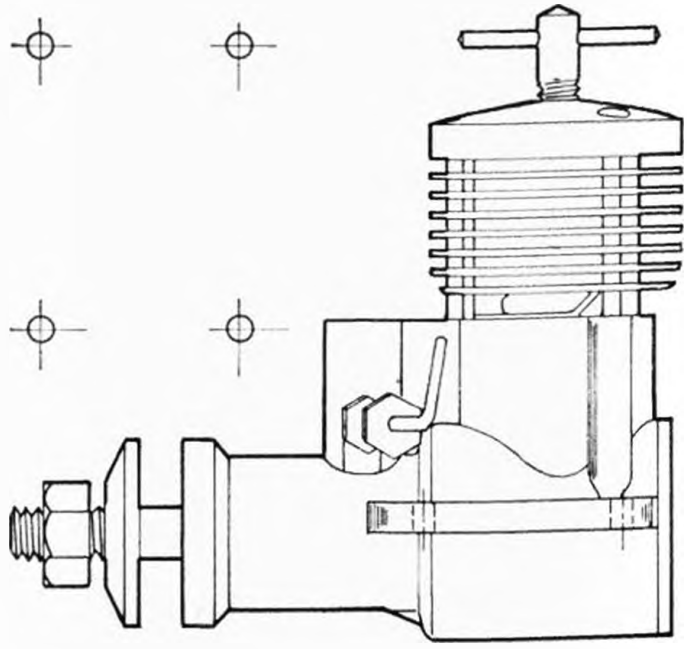
*Material specification*

Cylinder: fully heat treated high tensile steel
Piston: Meehanite
Crankshaft: high tensile steel, fully hardened
Connecting rod: Hiduminium
Bearings: Ransome and Marles ball race (rear), Meehanite bush (front)
Crankcase: light alloy gravity diecasting
Cylinder jacket: turned dural
Propeller driver: dural
Spraybar: brass

*Manufacturers*: Progress Aero Works, Chester Road, Macclesfield. Retail Price: **£4 18s. 0d.**

PROPELLER—R.P.M. FIGURES

| *dia. x pitch* | *r.p.m.* |
|---|---|
| 9 x 6 Frog nylon | 10,400 |
| 10 x 6 Frog nylon | 8,600 |
| 8 x 4 Frog nylon | 14,000 |
| 11 x 4 Top Flite | 8,000 |
| 10 x 6 Top Flite | 8,600 |
| 10 x 3½ Top Flite | 10,000 |
| 9 x 7 Top Flite | 8,800 |
| 9 x 6 Top Flite | 9,300 |
| 9 x 4 Top Flite | 12,000 |
| 8 x 6 Top Flite | 11,700 |
| 8 x 4 Top Flite | 14,300 |
| 7 x 6 Top Flite | 15,000 |
| 9 x 4 Trucut | 10,800 |
| 8 x 4 Trucut | 14,500 |
| 7 x 9 Trucut | 11,100 |
| 6 x 9 Trucut | 14,700 |
| 7 x 4 Trucut | 16,800 |
| 9 x 6 Trucut | 9,800 |
| 8 x 6 Trucut | 11,200 |
| 9 x 7 K-K nylon | 8,800 |
| 9 x 6 K-K nylon | 9,000 |
| 9 x 4 K-K nylon | 12,400 |
| 8 x 6 K-K nylon | 12,000 |
| 8 x 4 K-K nylon | 14,400 |
| 7 x 6 K-K nylon | 14,000 |
| 7 x 4 K-K nylon | 16,700 |



# NEW (1960-61) DEVIL

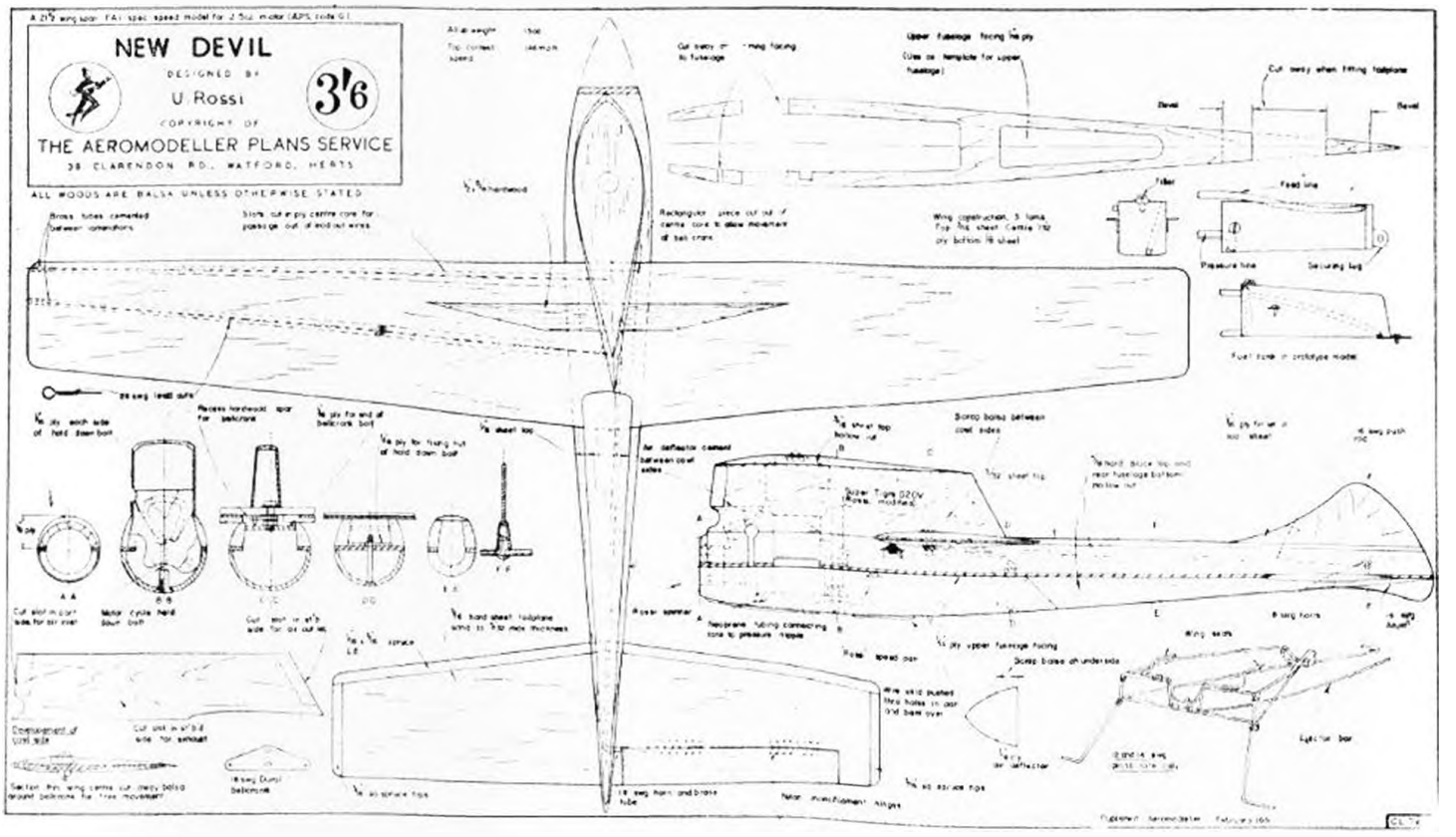
**Most successful F.A.I. specification speed design in Europe. Champion of Italy, fastest at the 1960 World Champs.**

**by Ugo Rossi**

SINCE IT WAS first introduced to AEROMODELLER Plans Service in January, 1960, Ugo Rossi's *Devil* has become an international favourite and it is only natural that we should bring the design up to date following the World Championship meeting. The design is altered in several respects. It uses the *Jubilee* model Super Tigre G.20, and a new pan, which are illustrated here. The pan is now locked from below in a more secure and vibration-free system. The cowl is longer, its plan form is inset into the circle, although the engine thrust line is still neutral and most important, the control system is moved forward.

For those who have wondered what type of finish Ugo Rossi uses over his red tissue-covered model, it is four coats of clear Polyester Varnish. His fuel formula is 50 per cent. Nitromethane, 10 or 15 per cent. Nitro benzine, 15 or 20 per cent. Methyl Alcohol and 20 per cent. Castor. The prop. was a reworked Tornado 6 x 8 — and since the Rossi Bros. offer their speed pans, spinner and glowplugs for sale, this "all-commercial" design gives the speed novice a chance to ensure early success.

FULL COPIES OF THIS 1/4th SCALE REPRODUCTION ARE AVAILABLE AS PLAN CL 749 FROM *AEROMODELLER* PLANS SERVICE PRICE 3s. 6d. PLUS 6d. POSTAGE



# Helicoptery . . . by F. G. Boreham

ONE OF THE NEW features incorporated in Francis Boreham's "*Whirlaway*" weightlifter model is the freewheel attachment, which allows the rotor to disengage from the dural motor power boom.

When the engines stop, and power boom no longer drives the rotor via the swinging wire links, the following action takes place. Due to energy stored in the rotor, and the blades immediately flapping up on their 45 deg. skew hinges, throwing off pitch and attaining a good auto-rotation setting, the rotor continues to spin.

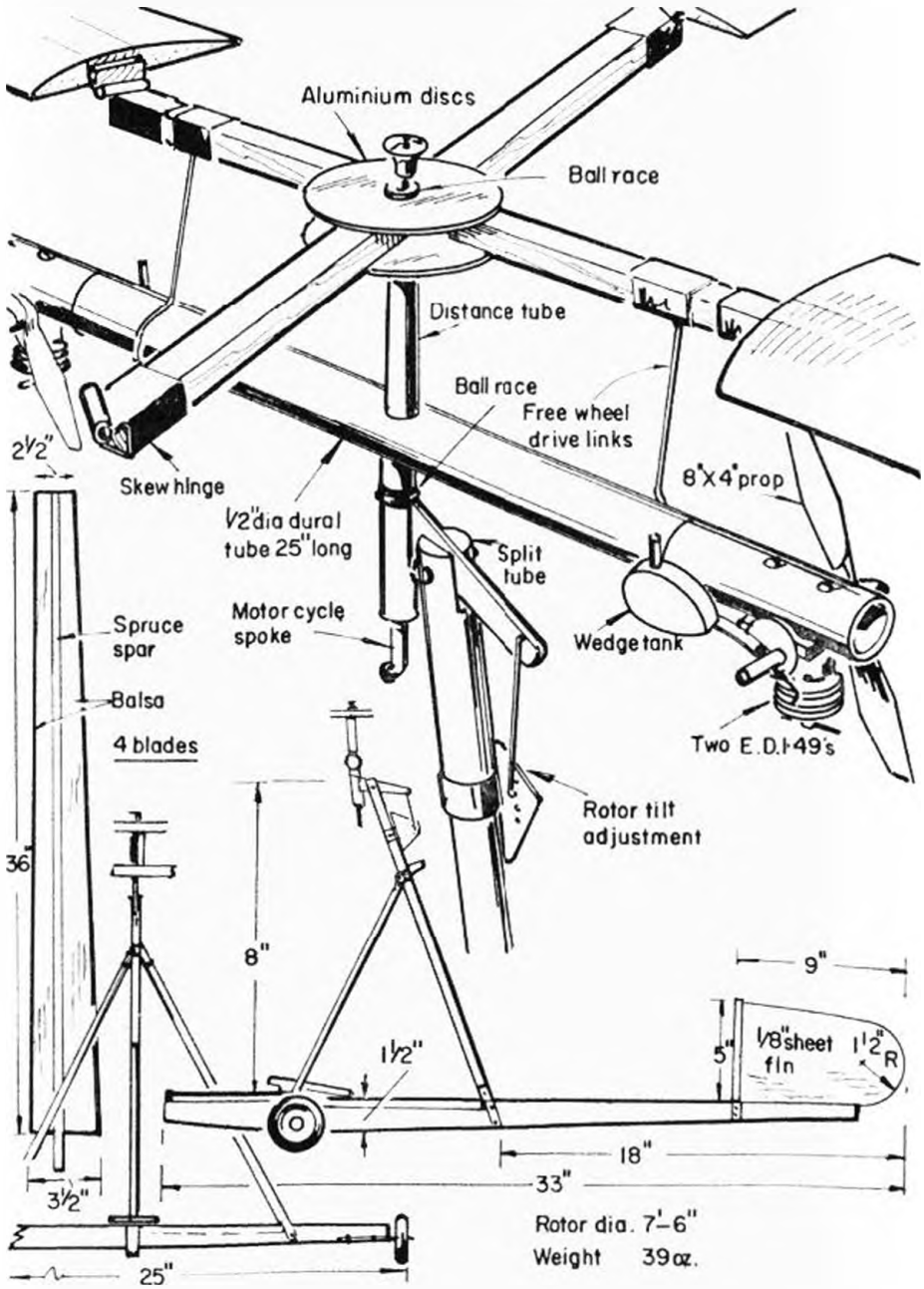
The swinging wire links, coming in contact with the now stationary motor boom, swivel clear and continue to keep in a raised position by centrifugal force as they are pivoted freely. This is a simple action and works well. In this particular model the power boom is mounted below the rotor system in order to keep the C.G. in a low position and in consequence the wire links are 7 ft. long.

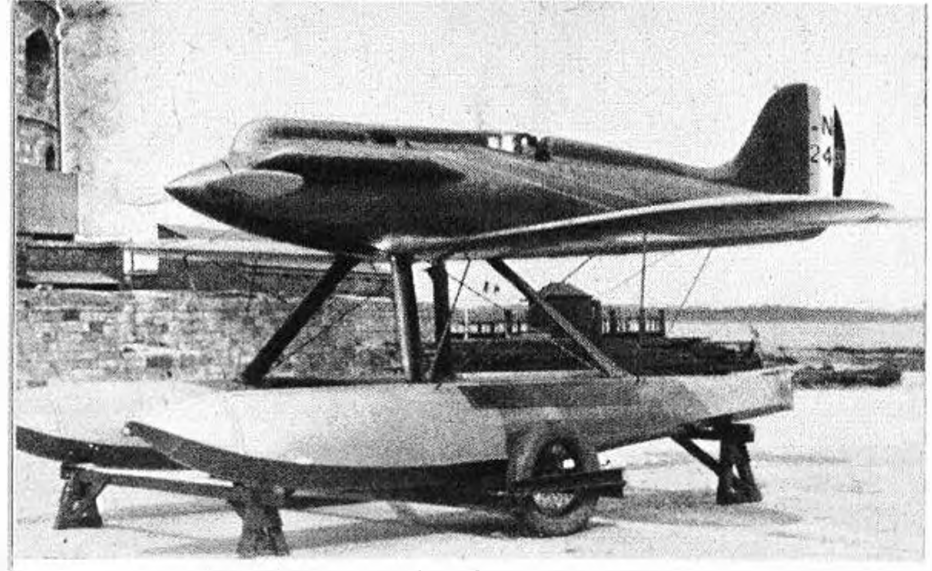
However, with a power boom mounted in the same plane as the rotor blades, a ratchet type or similar device to a free wheel airscrew would be required. Mr. Boreham has found less interference from the airscrews on the rotor blades, when the power boom is fitted beneath the rotor system.

The auto-rotation qualities are much improved, as the blades no longer have to drive the power boom with attendant drag of engines and propellers so the "let down" is better and excessive coning of the rotor blades avoided. On this particular model only down or droop stops are fitted to the blades, which can flap freely upward, but as mentioned before, the low drag and 45 deg. skew angle prevent excessive coning.

In order to simplify control, a tilting hub is used and at present only in the fore and aft sense, and is set before flight. Zero or neutral setting for hovering, and vertical flight in calm air, while a forward tilt inclines the rotor disc for forward travel, and backward tilt for rearward travel. These settings are quite small and the range is 7 degrees either side of neutral, the control pin locking the desired setting by means of the drilled plate. Eventually the rotor axle may be fitted with a gimbal to allow lateral movement also, thus controlling the machine in a sideways direction. As a point of interest, the tilting hub control was successfully used in the C30 Autogyros and early helicopters and some small (Bensen) U.S.A. types, and it is certainly simpler than cyclic feathering and servo flap operation of the blades. Mr. Boreham intends to play about with radio control one of these days, and the rotor tilt would be actuated by a servo using a Micromax motor of 60 : 1 reduction.

The present fuselage is purely a simple triangulated structure, with side track ground points on the lines of a one-man lifter, to give good testing facilities, and at the same time enable ballast weights to be used at the approximate C.G. position thus enabling weight lifting capabilities to be determined. This is an essential step for the development of a R/C helicopter, however, a fuselage similar to a Sikorsky S.64 Skycrane could be used like Ken Norris's excellent R/C model as shown in November issue.





February, 1961

**AIRCRAFT DESCRIBED**
**Number 107**

**Described & drawn by**
**J. H. ROBINSON**

# Gloster VI

TWO BEAUTIFUL low-wing floatplanes designed by H. P. Folland and H. E. Preston were built by the Gloster Aircraft Company for the 1929 Schneider Trophy Contest. Numbered N249 and N250, their superb streamlining, minute frontal area, and exquisite outline well merited their unofficial title of "Golden Arrow".

Glosters maintained the biplane could be built as fast as the monoplane, and their first design studies of a biplane development of the Gloster IV, known as the Gloster V, progressed as far as highly satisfactory wind tunnel models. But the new Napier Lion VIID engine which was to power the Gloster machines was almost 300 lb. heavier than earlier Lions partly because of fitting a supercharger, and in repositioning the wings to allow for the shift in the centre of gravity the front spar came over the centre bank of engine cylinders. Since it was also impossible to locate the top wing to provide adequate forward visibility, a difficulty experienced with the Gloster IV, it was decided to adopt the monoplane.

The semi-elliptical wings were of a sharp-nosed symmetrical airfoil section, and the gracefully-curved and filleted wing roots were formed integrally with the fuselage. Following usual Gloster racing practice, each wing consisted of six spruce spars and closely-spaced spruce ribs with laminated spruce skinning of either two or three laminations. Almost the entire wing was covered with radiator surface, formed of flat-section brass tubing, of smaller cross-section than Glosters had used before, sweated together edge to edge.

The fuselage was a flush-riveted, dural monocoque of absolutely minimum dimensions. The heads of all three cylinder tanks of the broad-arrow engine formed the actual aircraft outline, blending flush with fairings fore and aft, and the cockpit was literally tailored to fit the members of the High Speed Flight during the mock-up stage when small alterations were made to increase pilot comfort.

Petrol tanks of equal capacity were housed in each float, and two engine-driven fuel pumps raised the petrol in equal quantities from each tank to a two-gallon service tank in the fuselage. Oil cooling radiators were provided on the upper surface of each float with inlet and outlet oilways in the leading edges of the float struts.

The twelve-cylinder Napier Lion VII D engine was fitted with a newly-developed supercharger, rear mounted to minimise frontal area. At a time when standard service Lions of identical capacity were producing about 500 h.p. the VII D was rated at 1,320 h.p. for short periods, and this over-boosting was largely responsible for the troubles that plagued the Gloster.

N249 arrived by road at Calshot about August 12th, 1929, and N250 a few days later. After erection, N249 made a successful flotation test, but bad weather prevented flying until August 25th, when Squadron Leader Orlebar made the first take-off, only to have the motor cut about 20 ft. up. After ground running, Orlebar made a flight in N250 on August 31st. The aircraft took off and handled well, but the engine cut on turns and level.

On September 2nd Flying Officer D'Arcy Grieg made two flights but could not locate the cause of the trouble, which persisted despite alterations to jets and intakes. After continuous, frantic work by ground crews over three days and two nights Flight Lieutenant George Stainforth took up N250 on September 5th, but was still unable to keep the engine running at full throttle, so the Glosters were withdrawn from the race.

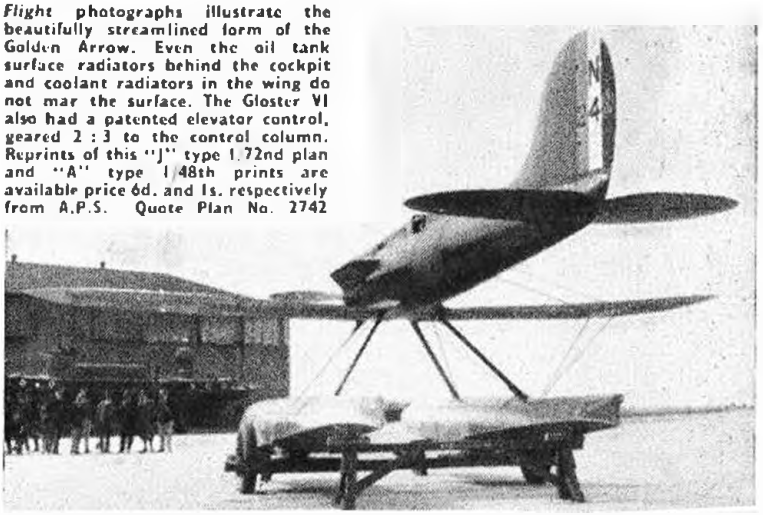
The day after the race, September 10th, Stainforth made five runs over the three-kilometre course from Calshot Spit to Agwi Pier in N249, which by then was flying fairly well at full throttle on the level, although giving trouble on turns. Hampered by heavy mist, Stainforth treated his first run as practice and had to turn back for a second start on the fourth. The last four runs recorded speeds of 351·3, 328·3, 336·2, and 329·3 m.p.h., giving an average of 336·3 m.p.h. These speeds were presented to the F.A.I. for ratification as an Absolute Speed Record, although bettered by Orlebar in S.6 N247 immediately afterwards and again two days later.

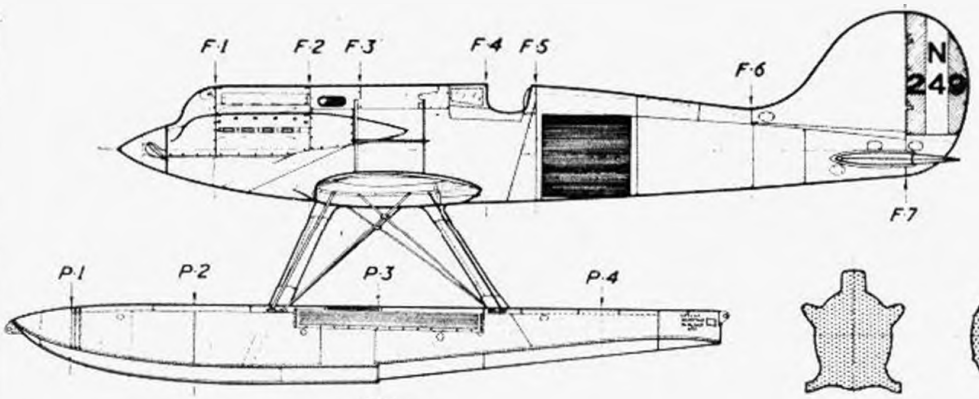
In 1930, N250 was exhibited at the R.A.F. Display, and by July at Felixstowe, with a new engine and forward facing intakes, running was improved but power could not be maintained. N249 made two flights in August, but after further failures the supercharger fan was found to be damaged, so an intake coming well forward was fitted, and two more satisfactory flights made.

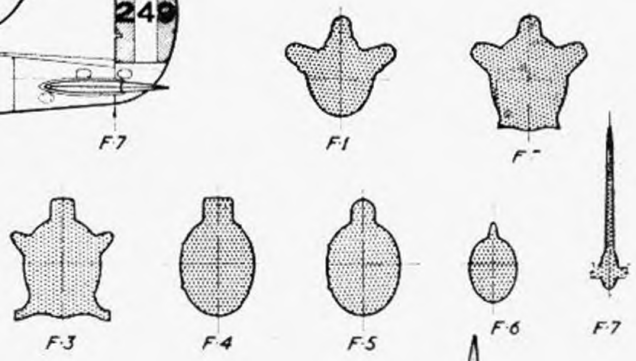
An unlocked rudder control came close to losing N249, and later flights indicated the engine would not really stand full throttle running in the air, so when in May the Flight returned to Calshot, although N249 was in commission as a training machine, no great use could be made of it.

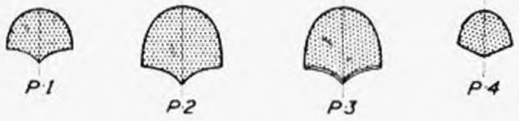
Representing the ultimate airframe development for the Lion engine, it was a measure of the Golden Arrow's excellence that with the highest landing speed of any Schneider aircraft at nearly 110 m.p.h., they were only marginally slower than the Supermarine S.6 though scarcely two-thirds its power. Certainly the Gloster VI was, to quote Squadron Leader Orlebar, "a great but unlucky machine".

*Flight* photographs illustrate the beautifully streamlined form of the Golden Arrow. Even the oil tank surface radiators behind the cockpit and coolant radiators in the wing do not mar the surface. The Gloster VI also had a patented elevator control, geared 2 : 3 to the control column. Reprints of this "J" type 1/72nd plan and "A" type 1/48th prints are available price 6d. and 1s. respectively from A.P.S. Quote Plan No. 2742





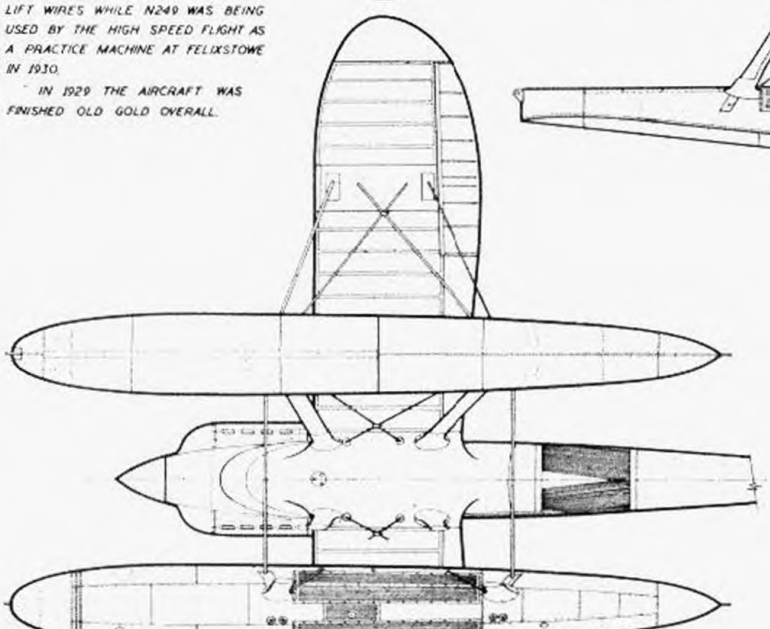



THE SPACERS TO THE ANTI-LIFT WIRES AND THE FAIRING AT THE JUNCTION OF THE WIRES BETWEEN FLOAT STRUTS WERE NOT FITTED WHEN N249 ARRIVED AT CALSHOT IN AUGUST, 1929, BUT HAD APPEARED BY THE TIME THE AIRCRAFT SET ITS ABSOLUTE SPEED RECORD OF 336·3 MPH., SEPTEMBER 10, 1929.

AN ACORN FAIRING WAS FITTED AT THE JUNCTION OF THE CROSSED LIFT WIRES WHILE N249 WAS BEING USED BY THE HIGH SPEED FLIGHT AS A PRACTICE MACHINE AT FELIXSTOWE IN 1930.

IN 1929 THE AIRCRAFT WAS FINISHED OLD GOLD OVERALL.





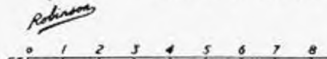
WINGSPAN: 26 FT
OVERALL LENGTH: 27 FT
LOADED WEIGHT: 3,700 LB APPROX.

ENGINE: SUPERCHARGED 12 CYLINDER NAPIER LION VII D OF 1,320 HP

FASTEST RECORDED SPEED: 351·3 MPH

COLOUR SCHEME: (1930 & 1931)
WINGS AND HORIZONTAL TAIL: OLD GOLD
FUSELAGE, FIN, AND STRUTS: CAMBRIDGE BLUE
ALL RADIATOR SURFACES: NATURAL BRASS
FLOAT UPPER SURFACES: WHITE

Robinson




# GLOSTER VI N249

# ¼A Offers new scope for the experimenter. Here's one viewpoint

## Pee Wit

by P. Gasson

UNTIL QUITE RECENTLY it had not been possible for English power enthusiasts to enjoy the use of a contest class miniature "¼A" motor. The recent introduction of the Cox *Pee Wee* 0.3 c.c. glow motor which is now in abundance in the model shops, has provided the long awaited answer and is fast becoming a favourite.

There is always a thrill to be had in contemplating the miniature and there are many modellers who have for years dreamed of an 18 in. fast climbing power job and have had to content themselves with models of at least 24 in. span and an engine capacity of more than ¼ c.c. Here is an account of the type of model evolved to meet these requirements and to deal in particular with the layout and type of construction which is considered essential for a model of this size.

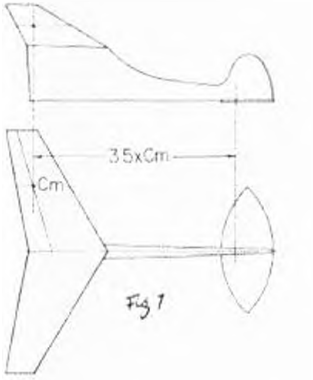


Fig 1

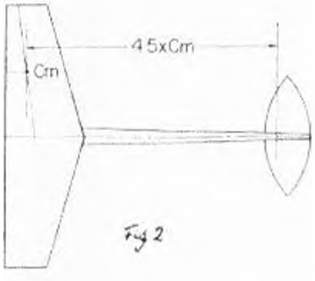
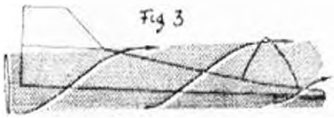


Fig 2


Fig 3



To achieve a rapid climb it is always necessary to keep a careful check on the weight. Particular attention must always be paid to this requirement and the outside limit for a model of this type is 2½ ozs. although by careful attention to wood selection it is not difficult to keep this down to 1½ ozs. With a 1 oz. motor weight this allows only ½-oz. for the airframe. The fact that over 50 per cent. of the total weight is concentrated in the motor unit imposes a considerable limitation upon the choice of layout.

The most obvious effect is to bring the c.g. well forward which means that the wings must be situated almost over the engine. R. Annenberg solved this problem by using swept forward wings, thus bringing the wing centre of pressure forward whilst keeping the root section behind the engine (see *Fig.* 1). In smaller models such as described here, a swept forward wing produces structural difficulties if tip flutter during the fast climb is to be avoided. For this reason a straight leading edge is recommended and the c.g. problem solved by making the moment arm longer than usual (about 4-5 mean chords), which also allows the pylon to be lower than that originally employed by Annenberg (see *Fig.* 2).

With this style of model it has been standard practice to mount the wing (but not the tail) outside the slip-stream, by which means it is claimed that the layout is less critical to tail trimming adjustments (see *Fig.* 3).

Dihedral need not be excessive, 3 in. per foot of semi-span being sufficient for most layouts. If too much dihedral is employed then Dutch rolling will occur and consequently the glide will not be good. If, on the other hand, too little is allowed then the model will not be able to make full use of the high power because of its wish to side slip.

A tail area of not less than 30 per cent. wing area is usually required, although a long moment arm does help to reduce this minimum, providing inertia forces are kept small.

In spite of its important function, the fin often appears in a very artistic, but often inefficient form. Fin area is obviously of some importance and proportions can be critical. Fins of a given area will have different effects if their heights are greatly different. A tall fin has a more pronounced effect than a short fin of similar area, but if made too tall will be structurally weak or, alternatively, will be too heavy. The fin shown on the plan is a well tried shape and provides a long fuselage seating and sufficient width to provide bracing for its high tip.

The size of the propeller is of vital importance and experiments should always be made before one is satisfied that the best type is being used. To this end it is convenient to use a metal (duralumin) propeller. Pitch can then be adjusted and the diameter and blade area can be reduced if required. A duralumin propeller provides enough weight

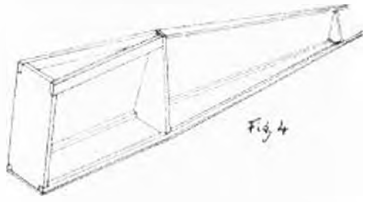


Fig 4

to allow the engine to run smoothly and in the event of a crash the blades will bend without damage to the engine, for it is a much easier job to straighten a bent propeller blade than to replace a broken crankshaft. To guard against too frequent bending of the propeller blades a wire peg leg was provided on the original model and saved the propeller from all but a bad crash

The Cox *Pee Wee* motor requires a propeller of approximately 4 in. diameter and 4 in. pitch. This is meant only as a guide as the pitch will be found to depend upon the overall weight of the model and will need to be considerably reduced if the weight exceeds the recommended figure.

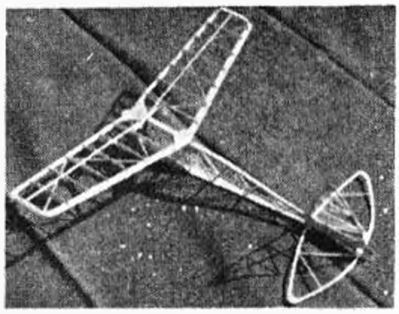


*Fig.* 5. Note "Warren Girder" construction on fuselage, fin and tail. Also front and back sheeting of fuselage

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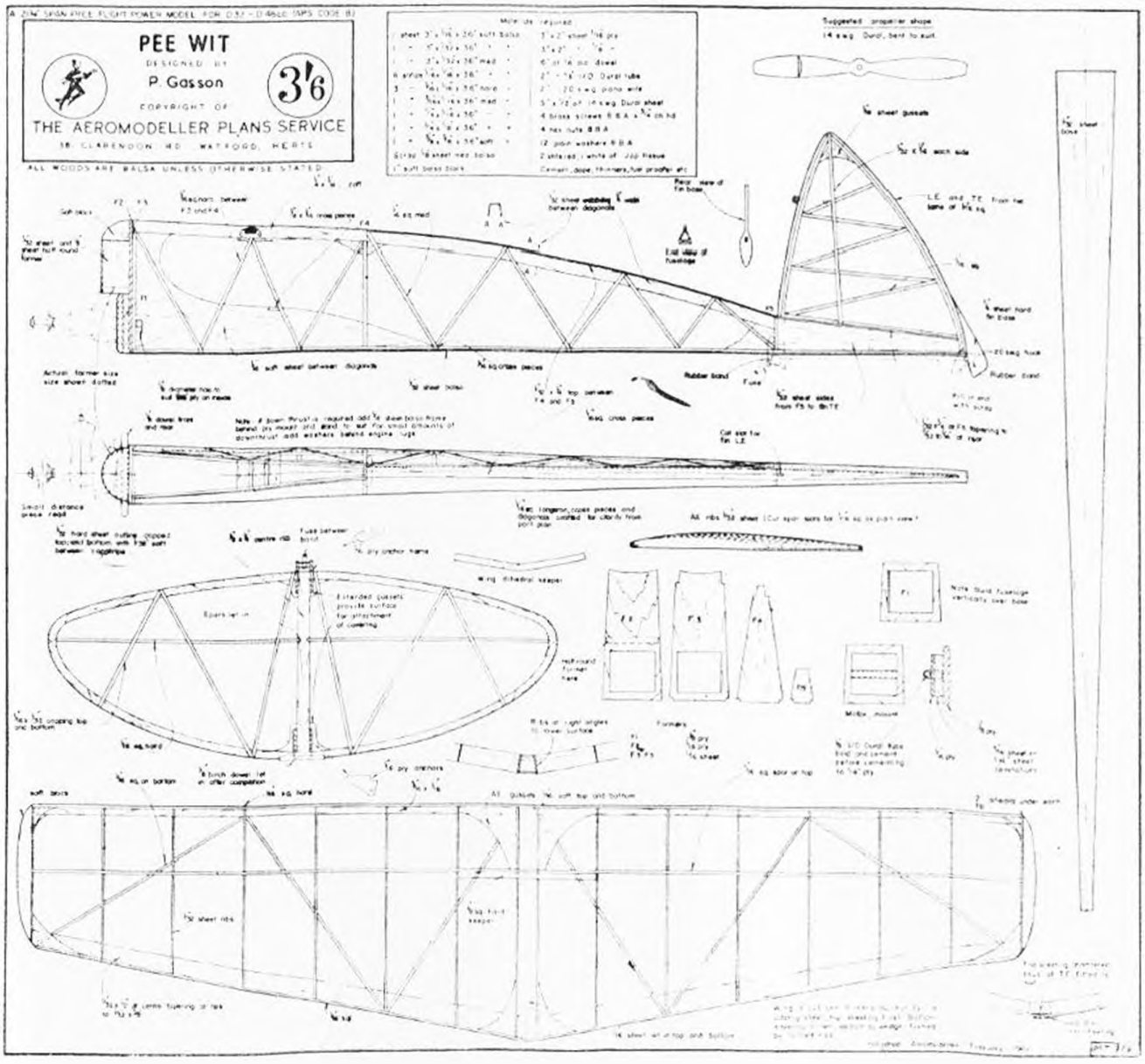
A deep triangular fuselage section is undoubtedly the most suitable construction, which is considerably simplified if the bottom spars are made flat. Building can then be commenced as follows:—

## Construction

Cut the plan form from soft 1/32 in. sheet and cement a 1/16 in. sq. longeron to each contour. Add the 1/16 in. hard sheet formers to the front and back of the wing position also the former at the tail end.

Build up top of wing mount and back bone using ¼ in by 1/16 in. (see *Fig.* 4). The Warren Girder arrangement may then be inserted and finally the front side sheeting and back bone 1/32 in. sheet webbing and dowels added (see *Fig.* 5)



Build fin flat on plan and cement to back bone when thoroughly dry. Finally, add bracing strips.

Both the leading and trailing edges are of an "L" section. The leading edge is made from a piece of 3/16 in. by 1/16 in. laid flat on the plan and a piece of 1/16 in. sq. cemented on top to the front edge. The trailing edge is made in a similar way using ⅜ in by 1/32 in. (tapering at tip) on top of which a 1/16 in. sq. spar is cemented (see *Fig.* 6). Although this method produces a rather thick trailing

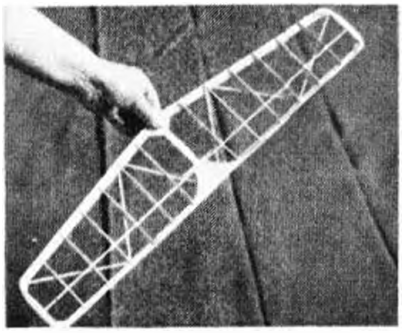


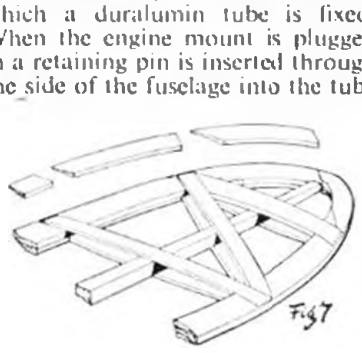
*Fig.* 6. Shows a close-up of the wing. Note the "L" section leading and trailing edges and "Warrren girder" bracing

edge, this does not seem to affect the performance adversely, whilst it undoubtedly makes a very strong warp resisting structure.

Parallel ribs of 1/32in. medium hard quarter grain balsa are placed at 1½ in. centres and a 1/16 in. sq. hard balsa spar placed on the top surface at maximum depth. Having built this structure it should be left pinned down for a couple of days before cutting the slots and adding the diagonal spars. Add dihedral keeper and root sheeting.

The tail outline is built up from 1/32 in. medium sheet balsa and geodetic capping strips 1/16 in. by 1/32 in. and edge caps are then added. This produces a very reliable structure (see *Fig.* 7).

The engine is bolted to a ply block (shaped like the nose block of a rubber model) to the back face of which a duralumin tube is fixed. When the engine mount is plugged in a retaining pin is inserted through the side of the fuselage into the tube



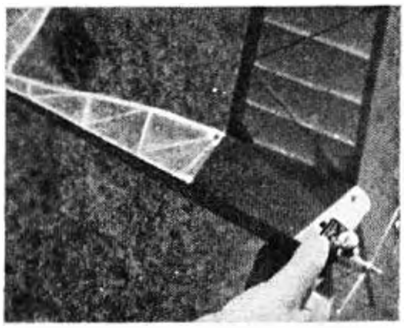
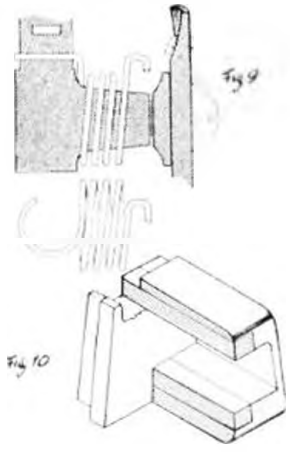



*Fig.* 8. A shot of general interest. Note the rubber model type nose block with retaining dowel

(see *Fig.* 8). Slight downthrust adjustments may then be made by sanding the balsa former on the fuselage, but flying field adjustments are best made by placing washers behind the mounting lugs of the engine.

Some people will find it an advantage to fit a starter spring to the engine and a suitable one is illustrated in *Fig.* 9.




Care must be taken to wind the spring as close as possible so that four or five turns of 18 S.W.G. wire can be accommodated on the outside of the crankshaft bearing without the end of the spring fouling the propeller. The spring is only pulled forward to engage the propeller when actually in use.

For those modellers wishing to fit an 0.2 c.c. *Dragon Fly* diesel, a suggested motor mount is illustrated in *Fig.* 10.

Coloured jap tissue is recommended for the whole of the model. Two or three coats of 50 per cent. dope-thinners being suitable for the fuselage and two coats of 30 per cent dope-thinners for the wings. Do not water shrink the tailplane and use dope very sparingly—1 coat 15 per cent. dope-thinner.

A normal type "pop down" tail D.T. is essential and ensure that the fuse is arranged to lie on the longitudinal centre line of the fuselage.

## The Send Off

Before taking the finished model along to the flying ground it is advisable to line the model up very carefully, checking squareness of tail thrust line of motor and difference in incidence between wing and tail surfaces. No serious warps should be present, a slight degree of washout is usually helpful so that if present, do not bother to remove it at this stage.

Test glide into wind (initial test flights should always be carried out on a calm day or evening). There should be no tendency for the model to stall, it being preferable that the glide be rather steep. Motor downthrust will then be governed by the overall weight of the model and for a heavy model no downthrust will be required.

Use a fine pitch propeller for initial flights, as this can be tuned to maximum revs. without giving much torque and, at the same time, the thrust will not be large. Motor run should not be too short as it is almost impossible for any untrimmed model to recover from a near vertical attitude should the motor cut whilst still near the ground. For this reason it is recommended that a motor run of 5 to 7 seconds should be employed. Measure fuel by eye dropper or convert Pee-Wee to a "tube" tank.

Do not be over anxious to achieve that vertical climb. The first few flights should be made using the fine pitch propeller which may be adjusted to give more thrust as the model is trimmed in a spiral climb.

If the model is particularly light you may find that as the power is increased a loop results. This can best be corrected by a little downthrust, but if the amount required becomes excessive, add a piece of 1/32 in. packing under the trailing edge of the tail plane. (Note: this model has an underslung tail unit), and move the c.g. forward to balance out on the glide—this latter adjustment is best achieved by placing a piece of packing behind the motor, thus moving it forward. To obtain correct circling, it sometimes helps if a trim tab is fitted to the wing or fin, otherwise the warp technique or a tilted tail is employed.

Although it is not possible for a model of this size to compete against its big brother, it is capable of giving a good account of itself and will give many hours of enjoyment to anyone who builds it.

# Trade Notes


LATEST PLASTIC kit to be introduced by **Airfix Products Ltd.** is of the *Fokker F.27 Friendship*, to their standard 1/72nd scale. It has 72 parts and sells for 7s. 6d., including two sheets containing 19 transfers for the EI-AKA Aer Lingus fleet machine.

Among the kit components are two pilots, a stewardess, transparent cockpit and cabin windows, radio aerials and antennae, passenger entry steps and stand. Star features include a fully retracting undercarriage, moveable rudder and ailerons, revolving propellers and we should also mention that *unlike* another kit for the same type, the wing is the right way up!

Our example is to be subjected to a very special colour scheme. More details when it's finished!

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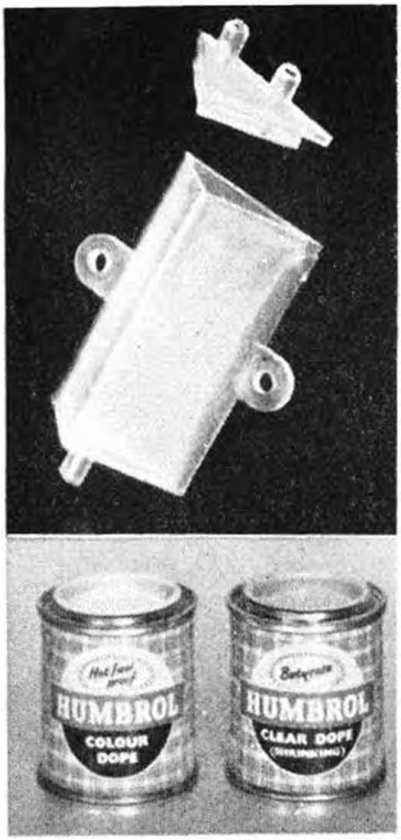


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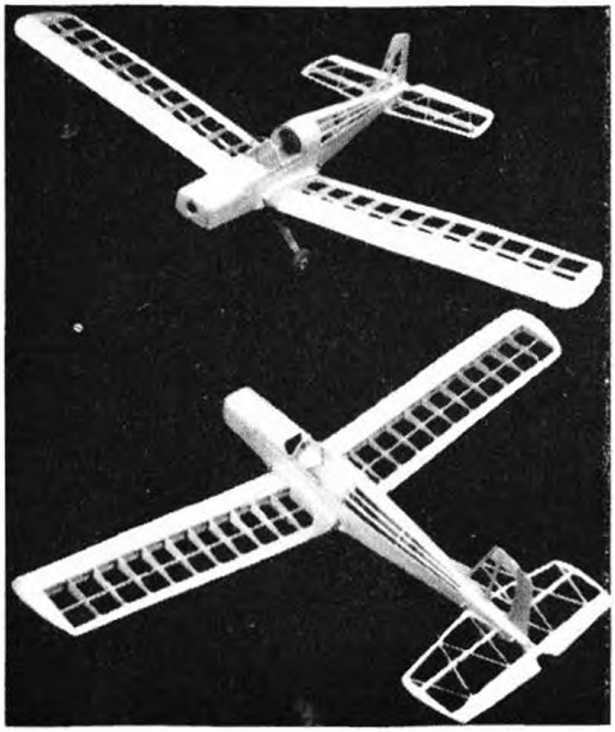


*At right:* Two views of our test Viking from the R.M.A. distributed kit. This is destined for single channel rudder engine operation and a throttled 3.5 c.c. engine. Structure is simple yet very tough and prefabrication makes assembly easy

Build fin flat on plan and cement to back bone when thoroughly dry. Finally, add bracing strips.

Both the leading and trailing edges are of an "L" section. The leading edge is made from a piece of 3/16 in. by 1/16 in. laid flat on the plan and a piece of 1/16 in. sq. cemented on top to the front edge. The trailing edge is made in a similar way using ⅜ in by 1/32 in. (tapering at tip) on top of which a 1/16 in. sq. spar is cemented (see *Fig.* 6). Although this method produces a rather thick trailing

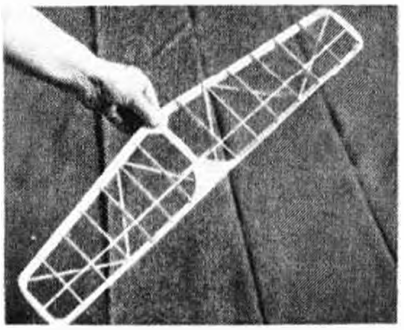


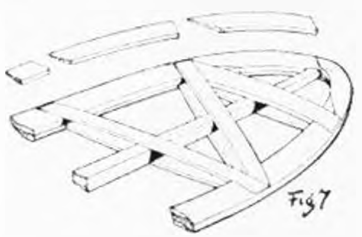
*Fig.* 6. Shows a close-up of the wing. Note the "L" section leading and trailing edges and "Warrren girder" bracing

edge, this does not seem to affect the performance adversely, whilst it undoubtedly makes a very strong warp resisting structure.

Parallel ribs of 1/32in. medium hard quarter grain balsa are placed at 1½ in. centres and a 1/16 in. sq. hard balsa spar placed on the top surface at maximum depth. Having built this structure it should be left pinned down for a couple of days before cutting the slots and adding the diagonal spars. Add dihedral keeper and root sheeting.

The tail outline is built up from 1/32 in. medium sheet balsa and geodetic capping strips 1/16 in. by 1/32 in. and edge caps are then added. This produces a very reliable structure (see *Fig.* 7).

The engine is bolted to a ply block (shaped like the nose block of a rubber model) to the back face of which a duralumin tube is fixed. When the engine mount is plugged in a retaining pin is inserted through the side of the fuselage into the tube



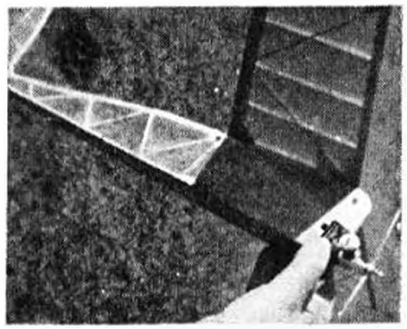
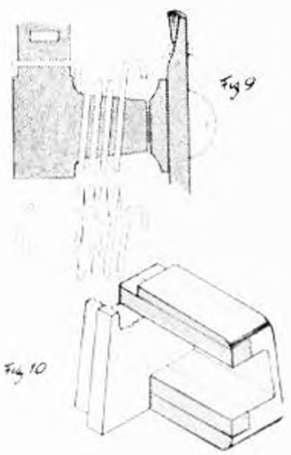



*Fig.* 8. A shot of general interest. Note the rubber model type nose block with retaining dowel

(see *Fig.* 8). Slight downthrust adjustments may then be made by sanding the balsa former on the fuselage, but flying field adjustments are best made by placing washers behind the mounting lugs of the engine.

Some people will find it an advantage to fit a starter spring to the engine and a suitable one is illustrated in *Fig.* 9.




Care must be taken to wind the spring as close as possible so that four or five turns of 18 S.W.G. wire can be accommodated on the outside of the crankshaft bearing without the end of the spring fouling the propeller. The spring is only pulled forward to engage the propeller when actually in use.

For those modellers wishing to fit an 0.2 c.c. *Dragon Fly* diesel, a suggested motor mount is illustrated in *Fig.* 10.

Coloured jap tissue is recommended for the whole of the model. Two or three coats of 50 per cent. dope-thinners being suitable for the fuselage and two coats of 30 per cent dope-thinners for the wings. Do not water shrink the tailplane and use dope very sparingly—1 coat 15 per cent. dope-thinner.

A normal type "pop down" tail D.T. is essential and ensure that the fuse is arranged to lie on the longitudinal centre line of the fuselage.

## The Send Off

Before taking the finished model along to the flying ground it is advisable to line the model up very carefully, checking squareness of tail thrust line of motor and difference in incidence between wing and tail surfaces. No serious warps should be present, a slight degree of washout is usually helpful so that if present, do not bother to remove it at this stage.

Test glide into wind (initial test flights should always be carried out on a calm day or evening). There should be no tendency for the model to stall, it being preferable that the glide be rather steep. Motor downthrust will then be governed by the overall weight of the model and for a heavy model no downthrust will be required.

Use a fine pitch propeller for initial flights, as this can be tuned to maximum revs. without giving much torque and, at the same time, the thrust will not be large. Motor run should not be too short as it is almost impossible for any untrimmed model to recover from a near vertical attitude should the motor cut whilst still near the ground. For this reason it is recommended that a motor run of 5 to 7 seconds should be employed. Measure fuel by eye dropper or convert Pee-Wee to a "tube" tank.

Do not be over anxious to achieve that vertical climb. The first few flights should be made using the fine pitch propeller which may be adjusted to give more thrust as the model is trimmed in a spiral climb.

If the model is particularly light you may find that as the power is increased a loop results. This can best be corrected by a little downthrust, but if the amount required becomes excessive, add a piece of 1/32 in. packing under the trailing edge of the tail plane. (Note: this model has an underslung tail unit), and move the c.g. forward to balance out on the glide—this latter adjustment is best achieved by placing a piece of packing behind the motor, thus moving it forward. To obtain correct circling, it sometimes helps if a trim tab is fitted to the wing or fin, otherwise the warp technique or a tilted tail is employed.

Although it is not possible for a model of this size to compete against its big brother, it is capable of giving a good account of itself and will give many hours of enjoyment to anyone who builds it.

# Trade Notes


LATEST PLASTIC kit to be introduced by **Airfix Products Ltd.** is of the *Fokker F.27 Friendship*, to their standard 1/72nd scale. It has 72 parts and sells for 7s. 6d., including two sheets containing 19 transfers for the EI-AKA Aer Lingus fleet machine.

Among the kit components are two pilots, a stewardess, transparent cockpit and cabin windows, radio aerials and antennae, passenger entry steps and stand. Star features include a fully retracting undercarriage, moveable rudder and ailerons, revolving propellers and we should also mention that *unlike* another kit for the same type, the wing is the right way up!

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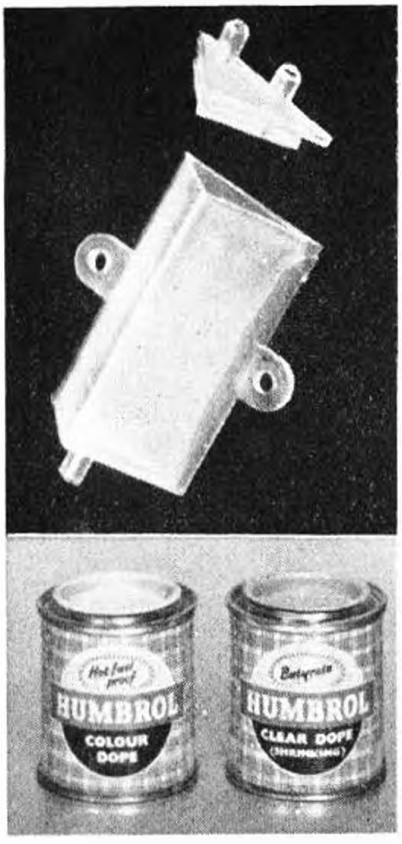


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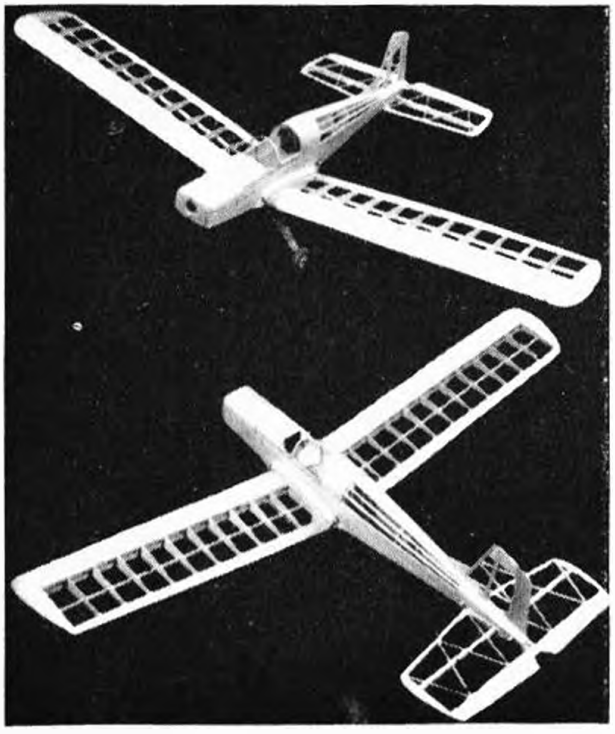

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Top left: This Grahame-White Type XV is an example of the basic configuration of the design: equal-span wings, forward elevator, exposed crew. The Type XV was used, in several forms, bt the R.N.A.S. for training purposes. Above: The first of 250 F.E.2 b's built by Ransomes, Sims and Jefferies, B401 was used at Orfordness to test balloon fenders. These consisted simply of cables running from the forward end of the "bowsprit" to the apices of the horizontal vee struts attached to the front outer interplane struts. A second F.E. had a slightly different cable layout. One of these aircraft was deliberately flown into a balloon cable by Captain Roderic Hill. The device was heavy, clumsy and only partially successful, and it was not developed.

# PHOTO ALBUM

## More WWI types of unusual interest

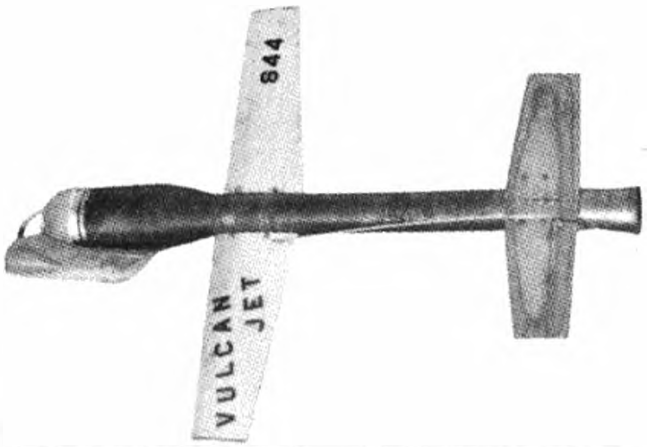
Right: Another view of the captured Albatros DII illustrated in the November, 1960 issue of AEROMODELLER. A British airspeed-indicator pressure head has been mounted on the starboard upper wing.

Above heading: This captured Halberstadt DIII has also acquired a British pressure head. Its British markings have been applied with great care and in accordance with prevailing British practice. The small lettering at the top of the white stripe on the rudder reads:—

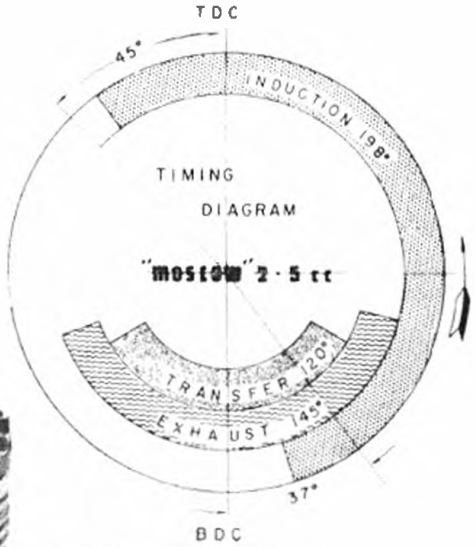
A.R.S.F.
4541
19 6 17

The number 234 almost certainly indicates that this Halberstadt DIII originally had the German Bestellnummer D 234/16, which has been reported as that of a Halberstadt D V shot down 15th February, 1917. Left: A fine study of a Sopwith F.1 Camel powered by the 100-h.p. Gnome Monosoupape engine. Camels fitted with this engine were used by training units.

Right: The Bristol Scout was the first British aircraft to go to France fitted with a machine-gun interrupter gear; only a few machines were equipped in this way, and photographs of them are rare. This Scout D's Vickers gun was synchronised by the Vickers-Challenger interrupter gear, the link rod of which can be clearly seen. The fact that the gun had a chute for empty cases, indicates that a disintegrating-link type of ammunition belt was in use when this photograph was taken.




Rossi's new record jet model at left and mass production Russian M.D. 2.5 with timing diagram at right. This engine closely follows Czechoslovakian design features. 10,000 are to be produced over a five year plan

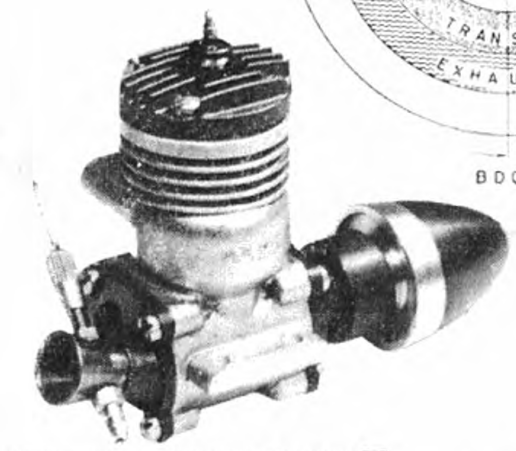


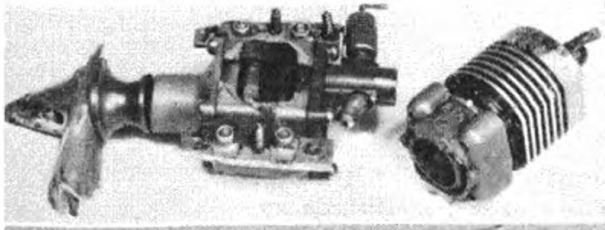

# MOTOR MART

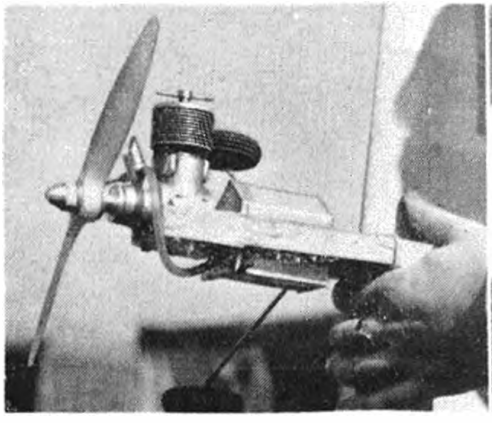
THE JET MODEL above is what it takes to make a new record flight of 186½ miles per hour! Note how the "fuselage" is no more than a Rossi **Vulcan** Jet, to which the wings, tail and tank are appendages. Rossi is seen with another of his Vulcan power units in the photograph, below, right, and the valve gear is revealed at bottom. Similar in most respects to the long established principles of the **Dynajet** this product from Italy differs in that it is larger than the American equivalent, a subject which must be a source of annoyance to A.M.A. members because in the States, tailpipe diameter is limited to a cross-section of 1.25 square inches, whereas the only European restriction is that of weight, whereby the F.A.I. rule of 500 grammes maximum (1.1 lb.) is applied. As a matter of fact, the U.S.A. raised this matter at the recent F.A.I. meeting, but the existing weight rule was deemed satisfactory as it also allows for turbo-reactors as well as pulse units.

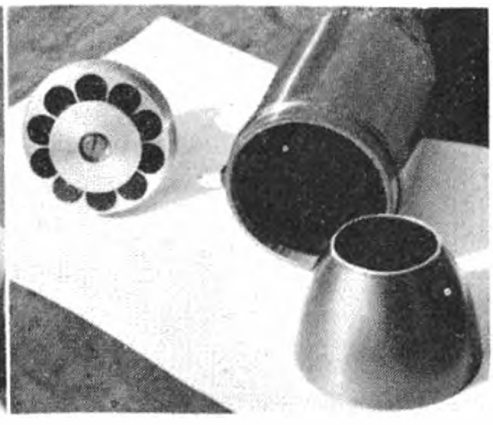
Weight of the Vulcan is 430 grammes (15¼ ounces), its overall length is 26¾ inches and maximum diameter 2¼ inches. Price in Sterling is £12 from the works.

The Russian racing engine which is in mass production as the **Moscow M.D.** 2.5 bears considerable family resemblance to the Czech MVVS engines which the Russians have been using for some time. Although externally appealing, it falls short on performance, largely due in the case of our example, to a poor piston fit. However,—it's a unit that begs for reworking and we venture to predict that with so many about to enter circulation, a fair proportion will get into enthusiastic hands and make their mark in the speed circuits. We have taken the timing diagram from the instruction booklet which accompanies the Moscow. Same book gives the bore as 15 m.m., stroke 13 m.m. and claims peak power of 0.3 B.H.P. at 18,000 r.p.m. Each engine is certified as tested with a signed declaration in the









Top right, most bent diesel we have ever seen. An ETA 15D after collision with Kenley tarmac in J. Lambert's racer at well over 100 m.p.h. Not a part was salvageable! Below it is Ugo Rossi with his Vulcan jet demonstrating the size of the unit, and immediately below him is the nose detail of the jet showing valve gear. Immediately right, is the Gorski Sokol 4.5 c.c. diesel used in Polish models at the World Championships showing a remarkable smoothness and good power. Same type also powers the scale Britannia in last month's issue

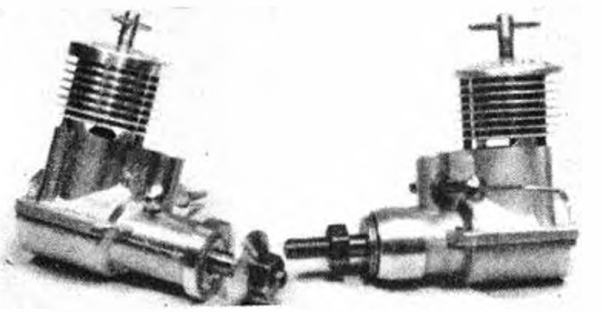
# MOTOR MART (continued)

handbook, quoting date of manufacture and serial number.

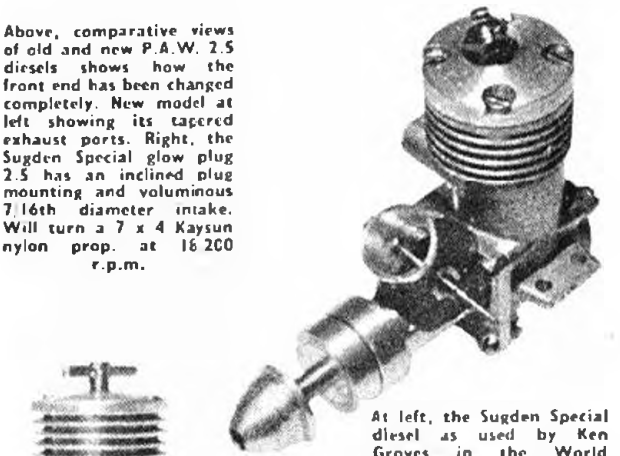
We are indebted to the *Wind So'k*, official bulletin of the Toronto Sputterflys MAC for some re-work hints on the **O.S. Max 15.** Some time ago we commented on the claim for 17,000 r.p.m. with a stock Tornado 6 x 9 in. prop. made by this club, with the suggestion that it might be a little on the high side. Now we are assured that the figures are obtained by an accurate electronic tachometer and to bear out the claim, they have a second engine which was similarly modified and turned 17,600 r.p.m. with promise of more to come when run-in. Mods include flaring the shaft opening into the crankcase, opening the shaft bore by 1/16 in., opening the rotary valve by an extra 1/32 in. each end, and for pressurising if wanted, a head bolt is drilled between 1/64 in. and 1/32 in. and locked with nuts as a backplate bolt in the upper left position when viewed from the rear. These were extra mods, over and above the usual "treatment" of replacing gaskets, de burring and polishing the transfer, bevelling venturi to 45 degrees and opening to ¼ in. internal bore, polishing the backplate, squaring out the piston transfer ports, bevelling lower edge of cylinder transfer port, polishing most other parts and hand lapping piston and shaft fits with rouge. Enough?

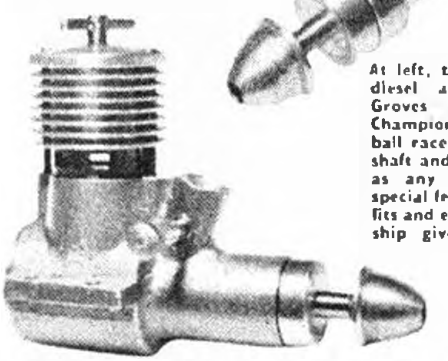
Same bulletin quotes Jaures Garofali's advice to **Super Tigre G.20** owners on running-in procedure. Run at 16,000 r.p.m. on a 55 per cent. Nitro, 20 per cent. Castor, 10 per cent. Methanol, 15 per cent. Nitrobenzine formula for a half-hour *after* 4 to 6 hours of general running. In-flight running is recommended *because* fairings (we presume this means speed cowls) cause overheating, and though first flights may show low speed, this improves with each succeeding flight, as many have seen when the Super Tigre *Equipe* performs at a contest.

Other news from Canada concerns Dave Sugden (well on the way to becoming a dentist, having forsaken the aircraft industry!) whose specials are always of interest. Ken Groves used the diesel illustrated here, at Cranfield but unfortunately suffered D/T timer troubles.



Above, comparative views of old and new P.A.W. 2.5 diesels shows how the front end has been changed completely. New model at left showing its tapered exhaust ports. Right, the Sugden Special glow plug 2.5 has an inclined plug mounting and voluminous 7/16th diameter intake. Will turn a 7 x 4 Kaysun nylon prop. at 16 200 r.p.m.





At left, the Sugden Special diesel as used by Ken Groves in the World Championships has double ball race supported crankshaft and said to be as fast as any other diesel. No special features — just good fits and excellent workmanship give it performance

# 2·5 cc Fuel consumption tests

DATA FOR THE three accompanying fuel consumption tests on 2.5 c.c. engines were obtained with "straight" diesel fuel and were made under identical conditions. Fuel consumption was measured at a range of loadspeeds between 10,000 and 16,000 r.p.m., using different sizes of propellers. Needle valve setting corresponded to the leanest mixture to give consistent running throughout the test and mean consumption of at least three readings averaged for each load-speed. Measured and derived data are summarised in the tables and graphs.

It must be pointed out that these data represent *static* test conditions and do not necessarily apply to consumption figures achievable in flight where a considerable modification of needle valve setting may be possible, or necessary. Maintenance of a "minimum lean" setting in flight, too, depends to some considerable extent on the location and design of the fuel tank.

The "A" and "B" curves should be related to the tabular figures, when it will be seen that they represent B.H.P. x Seconds per c.c. in the case of "A" (reading on the left hand vertical side of the graph) and c.c. per sec. per B.H.P. in the case of "B". Needless to say, these curves are symmetrically opposite, but do enable an immediate appreciation to be made when comparing with previous tests which have been conducted in either way.

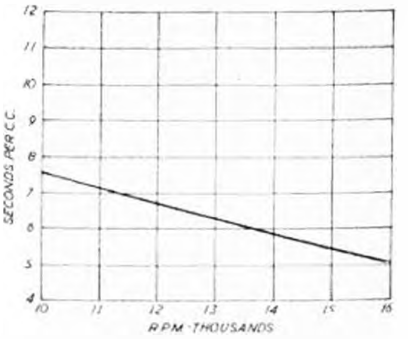
## ENYA 15D-11

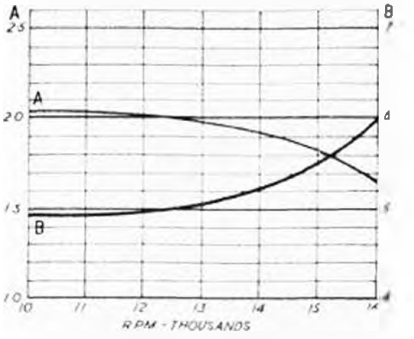
| | | | *A* | | *B* |
|---|---|---|---|---|---|
| *R.P.M.* | *B.H.P.* | *Seconds per c.c.* | *B.H.P. x Seconds c.c.* | *c.c./Second* | *c.c./Second/ B.H.P.* |
| 10,000 | .266 | 7.6 | 2.02 | .132 | .496 |
| 11,000 | .284 | 7.1 | 2.02 | .141 | .496 |
| 12,000 | .299 | 6.8 | 2.03 | .147 | .49 |
| 13,000 | .311 | 6.3 | 1.97 | .159 | .51 |
| 14,000 | .321 | 5.9 | 1.91 | .170 | .53 |
| 15,000 | .330 | 5.5 | 1.81 | .182 | .55 |
| 16,000 | .332 | 5.0 | 1.66 | .200 | .60 |

# ENYA 15D-11 (continued)

Being a loop-scavenged engine, somewhat different consumption/speed characteristics might be anticipated. However, the duration per c.c. shows to be linear in characteristic with an increase in fuel consumption of the order of .009 c.c. per second per 1,000 revs. The product of brake horse power developed against fuel consumption is substantially constant over a wide range of speed. Specific consumption (B) increases more rapidly at the upper end of the speed range.

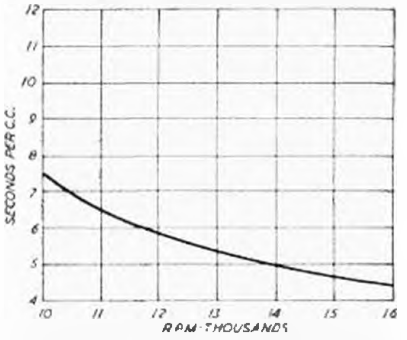
Restarting characteristics of this motor, when hot, were excellent and could be accomplished without choking or priming.

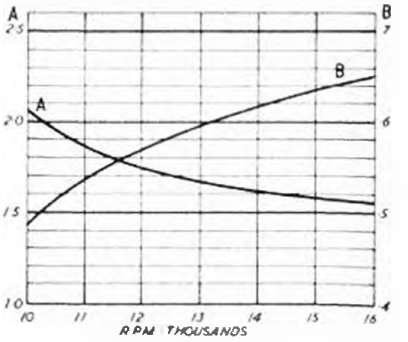



# ETA 15 D

| R.P.M. | B.H.P. | A: Seconds per c.c. | A: B.H.P. x Seconds c.c. | A: c.c./Second | B: c.c./Second/B.H.P. |
|---|---|---|---|---|---|
| 10,000 | .272 | 7.6 | 2.07 | .132 | .485 |
| 11,000 | .285 | 6.5 | 1.86 | .154 | .54 |
| 12,000 | .300 | 5.8 | 1.74 | .172 | .57 |
| 13,000 | .313 | 5.3 | 1.66 | .189 | .60 |
| 14,000 | .326 | 4.95 | 1.62 | .202 | .62 |
| 15,000 | .336 | 4.7 | 1.56 | .213 | .635 |
| 16,000 | .344 | 4.5 | 1.55 | .222 | .645 |




Presenting a different curve graduation for the power consumption ratio figures, the ETA 15D has a comparatively low rate of increased consumption as speed rises. It is usually operated between 13,000 and 15,000 r.p.m. for team racing, (air figures).

The extremely nice needle valve control, and possibly the twin ball races, makes it easy to establish optimum settings with this engine. Fuel consumption showed a tendency to decrease slightly from a true linear relationship with increasing speed, probably due to the fine degree of mixture control provided by the needle.

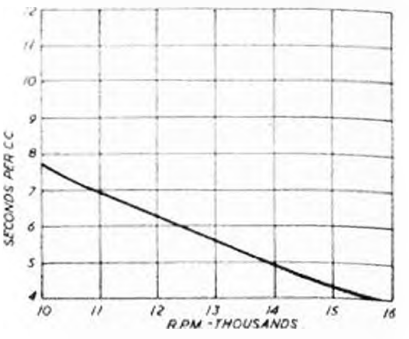
Re-starting characteristics were found to be excellent, with or without choking.

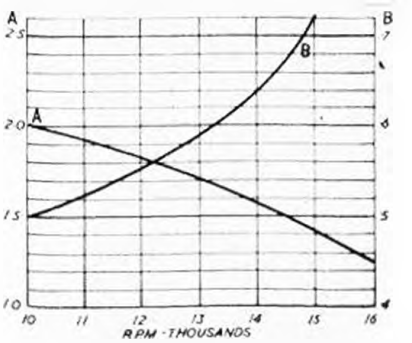
# P.A.W. 2·49 Mk. III

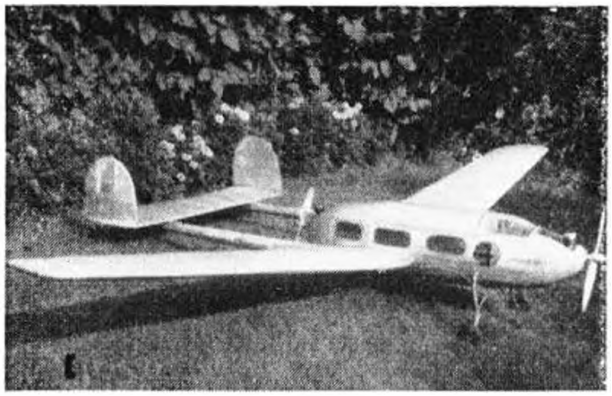
Fuel consumption proved to be substantially linear on static test with an increase in consumption of the order of .020 c.c. per second per 1,000 revs, which is a little on the high side. However, a slightly leaner mixture setting could undoubtedly be held for high speed running using a nitrated fuel. Specific consumption (B) showed a marked increase at high speeds. An exact setting was difficult to establish for "minimum lean" mixture to give a consistent run throughout the test runs and measured data probably correspond to a somewhat richer mixture can need be used in flight conditions.

Restarting characteristics were very good when hot, but choking or priming was virtually essential to ensure a first-flick start.

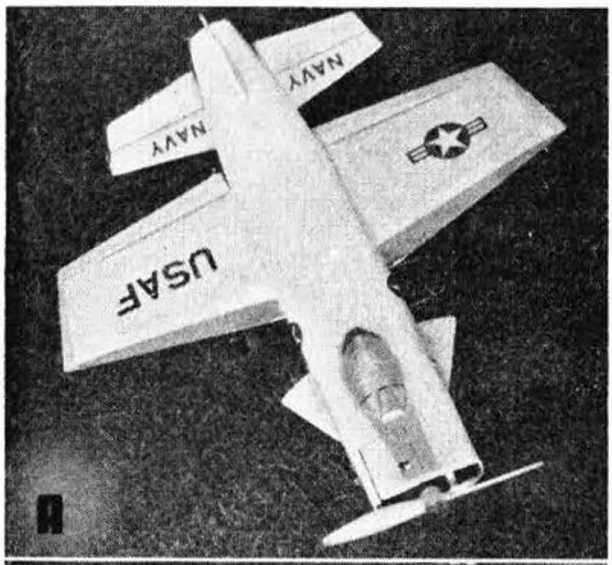
| R.P.M. | B.H.P. | A: Seconds per c.c. | A: B.H.P. x Seconds c.c. | A: c.c./Second | B: c.c./Second/B.H.P. |
|---|---|---|---|---|---|
| 10,000 | .256 | 7.8 | 2.0 | .128 | .50 |
| 11,000 | .275 | 6.9 | 1.9 | .145 | .53 |
| 12,000 | .290 | 6.3 | 1.83 | .159 | .55 |
| 13,000 | .304 | 5.6 | 1.7 | .179 | .59 |
| 14,000 | .314 | 5.0 | 1.57 | .200 | .64 |
| 15,000 | .318 | 4.3 | 1.37 | .733 | .73 |
| 16,000 | .313 | 4.0 | 1.25 | .250 | .80 |



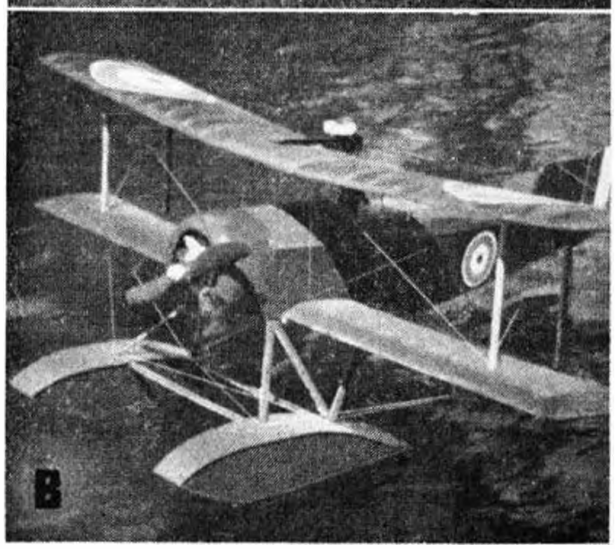



JOYCE PRINGLE IS SEEN in our heading photograph this month. Not many people outside of her locality know that she is Secretary for the North Eastern area of the S.M.A.E. and a very keen member of the Novocastria Club, being specially interested in gliders. The Open Rubber job she is holding belongs to fiance Ron Pollard of Tynemouth M.A.C. and is his successful design which was in the fly-off at the Nationals last year. Ron built two similar models and named them after famous trumpet players, *Buck Clayton* (as seen in the picture) and *Roy Eldridge*. "Roy" was used at the Nats. and "Buck" at the Northern Gala. In all, the pair have completed 23 contest flights including nine four-minute max.'s, twelve three-minute max.'s and several placings, including that at the Novocastrian Gala, where this photograph was taken and where Ron Pollard's model was beaten into second place by John O'Donnell's win by a mere three seconds.




A



B

## Control-line and Scale

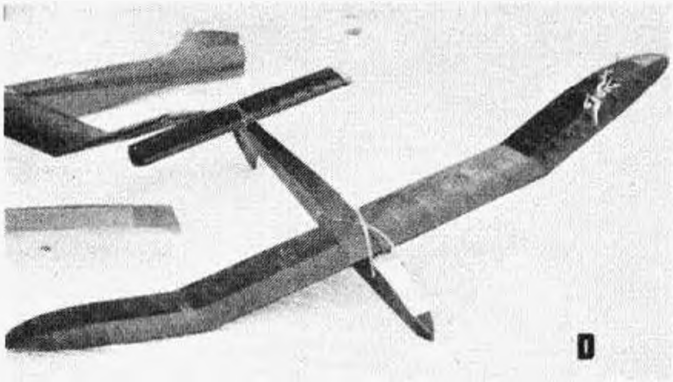
Something different is seen in photograph **A**. At least the U.S. might be worried as it carries both Navy and Air Force markings, but then—it *is* only a model! Powered by an A.M.10 it has coupled flaps and elevators, weighs 14 ozs. and flies at about 50 m.p.h. despite heavy wing loading. D. Rolfe of Southampton was responsible for this futuristic semi-jet. Next in **B** a most attractive ¼th scale model of the Sopwith Baby on floats from P. M. Cullingford of Harrogate. Powered by an E.D. 2.46 racer diesel, it is usually flown at Yeadon, has a lovely slow take-off from water lasting for over 50 yards before it unsticks. The control surfaces are hinged for pendulums but these were not needed.

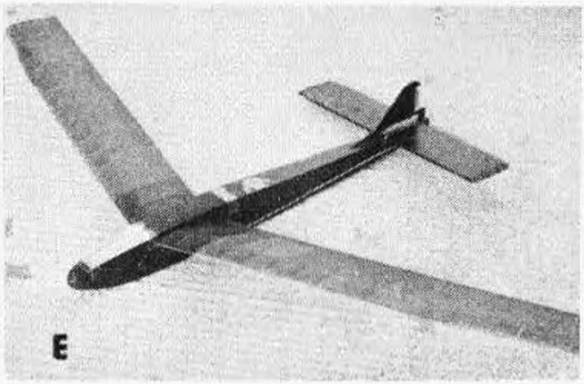
## Sport

Our feature last September on the Argosy freighter, resulted in L. S. Boast of Chertsey, sending in picture **C** showing his Silver Queen Mark II, a six-year-old veteran, usually to be seen over Chobham Common. Spanning 91 ins., weighing 11½ lbs. and powered by two E.D. 3.46 Hunter diesels at the nose and rear end of the centre fuselage, it is also unique in having a four-wheel undercarriage. Unfortunately it is a three man job in starting and launching, so flights are not made as often as the owner would like.

## Glider

Interest in slope soaring increases annually and this is largely due to encouragement from clubs such as those at Chester and Cambridge. Clive King of Cambridge sent us the two photographs **D** and **E**. The former is a standard AEROMODELLER Plans Service *Hoverking*, except that the fuselage is made with 1 m.m. ply covering. The all-up weight is 3¾ lbs. The second photograph reveals an experiment which has been going on in Cambridge for some time, namely that of swept wing


D

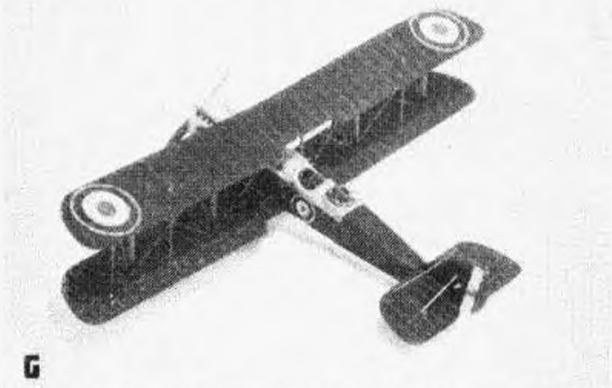

E

design. The main point in favour is penetration of the model which only weighs 30 ozs. all up and yet can penetrate in the same conditions as well as a model weighing 5 lbs. Swept wing stability has a lot in its favour for slope soaring, but unfortunately demands special designs or complete conversions. It simply is not possible to interchange straight and swept wings on the field.

## Solids

Refreshing views are seen in **F** and **G** of solid scale models (*yes*, the type you carve yourself from wood NOT plastic!). These were made by B. C. Campbell of Reigate, the upper one being a Short 225 and the other a D.H. 9A. Ribs are represented by twine glued with seccotine over the spruce carved wings which are then covered with tissue, offering a realistic effect, especially if slight wrinkles appear in the tissue. Wheels for the D.H.9 are none other than shirt buttons with plastic wood fairings and the pilot and observer were also carved from plastic wood. Rigging is with 5 amp. fuse wire. The fineness of the control wires was a slight problem and on the D.H.9, Mr. Campbell used grey human hairs, much to his regret, as they are susceptable to atmospheric changes although they serve as a useful barometer. Both models are to 1/72nd scale and Mr. Campbell finds that the most fascinating component to make is the airscrew, which he leaves in natural wood finish after carving and then varnishes for final effect.


F


G

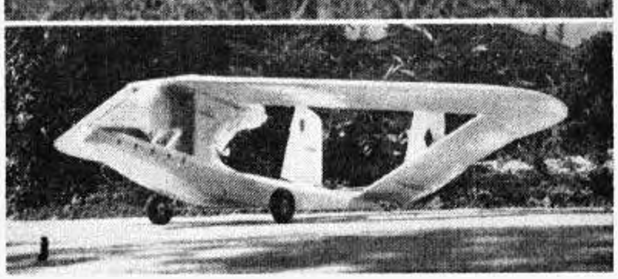
## Speed

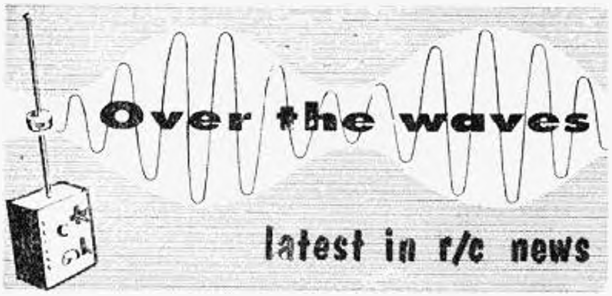
Photograph **H** comes from the South London Club, which is doing so much to encourage speed flying and shows R. Bricknell's Monoline speed model from Brixton. Powered by a Super Tigre G.20V, it is of metal and glass fibre construction and great hopes are held for its speed. Obviously Mr. Bricknell is being cautious in maintaining line tension with a fin of that size.

## Unorthodox

Lastly in photograph **J** is one of the more fascinating experimental designs from A.P.S., the *Ace of Diamonds*. This one was made by D. S. Pepper of Gosport and is powered by a Cox Pee Wee and although it weighs 16 ozs. the angle of climb is 30 degrees or more. Take offs from the runway at Lee-on-Solent are said to be a joy to watch, with no deviation and air stability is every bit as good as claimed by the designer. The full thory of the *Ace of Diamonds* configuration was detailed in AERO-MODELLER for August, 1958, and was the brainchild of Mr. Norman Hall-Warren, who first created such a wing design in 1926. In 1937 a patent was granted, and continual rising costs of prototype manufacture have been the sole reason why a full size prototype has not been produced. Modellers have found that the *Ace of Diamonds* is virtually stall free and steep angles held with safety—one wonders why no large manufacturer has interested himself in the type.

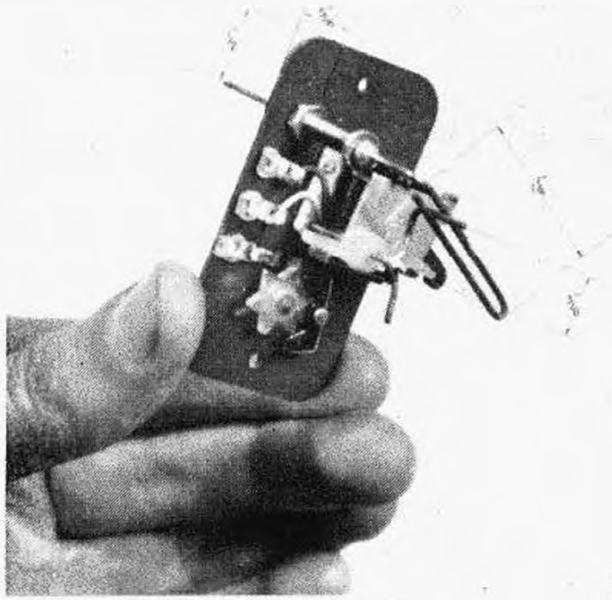

H

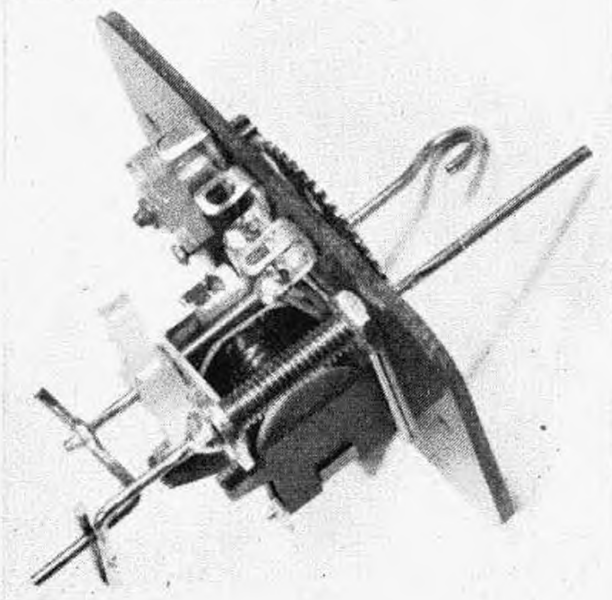

J




## Rising Compound conversion

FOR MANY YEARS it was the practice in radio models to mount the escapement at the rear of the fuselage. This is a time-tested system and works well, but the model must be large to accommodate the escapement in that position.





With the development of miniature transistorised receivers, it has become possible to accommodate radio in the smallest of models, and because of the reduction in model size, escapements can no longer be fitted in the back of the fuselage, but must instead be mounted at the point of maximum cross section. Stock British escapements (excluding the Elmic Conquest) cannot be used at this desirable position, and therefore we must devise a "Yoke" to reverse the actuating action, so that rubber drive and torque rod both travel to the rear of the fuselage. A study of our conversion carried out on a *Rising Compound* will show what is wanted, and a short description of construction will help.

Drill a hole in the Paxolin base using the dimensions on the photograph to position this hole, and mount an 18 s.w.g. propeller bush using a 4 B.A. nut each side of the base as a retainer. Bend the "L"-shaped crank from 18 s.w.g. wire, not forgetting the "kink" in the centre and that crank throw is ⅝ inch. Next shape the torque shaft, when the actuator is at the neutral stop, from 18 s.w.g. wire, by bending to "L"-shape and reversing one arm back on itself to form a narrow loop 1¼ inches long. Slide the other arm through the bush with a cup washer loosely fitted for soldering later (*see picture*). Position the crank on the shaft and also in the loop. Retain the torque shaft with the cup washer soldered to form a distance stop. Another cup washer the other side of the bush completes this operation. Now to solder the crank in place on the shaft — hold crank to shaft by the "kink" and with the actuator pawl firm at the *neutral stop*, and the crank and loop follower *superimposed and in-line*, solder crank to shaft. If this is not completed with care, rudder movement will not be symmetrical about the centre (neutral position). Ensure that everything works freely, by bench testing, and if functioning properly the escapement can be bolted to a bulkhead, the best position we find being just behind the wing. Use 3/16 inch dowel or 3/16 square balsa for the torque rod, binding 18 s.w.g. wire to each end to engage the rudder and escapement. A standard screw-locked coupling can be used to join up with the escapement and still permit removability for inspection and maintenance.

## U.S. R/C News

First item of news this month is that the new **Ecktronics Co.** of Santa Ana, California, is manufacturing a version of the *Kraft* Single Channel Tx and Rx, by arrangement with the designer, Phil Kraft.

The Tx costs $34.95 and is temperature compensated to work at up to 140 degrees F. Receiver has three transistor amplification stages following the valve detector, ending in a Deans sub-miniature relay, again temperature compensated and tested from 0 degrees to 140 degrees F., size is 2¼ in. x 1⅝ in. by 1 in. and price $29.95. **Citizen-Ship Radio Corp.** have announced an 8-Channel superhet receiver of very compact size 2 in. x 2½ in. x 2⅝ in. weighing 8 ozs. This is as small as many super-regenerative outfits, but gives the super-selectivity afforded by this type of receiver. Unit is all transistorised, using a miniature 15-volt battery for power. This is the K.V.-8 model and costs $129.95.

Another interesting piece of equipment from the U.S.A. is the *Polpi* pneumatic control system consisting of air reservoir and selector, and pneumatic servos. Cost in U.S.A. is $37.85.

Judging from the U.S.A. Nats. where three of the top four multi R/C winners had tricycle landing gears, this type may set a pattern for the future. Again the Americans have produced that little extra something. The **G. & B. Manufacturing Co.** of Dallas, Texas, are producing a steerable nose wheel unit. The wheel is 2¾ ins. diameter,

and the U/C leg is 5¼ ins. from pivot plate (which bolts to the firewall), to the axle. Weight is 4¼ ozs. Cost in U.S.A. is $15. **Perfection Model Co.** of Santa Monica, California, also market a steerable landing gear having stainless steel construction, is chrome-plated and has torsion bar and coil spring suspension. We note that this unit equipped first and fourth place winners at the 1960 U.S. Nationals which speaks for itself. Cost is $7.95.

A third type of steerable nose wheel is manufactured by **Don Steeb Inc.**, Rochester, New York—makers of the Steeb "Atlas" servos. Made from 24 ST aluminium and chrome vanadium steel wire, unit comes complete except for wheel, and wire struts are long enough to accommodate any size wheel, weight without wheel is 1¾ ozs. Swivel bearing and steering mechanism is designed for installation inside the fuselage. Price is $7.95.

From Kansas City Radio Control Club news sheet, *Contacts*, we learn that two enterprising fellows, Ward Hunter and Charley Reed have flown a system which they call "dual prop" which means that their two rudder-only proportional models are flown *simultaneously* off *one* Tx. They plug in two separate control box pulsers, and use separate tone channels, one tone for each set of control signals.

Other members of this active club are using smoke streamers during aerobatics.

Apparently the smoke trails show up well on film, which is good evidence of their success. Many people have tried smoke "bombs" and have given up because it was found difficult to lay a sufficiently dense trail at speed for it to hold "shape". These Kansas City "bombs" have been developed by Oliver Carlisle, they last for six to eight minutes and can be in white or colour.

At the time the most vexed question being felt throughout the States, is the future of present classes of radio control. Opinion of the majority seems to be that restriction of *application* of radio equipment in single channel is killing interest in this class. Many feel that greater licence in applying control is required so that ground handling and most polished performance can be achieved.

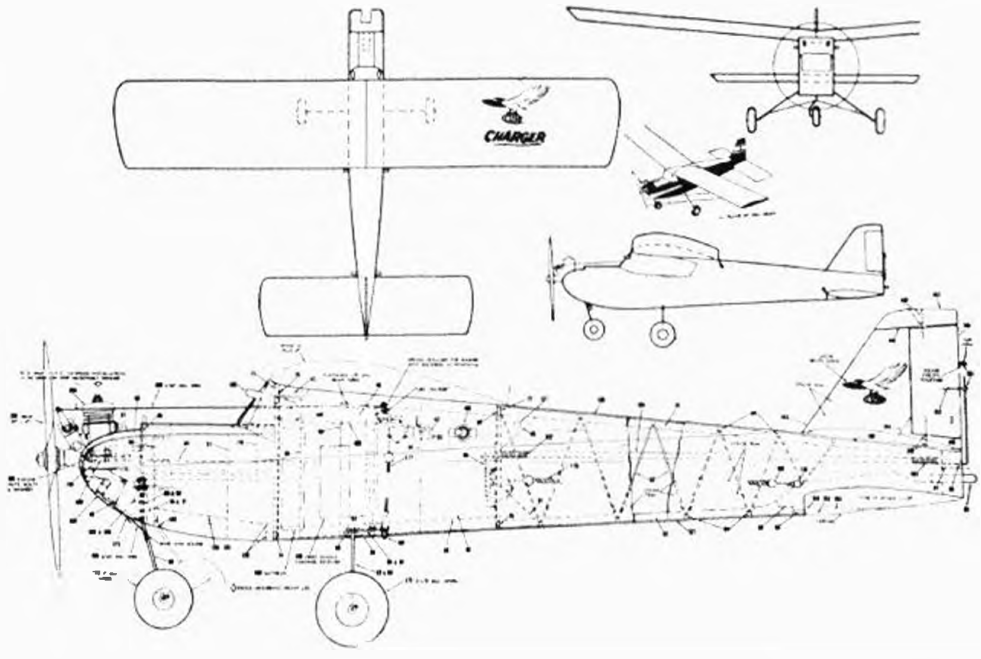
## First Kit from Ambroid

If there is one name which automatically signifies the highest standard in kit "engineering", it is that of W. A. "Bill" Dean.

Ambroid have now produced their first model kit. Hitherto they have been renowned for their cellulose products, especially Ambroid Cement, which is a particular favourite with a great majority of modellers. Bill Dean has prepared the Charger for them and we have been fortunate in obtaining an early sample of this kit for Milt Boone's 1959 National: winner in single-channel. Actually it did more than that, it swept first, second and third places and probably inspired more copy models than any other type in its class has ever done in previous years.

The Ambroid kit includes a three-sheet plan with magnificently illustrated stage by stage building details, leaving absolutely nothing to chance. We have no hesitation in saying that the standard of instructions and illustrations are un-surpassed. The construction sequence employs a jigging system for the wing and a rapid assembly of die-cut components for the fuselage. Presumably it is in the interests of economy that some of the areas normally filled with block are now made up of a mass of die-cut pieces of ¼ in. sheet (uses more Ambroid glue too!), but this is really no problem and probably adds strength.

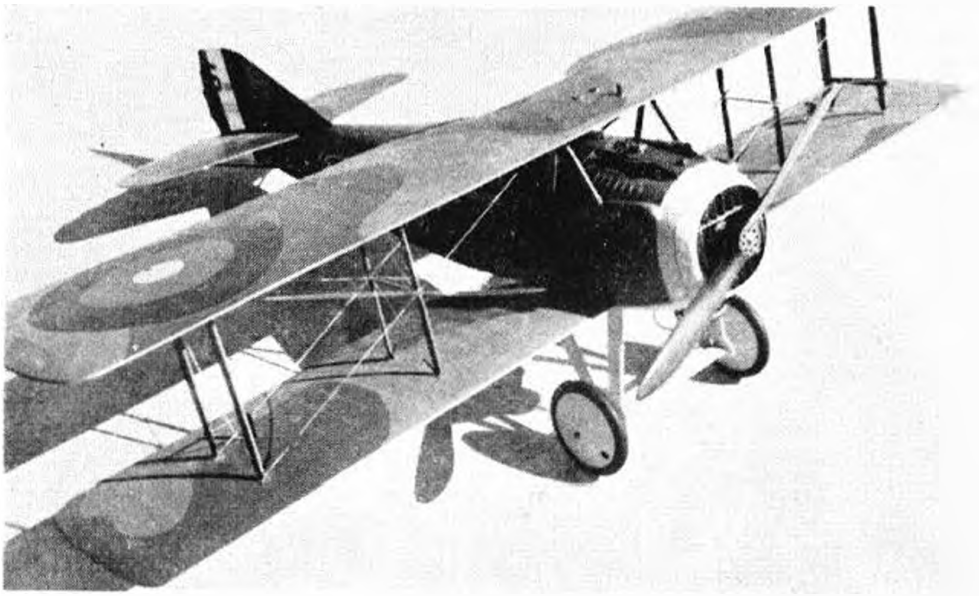
First sight of the actual size plans immediately introduces the Charger as quite a new type of approach to single-channel for British eyes. Considering that it is a 2.5 c.c. model, its 48 in. span (8½ in. chord) is relatively small and with hefty leading and trailing edge plus full span double "I" spars and a very tough tailplane, it is obviously created to meet the type of accident expected from a fast flying single-channel model. Yet the all up weight of 39 ozs. is comparatively modest. This is a reflection on the sensible distribution of small cross section components in properly engineered design for stress. Full details are given for the rudder and engine control systems used on the prototypes also original colour scheme for those who lack initiative and a fine set of decorative transfers complete a kit which is soon to be occupying space on our building board.




**Photos on opposite page: Upper shows dimensions and configuration of the "yoke" for Rising Compound Conversion. Comparison of size with hand shows compact layout. Lower view gives an indication of what the escapement would look like if mounted horizontally. Neat soldering enhances appearance. NOTE ! ! Be sure to get crank and follower superimposed when compound is at neutral stop *before* soldering**

***Right*: Extracted from the Charger kit by Ambroid are these views which give some idea of the wealth of detail. Span is 48 in. Area 390 sq. in. Sprung nosewheel and engine control are great aids for contest success. Price is $14.95.**

# WORLD NEWS

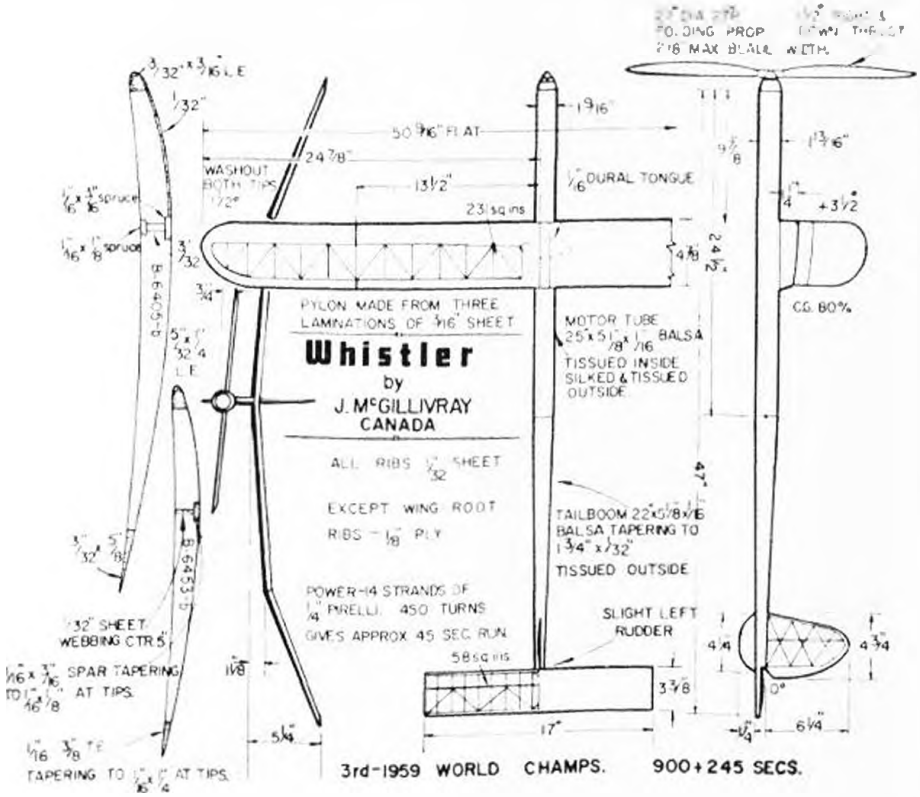


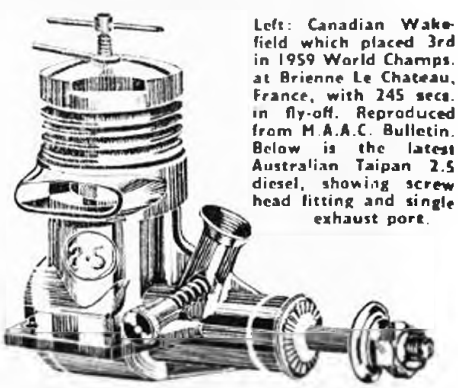
This S.P.A.D.in American Expeditionary Force markings by Rolf Norstog of Norman, Oklahoma, U.S.A., took several years to build, has an Atwood 60 Ignition engine, was 4th at '59 Nats., First in 1960 C/L Scale.

ALTHOUGH THE FATHER and son team of Roger and Claude Aubertin created a record time for F.A.I. team racing in the Principality of **Monaco**, when they completed the 10 Kilometre course in 4 : 48 with their ETA 15 model, they did not survive the 17 team International last October. Competitors came from Italy, Marseille and Lyon to join the Monagasques in a T/R and Stunt contest, in fact the Frenchmen collected first four places in team racing. Apparently the Aubertin's suffered a spot of bother from a prang and placed 6th. Mallet from Marseille was the winner with an Oliver Tiger, his time was 5 : 56. In Stunt, local man Bartoli (whose models have been seen before in these columns) made a 2,008 total with a Micron 10 c.c. job to edge out Lauron from Lyon. There were 15 entries in Stunt.

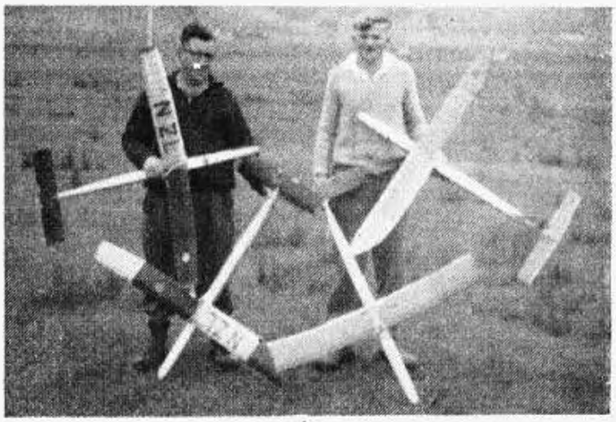
Down under in **New Zealand**, everyone is preparing for the Nats. as we write and a few items from the entry form might be of interest. First is a "Cover Charge" of £1 17s. 6d. for contestants, or 14s. 6d. for non-contestants. Meals £4 4s. 0d. and accommodation 15s. (tents). Entry for each of the 17 events is 2s. In the F.A.I. events for Wakefield and A/2, the top 20 N.Z. flyers will be matched for a fly-off for team selection. Some of the lads have been hard at it practising in the early hours to make sure of qualifying, the picture at the top of the page opposite was taken at 04 : 30 a.m.! The N.Z. Nats were held over the New Year Holidays at New Plymouth, where it is supposed to be calm until 10 a.m. Competitors for all specification events have to supply stout paper templates as a processing aid. Yet, it certainly *is* a different sort of Nats. down under!

New radio equipment is announced in **Australia** *Model News* magazine. It is produced by John Marquette, who has been to the forefront in R/C flying out there for some time, and known as Advance Radio Control "Silvertone" with an appropriate Boomerang trademark.



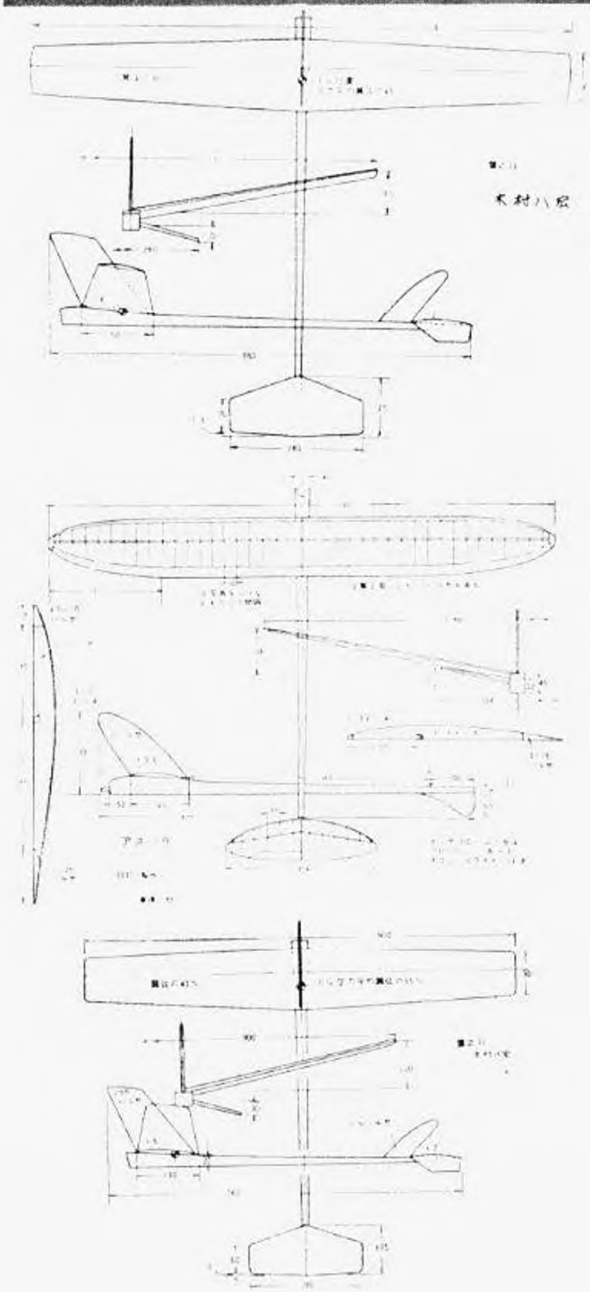
Left: Canadian Wakefield which placed 3rd in 1959 World Champs. at Brienne Le Chateau, France, with 245 secs. in fly-off. Reproduced from M.A.A.C. Bulletin. Below is the latest Australian Taipan 2.5 diesel, showing screw head fitting and single exhaust port.



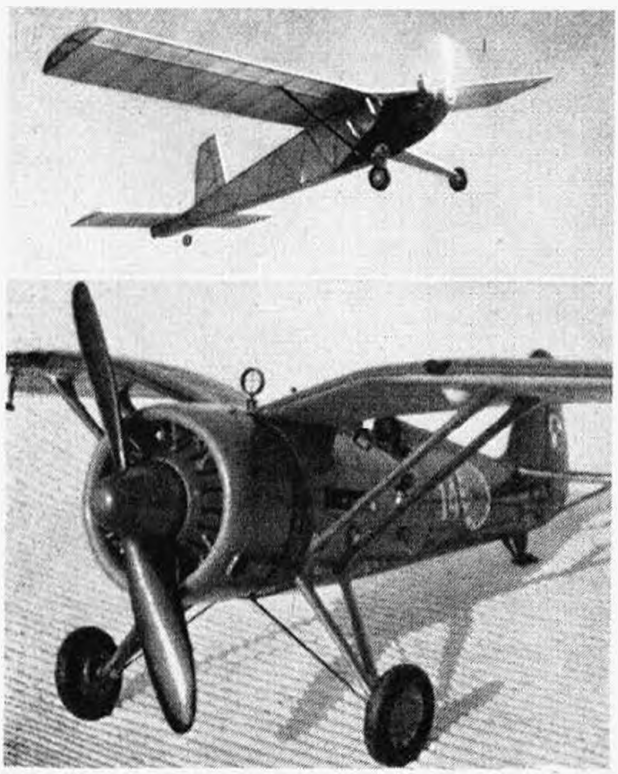
Right: Early birds in New Zealand are from the Upper Hutt club and they're practising for the team elims. at 04 : 30. John Malkin and Bill Cook hold their Wakefields, one belongs to Ed. Malkin, who took the picture. Ed. returned from England last year, having enjoyed two British Nats.

Single channel tone, with ground based Tx and alloy cased Rx is claimed to be the lowest priced, precision built outfit on sale in Australia today. Cost is £A32.9s.4d. complete. Another new product from the very lively Australian model trade is Gordon Burford's latest 2.5 c.c. Taipan diesel, a loop scavenge motor which sells at £A4 19s. 6d., there is also a new Taipan 15-glow in the offing. Coupled with the increasing local production of quality kits, these new items will hit the import business to some extent where tax and freight costs tend to make some Australian retail figures seem astronomical, even allowing for the lower value of the £A compared to Sterling.

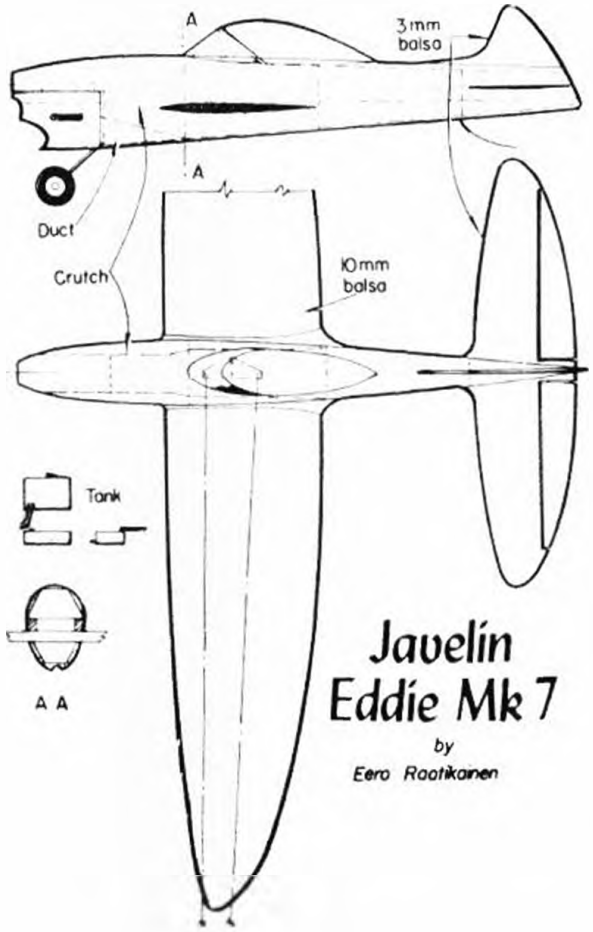
The Australian Nats. are also a New Year holiday spree, taking place this time at Rosewood, about 36 miles out of Brisbane. Full accommodation, including meals was offered at £A12 plus an extra pound for the Presentation Dinner. Entry fees 3s. per event, plus a 5s. administration charge, and field fee £A1 per head except for those taking full board. We mention these matters for the special benefit of British modellers who expect more for their puny investment at the annual S.M.A.E. Jamboree. The F.A.I. stunt pattern was used for the Hearn's Hobbies Trophy, a bi-annual event that



Right: Yet more of those Japanese forward fin experiments, reproduced for "Koku-Fan" the dimensions are all in millimetres, and all models for the 1A class. Should be a few ideas to inspire "designers" to try their hand, similar airfoils are used for all three, as shown in centre. Below: from Poland. Stanislaw Schier's sport model for land or hydro operation is called "Wicherek". At bottom is magnificent solid scale PZL P-11c by Benedict Dabrowski, a veteran pilot in LOT, the Polish Airline. 3,000 hours work on this 1/25th scale model has resulted in a perfect replica of the plane that flew in '39—with markings and detail from our plan in June '60 issue.



Elegance in A/2's above. At left, Koppel of Austria with a 99-inch span glider, aspect ratio 20 : 1. Average for ten flights, 138 seconds. At right, is an even higher aspect ratio model, 24 : 1 Hungarian design by J. Balazs said to have calm air performance of 210 secs. Team Racer to F.A.I. specs., below, is from Finland.




## Javelin Eddie Mk 7

by

*Eero Raatikainen*

attracts a big entry and has done much to keep Victorians on top in C/L aerobatics. The Triangle appeared to be the undoing of many, for this was the first use of the manoeuvre for some; but still it was a close contest with Doug Harlow and his OS 29/ *Nobler* in slight lead from Alan Holtham's OS 35/ *Thunderbird*. That kind of situation sounds familiar; but the fact that all entries used OS engines and Palmer type tanks is something unique to Australia. Team race men would probably like to know how Harold Flanagan can do 10 miles in 8 : 08 with a 65-70 lappage. That was his practice performance with Class I Oliver Tiger model (16.4 c.c. tank) for the "Beautizone Champs." at Coffs Harbour, but in the event, the up line broke. 'Nuff said!

Team racing is much on the wane in its established .29 class in the U.S.A. and Canada, and Rat Racing so much on the upswing and developing in performance that it will soon set a problem for the administrators. Originally conceived as a "poor or lazy man's form of racer," the Rats have become slickly finished speedsters with hottest 35's, pen bladders, pressurisation, etc., reeling off up to 115 m.p.h. In Canada, we learn that the Balsa Beavers of Toronto, who publish a fine news sheet known as the *Airfoil* (new section each month on the cover too) are keen for a marathon race, having read of the Brazilian 1,000 lapper in this magazine. 100 miles is their mark (1,400 laps) and a half distance trial run over 700 laps for 50 miles has started the ball rolling. Time for this distance was 51 minutes 15 secs. by Ken Sandham Jr.'s McCoy 35 *Guillow* Rat Racer. In a second session, Ken tried an Enya 29, which was faster but fell down on re-starts. The bug has bitten; but soon the snows will come and the Balsa Beavers then turn to their unique winter sport of Snowmobiling. This is ski-racing with a wingless fuselage tethered to a pole. Motors range from .049 to Lawnmower units "borrowed" whilst in store. One to four skis have been used, but the rules call for 100 sq. ins. of ski area per cubic inch displacement. Thus a .35 must have 35 sq. ins of ski surface. Line length is 52 ft. 6 ins., timing starts after the first completed lap and lasts for seven laps. Usually a 50-ft. line is provided and everyone uses a 30-inch bridle. Oh, and by the way, the "model" must not be airborne for more than a quarter-lap and don't laugh as some have done wingovers! Who's for Snowmobiling when the fluffy stuff falls? Those in warmer climes can do the same over sand; but don't forget to ballast the outer ski unless you want a hair-raising ground looper.

Also from the *Airfoil*, we must record J. V. Grant's amusing epistle entitled: "*When all else fails, follow directions*". Yes, YOU know. Take the engine out of the box, study it with an air of long experience, put it on the bench with the favourite prop and ruin the shaft bearings before the piston has a chance to seat properly. It's a common enough talk, and J.V.'s account deals in particular with the early Johnson instructions which called for an apparently drastic yet most effective procedure. J.V. suggests that modellers should reverse their habit and "*Follow directions, all else may fail*".

IF ONLY I had remembered something from our November News when appealing for the owner of a *Piper Super Cruiser* last month! Same model was announced as making an out of sight (and site) flight in that edition, so we've created the precedent of reporting a loss and a "find" without connecting the two. Ah well, even the best of magazines have to run a red face department!

# CLUB NEWS

## South Midland

STEVENAGE M.A.C. has an enterprising "News and Views" sheet, prepared by Geoff Dallimer, who also happens to be the newly elected S. Midland Area representative on the S.M.A.E. Council, as well as Comp. Sec. for his sins. Geoff includes Views in the news sheet to help encourage the contest fliers. Meetings of this new town club are held fortnightly in the Tenants meeting room at 6, Willows Link, next dates being January 18th, February 1st and February 15th. Local modellers who don't belong are advised to go along and join, believe me they'll find it most worthwhile.

Owing to a shortage of flying space more members of HITCHWORTH M.A.S. appear to be swinging to Radio. (Someone has been rather misguided here methinks!) Most ambitious project is a scale Blohm and Voss designed and built by the club's unorthodox specialist Harold Males, with Steve Porter supplying the Radio. Club's keen contest flyers Geoff Castell and Chris Thorne are busy on next season's designs, which they hope will keep them in the top half of the results sheets. Winners of Club's competitions were.

**WORBEY TROPHY**
*(Power Duration)*

| | |
|---|---|
| 1st | G. Castell |
| 2nd | C. Thorne |

**ANDREWS TROPHY**
*(Radio Control)*

| | |
|---|---|
| 1st | H. Porter |
| 2nd | J. Barnsey |
| 3rd | C. Warren |

## North Western

Though SHARSTON D.M.S. flying ground at Houghend L.A. Centre is overgrown with tall grass and weed, there is ample room for several C.L. models to be in the air at the same time. They share this ground with a number of non-club members from the surrounding residential area. It is hoped that they can run some combat and other C.L. comps in the near future.

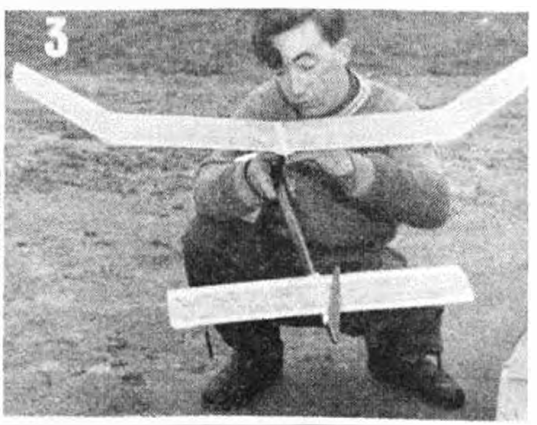
The Southern Area representative of WALLASEY M.A.C., Stan Hinds, kept the flag flying by placing second in the A.2 event at the Southern Gala. On the radio side he has just finished a super-sensitive tone relayless version of the *Ford* RX and the latest "*Monitor*" receiver with *Gruner* relay is being built by two members. The large number entered for the North-West Area Winter Rally were thwarted at the last moment by the take-over of Stretton by the Prison Authorities(!). At the last club meeting their secretary resigned but unlike many other clubs they had no difficulty in replacing him—R. Angell filling the position. At the next opportunity it is hoped to persuade several members to fly for the merit certificates, which should provide some enthusiasm, especially amongst the juniors, who tend to feel "out of it" at the larger meetings.

North Western Area held their Annual General Meeting and dinner at Liverpool on December 10th. Apart from the P.R.O.'s position, which was taken over by D. Millachip, of Wallasey, the committee remained the same. W. Neild as radio control director replaced the R.C. sub-committee, as it was felt that one person could obtain better results than several people spread around the area. Prizes are to be awarded during the coming year to the overall T.T. champion, and to the winners of the individual T.T. classes. Stretton, their regular airfield, has been turned into an open prison, thereby necessitating the postponement of the Winter Rally in December. Subject to obtaining a suitable airfield this will be held on February 5th. The Dinner was held following the A.G.M., the number present being over 60, more than most years mainly due to a large attendance from two local clubs. Following the dinner itself the various cups, medals and certificates were presented. An M.C. arranged some amusing and very interesting entertainment during the evening. Following this one of the Whitefield members showed some very interesting films, ranging from R.C. comps. in 1960 to a trip down the Last Lancs Road to Liverpool at 900 m.p.h.—J. O'Donnell driving!

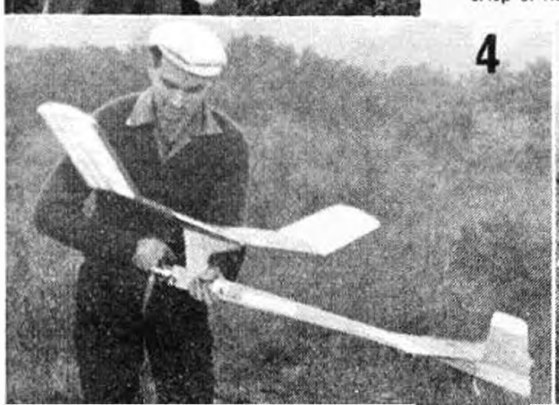
## North Eastern

THORNABY PATHFINDERS M.E.C. held their Sixth Annual General Meeting on November 24th and the necessary officers were elected. The top junior for the year was J. Lowther. The T.R. section has been particularly successful over the past year, mainly due to the efforts of Tom Pasco, John Watson and Bill Haley. The most outstanding time of the year was a 4:53 in T.A.I. by Pasco's "Oliver" powered model, which included over 20 seconds wasted on the group at one pit stop! Several of the members now have lathes, etc. and are making their own engines, and not without some considerable success. When designing T.A.I. T.R. models to the new specifications, members were surprised to find that the minimum cross sectional area of 6.045 sq. ins. was "bigger" than the area derived with the old rule of mm 10 and width 4Mmm—but were they realistic"! Members also felt the standard fuel rule in speed rather pointless (maybe they don't realise how much it is to their advantage).






AT THE CROYDON GALAS: 1. Two Surbiton power men having a quiet day, Vic Jays holds for Ken Glynn at Croydon Rubber Contest at Chobham. 2. George Fuller sets the fuse on his 300 sq. in. model at Croydon Open Rubber Contest. 3. John Hancock of Hayes and Thermal Hopper ¼A model at Croydon Power Gala held at Chobham. 4. ¼A winner Tony Young of St. Albans, starts A-M 35 "Dixielander" which got him fourth place in open event at the Croydon Power Gala. 5. Reg Boxall winds, helped by brother Fred, wing folded after hasty repair, putting him third in the fly-off. 6. A Crisp of Abingdon fits his prop; model held by Dennis Partridge.





Active Membership has slackened off since summer, and any unattached modellers or any interested beginners are invited to contact the secretary at 89 George Street, Thornaby-on-Tees, Yorkshire.

## Northern

The ever present noise problem has been rearing its ugly head in **HALIFAX M.A.C.** recently, with the coming into force of the Noise Abatement Act. This provides residents adjacent to the flying field with a means of ending all power flying in the immediate vicinity, and it is feared they will not miss this opportunity to voice their disapproval of these activities. At a recent meeting of the Northern Area Committee, the Halifax representative was accused of profit-making activities in connection with the Northern Area News, a non-profit making venture, governed by the Northern Area Committee. This, the Halifax members feel, was most unjust and take this opportunity of expressing disapproval. One club member recently built and finished a 1.5 stunt model in two evenings, whilst another has been running an ETA 29 on the local flying field. (Now I ask you, surely the residents have something to complain about here concerning the "ever present" noise problem), and is now building a *Dalesman* for Class B. Earplugs anyone?

Members of **WHARFEDALE M.A.C.** are currently engaged in conducting talks on team racing. A Wharfedale delegation was in attendance at the S.M.A.E. A.G.M. held in Birmingham. Only criticism on this meeting is that too few clubs seem to realise their duties in this field as illustrated by the very low attendance. Of interest to C/L enthusiasts is a proposal to include T/R Racing in the Area Championship events, "to be considered by the S.M.A.E. Council". This year (1961) they will be holding the first Wharfedale C/L rally. Events will include ¼A, A, & B, T/R plus stunt and combat. Date to be fixed for soon after the Nats. venue will almost certainly be R.A.F. Rufforth. Also for C/L fans, a request has been made to the S.M.A.E. to hold C/L stunt and speed (all classes) at the 1961 Northern Gala in September. This will make this usually well attended rally second to none for C/L events.

## London

**HAYES D.M.A.C.** look back on 1960 as one of their most successful seasons by far for Contest placings. Members accumulated 35 first, second or third places in contests up and down the country (including 13 firsts). Top individual scorers were: Mike Smith; Jim Baguley and Dave Balch. The Team Race types can claim 17 of the 35 total placings with their Mk. 2 Silver Streaks. J. Baguley took 5 with his 8 foot and 12 ft. span gliders. Control line flying goes on most Sundays in Cranford Park, but they picked a bad day for the Club's Combat competition, a steady drizzle all day long.

Now that the cold wet weather has confined the activities to the Clubroom, the main interests in **ENFIELD & D.M.A.C.** are rubber powered R.T.P. team racing and experiments with electric R.T.P. using the new German motor. Members noticed in "Round the Rallies" on page 676 of the Christmas AEROMODELLER the statement that "Stoo" Steward and Chas Taylor set up a new all time Class B team race record for 10 miles of 6.48 at Cranfield. They feel they really can't let the West Essex boys get away with that one and remind them of the results of the Ramsgate meeting the previous week, where the Walker Tuthill team set up a new record of 6.44, breaking the old record of 7.25 already held by them since the Dartford meeting three—or was it four?—years ago. Incidentally the motor they were using was a standard ETA series 6C which was still running in, doing a steady 120 for 37 laps until it ran the tank out on its shaft at Cranfield—the motor is now run in!

**NORTHWOOD M.A.C.** third annual exhibition was a very successful affair, although some difficulty was experienced trying to fill out the large hall used even though there were even more models than on previous years. Two or three members left recently and they intend to try and form a club of their own to be entirely devoted to F/F, but as both our comp. and ast. comp. secretary are F/F men we can't see the necessity of this. (Here! Here!). The club membership still stands at about 35, and any keen flyers in the district should contact Mr. I. Bracken, 17 Mahlon Avenue, South Ruislip, if they would like to join. Members are still mystified as to how a certain article in a recent *Evening News* concerning them appeared, and are wondering how it got there. The combat team is busy designing next season's combat models, which should prove even more formidable than before. Most members will be using Copeman tuned Tigers although a few ETA 15's are being tested.

The forecast rain held off for most of the day at Chobham for **CROYDON & D.M.A.C.** Rubber Gala on November 20th, and in spite of mediocre visibility and quite strong wind at times, some reasonable times were put in, the top seven contestants all managing over eight minutes for three flights. 200 square inch models were much in evidence, but from the visibility point of view were possibly at a disadvantage in the murk below the horizon. John O'Donnell repeated his last year's win with the inevitable Maxie Mk. N, runners up being country member Elliott and Fred Boxall, whose wing folded eight seconds out after a hasty repair before the fly-off.

**RESULTS**

| | | |
|---|---|---|
| 1. J. O'Donnell | Whitefield | 9:00 + 3:21 |
| 2. J. Elliott ... | C.M. ... | 9:00 + 3:03 |
| 3. F. Boxall ... | Brighton | 9:00 + 0:08 |

Overall Gala champion for all three open events this season was George Fuller, of St. Albans.

## Midland

On November 26th, **MARKET HARBOROUGH M.A.C.** took part in a local Youth Exhibition. A static display consisted of about thirty models in various stages of construction ranging from a *Thermalist*, *Leprechaun* and ½ scale *Auster* down to chuck gliders. Practical demonstrations included single and multi-channel R/C (flying!!??) and "Bambi" powered R.T.P. scale models. The Annual Redfern Rally will consist of a secret time competition. This is sponsored by the Club's chairman V. Redfern. Any number of flights are permitted and competitor nearest "secret time" is winner. This time will be in sealed envelope to be disclosed at the Annual General meeting in January when prizes will be presented. The latest trend in the club is for contest power jobs and "hot" engines are appearing in increasing numbers.

Membership of **LEICESTER M.A.C.** is now up to 110 and despite the recent bad weather, meetings at Braunstone Aerodrome have been well attended, with strong combat, free flight scale, and radio groups flying regularly. Mr. Summers has presented a cup to the club as trophy for a monthly combat competition, which should stimulate still further interest.

A recent Bring and Buy sale made an enjoyable evening, with about £8 changing hands for a collection of doubtful junk. The annual Dinner held on Saturday December 10th was a great success, with 73 members and friends tucking into roast turkey, etc. before a minimum of speeches, the presentation of trophies, and then an evening's dancing and party games.

The winter building contest is now under way, the model this year being any stunt control-liner capable of the S.M.A.E. schedule. First round—February 1st. A Social is planned for mid February, and there are prospects of our obtaining a club room and workshop in the near future. Unfortunately the Club will *not* be running a combat rally at Stapleford Hall this year, owing to past financial losses on the event, and the growing disrepute of combat flying.

## East Anglia

The **DEBDENAIRS** held their A.G.M. on November 25th at Loughton Hall. Norman Crowhurst presented the trophies. A free-flight power trophy was awarded to J. Atkinson (*Dixielander*) and the glider cup went to D. Galpin (*Woodford Special*), who also took the Team Race trophy and the Club Champions Shield for the second year in succession. Doug Galpin was re-elected as comp.-sec. Present activities are R.T.P. in the club-room and preparation for next season's team-race circles.

"It's easy, all you do is hang on the handle, and feed a little down", that's what the expert told F.A.S.T.E. members. It did a perfect wingover into the tarmac at about 140 m.p.h. That's a monoline trainer—that was. The Club are all getting tuition in speed flying and now have six "B" speed planes in action, buzzing around and two McCoy 60's. Someone sneaked an ETA in amongst the Doolings, and turned 149 m.p.h. and he said he wasn't trying! The next time he flew one of the Doolings, did 60 laps, and collapsed through fatigue before landing the plane . . . oh dear, rebuild!

They had a four-hour work-out with the ETA 15's in "A" Team race planes one Sunday afternoon in pouring rain. Average performance was 97 m.p.h. over 37 laps. Really, mad keen, these F.A.S.T.E. Club boys, the wives say "Mad", and leave it at that, still never mind, eh? They would like to visit some of the other clubs around their area for friendly meets. If anyone is interested, Phone Shelford 3092.

## Southern

The main interest in the **HORLEY M.A.C.** is control-line, and members are mass-producing *Peacemakers* to be powered by Silver Arrows and ETA 15's. P. Barton has built a team-racer with ornithopter tail-plane(??). Plans are going through for a club-house, when R.T.P. (round the pub) flying will be indulged in.

Members of **WOKING M.A.C.** attended many rallies last season. P. Newell gained two third placings with his Mills .75 powered ¼A power model; the first at S. Midland Gala and the second at Surbiton. The combat lads are now abandoning wings in favour of the more conventional layout, resulting in considerable improvement, although no one has completely overcome engine difficulties. Interest in T/R is increasing and ETA 15 team racers are in the course of construction. Several people are obtaining fast times for ¼A T/R during practice sessions, but such has yet to be achieved in contests. A new member to the club is working hard to add that extra bit of spit and polish to his multi R/C schedule and we have hopes for him next season. At a recent meeting the S.M.A.E. film of the 1957 Nats. was shown together with one depicting the club's own efforts at the South Coast Gala.

On Friday November 25th, **MEDWAY M.F.C.** held their A.G.M. and the election of Committee members resulted in S. Ramsden being made Chairman, H. Harding being returned as Treasurer, and D. W. Richmond taking the position of Secretary. A vigorous contest programme is being planned for the coming contest season, and hopes for success with new models under construction. New members are welcome.

## South Western

South-West Radio Control M.F.S. held its A.G.M. recently at Paignton, by kind invitation of Mary and Courtney Gill. Far-reaching plans were laid for next season, with regular monthly rallies (alternating Sport Contest) on the first Sunday of each calendar month from March 5th to November 5th inclusive. Opening rally at Winkleigh airfield (Sport) followed by first Contest Meeting at same site on April 2nd. Later sport rallies to be held at Salcombe, S. Devon, and contest rallies at Winkleigh, all properly organised and controlled by stewards, with P.A. equipment, rally rules, etc. to ensure

no loss of flying time. (This *is* a new year resolution). It is hoped to hold a big "Open" R/C event at Winkleigh on August 6th, provided this does not clash with any similar fixture elsewhere. Further details will be given later.

## Western

**GLEVUM M.A.C. A.G.M.** was held in conjunction with their first indoor contest, in an attempt to coax a few more members along. However it appears that an A.G.M. complete with scale R.T.P. contest, is no competition for Saturday evening T.V. programmes, or other pursuits. The contest, to be held annually, was for a Trophy presented by our Hon. President Mr. A. Blackbourne. Entries though small in number, were to a high standard in general. Points were awarded for scale, finish and duration, one or two fine models falling down on the latter score. The contest was judged by Mr. Blackbourne who later presented the cup to Derek Harper. Derek's *Seamew* just had the edge over the opposition by virtue of its high duration. Second was D. Bannister with a *Bristol Fighter*, third J. Blackford with a *Tiger Moth*.

Despite lack of interest in the A.G.M. there has been a spate of activity in the club recently. Unaccountably six members turned up at the second indoor meeting all bent on smashing the R.T.P. record which has been unmolested for some 3 years now. Quite a hectic time ensued with the record, and motors, being broken at frequent intervals throughout the evening. The unscheduled contest finally ended about 11.30 p.m. Charles Aitkinhead triumphing with the final flight. He managed 2 mins. 15 seconds with a microfilm covered model. They realise that this time is low by some standards, but we have done very little R.T.P. duration work and it has more than doubled the previous record. The committee were caught unawares on December 11th, the day scheduled for the Newman cup for scramble. In the first place it was fine, then about 20 members turned up, 12 to compete. Having banked on the usual weather and the usual 5 or 6 members flying and only having 3 stop watches this presented something of a problem! However, with the aid of some wristwatches, and the holding of three 20 minute rounds they managed to decide the winner before dark—just! John Blackford, very fit, but very tired, managed to keep his glider, a *Satan* airborne for 11 mins. 41 secs. of the 20 minutes. Not bad going considering the two minute maximums. 2nd was D. Harper with 11 mins. 8 secs. flying a Bantam powered *Chatterbox*.

## Scotland

**DUMBARTON M.C.** is now entering its third season, and is looking for new members. Anyone aged 14 years and over is welcome and this is a special invitation to lads in the Clydebank area, as this is the only area around Dumbarton not represented in the club. All branches of aeromodelling are encouraged, but main interest is in Team Racing, and anyone interested in this branch will be especially welcome. Club nights are Tuesdays and Thursdays held at Hatfield School, Woodwork Room, Crossbit Road, Dumbarton.

## Pen Pals

Pen Pal in U.S.A. wanted for A. Greenwood age 14 years, interested in C.L. classes. A. Greenwood, 61 Southfield Road, Worthing, Sussex. U.S. modeller wishes to correspond with British modeller aged 15-16 years. Zenow Grochocki Jnr., 16 Lynda Lane, Rochester 11, New York, U.S.A. Hans Swoboda, Villignen Schww, Larchenstr: 8, Germany. 19 years-old and particularly interested in A.1 and A.2 classes. Will correspond in English. Wishes to exchange German plans and magazines for English. Peter Koch, Wmulla, Yorke Peninsula, South Australia would like to have a lad, the same age (14 years) preferably from England, who is interested in Scale Free-Flight and Control-line Stunt.

THE CHAIRMAN

## Secretarial Changes

*Isle of Thanet M.A.C.*, Mr. R. Weight, A.R.S.H.R.P., 90 College Road, Margate, Kent.

*Market Harborough M.A.C.*, D. Goodman, Hilberest Avenue, Kibworth, Harcourt, Leicester.

*Woking M.A.C.*, K. Wigman, c/o Woking Model Supplies Ltd., 1 Walton Road, Woking, Surrey.

*Medway M.F.C.*, D. W. Richmond, 5 Church Terrace, Luton, Chatham, Kent.

*Leicester M.A.C.*, H.S. Fletcher, 22 Sycamore Road, Burstall, Leics.

*Debdenaires M.F.C.*, B. H. Dawson, 40 Fairview Drive, Chigwell, Essex.

*Dallaires M.A.C.*, R. Angell, 60 Downham Road, Heswall, Cheshire.

*Poulton & D.M.A.C.*, L. Wilson, 9 Main Drive, Poulton-le-Fylde, Nr. Blackpool.

*Heswall M.A.C.*, R. P. Bodey, 26 Hesketh Drive, Heswall, Wirral, Cheshire.

*Outlaws (Cannock) M.A.C.*, I. R. Lockley, "Melsden," Littlewood Lane, Cheslyn Hay, Nr. Walsall.

*Sittingbourne & D.M.A.C.*, D. Edwards-Winser, "Oastbrook", Telston Lane, Otford, Kent.

*Crystal Palace M.A.C.*, A. Saunders, 31 Maple Court, Maple Road, Penge, S.E.20.

*Chichester D.M.A.C.*, J. M. Devenish, 6 St. Mary's Road, Boxdrove, Chichester, Sussex.

*Cirencester D.M.A.C.*, S. J. Trinder, 71 Cricklade Street, Cirencester, Glos.

*Clacton D.M.A.C.*, H. Rutter, 31 Lake Walk, Clacton-on-Sea, Essex.

*Coventry D.M.A.C.*, L. J. Lord, 6 Ulverscroft Road, Coventry.

*Harlow M.A.C.*, W. J. Horton, 162 Pennymead, Harlow, Essex.

*Leigh M.A.C.*, R. Yates, 1 Ribble Grove, Leigh, Lancs.

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THE "AEROMODELLER"
38 CLARENDON ROAD, WATFORD, HERTS.

## CLASSIFIED ADVERTISEMENTS

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Ansaldo SVA-5. Fitted with Ohlsson 10 c.c. petrol ignition. Inlaid mahogany fuselage. Serenessima Squadron insignia. 1958 Nats winner. Hawker Fury with K & B 45 glow plug. Representative construction metal for metal, aerobatic. Both 1/8th scale, sprung undercarriages, detailed cockpit, throttle engines. Pitts Special with D.-C. Tornado Twin 1/6th scale, fully detailed. Red and white; aerobatic. All beautiful to look at and fly. Sensible offers, please, from people who appreciate top-class models. Milani, Glendower Hotel, London, S.W.7.

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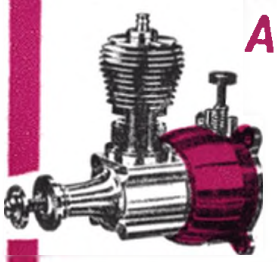

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