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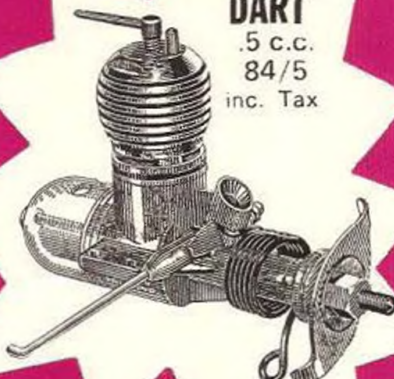
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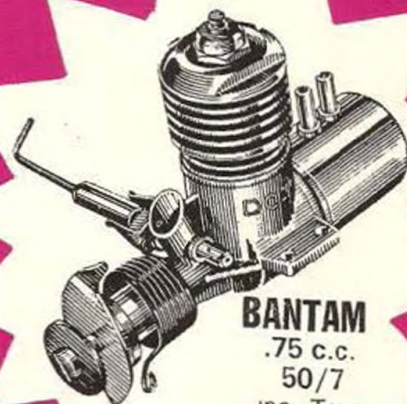




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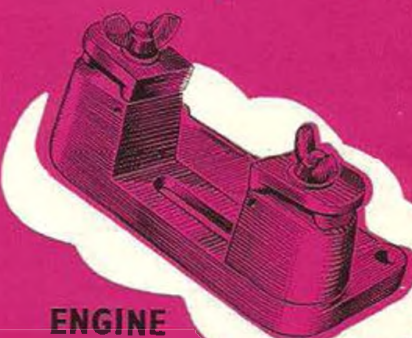
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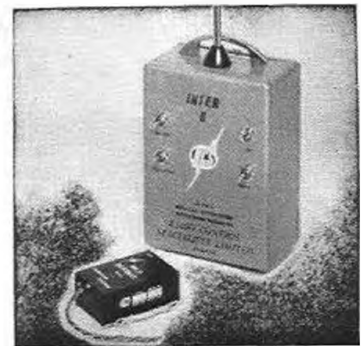
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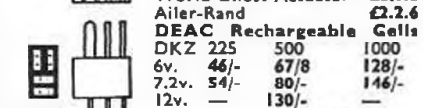
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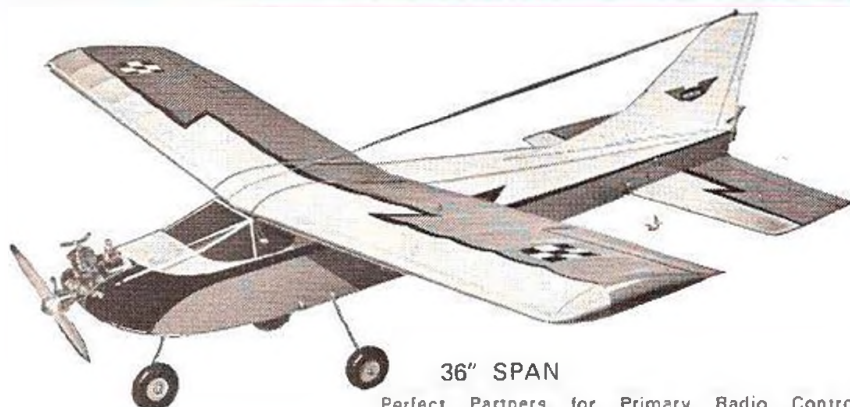
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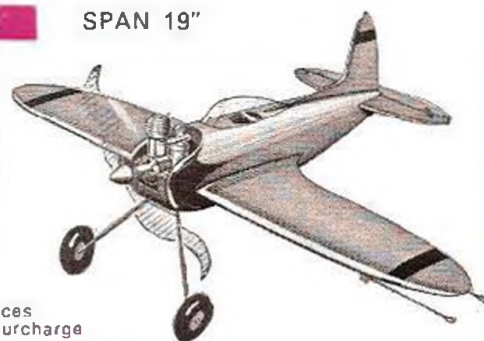
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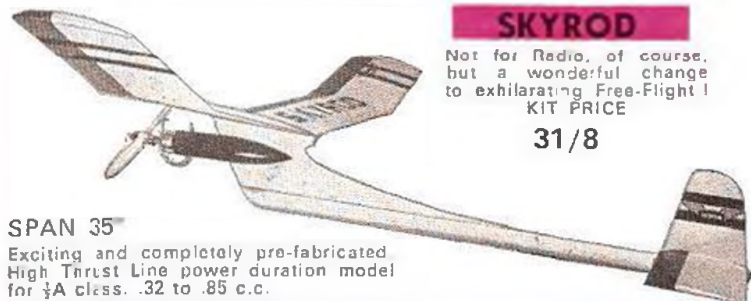
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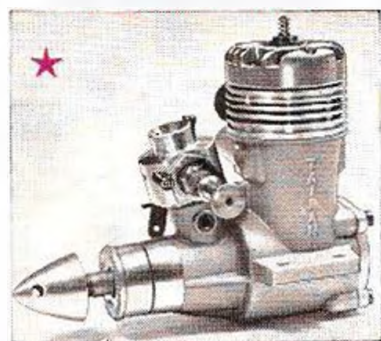
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Aero Modeller

INCORPORATING
MODEL AIRCRAFT

February 1970

VOLUME XXXV No. 409

CONTENTS

HEARD AT THE HANGAR DOORS	75
ALL SHEET CONSTRUCTION	76
READERS' LETTERS	80
BOEING WIND TUNNEL	80
CONTROL LINE NEWS	82
FREE FLIGHT COMMENT	84
'SNIPE'	86
'PHOEBUS'	87
GOLDEN WINGS CLUB	88
TOPICAL TWISTS	89
AIRCRAFT DESCRIBED - Messerschmitt 410	90
'KARATTER'	94
LATEST ENGINE NEWS	96
K.H. RIEKE'S F.A.I. POWER MODEL	98
VERTIGO	100
CLUB NEWS	105



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COMMENT

This edition went to press at the close of 1969, a year of many changes in the world of aeromodelling. Specialisation of interests became even more apparent with deeper rifts between the R/C, C/L and F/F competition elements. Dependence upon imports increased though new home products of high quality have arrived to fill gaps and, as with most other things, costs soared to new levels. Supply of balsa has been threatened by industrial demands but thanks to the fond attachment to our hobby held by the Presidents of the world's largest balsa merchants we are assured that the model shops will never go without their staple diet. Our attempts to stimulate new interests with Mouse Racing, Carrier Deck, and Profile 'Goodyear' racing were not met with wild acclaim, nor can we say that the flow of new British designs have in turn created whoops of editorial joy. There has been a distinct dearth of originality, particularly among the sports designs.

As we enter a new decade we anticipate greater inspiration for flying scale models with the World Championships for full-size aerobatics scheduled for Hullavington in July and for Scale Models at Cranfield in August.

May we also look to sunny skies calm weather and abundant thermals in the flying season of 1970.

on the cover

The French Coupe d'Hiver model class has now achieved international popularity. Typical of such support is this cover photo by John O'Donnall showing Ursula Platten from Ratingen, West Germany holding a Coupe d'Hiver model by Walter N. Rozelle of Decatur, Georgia, U.S.A. Walt sent his model over for Rodney Kenward to fly by proxy at the International contest, Chavenay near Paris last February.

next month

Mick Reeves' pair of Seamew designs for control line Carrier Deck contests. An inside view of American model engine manufacturers and specialists. Scale drawings of the Rollason Condor with plenty of fine detail for flying scale designs. The Model Engineer Exhibition reported. Colin Morris' Spanish Flea A/1 glider plan, Engine test and the latest Engine news, Free Flight and Control Line activities - out February 20th.

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Aero Modeller Annual 1969-70

Laurie Bagley cover, R/C scale model Whirlwind in bright yellow livery. To tie in with this Dieter Schlueter's fine article on Model Helicopter Technology. (Dieter was winner of 1st International R/C Helicopter Event - also reported in this Annual), John Burkham, of U.S.A. (who won their first 'Copter event), adds comments. Articles include Tubular Fuselages from Balsa; Contest Model Performance Prediction; Beginners Only Please; Facts About Propellers; Glider Construction Suggestions; Navy Carrier Event and What It's All About; Fuel Control. Fifty model plans - all scaled and with main dimensions shown - from the year's best, most interesting, curious, screwball, intriguing, different designs.

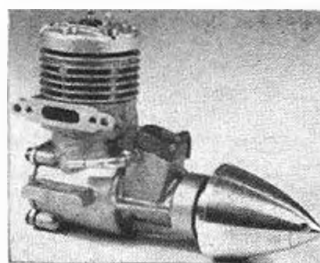
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G. 20/15 BL	8 19 0
G. 20/15 Glow R/C	10 0 0
G. 15 W/Spinner	10 0 0
G. 15 RV Glow	14 0 0
G. 20/23 BL	8 19 0
G. 20/23 R/C	10 0 0
G. 21/29 Lapped RC	10 10 0
G. 21/29 RV ABC	17 6 0
ST 35 Stunt (PB)	8 2 0
ST 35 Combat	8 5 0
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G. 21/40 R/C	12 4 0
G. 21/40 RV	15 0 0
G. 21/40 RC R/C	18 0 0
ST 51 BB R/C	15 0 0
ST 56 BB	15 15 0

ST 56 BB R/C	17 14 0
ST 60 BB	15 15 0
ST 60 BB R/C	17 14 0
G. 60 Racing RV ABC	30 0 0
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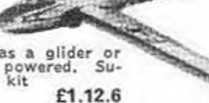
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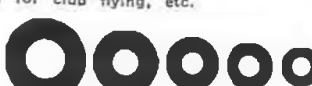
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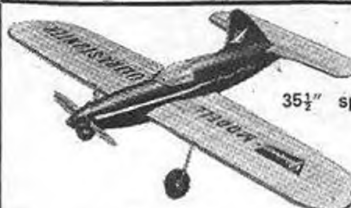
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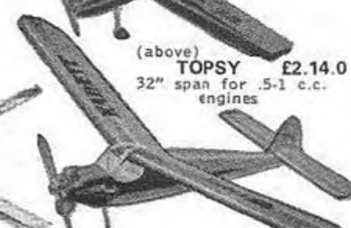
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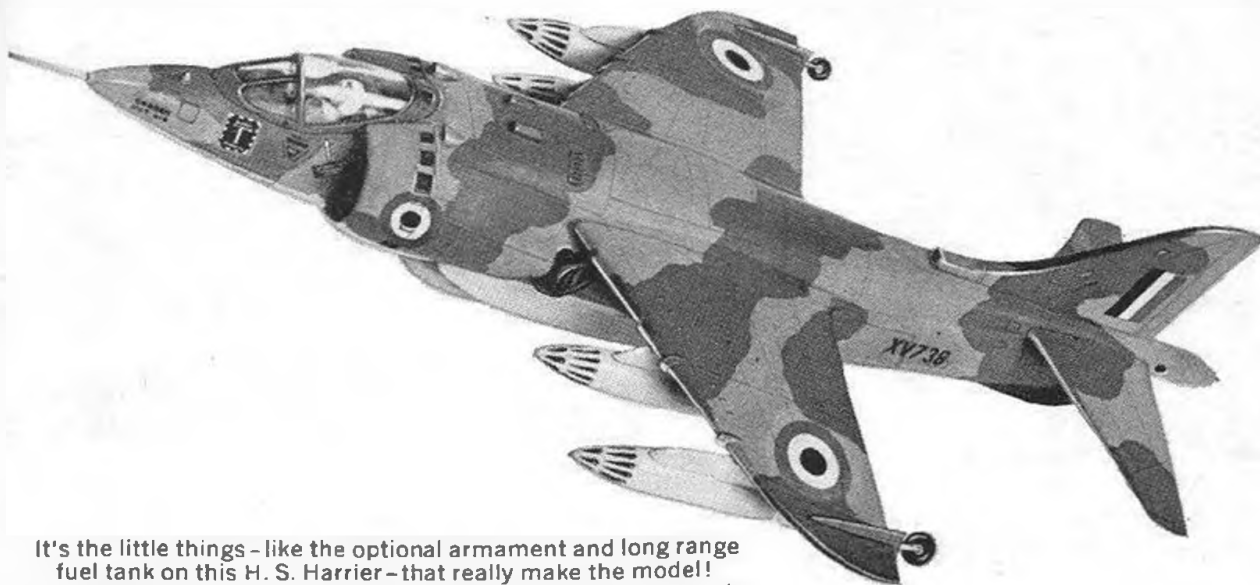
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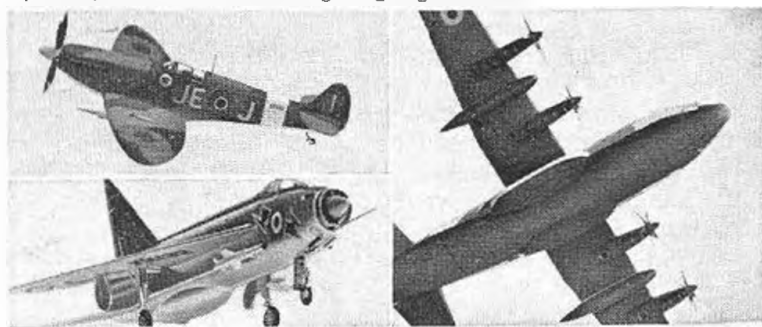
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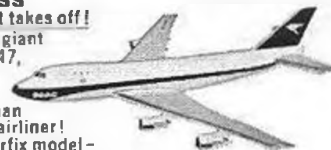
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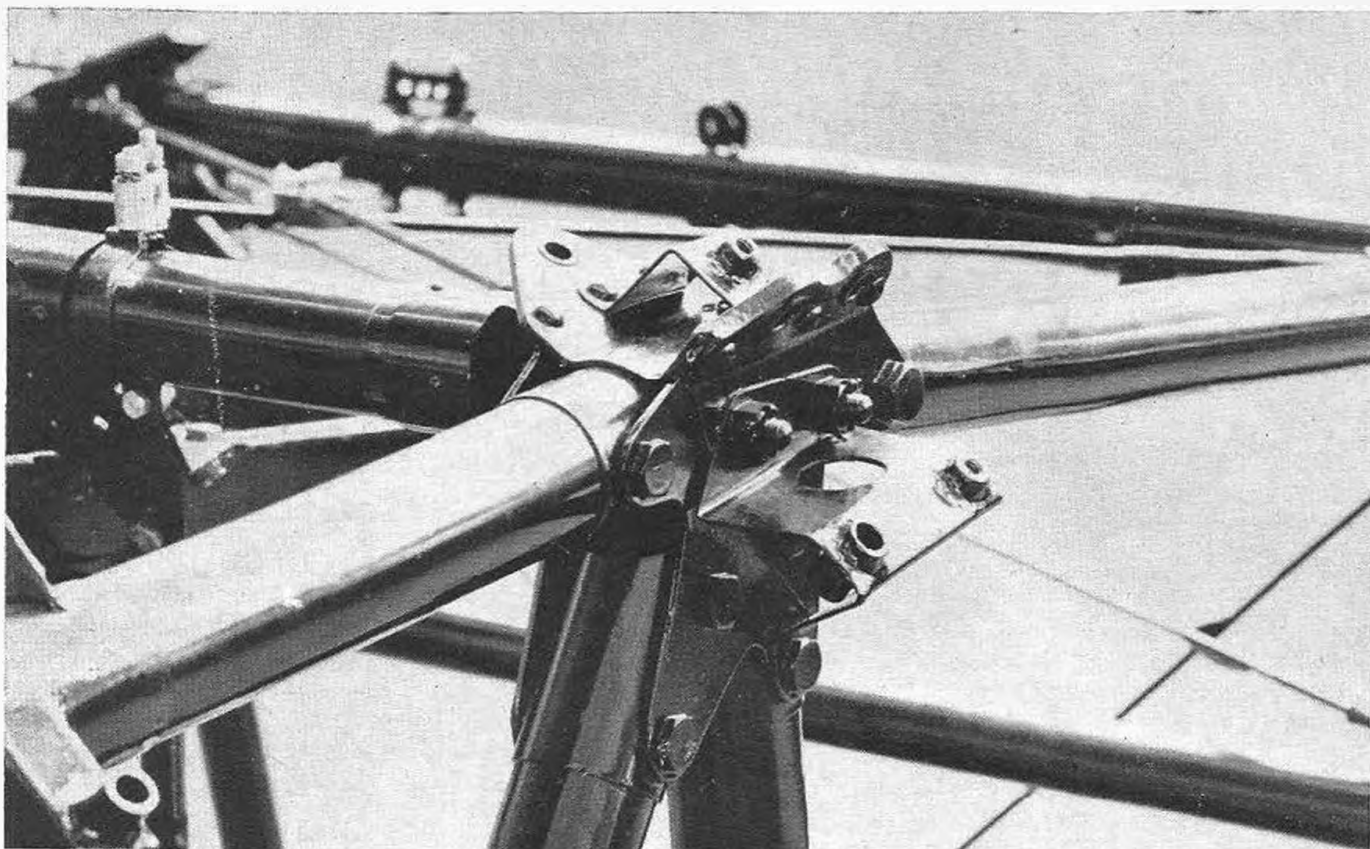


STOP PRESS

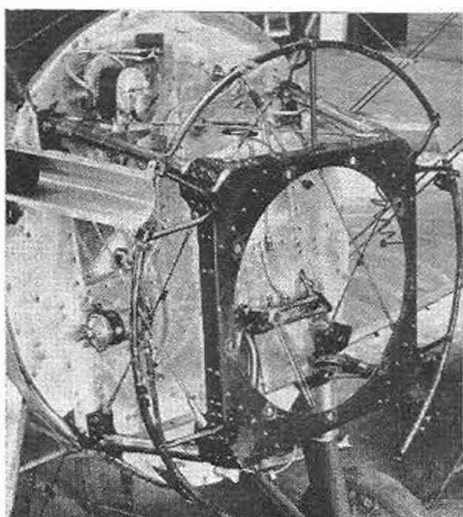
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If you can recognise the airframe from the picture above, you're more knowledgeable about aircraft than we are – we had to look at the caption! The picture on the left is a clue. Yes – it's the wonderful old Bristol Bulldog – not a scrap of balsa in it! But if you are talking of models, a Balsa Bulldog is a real eye-catcher for 'multi' or 'proportional' radio control!

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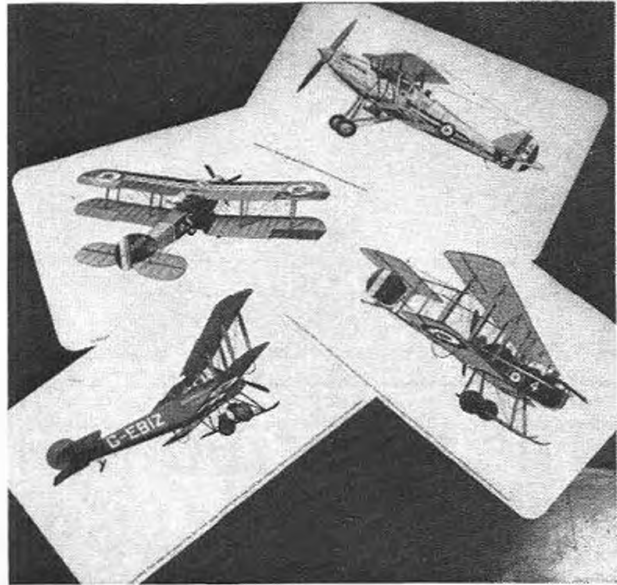
KINDLY MENTION 'AEROMODELLER' WHEN REPLYING TO ADVERTISEMENTS

HEARD AT THE HANGAR DOORS

STANDARDS of model making at the 1969/70 'Model Engineer Exhibition' were in general, very much higher than ever seen before. An exception to this overall view was the aircraft section. In each of the categories, for Scale, Duration, Radio or Static models the Medal and Honours winners were magnificent efforts: but the 'field' below this cream was of contrasting quality. Not that we should object to seeing models which are naturally typical of average standards – far from it – we should be the last to wish for an incorrect impression to be given. It was that being the only truly National exhibition, one might have expected to see more elegance, more style in finishing and more effort with the sandpaper block among some of the 'also-rans'. Winners H. J. Boyd of Edinburgh who took the Bristol Cup and headed the Static Scale Class with a superb Bristol F2b fighter, and P. J. Morrell with an outsize SE5a which is due to fly when radio controlled (took the Championship Cup and headed the Flying Scale Class) were truly inspiring. So, too, was the huge Mosquito by the Reverend J. R. Cooper of London, N.W.1, which is to fly on control lines, and excellent examples of free flight duration by John O'Donnell and Martin Dilly. Elsewhere, the S.M.A.E. stand, the exhibition (within the exhibition) of historic aircraft models by Lt. Cdr. Alwyn Greenhalgh, and the fine show by the International Plastic Modellers' Society, upheld the hobby of aeromodelling as a skilful art, well abreast of its counterparts in the Marine and Auto fields. Next month, we shall publish a pictorial report.

WINTER CUP activity is already well under way on the Continent. Seventy-one modellers went to Nice for the Coupe de la Cote d'Azur on 7th December, and the result was a win for Pierre Blumh from the local club after a fly-off

Table mats available from Burmah Oil Petrol Stations as a gift promotion for initial opening weeks. Most collectors would probably wish to preserve them as wall decorations.



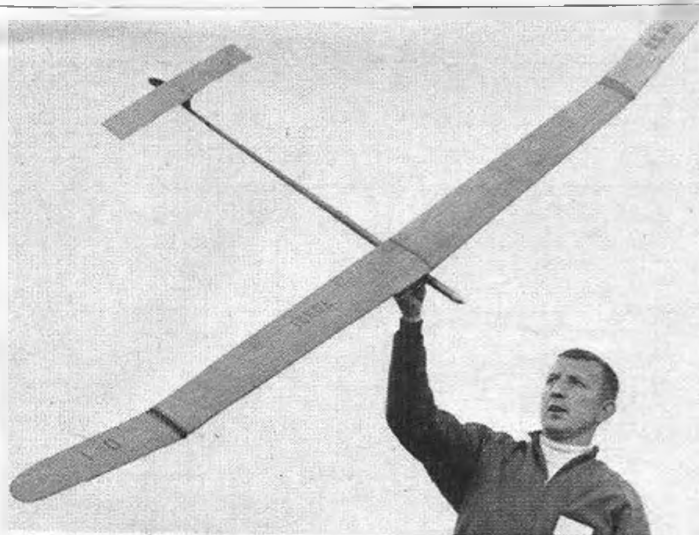
against two Parisians, the Souveton brothers. Italian modellers from Fiat, Turin, took the cup for leading foreign team, and Blumh's son won the Junior prize, to make it quite a family affair, despite the big entry. Next big event is that at Chavenay, for which final details are still awaited. A British team is certain to go, as usual, with the support of *Aeromodeller*. **CROSS & COCKADE**, the association of World War One Aero Historians which has become recognised as a foremost authority on its special subject, is to have a British Branch. After a number of years as the Essex Chapter of Cross and Cockade, it has been decided to expand into a nationwide society with the object of recording all the historical data about the Flying Services during the War of 1914-1918. A quarterly magazine, as well as a newsletter, are to be produced. The Committee invites new members to join (membership fee is 30s. per year, under 18 – 15s.), and applicants should write to the Membership Secretary, 17 Cranleigh Court, Cove, Farnborough, Hants. This is a non-profit-making Society run by a group of keen historians for people who are particularly interested in the subject of W.W.1 aircraft.

BURMAH MATS – when this oil company opens new fuel sites, table mats (see photo) are given away to customers on the basis of one mat for every three gallons of petrol purchased. This offer, which is advertised in the local press, continues for ten days after the opening of the site. Each of the four mats, which measure 10½ x 17½ in., is decorated with a Battersby illustration of a vintage biplane. The aircraft depicted are the Vickers F.B.5 'Gunbus' of 1914; the Avro 504K, a three-seater civil version of a 1917 trainer; the Bristol Fighter Type 14:F2B of 1918; and the Hawker Fury 1. Connoisseurs will appreciate the way in which attention to detail has been combined with artistic flair in Battersby's treatment of his subjects, each aircraft being viewed from a different angle, to give the clearest impression of its particular characteristics. Hunt those Burmah petrol stations!

STOLEN from Salisbury Model Centre – a complete Digifleet with 4 servos plus a Minimate and a Dynamite servo. Information likely to assist recovery will be passed to the authorities and rewarded. Other break-ins recently reported give us the impression that some sets are confused with Walkie-Talkie or broadcast equipment. Receivers have been abandoned, though they were matched to the Transmitters removed from shop stocks. Incidentally, that letter on the subject of customer credits has produced some interesting, though unprintable correspondence!



Photographed at Southend Airport by Leslie Hunt for his revised V.&V. book (due out soon, with luck) is the NA Mitchell N9089Z, brought by road from Biggin Hill, and now repainted as A-VO, HD368, of 98 Sqn, 2 Group.



The construction of SOLID BALSA wings

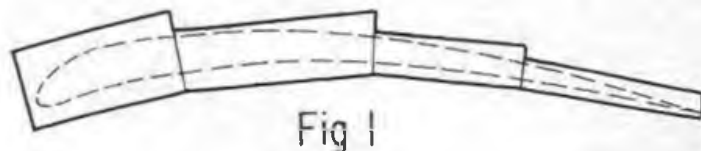
Bryan Spooner
explains the technique
developed in West Germany
for Wakefield and
A/2 glider wings

ON READING the title of this article, many experienced acromodellers will think - what's all this fuss about solid balsa wings when conventional methods of wing construction have proven their worth over the last fifty years or so:

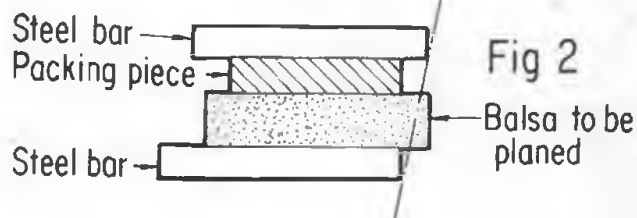
Let us examine the problem by problem by studying briefly the functions of a wing structure which should:

- a) maintain the aerodynamic shape
- b) transmit the air loads
- c) be strong and stiff enough in bending both statically and dynamically, and also
- d) be stiff enough in torsion to avoid serious warping and flutter problems.

In respect of (a) the solid balsa wing is obviously superior as it can be shaped and finished to a very high accuracy, whilst even a fully sheeted structure can exhibit sagging between ribs, which admittedly, with close enough rib spacing, can usually be considered as negligibly small. Regarding (c) and (d) it is doubtful if the solid balsa wing shows more than a marginal advantage over reasonable, conventional constructors for moderate aspect ratios, but for high aspect ratios it really shows to advantage. However, pure aerodynamic/structural strength considerations are not the only factors to be considered by the competition flyer, as several other parameters enter into the picture, the first and foremost being the weight of the finished product. It must be categori-

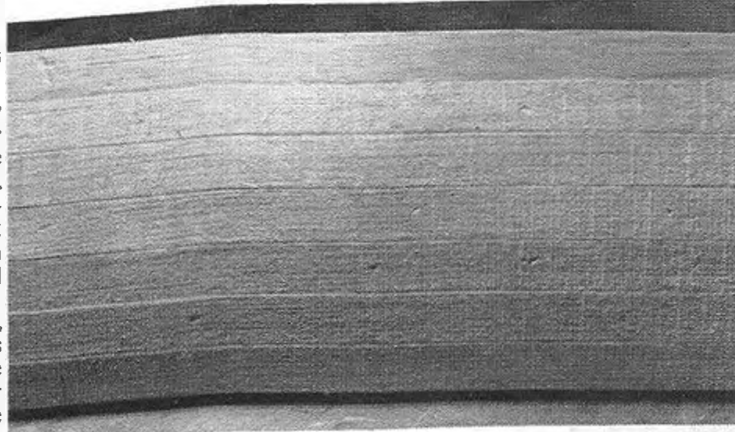
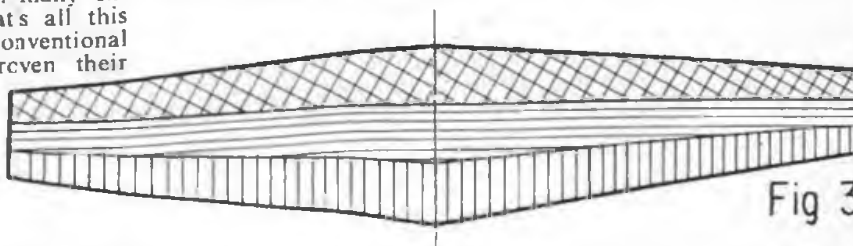


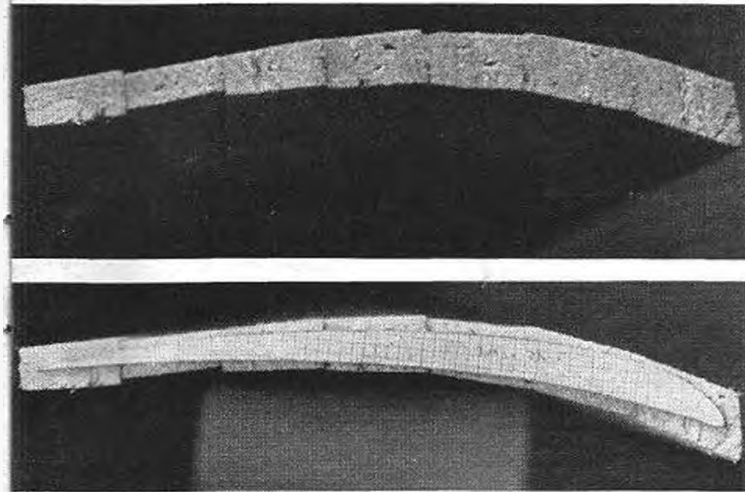
cally stated by using the *correct* grade of wood the weight of the wing structure of a competition model can be kept within reasonable limits; that is, for example, A/2 wings including metal tongue boxes, can be built to weigh between 200 and 250 gms. and



Wakefield wings to weigh between 60 and 75 gms. Admittedly these may be somewhat higher than usual, but do not prohibit building the whole model to the correct weight; it goes almost without saying that the aerofoil section must be of the thin - that is, 5-8 per cent thickness - type. Other factors, not listed in order of importance, are ease of building and finishing to a high standard, durability and ease of repair. My personal opinion is that in these latter respects the solid balsa wing has a considerable advantage. I also think that the last point is not often given sufficient weighting, as on the competition field when running against time, an easily repairable model is an inestimable asset.

Having now, I hope, persuaded the reader into thinking that there may be something after all in this method of construction, and that he wants to





try it for himself, then the next stage is to select wood of the correct density. However, one should know beforehand which of two well-proven building techniques is going to be used. The first and most widely practiced, is to cut wide strips out of sheet so that three or four widths butted together make up the chord - see Fig. 1.

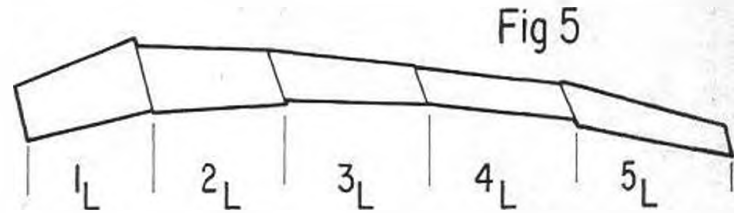
With careful finishing of the angles of the cut edges; it is possible to match the profile very closely so that only a minimum of wood has to be removed the hard way. It cannot be sufficiently emphasised that a little care and attention when preparing the edges pays enormous dividends regarding the thickness of the glue line and thereby its strength and visibility. I have found it worth the trouble to plane the balsa wood using two straight lengths of steel bar as reference edges, as shown in Fig. 2.

Note the use of packing pieces to give sufficient overall depth so that the base of the balsa plane and not the blade runs along the metal guides - a small spigot screwed into the base of the plane also proves a great help here. In order to ensure wing halves of approximately the same weight it is a good idea to use, in pairs, adjacent strips cut out of the sheet - for example, as the leading edge pieces in both wing halves (Fig. 3).

If this method appeals, then try and buy some sheets of balsa wood of the appropriate thickness and density - that is between 0.07 and 0.085 gms./cm³ - reserving that nice piece of quarter-grain for the thin, trailing edge pieces.

The alternative technique, which is the one I currently use, is to take a piece of wood, about 1 in.

Heading opposite is Herbert Schmidt with his famous SPL design A/2 glider, using elastic turbulator. At left, an embryo wing upper surface, note differing grain for leading edge strength. Right, another SPL experimenter is Dieter Drossler, here with Felix Schnobel.



Strips joined to form wing panel above left, with shaping template pinned to end, at left. Diagram above illustrates how the strips are butted on the prepared faces to aid the shaping of the arched airfoil.

thick, and cut it with a band saw to obtain the best distribution of grain - see Fig. 4.

The original top and bottom surfaces, already sanded to a smooth finish now make excellent glue surfaces when the strips are assembled together (Fig. 5).

Naturally, the same remarks as to specific weight apply here.

The next stage is to glue the various pieces together so that the end product begins to take on the shape of a wing panel. Opinion differs as to which is the best glue to use - some favour PVA, some Cascin and some a resin type (i.e. Cascomite). Each have their well-known advantages and disadvantages. Whatever the type of glue used, it pays to work very cleanly and try to avoid letting too much of the excess glue squeezed from the joint spread out onto the surfaces which have later to be sanded. Plenty of pins and small rubber bands should be used to hold the separate pieces firmly together until the glue has set. On completion of this step the ends of the embryo wing panels should be prepared by sanding parallel (presumably) and also to give the correct dihedral angles.

The now wing-like assembly will probably, at this stage, exhibit some warps, but these can usually be completely eliminated on positioning the rib templates on the already prepared end surfaces.

The next step, therefore, is prepare the rib templates. These can usually be cut from 1 or 1.5 mm. plywood, although it is usual to cut the root rib for an A/2 or A/1 wing from 0.8 or 1 mm. dural. The metal ribs have then to be slotted to accept the wing

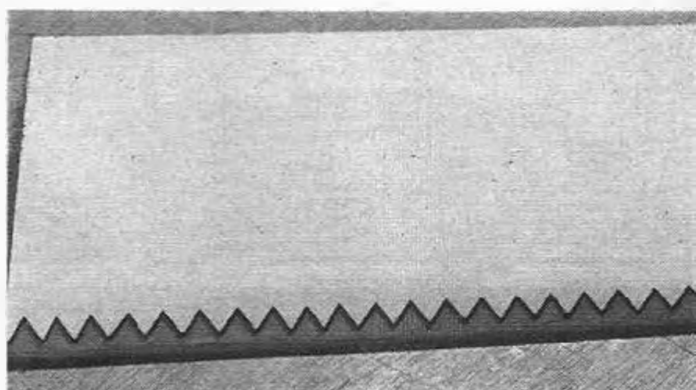


Fig 4

tongue boxes, which again should be assembled from sheet dural – the dimensions given in *Figure 6* are those suggested by Reiner Schwenn in the unfortunately now defunct club magazine *Bartabschneider*. The wing boxes of my A/2s weigh approximately 26 gms. each.

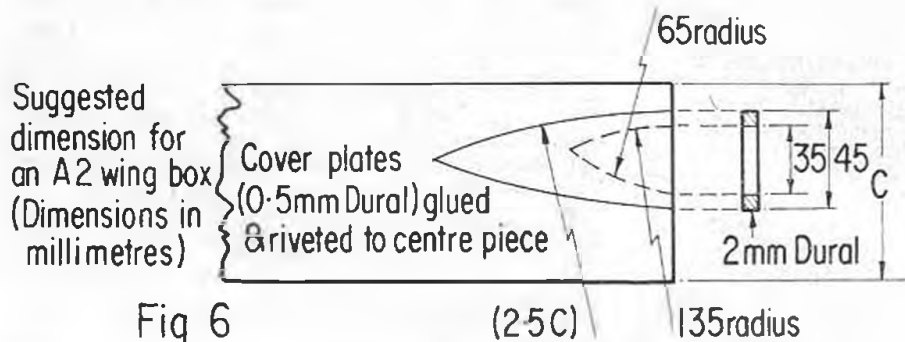
The finished wing box, now glued into position in the slotted root rib is then placed onto the rough wing and used as a guide in cutting away the balsa underneath. One should use a very thin, stiff and sharp blade, making sure it is held vertically as it is moved round the periphery of the box. After the balsa has been cleanly removed, epoxy the wing box-rib assembly in position, and then split this piece of wood 'horizontally', finishing each of the cut surfaces to a plane. These are then glued in top and bottom, and many people have become so skillful in doing this that one has to examine the structure very closely to be able to see the joint. Naturally, the other rib template should be glued onto the other end. Many people also reinforce the leading and trailing edges with small hardwood strips, and should they be considered necessary, they must be glued into position at this stage of construction.

The preparatory work is now complete and one is then faced with a most critical decision – should one



Detail of the '3 D' type turbulator.

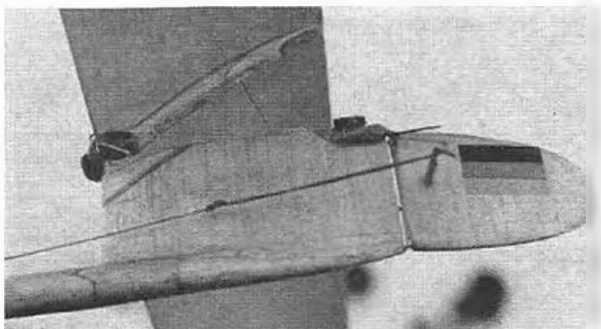
rough finish the bottom and then subsequently the top and then return to the bottom surface but using this time a finer grade of sandpaper. Repeat the cycle, using finer and finer sandpaper, remembering always to sand over and not along the grain of the wood. It now remains only to prepare for the turbulator, glue inboard and outboard panels to-

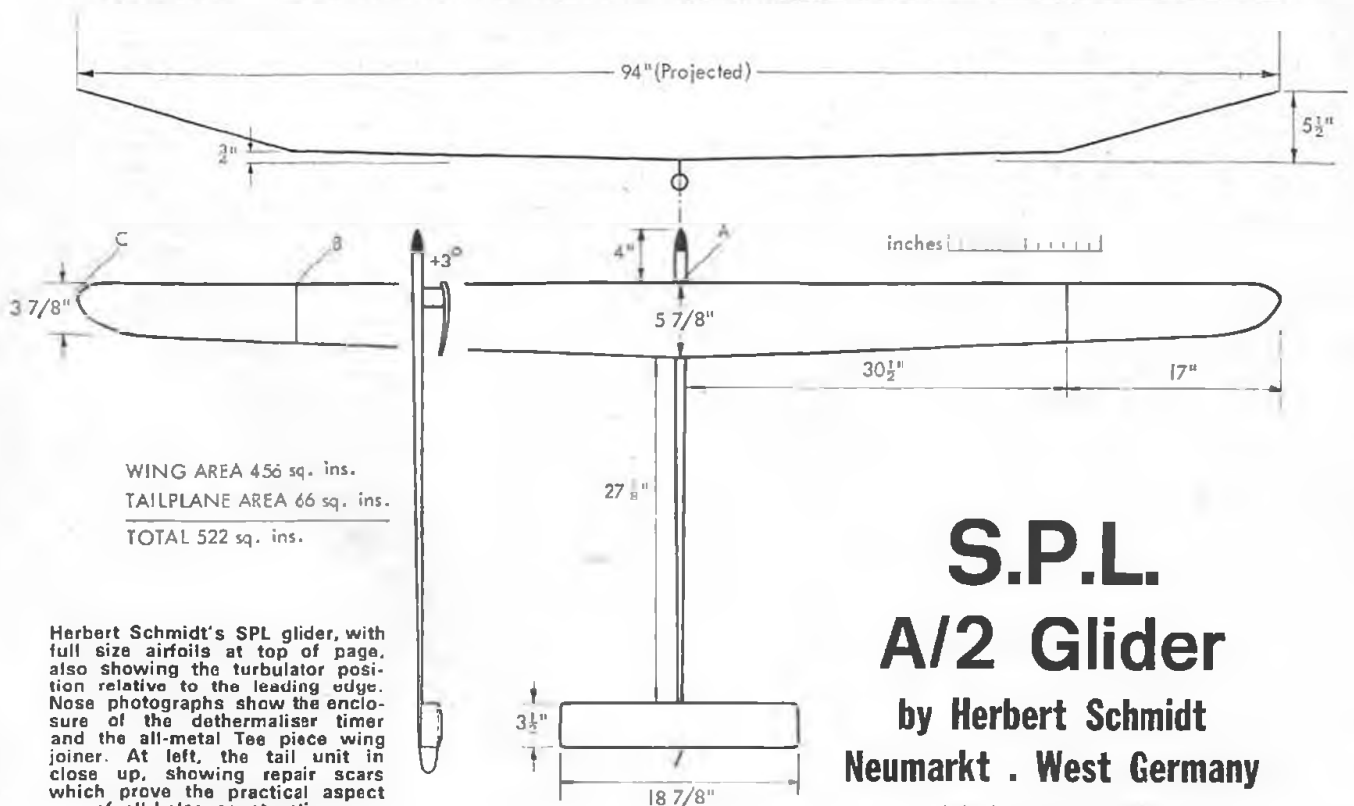
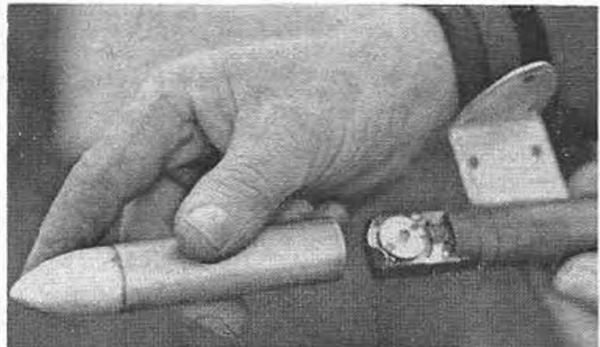
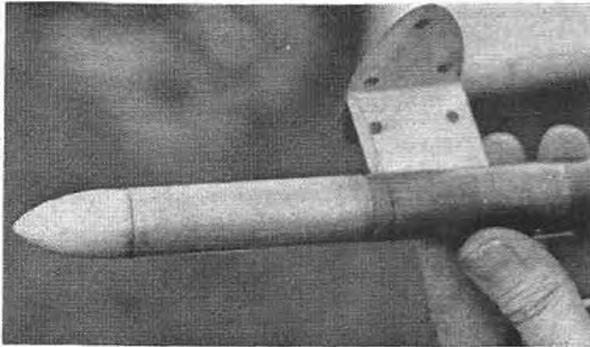
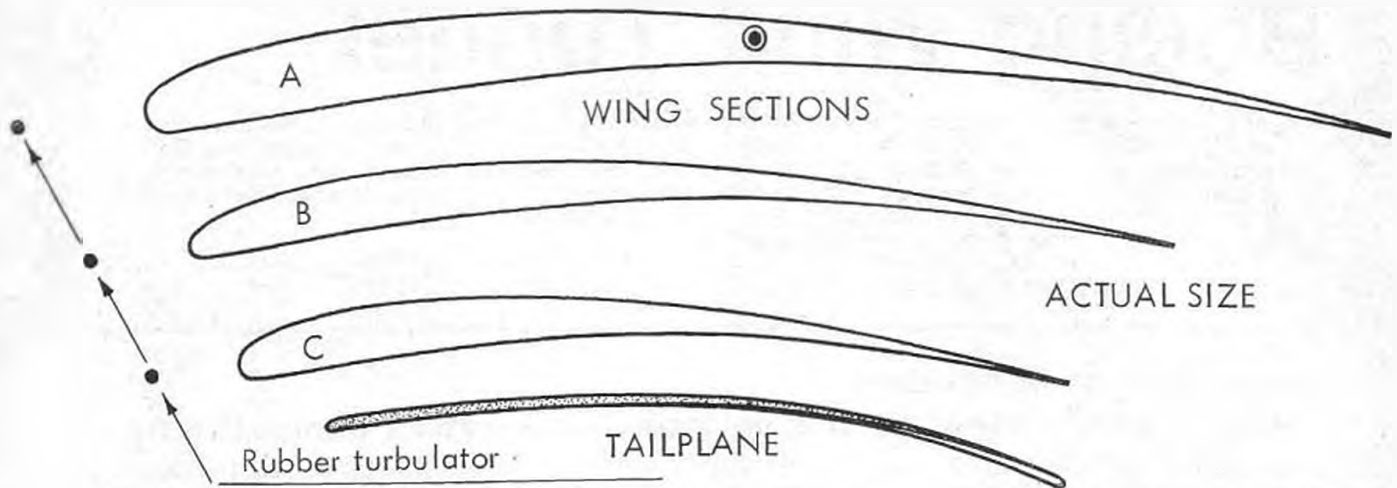


select a 1 litre bottle of *Walportzheimer Späburg- under-Weissherbst natur*, or *Lauffener Schwarzriesling Berrenauslese*? Whatever the decision, drink the bottle of wine – this guarantees the right frame of mind in which to start sanding the wing to shape and provides also a bottle of the correct diameter (at least for an A/2 wing – for A/1 and Wakefield wings maybe a 0.7 litre bottle of *Sasbachwaldener Gewürztraminer Spätlese, Zentralkellerei Badischer Winzer-genossenschaft Breisach* would be better). Then walk – don't drive – to the largest possible open space, suitably armed with various grades of sandpaper mounted on sanding blocks, a straight-edge long enough to span the piece to be worked and templates for the lower and upper surfaces at the mid-span section. The lower surface template should also include the nose radius. Should one be tempted to sandpaper indoors, one will be surprised to find just how far fifty grammes or so of fine balsa dust can distribute itself round the house, although most seems to find its way into the lungs of the family, who start at this stage to regard you with enmity. Whether one braves the elements or the wrath of the family, start on the under surface with a coarse sandpaper wrapped round, or better, glued to the now empty bottle, gradually removing the excess balsa and continually checking the profile with the templates and the straight edge. I have found it better not to completely remove the balsa and finish one side but to operate more symmetrically – that is

together and to give the assembled structure a very light final sandpapering. Top and bottom surfaces should now be covered with a light-weight tissue and be given as many coats of non-shrinking dope (or your favourite finishing medium) as are necessary to fill the pores. Put on your registration numbers and then a final coat or coats of weather-proofing finish completes the work.

Although it would have been possible to go into much more detail, it is hoped that this article will raise sufficient interest for some enthusiasts to at least give the method a trial. As to choice of model, and above all, flying techniques, it would be almost impossible to put those into words – experience and observation are to be recommended.





S.P.L. A/2 Glider

by Herbert Schmidt
Neumarkt . West Germany

*Schmidt, Puttner & Lasczlo.

Boeing Wind Tunnel

FROM the home of the Jumbo Jet, the giant Boeing 747 and the vast family of 700 series jet propelled airliners which provide the greatest part of the world's air transport we have a simple wind tunnel. Here in one basic drawing are all the elements of a balance system in an open throat tunnel that is well within the capacity of the novice experimenter. It takes a lot of know-how to provide something so

effective yet so simple and our thanks are due to the Boeing Company of Seattle for permission to reproduce these sketches. A large scale print is normally available for one dollar through Boeing's News Bureau. Ready to start?

Serious builders might well search for a Mini multi-blade fan at the car scrapyards.

Free flight sweepstakes

One reader's view on the outlook for duration competitions

'The time has come for a vast re-assessment of the rules' writes John O'Donnell, in respect of free-flight duration contests. And quite rightly too! Coming from a lesser exponent of the duration contest this statement could be overlooked, and the old maxim quoted, which says in effect, that those who shout most for rule changes are the same people who could most benefit from them. John's record, however, speaks for itself.

In short, the present rules are a farce. They no longer, except on odd occasions, do the job which they were designed to do. To clarify some of their shortcomings we need only look at the first round of the 1968 F.A.I. power trials, held in virtual fog, or at any number of unrestricted rubber fly-offs where the person with the two best timekeepers takes home the trophy. A letter to *Aeromodeller* a few years ago spoke of this very subject, causing a mild stirring of latent opinions, but few results. The unrestricted rubber model, by its very nature, is most unsuitable for such performance-reducing methods as ballasting. The writer, having disappeared from the scene, appears to have been discouraged by the knowledge that the inevitable fly-off would only result in an eyesight contest.

Lately, there has been a rapid increase in the use of tactical flying to produce wins. It can be argued that this is quite fair, is within the rules and is an integral part of the game. Indeed, for many years it has been the custom to try to avoid 'bad' air, and to launch into thermals. Of late the practice has been modified by the employment of many gadgets to detect patches of lift. The question now is, what does the contest prove, who had the best model, or who had the best detection gear?

Not only the 'ups' and 'downs' of the air affect a model's performance of course, the evil wind can blow even the most luminous model out of sight of our time-keepers long before a max is scored. Cutting the maximum down to three minutes in unrestricted rubber, in an attempt to solve the problem, has merely created a bigger one when the fly-off occurs. Perhaps we would be better off to go back to the four minute max. I dare say less models would be lost and fewer crops trampled.

What really does a contest take place for? To find the winner of course, but of what, building and flying ability, or tactical flying ability? If it is to find the flier with the best

tactical skill, how come aeromodelling isn't classed as a sport? A javelin-thrower uses his skill in throwing, but the contest is decided purely by measuring the distance the javelin has travelled in flight.

I believe that the model with the best duration should take the honours, but very often this doesn't happen. The emphasis in the above statement, please note, is on the performance of the model and not on the skill of the person flying it. At first thought, the two may seem inseparable but it is well known that a model of poor performance can turn in a higher score if launched into lift, than one of superior performance flown in 'bad' air.

At this stage I ought to mention that I am rather at a loss myself to suggest how a contest should be conducted. I feel sure, however, that all enthusiasts would welcome any suggestions to the problem that readers may have.

It could be argued that any rules which would put all fliers on an equal footing as far as weather conditions are concerned, would have the effect of discouraging many competitors of lesser building skill from 'having a go'. However, I believe that at present an equal number of enthusiasts are discouraged by the realisation that the contests, nowadays, are rather a lottery. Unrestricted models have now reached the stage whereby they can be counted upon to disappear from sight of the timekeepers while still at a fair height on any but the calmest of days. It is often argued that the highest model, all conditions being equal, will take the honours because it is easier to see than one nearer the skyline. My answer to this is that this can be (and often is) more than countered by the inferior eyesight of the unfortunate person's timekeepers. Many readers will, at this stage, undoubtedly accuse me of 'sour grapes' and, indeed, I must admit, I am rather put off from competing with the present system - after all, the object is to win. The driving force behind many fliers, not just me, is the prestige to be gained in the event of a win, or at least from achieving a high score. Nothing is more discouraging than to be clocked off at 2.59 when, in fact, the model flew for five minutes or so.

F.A.I. rules were the first answer to the problem of wind, and even though relative performance has increased over the years, the resulting increase of performance-reducing rules has just about managed to

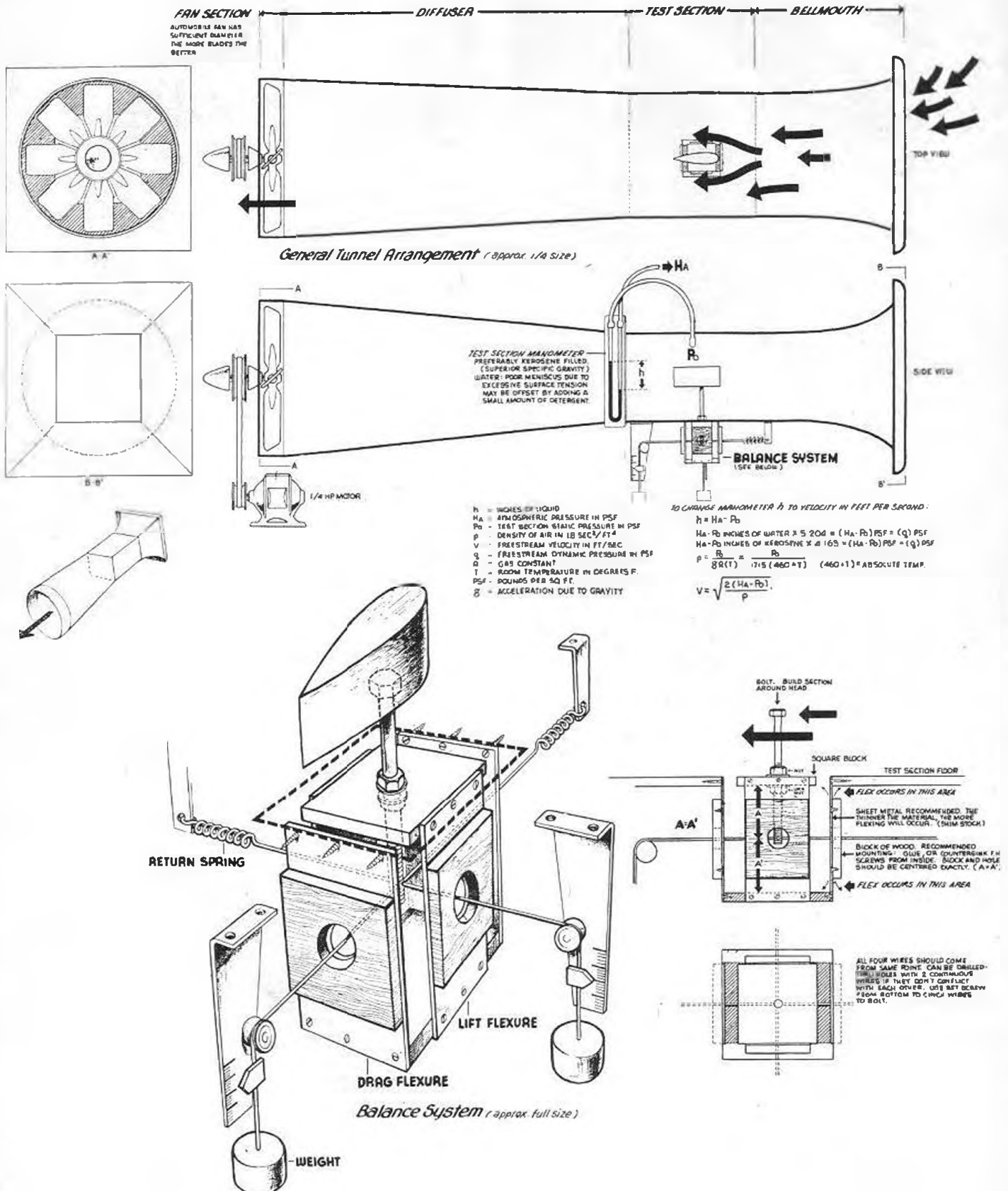
keep the models in sight even on a fairly breezy day. The trouble is, these contests have virtually completely turned into a thermal-detection event. My reason for saying 'trouble' is that firstly, as mentioned, the event finds the best flier and not necessarily the best model, secondly, the result has been (particularly in A/2) a series of mass launches which is hard on the patience of the timekeepers who have to wait around, and difficult for them to maintain a watch on the correct model out of many in the same patch of air.

Well, having voiced my objections to the present rules, I must say that I expect and, indeed hope, for many comments from readers of *Aeromodeller*. Perhaps we even ought to take a vote on how to hold contests - whether to continue with the present system of three minute maxes and the inevitable fly-off (in which case I suggest we award the prizes to the timekeepers) or else go back to four-minute maxes in the hope of avoiding the fly-off. Personally, I would suggest that we go back to the four-minute fly-off, and have five flights, in which case one would be virtually certain of missing the fly-off on a breezy day. On a calm day, where five maxes could more easily be accomplished, a fly-off would be far less likely to result in a lost model.

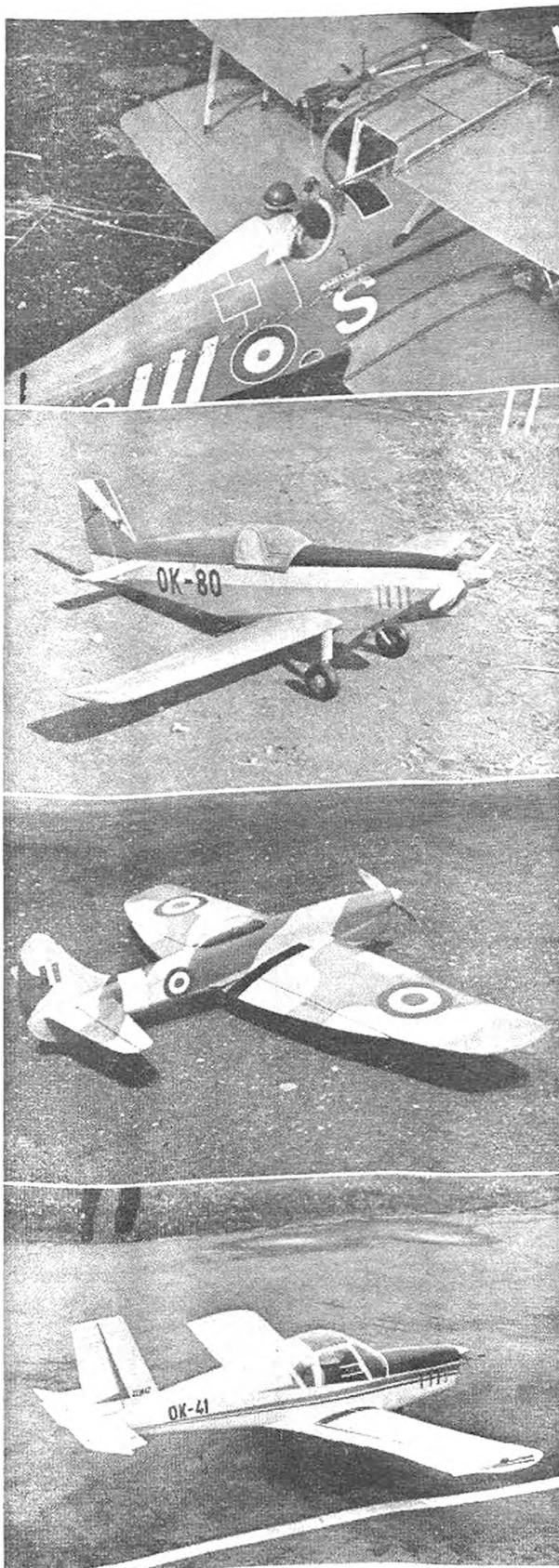
Is this a good answer? Well, it's up to the readers to comment. One argument will, perhaps be, that five flights would mean too much running about to allow competitors to participate in more than one contest per day, but I for one would consider this a small price to pay. I am quite prepared to limit my flying to only one event per day and concentrate on that instead of the usual two or three. (Yes, I do fly all three free-flight events!)

I have put forth one suggestion, now I hope others will comment, or are we all presently satisfied with the usual contest-day lottery? I believe five flights would encourage more actual flying, at present, if I slip up for some reason on, say, my first flight, I don't bother to fly any more. How many do the same, knowing that a vast fly-off is bound to win? With five flights though, there is a far greater chance for the 'cup to slip 'twixt lip and score-card' I think five flights would encourage a lot more actual flying, it would also bring open contests more in line with F.A.I. Well chaps, how about it?

D. Furbank,
East Midland Area Member.



CONTROL LINE NEWS



Fuels made to measure

ALTHOUGH many modellers know of the G-Max Research Co. (8 Tate Road, Sutton, Surrey) as being a source of cheap methanol and nitro/methanol mixes, are they also aware that many other fuel ingredients are also available from the same source? Amyl nitrite, ether, propylene oxide, nitro benzene, Castrol M and Ucon LB625 are among many other chemicals listed in this company's latest catalogue. The catalogue is in fact very informative, stating the chemical composition, the use or benefits derived from each commodity as well as their dangers, and is free of charge to senders of S.A.E.'s. Interestingly, the ready mixed fuels (both diesel and glow) that they supply, are based on the synthetic oil. Ucon LB625, about which there has been so much controversy. Its advantages include cleaner burning, more constant viscosity, and at first was used as only 10-15 per cent of the fuel. This, obviously, gave more power (due to methanol having a greater calorific value than oil) but also led to various troubles in some cases (mainly brand-new examples of one particular make of engine). Seems that these synthetic oils raise the running temperature of the engines, and that they have a lower film strength than castor oil – but when used at the 'normal' rate of 20-25 per cent, some users have found an increase in performance, due to lower coefficient of friction. The comments have in the main only applied to glow engines – the cooler running diesels presumably being unaffected.

Those with mothers/wives who object to half empty ether bottles and such-like cluttering up the living room table, may be interested to know that G-Max will mix up fuels to the customer's own formulas, at no extra cost – the only proviso being that such orders are not for quantities of less than one gallon. It should be stressed that orders *must* be placed in advance, and a date for collection arranged, as the owners are not geared to cater for casual callers. They also have a shop at the Santa Pod Raceway, which older readers may remember under the less exotic name of Poddington Airfield, at Poddington, Beds. This is the 'Drag' racing centre, and the shop is open on racing days, which we believe is every Sunday during the season.

Left: A few of the very fine models flown at the Czechoslovakian National Championships. From top to bottom. Winning SE5A by V. Davidovic has lots of detail. Span is 49 in. and it is powered by an own designed and built .50 cu. in. engine turning a 12½ in. x 5 in. prop. Below it is P. Filandr's R-7 Racek. Czech aerobatic machine. Power is a Tonic .35. Next is a semi-scale Hawker Tempest stunt model of 55 in. span, weighing 47 oz., and powered by an M.V.V.S. 35. Bottom, is a 53 in. span scale model of the new Czech light plane, the Zlin 42. Engine again is a Tonic 35 and total flying weight 67 oz.



At left is F. Smart of Maidenhead, with his most unusual 'Pirana' combat design. Apart from the novel tail arrangement said to increase sensitivity, the model incorporates several 'prang resistant' features. The two $\frac{1}{2}$ in. \times $\frac{1}{2}$ in. spruce spars are not glued to each rib, but are merely slotted through and cemented at the wing tips. This is to enable the wing to flex without breaking, and even if the spars should crack, they may be easily withdrawn and replaced.

Griffon III

A female competitor is all too rare a sight these days, and to find one pitting her own team-racer is practically unique (fuel plays havoc with the nail varnish), yet Regine Curt not only acts as mechanic, she also designs and builds her models! The latest in the series, 'Griffon III', is far from the conventional approach as may be seen in the accompanying sketch. The wing features *anhedral* and the tailplane is set on a lower datum line. Quite what advantage lies in this layout unfortunately remains unexplained, but the model has been developed over quite a long period (this version placed third in the 1968 French Nationals) so, presumably, Regine is satisfied that the anhedral wing is worth the extra trouble. The fuselage profile is again unusual, the engine pod providing straight-through ducting of the exhaust, while the fin curls under the rear of the fuselage to provide a skid. The undercarriage leg is raked backwards to absorb landing shocks with a greater amount of 'spring', whilst its rearward position helps towards quick take-offs. Semi-scale purists may not be impressed with the appearance, but it is no worse a travesty of the rules than many other 'conventional' models. The motor, an Oliver Tiger, is mounted on a magnesium crutch and is capable of achieving times of around the five minute mark.

News in Brief

A new Rhodesian F.A.I. speed record has been established by John Hancock, when he recorded 126.513 m.p.h. with a piped Super Tigre G.15 (what else?) powered 'Pink Lady' design. This speed represents an improvement of some 20 m.p.h. over the previous record.

* * *

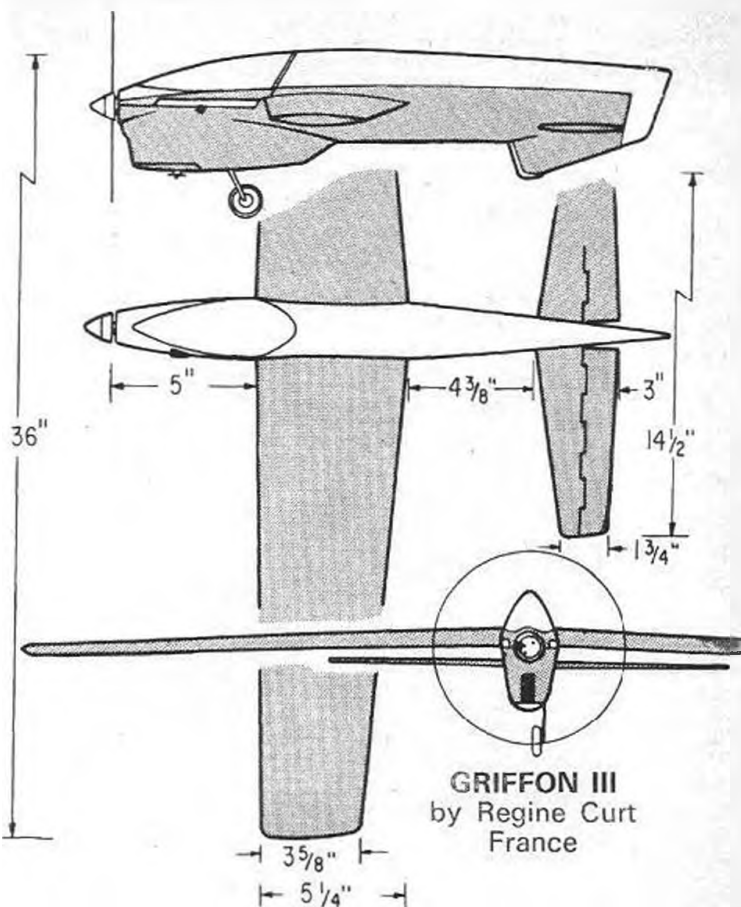
Profile Goodyear racing enthusiasts, unable to find suitable three-views, should take a peep between the covers of R.C.M.&E. as the regular *Throttle Benders' Union* column for pylon racers is featuring a different three-view each month. Incidentally, rat-race fans may also pick up a few hints from this feature, as sharing identical motors with their R/C racing counterparts, a fresh approach may reveal new ideas. For instance, have you tried washing-out the prop tips to increase r.p.m.?

* * *

Selection of the British scale control-line team to represent this country at the 1970 Scale World Championships, to be held at Cranfield in Bedfordshire, will not take place at the Nationals as in previous years. Instead, and much more satisfactorily, a separate team trials will be held on July 12th at (provisionally) Little Rissington.

* * *

First announced control line Goodyear racing contest is on June 21st as an unofficial event at the S.M.A.E. centralised meeting, provisionally booked for R.A.F. Cottesmore.





THE S.M.A.E. Council Meeting, at which it was decided to reintroduce an amended version of the silencer requirement, was held very close to the 'press date' of last month's issue of this magazine. In consequence, the decision was only mentioned as a very brief aside in my comments regarding tuned pipes, and even then it was almost a 'stop press' item.

In that the requirement extends outside competition rules to embrace all types of flying it is obviously of coincidence interest and concern to anyone interested in powered flight. As it stands, the requirement is for a silencer to be fitted to all models, whether free-flight, control-line or radio-control, with certain exceptions. These exceptions comprise models fitted with diesels of up to $1\frac{1}{2}$ c.c., and those models that meet the F.A.I. World Championship specifications for F/F Power, C/L Speed and Team Race.

Whilst I don't wish to turn these 'Comments' into a dissertation on the merits of establishing an acceptable noise level (in preference to merely requiring silencers) some support for this idea is implied by the exempting of small diesels. Logically, nuisance is related to the time, place, amount and type of noise, not the size of the engine producing it! A silencer will, or rather should, reduce noise from a given engine, but there are other methods. One snag with silencers is that most types reduce power as well as noise. For many applications, power can be regained, *inside* the present legislation, merely by fitting a larger and still 'silenced' motor!

Of course there are difficulties with measuring, never mind establishing acceptable noise levels – and the problem is hardly confined to our hobby. That there are different approaches can be illustrated by quoting from Roger Bacon's 'Straight and Level' column in *Flight*:-

'But what, I enquired eagerly, is the acceptable noise level?'

'In aviation', replied the expert, 'the acceptable level is always the level we have reached now.'

The allowing of World Championship specification models to be flown without silencers will have to be better defined.

From a lengthy telephone conversation with S.M.A.E. Secretary Syd Lawton, I have ascertained that this exemption applies to all models meeting the appropriate specifications, whether or not they are being flown in actual competition. Whilst at first this sounds reasonable, there are unfortunate loopholes.

Numerous models meet the Championship specifications, if not the expected idea of a contest model. For example, almost all 'sports' power models will meet F.A.I. Power wing and power loadings, and most will have engines under 2½ c.c. Furthermore, Combat models meet *Speed* rules. This is not quite so fatuous as it might sound! Two of my club members once attended the Irish Nationals and took 3rd and 4th in speed with their winning combat models!

No doubt this situation will be appreciated (and changed!), but it must be remembered that contest models have to be tested, and that potential contest fliers often take a while actually to compete.

Another interesting aspect of this situation is the idea that 'commercial silencers must be used as manufactured or, if modified, the effect must be not to increase the noise emitted by the unmodified unit'. The intention is presumably to discourage the 'degutting' of silencers as was prevalent at the recent World R/C Championships. However, it also means that a silencer that confers undesirable characteristics upon an engine can only be improved by replacement with another variety. Whilst this might be considered good for trade, it will probably encourage the use of home-made units.

For free-flight applications most commercial silencers are unattractive on weight grounds, as well as being bulky and expensive. Furthermore, many motors, especially those with 360 degree porting, have no readily available commercial silencers. These reasons doubtless will combine to encourage modellers to devise their own silencers.

From previous experience under the earlier silencer rule, when I had to resort to a home-built silencer (after buying, weighing and discarding un-run a 2 gns. proprietary unit) for my Veco 19, perhaps I can offer a little advice. Neither soft solder nor Araldite seemed satisfactory for connecting lengths of tubing. Aluminium is lighter than brass or tinplate and yet can still be welded. Much use can be made of cigar tubes and similar containers.

by John O'Donnell

Motors with single exhaust ports offer the least difficulty in physically attaching the silencer. Retention by a length of 10 B.A. screwed rod, bent into a 'U' shape round the cylinder, and with its ends passing through the silencer is lighter and easier than using springs. However, thin gauge tubes tend to squash, permitting nuts to vibrate off the ends of the screwed rod. I flew many contests with the silencer tied on with soft wire – a 'system' that looks terribly crude but works remarkably well.

Motors of the Cox type require a different approach. A length of suitable size tubing or a cylindrical container (like some small sized dope tins!) surrounding the cylinder can be trapped between the crankcase and the cylinder finning. Such a device is little trouble to fit since tightening can be accomplished via the glow head – but is difficult to remove in one piece! I should add that a few holes are required to let out the exhaust gases – and are easier punched than drilled.

Ironically, the tuned pipe, developed into a practical proposition for F.A.I. C/L Speed and F/F Power and now banned for either, is the only type of silencer that definitely increases power and hence 'pays for itself'. Whether or not the pipe can be used for the S.M.A.E.'s domestic F.A.I. Power events during 1970 will presumably be resolved at their next Council Meeting. Either way, I would expect those people who have bought or produced piped motors to use them in open events. Whether or not they will be able to regard their expensive (in money or time) motors as expendable is another matter – and one that can be critical when it comes to winning contests. I am still surprised at the number of contestants who are worried about their engines, as distinct from their models, when it comes to risking them on long fly-offs or the like.

The F.A.I.'s decision on pipes has one immediate repercussion – on motors that have been modified to suit tuned pipes. Although the adding of a pipe to a 'standard' engine can increase revs and power, still more can be gained by altering the timing. Conversely such timing can not be expected to suit operation without a pipe.

As I have not used a piped motor I cannot speak from personal experience. I have little doubt that most people directly affected have tried things out for themselves by now. However, a few opinions may be of interest. First reports from my clubmate Alan Moss were that his modified G15's were 'useless' without pipes! On the other hand, I gather that John West's early type G15 tuned and piped by Miebach is reasonably happy unpiped. Ray Monks was more specific and reckoned that although he dropped 2,000 r.p.m. (down to 19,500) on removing the pipe, he was unexpectedly happy that it was so little! One very important factor in his opinion was his use of a Cox head on his G15 throughout. These heads are turned down from current hemispherical design Cox 15 heads and retained by a clamp ring. Even from such limited evidence it would seem that the exact 'mods' incorporated in an engine could be critical – and that the use on G15's of Cox carb units and heads is worthy of consideration for F.A.I. Power.

All this gives me the impression that the elimination of pipes is going to have no effect at all on the tendency of F.A.I. Power to continue (not become!) as a 'power race'. All that will happen is a change in emphasis. Engines will still be polished, filed, ground and generally modified in attempts to extract more power. This is *implicit* in rules that require conformity to a power loading defined on a weight per c.c. basis. In short, chances of success are increased by possession of the best engine.

My World Champs 'Technicalities' mentioned the impressive climb of Rieke's model. I now learn, via New Zealand's 'South Island News' that his motor did not use normal ABC (i.e. Super Tigre) components, but had a special steel liner hardened via a fortnight tempering process! Similar items are available via Miebach – but illustrate my point. Even the January *Aeromodeller* had a photo (p. 28) of the MZ 'Tricone' pipe captioned '... as used by K. H. Rieke'!

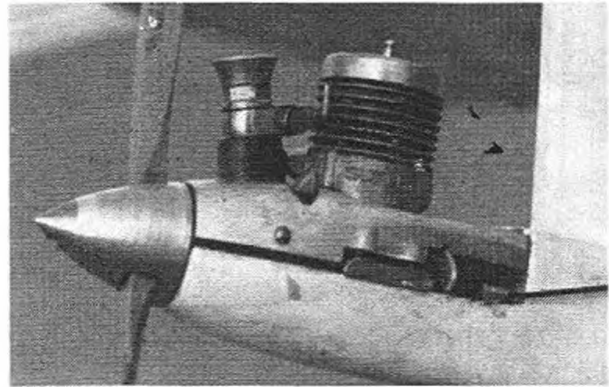
This situation may or may not be desirable. Some modelers like engine tuning, whilst others would never dream of 'touching' an engine. But, at least, the current position and the direction in which it is developing should be acknowledged.



Mention of the British Free-Flight Championships has been made in my last two columns – together with comment on the lack of demonstrated interest. I am sure that interest is connected with prestige and the like. Results of the Junior championship are now available, and publications should encourage others to strive for the title in 1970. George Lynn (S.M.A.E. Comp. Sec.) wrote to say that 1969 Junior Champion is Dave Plews of Cheltenham with an aggregate of 16:27. Other claims were submitted by Pete Yospa (Sheffield), John Carter (Spitfires) and D. Ginns (Market Harborough).

With all respects to these people it is clear that none made a concerted effort for the overall championship. The top two, for instance, flew only glider, in three and two contests respectively out of eight possible contests spread over three categories. This is not intended to decry their abilities – after all, Plews also secured second place in the Frog Junior and reached a Hullavington Rally fly-off – but to point out the opportunity for anyone capable of flying a couple of classes to even a passable standard.

As for the other title there seems an attitude that a vast fleet of models is required and that this is beyond most people. I can only state that in the appropriate events in 1969 I flew exactly *three* models (an A/2, a F.A.I. Power model and an Open Rubber model), and would have only added another if the Wakefield event had been allowed to count. I don't really want to relinquish the title – but I would like it to mean something – and that implies adequate competition.

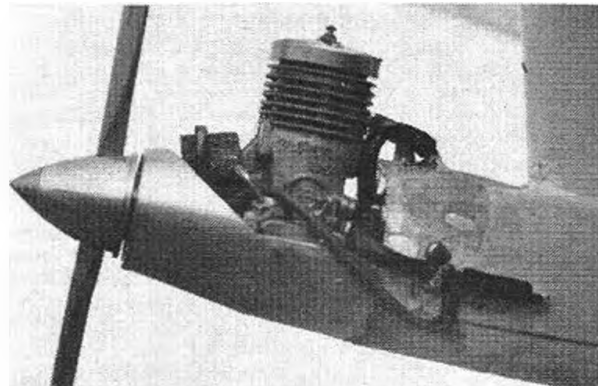


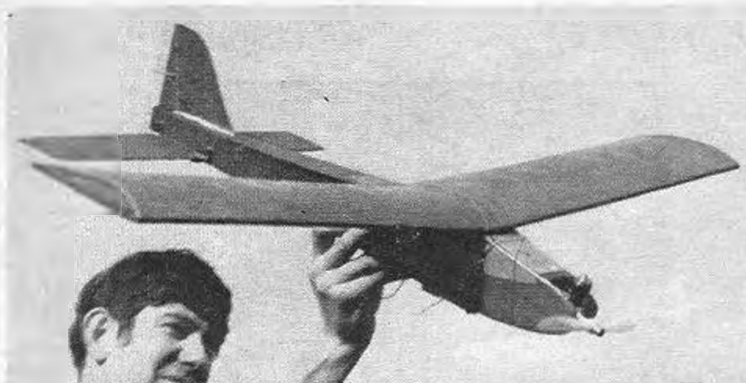
Ray Monks, British power team member on many occasions, uses a Cox carburettor conversion on Super Tigre G.15. He has been employing a tuned pipe, but as text reveals, is also content with the revs he is getting without a tuned exhaust system.

Right, George Fuller, very much opposed to the new silencer regulations, & a keen exponent of the open power model as typified by his 'Dixielander' series, is now turning to the biggest power units he can get. Left – is the silencer rule the death knell for JA power? John O'Donnell suggest ways and means of making a silencer for a Cox. Tony Dakin of Cardiff won open power at the Woodford Rally with a JA model to emphasise the potential of the class.



David Wiseman's Trials model of '69 (below) without a tuned exhaust, displaying flood-off plumbing and rigid mounting in a cast pan. Point of interest is that the pan and bulkhead were completely knocked off during a heavy dethermalised 'landing', and the lot was butt jointed back in place with a rapid setting epoxy glue, ready to use again within a few minutes!





Your FULL-SIZE plans

A 36 inch rough field flyer
for single channel radio
designed by HARRY PURSER

SNIPE

NOT BEARING any resemblance to the KeilKraft Snipe, this model is nevertheless a direct descendant thereof! The original free flight version had been flying around for about four years with an E.D.46 when I acquired my MacGregor single channel gear. Against advice from learned R/C types, the equipment was fitted to the dear old Snipe, which flew reasonably successfully despite the low power. The changes began when it flew through a fence and shattered the wings. A stronger, smaller set were constructed (Mk. 2) and again flying was good but the fuselage gradually came apart. Hence the present one was constructed (Mk. 3). Purely functional (both sides can be cut from one sheet of balsa) and very simple, this fuselage is as near unbreakable as any I know. All sheet tail surfaces completed the model which was now powered by a Cox .049. Strong by comparison to the original Snipe f/f wings, the new ones were well and truly bent during removal from a tree, dictating even stronger construction for small field work. The present set were designed making Snipe Mk. 4. Mine are tissue covered, but despite dozens of prangs have not even holed (I am now fully convinced that full depth spars will require some beating for strength). Almost like new, the twelve month old original has had more flights than I could possibly recall. For those who are endowed with more patience than I am, elevators are shown on the plan for use with a Compact or similar escapement. I tried this with some used and abused R.S. Navigator gear which skipped sufficiently to almost always give a control which was definitely not required, i.e. spiral dive to right, either left or up elevator would be handy—I usually got right, *bang!*

An ordinary 'left, right, left', Conquest escapement was then fitted with the original MacGregor gear, and I find the model very easy to fly. It can even be 'control lined' (flown round the operator in tight circles at about eight feet altitude). Now for the construction: It is recommended that the whole model is built using a P.V.A. or similar glue (except where detailed) and that all parts are cut out and marked before commencing construction.

The mainspar is built first, carefully glueing the halves onto the plywood dihedral brace. Next attach the $\frac{1}{4}$ in. square leading edges to the lower wing sheets. When these items are set, the leading edge, trailing edge and centre section sheeting (note grain) are pinned over the drawing. The completed mainspar is now securely glued onto the rear of the lower sheeting (adequate support must be given until set), the ribs added and also the leading edge dihedral brace. When set, this structure may be removed from the board, the leading edge carved to shape (following the rib contour) and the upper leading edge, trailing edge and centre section sheeting may be added. Note that the sheeting on the left wing should end on the centre line of rib W.1 to allow

mating with the right wing, which is now built exactly as the first around its mainspar over the plan. Add the $\frac{1}{4}$ in. soft sheet tips, tape reinforcing and sand the whole structure smooth.

The tailplane is made from good quality $\frac{1}{4}$ in. balsa sheet as shown. Add the braces to the tailplane to give that extra strength and help to resist warps. Moving surfaces are hinged, using thread stitching or tape, whichever is preferred. Add the wire yoke(s) either by bolting as shown or even cementing in position. The original model was fitted with the yoke cemented to the rudder with no sign of this coming adrift, but *careful* adequate cementing using a good balsa cement is a must.

When building the fuselage, note that the right hand doublers and $3/16$ in. square front members are set a shade back for right sidethrust. Add doublers to nose and tail (grain vertical), escapement rails and all braces and gussets to sides as indicated. Note that F 4 is built up over plan. Join sides on formers F 2, F 3 and F 4 and leave until set. Drill F 1 to take 8 BA engine bolts, insert these and solder wire across the slots to prevent their turning. Firmly glue the completed former F 1 in position and join sides at tail, using rubber bands to hold sides in position until set. Add $3/32$ in. sheet floor, cross members and fin platform. Also the two ply cheeks to the inside of the extreme nose. Carefully done, that nose is fuel tight! To construct a hatch cover for the battery compartment, pin two pieces of $\frac{1}{4}$ in. square parallel to the nose doublers at the same level. Plank between sides with $3/32$ in. sheet balsa taking care not to glue planking to the actual sides, only to the two $\frac{1}{4}$ in. square pieces. When set, add a small lip to hook under the nose top sheeting ($\frac{1}{8}$ in. back from F 1). This hatch is quite rigid and is held in position with a rubber band at the rear.

The fin may now be glued in position, not forgetting the $3/16$ in. gussets shown. It is recommended that the fuselage is now covered.

Bend and fit all wire fittings as shown and drill holes and glue dowels in place. Undercarriage plates are made up of three strips of $1/16$ in. ply glued together and position as shown in the side view.

The wings and tail surfaces are covered with heavyweight Modelspan tissue or nylon (preferably) using clear dope as the adhesive. Nylon is essential for the fuselage. Apply three coats of clear dope to whole model, paint as required and thoroughly fuel-proof, particularly around the nose. Two coats overall will not add sufficient weight to cause concern, but a fuel soaked model is utterly unreliable.

Mount the escapement on a $1/16$ in. ply former using two 6 B.A. bolts. This former should be a tight sliding fit in the rails. There is adequate room for up to five $1\frac{1}{2}$ volt pencils in the battery compartment and most types of relayless receivers behind F.2. Fit a suitable switch where preferred and be

sure all wiring is well supported. Be careful to pack receiver and battery compartments with as much foam rubber as space permits, particularly in front of the components.

Now to the flying field! Assemble the model using rubber bands, including undercarriage (to front wing dowels). At the moment of truth it will bend back, not chew up half the fuselage as permanently-fitted ones are so often inclined. Balance where indicated and test glide (over long grass if possible). A flattish, fairly fast glide should result—if not, adjust tailplane incidence accordingly. Wait for calm conditions before trying power, as, if the model is trimmed nose up under power it could well be off downwind very quickly. Use almost full power to begin with and be gentle with that rudder. Power trim must now be adjusted if required by adjusting side and/or downthrust. Biased blips are plenty to hold a turn. Although once in a steady turn the model will stay that way for quite a time. With the rudder shown, holding a signal on will give a quick entry to a spiral dive-and-loops and very barrierish rolls are possible. Keep the model up wind at all times until the motor cuts then make a square circuit of reasonable size with a final turn into the wind leg from twenty to thirty feet high and fifty yards downwind of you and it should (?) land at your feet. I sincerely hope that your model gives as many pleasurable hours of flying as mine has.

... and W. I. BARRETT'S

PHOEBUS SIMPLE GLIDER

THIS MODEL was originally designed to meet the requirements of a competition in the writer's club, which is predominantly interested in control-line and radio flying. Due to field limitations, the competition limited the span to a maximum of 30 inches and a tow line length of 50 feet. As a free flight scramble was also on the competition calendar, it was logical that the same design should do for both competitions. The requirements therefore came down to a tough, small model with easy trimming and a consistent performance.

The construction was made simple in an attempt to attract some of the 'bricks on string' brigade to try their hand at free-flight.

Fuselage construction starts with the pinning of two strips of moderately hard, springy, $\frac{1}{4}$ in. square balsa to the plan, and fitting in between the spacers. By careful cutting, two 36 in. lengths are sufficient for the whole fuselage. When the basic structure is dry, lift it from the plan, and add one fuselage side from 1/16 in. sheet. Install the auto rudder mechanism, and lead the nylon operating line through a piece of plastic tubing let into the fuselage side. The other fuselage side can now be attached, and the whole unit sanded to shape. Make the fin and rudder assembly, and cement into a slot cut into the top of the fuselage. The wing and tailplane mounting platforms can now be added. Note that the wing mount should be slightly angled up on either side, to suit the dihedral angle of the wing.

The wings are designed to be stiff in bending and torsion, and construction, though simple, is slightly different from normal practice. The full depth main-

spar is first cut out, and then pinned to the plan (one wing section at a time) with scrap pieces of 1/16 in. packing under every position where the ribs meet the spar. The leading and trailing edges are pinned flat on the plan. The forward rib halves are added first, followed by the rear, diagonal ribs. The latter should have the trailing portion cut slightly over-length, the excess being trimmed off when the rib is positioned in the wing.

The tips are built in a similar fashion, except that the spar is packed up 1/16 in. at the dihedral break, and lies flat on the plan at the tip, because the undercamber reduces to zero at the tip. This has the effect of building in slight 'wash-out' at the tips. Add the dihedral keepers, and sand the leading edges to the section shown.

The tailplane is straightforward, except that the ribs are cut $\frac{1}{4}$ in. full depth over their length, the section shown being sanded into the assembly after it is dry.

The whole model should be covered with lightweight Modelspan, and decoration being by coloured tissue rather than colour dope. Two coats of clear dope are sufficient over the whole model.

Tie the auto rudder line to the rudder horn, and lightly tension the rudder with a rubber band. Fit stops (pins will do) so that the rudder is straight with the tow ring on the hook, and deflected when free.

As the tow hook is not adjustable fore and aft, the centre of gravity must be brought to the position shown by the addition of lead ballast to the compartment in the nose. When the balance is correct, the model is ready for test flying.

Remove the rubber tensioning band from the rudder so that rudder is straight. Hand launch the model into wind. A long straight glide should result, with the slightest hint of a stall being present. Repeat several times. If the model is stalling badly, place a thin piece of packing under the trailing edge of the wing. When the glide is satisfactory, cement in position any packing you may have used. Any turning to one side should be corrected by increasing the washout slightly of the wing tip on the outside of the turn. This can be done by twisting the wing while warming it in front of a fire.

The model can now be tried on the tow line. Replace the rubber band for the auto rudder. Using a short line, gently tow the model into wind. A straight climb should result, followed by a gentle turn after release. If the turn tends to tighten, reduce the amount of rudder offset.

One further point—do not forget to put your name and address on the model!





JUNIOR KIT CONTEST AT 1970 NATIONALS

SINCE the December 1969 *Aeromodeller* has been on sale, Ray Favre has received many letters asking questions and wanting more information. These have been answered, but a few common points are recurring and explanations of these points might be of interest to Golden Wings members.

- (a) *Do you have to be an S.M.A.E. member or a Golden Wings member to enter this contest?* No, but you must be able to show, on the day, a valid third-party insurance for model flying and it must be equivalent (at least) to that provided by S.M.A.E. for its members. MAP insurance will be suitable and details of this scheme appear elsewhere in this issue. Also, details of how to join S.M.A.E. are given in this issue as well. (Whether you enter or not if you fly model aircraft anywhere you should be insured).
- (b) *Will camping facilities be available near the airfield of the contest?* Yes – in fact this is really part of the Nationals weekend and many youngsters and families stay the whole weekend actually on the airfield, in tents, caravans, etc. Charges are quite reasonable and will be given later in *Aeromodeller*.
- (c) *Will auto-rudders and de-thermalisers be allowed?* Only if they are shown on

the plan or described in the instructions. The main rule of the contest is that the entrant must build the model(s) from the chosen kit(s) exactly as shown by the plan and instructions – any modifications will mean disqualification and this explains why the models will be 'processed'. This makes it fair for everyone – just build the kit, nothing more nor less. (If the instructions or plan say that auto-rudder, etc., is optional then you can suit yourself whether to fit one or not.)

- (d) There are many questions which are answered by the information sheet, available free from:

MR. R. A. FAVRE,
90 COURTLANDS DRIVE
WATFORD,
HERTS., WD1 3JA.

(Enclose a stamped, self-addressed envelope please.)

Potential entrants will be pleased to know that the S.M.A.E. have decided to award a trophy each year for the best performance by an S.M.A.E. member in this contest. It is the C. HAMLEY CUP, kindly donated by C. Hamley of the Croydon Toy and Model Shop.

Finally, keep an eye on the Golden Wings column to keep up with the latest news about your contest.

Dear John,

I am very interested in the proposed 'Golden Wings' contest. After thinking about the contest for some time, I decided to write to you. I think that the idea is a very good one, however, I think it is rather easy. Why not include a class for A.P.S. plan-built models? This class need only include certain chosen models.

The present choice of Kit-Built models is rather small, and they are rather easily built. Why not also include aircraft such as the K.K. Caprice or the Mercury Marauder?

Free flight and radio control are also another of my propositions. I think that there are several modellers within the age-group of the club interested in these fields of the hobby.

I suppose that this first contest is mainly to register the popularity of the club members, but I hope that you will consider my propositions as you think fit.

Hull, Yorkshire. *C. Rispin*
The Junior-Kit contest (which is open to all modellers under 16, not just 'Wings' club members) is restricted to specific models in

order to give all young modellers an equal chance. The organisers may well open up the event to include more complicated and better performing types at a future date but the object of the present competition is to encourage the novice with these simple models. Rubber Veron Sentinel, Keilcraft Ajax or Senator, Mercury Mentor. Glider Veron Verosonic or Cirrosonic, Keilcraft Invader, Mercury Martin or Swan.

Dear John,

I intend entering control-line scale competitions this year but I am rather puzzled about the rules for flying. Does a scale model have to perform stunts, and if so, which ones?

Heathfield, Sussex.

S. Mattocks

In control-line scale contests, points are awarded for various manoeuvres (inside loops, inverted flight, wingover, figure '8') provided that it is a suitable manoeuvre for the full size to have flown. For example, a Lancaster, performing figure eights (!) would score zero as the full size could not have performed this manoeuvre, but a model of a Zlin would receive points. Details of the rules and the K (i.e. difficulty) factors for the stunts are given in the S.M.A.E. rule book.

Dear John,

Please could you tell me the Plan number to the Gemini for two 1.5 c.c. engines. This plan was shown in the October 1955 edition of the *Model Aircraft* magazine. Also, would you tell me if it would be possible to run the plane with one engine and which side would it be advisable to install it?

Oxted, Surrey.

P. Patay

The Miles Gemini plan is still available from our range as plan no. MA/221 – price 7/6d. plus 6d. postage.

Although this control-line model will fly on one engine after the first has cut out, it most certainly would not take off without both motors running.

It is best to start the outboard engine first – so that this will run out of fuel before the inboard engine. This gives better line tension as the 'dead' engine creates more drag, and this, combined with the thrust of the inboard engine, makes the model turn to the right.

Dear John,

Since I joined your club (about a year ago) I have built three C/L planes of my own design. All of them had .049 cu.in. engines in them. I then wanted to build an R/C model so I chose the K.K. Gyron because it said it was for .049s. But now I do not believe that a .049 will take it up. Should I use a bigger engine? My brother had the same trouble with the *Apprentice* using a .020. Could you please advise me!

How much do extra Golden Wings transfers cost?

Birmingham 35.

Nigel Evans

The 'Gyron' is quite suitable for a .049 cu.in. engine, unless you are using very heavy R/C equipment, in which case a 1 c.c. would be more suitable.

The 'Apprentice' needs very little power as it is really a 'power-assisted' glider. A .020 is usually adequate for this design – and a .049 really is rather too fast. It is best to stick to the designer's advice – he usually knows best!

Golden Wings Club transfers are available at a cost of 6d. per pair provided a stamped addressed envelope is sent.

Dear John Bridge,

I am between 10 & 16 years of age and would like to become a member of the "Golden Wings Club". With this application I enclose postal order (International Money Order) for 2/6d. to cover cost of the enamel club badge, two coloured transfers and membership card.

NAME IN FULL

ADDRESS

YEAR OF BIRTH..... SCHOOL.....

NAME OF ANY OTHER CLUB OR CLUBS TO WHICH I BELONG (if any)

SEND TO: GOLDEN WINGS CLUB, AEROMODELLER, 13-35 BRIDGE STREET, HEMEL HEMPSTEAD, HERTS

2/10 2d. In the 1st. Rebate
plus purchase coupon
for Golden Wing Members
G.W. No.

TOPICAL T W \ S T S

by "Pylonius",

illustrated by "Sherry"

Outlook Unsettled

CONSIDERING the tiny fraction of the earth's inhabitable surface which this small island of ours occupies, and considering we are so crowded together that we may soon have to sleep upright, its something of a miracle that we continue to find sufficient elbow room to fly our model planes. I was going to say, to pursue our hobby, but with the current swing over to Radio, the only pursuing that seems to go on is when the rudder servo sticks.

It is traditional for the Englishman to enjoy his moan and demand a law against anything that upsets him, and when he does get the law he has a good moan about bureaucratic interference. Now, if there is any one thing that the inveterate moaner will seize upon with relish it is the model plane, both for its wayward habits and emission of noise.

I have a theory that troubleshooters with a particular abhorrence for model planes must make a point of taking up residence adjacent to just that sort of open space where the hated model flying might occur. There are obviously very desirable residences which are particularly well situated for maximum complaint value, though I do not believe that these qualities have actually been extolled by estate agents.

On top of all this model pressure there are those model flyers who go out of their way to aggravate the anti-model faction, and these same model flyers are the very ones who put up the biggest moan about lack of flying facilities. Yet in spite of an almost national effort on the part of public and model flyer to ground the dreaded model plane, we still seem to find more flying space than in countries where the per head of population is far less likely to come into contact with a model plane than over here. In America, the flying of a model plane is something of an event, generally involving a five hundred mile dash to any bit of desert which doesn't happen to be in use at the moment for filming T.V. Westerns. Frustrating thing is that you pass some good flying ground en route, but you just can't get off the ten lane highway. Where events are held on airfields, all the visitors come in by plane, and as they are always coming and going there is very little opportunity to fly a model plane. In other countries anyone venturing into open country without a commune permit is instantly arrested as a spy, and in the more wild parts, model flying would have too disturbing effect on the protected wild life. You will either be chased off by a game warden or an enraged elephant.

All in all, our method of complaint and counter complaint seems to work out pretty well for the model flyer, not losing him so much flying ground as adding a little extra excitement to the game of model flying.

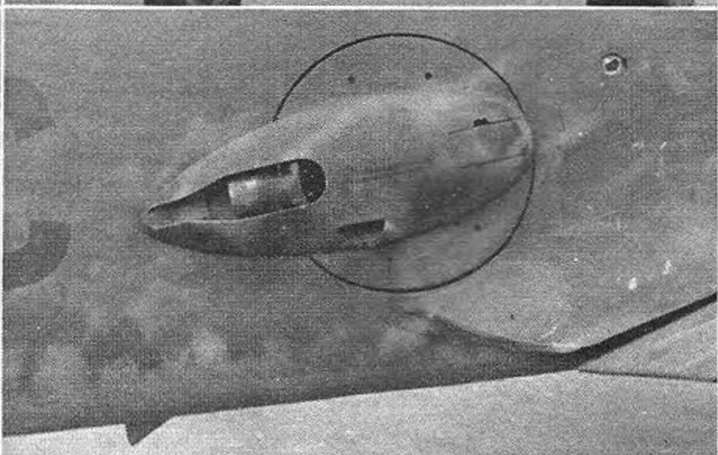
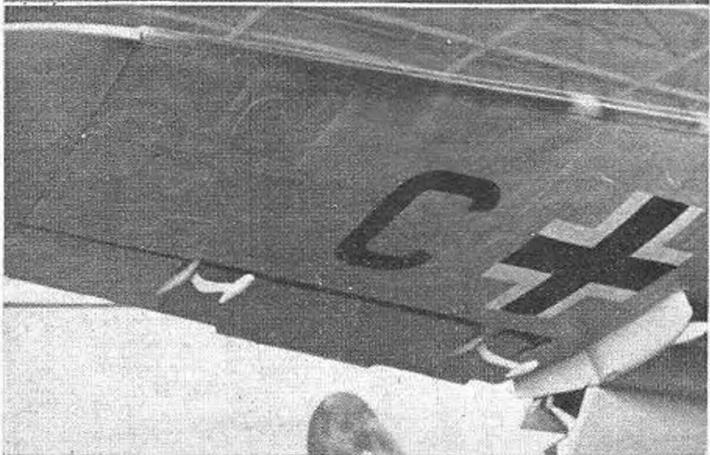
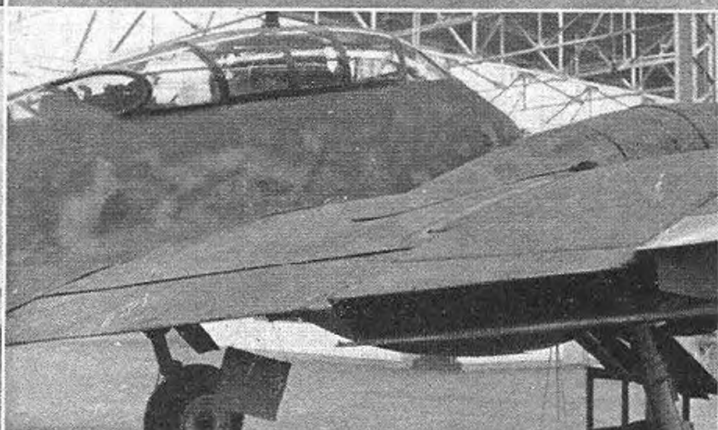
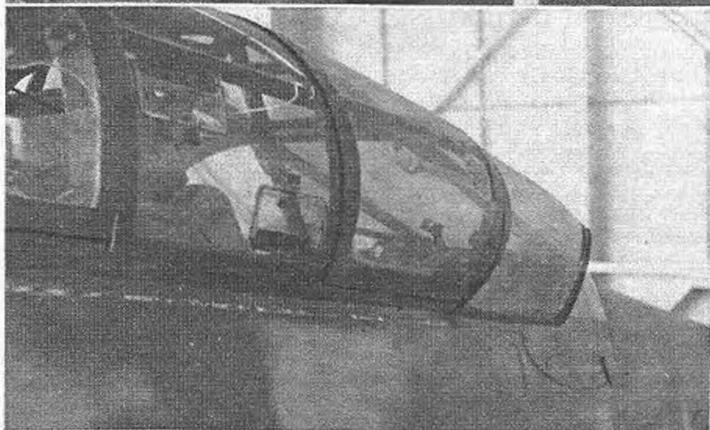
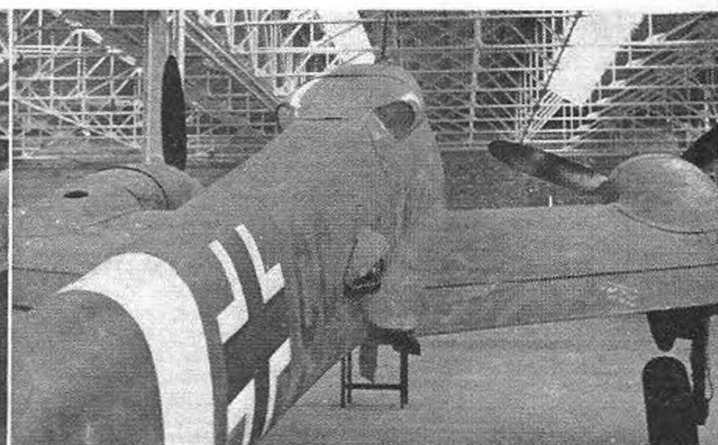
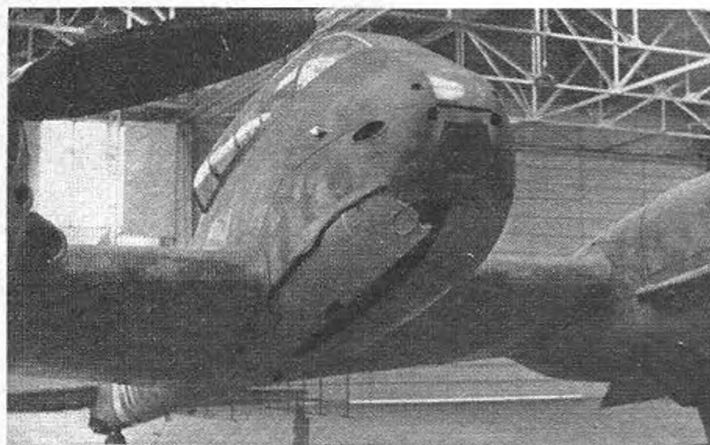


Complaint Corner

Cunningly, the residence of the super complainer lies strategically tree-screened at the down wind end of the common or open space. There is probably a special look-out point rigged up in the attic. It might well be equipped with a high power telescope and a selective noise detector. This latter obviously to be an exceptionally sensitive instrument as it must detect the buzz of a model engine through the crescendo of the tumultuous traffic, the screaming of the overhead jets, the revving up of the Hell's Angels' motor bikes, the clomping of the hobnailed boots of the skinheads, and the yelling of the demo boys.

At the first sign of movement on the open space the hot lines to the Council offices and the local police station are operationally manned, and all windows in the house opened in order to get maximum benefit from the noise nuisance. The high power telescope is necessary since, at a distance, it is possible to mistake a model gathering for a demonstration line up, particularly as current model design make the machines little different in outline from the banners of the demonstrators. What is hoped for, though, is the real bonanza: a model plane actually landing in the grounds of the house. This warrants at least a two column write up in the local press, containing harrowing stories of disaster and near disaster, such as granny falling out of the hammock in surprise, and the parrot emitting a four letter word for the first time.

Funny thing how models seem to be attracted to these very houses as if drawn by some malignant magnet. It could well be just that; some secret weapon that the complainers have devised for greatest nuisance effect.



AIRCRAFT DESCRIBED Number 190

By IAN STAIR



MESSERSCHMITT Me 410

THE MESSERSCHMITT Me 410 was a development of the Me 210 and it is not possible to tell the complete story without reference to the earlier type.

The Me 210 was first proposed in 1937 as a successor to the Messerschmitt Bf 110 (see *Aeromodeller*, July 1968). The project met with the approval of the RLM (German Air Ministry) and the production of the prototype began early in 1938. The most outstanding feature was the provision of remotely controlled guns for defence to the rear. The first prototype had twin fins and rudders similar to the Bf 110. The maiden flight took place on the 2nd September 1939, the day before Great Britain and France declared war on Germany. The second prototype had a large single fin and rudder and the rear facing 'bug eye' cockpit canopy which was characteristic of production Me 210s and 410s.

On paper the Me 210 showed great promise and on the strength of this an order was placed for 1,000 aircraft before the prototypes had been flown. This proved to be a disaster, the aeroplane being unstable longitudinally and the undercarriage prone to collapse. Many modifications were introduced, the fuselage was lengthened by nearly four feet and later all machines were retrospectively fitted with leading edge slots. Production of the Me 210 was terminated after about 350 had been built.

A high altitude version, the Me 310 with a pressurised crew compartment was proposed but it was abandoned in favour of a less modified type the Me 410 Hornisse (Hornet).

In appearance the Me 410 was almost identical to the later Me 210s except for the engine nacelles which were slightly lengthened to accommodate the Daimler Benz DB 603 engines. The first prototypes were in fact Me 210s modified to Me 410 standards.

The first production order for the Me 410 was

placed at the end of 1942, and work got under way quite rapidly as the new type used many of the components left over from the cancelled Me 210s. The first production variant was the Me 410A-1 light bomber armed with two 7.9mm. MG.17 machine guns and two 20mm. MG.151 cannon firing forward and one 13mm. MG.131 machine gun in each barrette. The bomb load was usually twelve 110lb. bombs, eight carried internally and four below the centre section. Two 2,000 lb. bombs could be carried as a maximum load.

The most interesting feature of the Me 410 were the two guns facing the rear. These were mounted in barbettes on each side of the fuselage just aft of the wing. The whole assembly was like a large drum mounted horizontally across the fuselage, on the ends of which were the two barbettes. This was electrically driven and controlled, and cutouts were arranged to prevent the guns from firing when pointing in the direction of the tailplane. Aiming was from pistol grip controlled sights mounted in the rear cockpit just inside the flat glass panels which gave the 'bug eye' appearance to the canopy when viewed from behind.

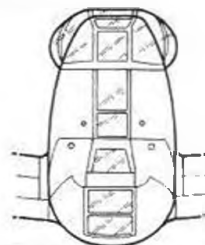
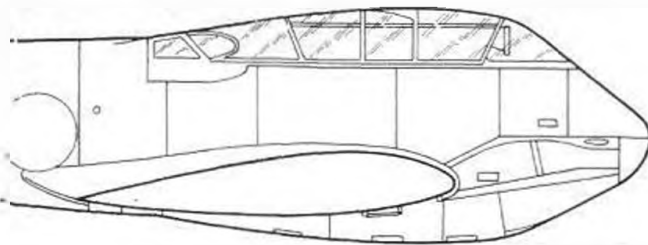
Construction was the conventional all metal stressed skin of the period excepting for the control surfaces which were fabric covered. The wings had a single main spar. Slat type dive brakes were attached to this just in front of the radiators. They extended above and below the wing. The main undercarriage retracted rearwards, the wheels turning through 90 deg. to lie flat within the wing. The large doors over the wheel well formed the rear of the nacelles. These closed after the wheels were fully extended.

The Me 410 was developed into many variants with differing armament and equipment to under-

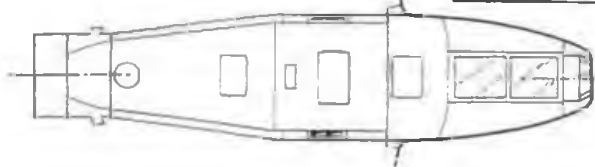
Continued on page 95

Heading is possibly most famous of all Me 410 photos, taken by Sgt. Victor La Bruno from the radio compartment of his B 17 whilst being attacked near the synthetic oil plant at Brux, close to the Czech border. The 410 is cannon armed and the Fortress' wing is ripped inboard of its tip marking. Right at Farnborough, Air Min V-3 is ranged alongside many other fascinating captured examples. Rear fuselage and vertical tail have been resprayed. Opposite: 8 angles on the example at R.A.F. Cosford, the subject of Ian Stair's direct measurement drawing on following pages. Close-ups offer detail of the bug-eye cockpit cover, barbettes and u/c doors both open and closed. Reprints of this feature plus 1/48th scale dye-line print of the drawings are available as plan pack AJ 2898, 2/6d. plus 6d. post from Aeromodeller Plans Service.





NOSE DETAILS Me 410 A-3.



COLOUR NOTES:
 Uppersurfaces of Wings,
 Tailplane & Nacelles -
 'Splinter' camouflage in
 N° 70: SCHWARZGRÜN;
 (Black green.)
 & N° 71: DUNKELGRÜN;
 (Dark green.)

Sharply defined colour divisions.

All Undersurfaces:- N° 65: HELLBLAU; (Light blue.)
 Fuselage, Fin & Rudder:- N° 02 R.L.M. GRAU, (Greenish-grey)
 Over N° 65: HELLBLAU: N° 02 Almost solid on top, mottled
 over N° 65 on sides, mottle becoming progressively
 lighter down to the N° 65 Undersurfaces.

Bullet proof glass
 screen.

Glazed vents.

Horizontal framing under glazing.
 Flat glass panel for gunsight.

Port only.

Inspection covers.
 Port. Stbd.

Aircrow: BLACK.
 Spinner: BLACK.
 Spiral stripe: WHITE.
 Lower nacelles: YELLOW.

Removable panel left
 open on many a/c.
 not on 420430.

SIDE VIEW: Me 410 A-1

NOTE: Main U/C Doors open
 only during passage
 of undercarriage.

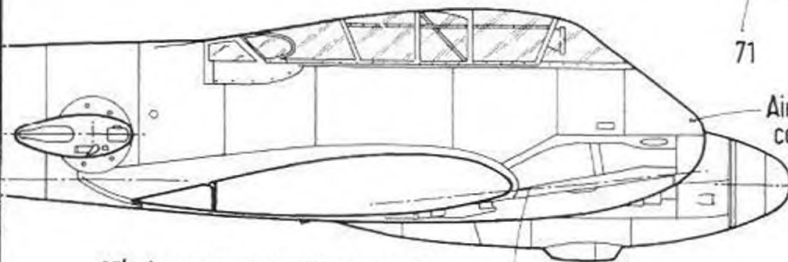
Outer side both nacelles.
 R.H. side " " "
 Both sides " " "

Retractable
 Footsteps &
 Handholds port
 side only.

Undercarriage retracts
 rearwards, wheels turn
 thru 90° to lie flat in
 wing.

Depression &
 elevation of MG 131
 gun in remotely
 controlled barbette.

BLACK.
 RFD
 WHITE Band.

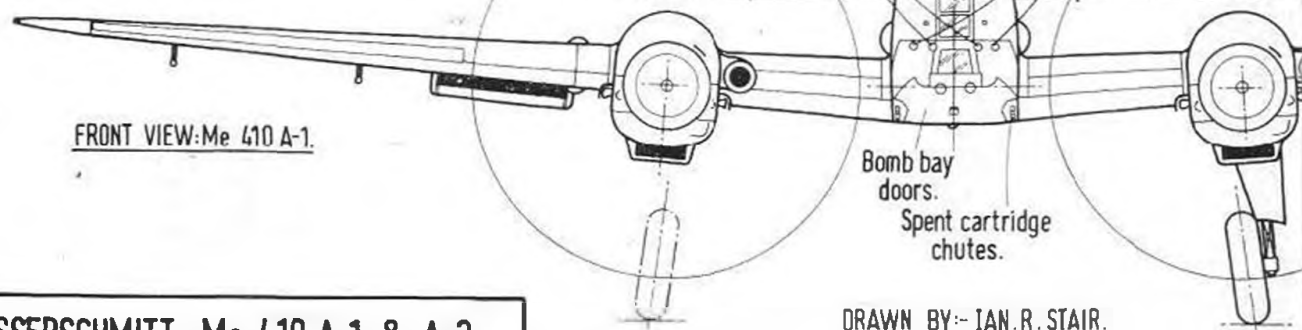


STBD. SIDE NOSE DETAIL: Me 410 A-1.

Bomb door pivot line.

Air intake for
 cockpit heating.

FRONT VIEW: Me 410 A-1.



7.9mm MG 17 Guns.

20mm MG 151/20 Guns.

Bomb bay
 doors.

Spent cartridge
 chutes.

MESSERSCHMITT Me 410 A-1 & A-3.

DRAWN BY:- IAN R. STAIR.
 TRACED BY:- A.A.P. LLOYD.

Trim tab actuating rod on top surface;
Undersurface of opposite elevator.

NOTE:

The colour scheme and markings for a/c420430 are based on the machine preserved at R.A.F. COSFORD. It has not been possible to confirm if they are correct as at the time of capture.

(grey)
metallic

Fabric.

Small raised plate, app. 3/16" thick.

Landing light, under
Port wing.

Nav. light. Removable panel.

Adjustable flap.

Domed cover plate.

Removable panels.

Dive brake.

Open panel in
Bomb doors.

Spring loaded
plate round
ammo chutes.

Fabric covering.

Aileron mass balance.

Traversing angle
of remotely controlled
guns. Could traverse
independently; but linked
for elevation movement.

Rear flaps of radiator
couple to landing flaps.

Landing flaps.

Spent cartridge
chutes.

Traverse pivot.
Horizontal pivot.

SECTION THRU' RADIATOR.

Top radiator flap.

Aileron trim tab.

Trim tab adjustable only on ground.

Outer part of aileron
fabric covered.

Leading edge slot.
Slat type dive brake.

Domed cover
plate over
Mainspar joint.

Tailwheel doors
Small raised plate.

PLAN VIEW.

V.D.M. AIRSCREW.

Hydraulically operated; constant speed.

Fabric covering.

UNDERSIDE VIEW.

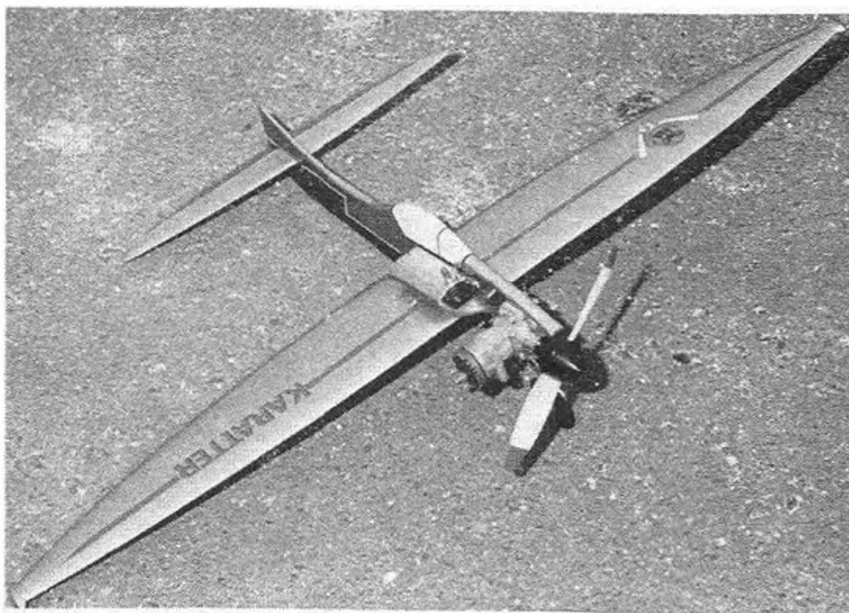
Aileron mass balances.
Radiator.
Air intake.
Exhaust.

Pivot centres
for bomb doors.

FUSELAGE SECTIONS.

SCALE: FEET.





A RAT-RACER WITH

Two Clubmen from Blackburn Welfare MFC prove that the 'brute-force' Rat Racer can be attractive - even semi-scale in profile

**by K. R. POULTON
and C. THURLEY**

THE ORIGINAL Karatter was conceived and designed in a day as a simple rat racer for use in the Blackburn Welfare M.F.C.'s display team, and as such needed to be impressively fast, yet attractive, and recognisable as a model aircraft! This first model was rather handicapped with a $\frac{1}{8}$ in. plywood fuselage and a somewhat elderly ETA 29, well past its peak, but nonetheless flew at 103-106 m.p.h. Later versions used the sandwich fuselage - as shown on the plan - which is 40 per cent lighter. Using a hot '40' engine in the lighter model would see the speed and acceleration rise considerably, and 120 m.p.h. should be quite within its capabilities.

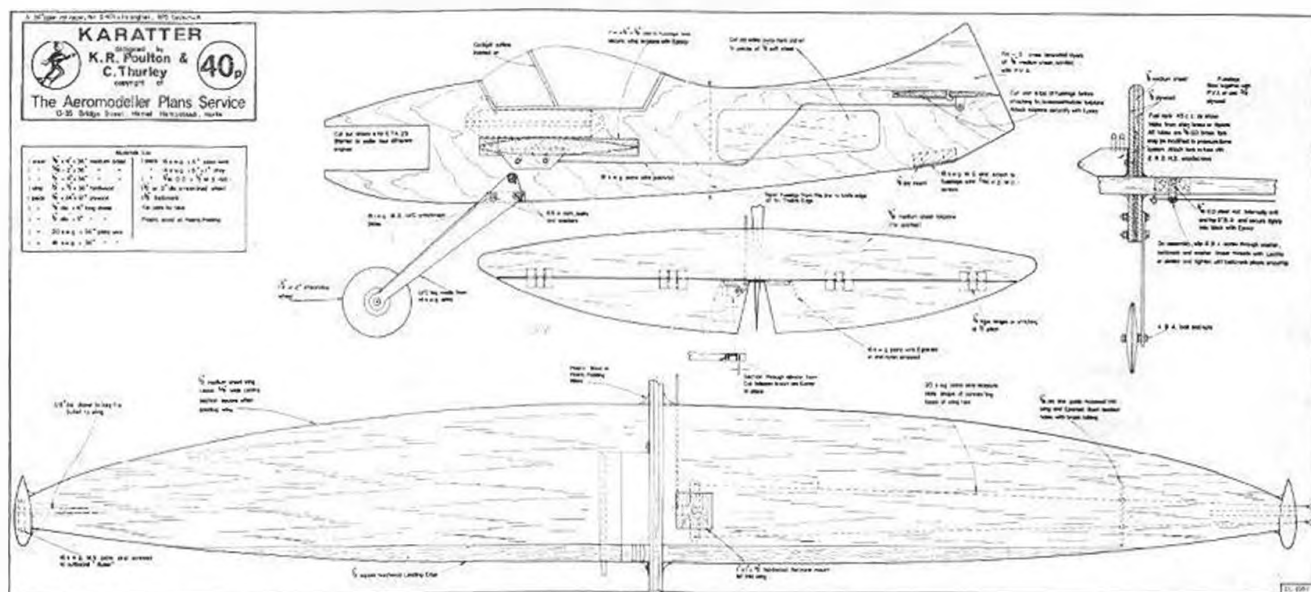
'Karatter' is both quick and easy to build, as well as being a stable flyer, thus providing an ideal introduction to the very popular, and competitive rat-racing class.

Fuselage construction is straightforward, using $\frac{1}{8}$ in. plywood or preferably (because it is much lighter yet adequately strong) a ply-balsa-ply sandwich of the same thickness. The fin consists of three cross-laminated layers of $\frac{1}{8}$ in. medium balsa and is epoxied to the top of the fuselage. Using a fret-saw, carefully cut out the slots for the wing and tail-plane, as well as the cut-out for the engine mount. The ETA used $\frac{1}{8}$ in. thick dural plates under the mounting lugs to provide clearance for the carb, and also to increase rigidity.

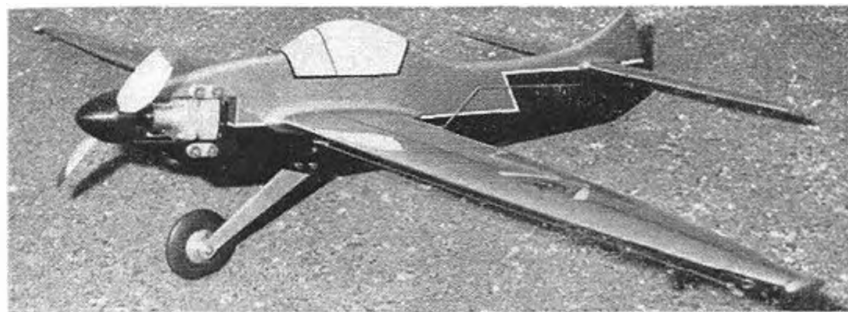
Taper the fuselage from the line shown to the rear, then round off the edges - taking the section to a knife-edge at the fin. A 16 s.w.g. mild steel skid is screwed to the $\frac{1}{8}$ in. plywood let into the underside of the fuselage, which facilitates replacement.

The wing is made from a sheet of $\frac{1}{8}$ in. x 4 in.

FULL SIZE COPIES OF THIS 1/6th SCALE REPRODUCTION ARE AVAILABLE FROM
AEROMODELLER PLANS SERVICE AS PLAN C/L 1057 PRICE 8/- (40p) PLUS 6d POSTAGE



A DIFFERENCE!



KARATTER

medium balsa, with a $\frac{1}{8}$ in. sq. hardwood L.E. cemented on. Taper the thickness to $\frac{3}{16}$ in. at the tips, then carve to the section shown – a razor-blade plane is very useful here. Note, however, that the $\frac{1}{8}$ in. wide centre strip should be left 'square' to fit into the slot cut in the fuselage.

The wing tip 'bullets' are made from $\frac{1}{8}$ in. dia. dowel, and are secured with $\frac{1}{8}$ in. dowel to the wing. The bellcrank mount, of 1 in. sq. hardwood, is then cemented in position, likewise the line guide. Bush the holes in the line guide with brass tube epoxied in position.

The tailplane and elevators are cut from $\frac{3}{16}$ in. medium balsa then sanded to shape, again leaving the centre $\frac{1}{8}$ in. wide section square. Link the elevators with 16 s.w.g. wire epoxied in position, then wrap the joint with nylon. The brass elevator horn (which was designed to reduce drag!) is then epoxied in and the whole smoothed off with fibreglass resin or Plastic Padding, etc. Hinge elevators with tape etc.

The wing is now inserted into the fuselage and epoxied *securely* in position – checking that it is true and square. This is *most* important. Next, epoxy the tailplane in position, again checking for square-

ness. These joints may be reinforced with glass-fibre.

Cover the whole model with lightweight tissue, applied with neat dope. Use fibreglass resin or Plastic Padding to make generous fillets at the tailplane and wing intersections. When completed, apply one more coat of unthinned dope, then use sanding sealer to acquire the desired finish. The prototype was sprayed with Halford's 'Dupli-color' gold overall, with lower half of fuselage black, decorated to taste and fuel-proofed with polyurethane varnish.

Cut the undercarriage leg from 14 s.w.g. alloy and bolt to the fuselage. The bellcrank is mounted as shown on the plan, but if you do not have the facilities for tapping the mild steel rod etc., then a 4 B.A. steel bolt passed through the hardwood block would suffice.

Connect the controls, and check that the elevator moves freely – you can't afford binding controls at 100 + m.p.h.! The tank may be as shown on the plan, or use a commercial tank if preferred.

The rest is up to you! Mount the fastest engine you have – fitting a pressurised fuel system if you like – and start practising.

MESSERSCHMITT Me.410 (continued from p. 91)

take various operational needs – light bomber, photo-reconnaissance, bomber destroyer, night fighter and anti-shipping patrol. The variations which most affected the external appearance were: Me.410A-1/U2 with a weapons container beneath the fuselage. The Me.410A-1/U4 which had a large 50mm. BK.5 cannon protruding in front of the nose. This was an armoured car gun and it replaced the standard forward armament. The Me.410A-3 had the bomb bay replaced by an extension of the fuselage to accommodate cameras and equipment for photo-reconnaissance.

The Me.410 entered into service with the Luftwaffe during the spring of 1943. The first units to be equipped were in the West and in Sicily. Later in the year the Me.410 was used in the defence of the Reich. They had some success in this sphere but in spite of this they frequently suffered from the attention of Allied long-range fighters, particularly Mustangs which damaged or destroyed no fewer than 12 aircraft of II./ZG 26 in a single raid.

The Me.410 was also used successfully as a light bomber in night raids over the British Isles, their

speed being high enough to make interception difficult for the defending Mosquitoes. However, the relatively small bomb load carried prevented them from being really effective.

Although in service from Norway to the Balkans the Me.410 never became really well known and by the end of the war they had been withdrawn from front line service except in the reconnaissance role.

DATA

Engines :

Two 1,750 h.p. Daimler Benz DB 603A
12-cylinder liquid cooled engines

Dimensions :

Span, 53ft 7½ in.
Length, 40ft 11 in.
Wing area, 390 sq ft

Weights :

Empty, 13,550 lbs
Loaded, 23,500 lbs.

Performance :

Maximum speed, 388 m.p.h. at 21,980ft
Maximum range, 1,460 miles
Climb, to 21,980ft 10.7 mins
Service ceiling, 32,800ft.

This feature could not have been produced without the full co-operation of the Commanding Officer and staff of R.A.F. Cosford who provided facilities for measurement and photography, and to whom we are most grateful.



KOMET 15 in Production

WE HAVE RECEIVED from the Italian firm Sportimpex of Milan some details and photographs of the new production model Komet K.15 engine that they will be distributing shortly.

The prototype Komet 15, made in Pavia, first appeared in 1966. It was designed by Ing. Bossaglia, better known in the full scale two-stroke engine field as the designer of the Parilla and Komet go-kart engines. This motor featured Schnuerle porting with rear exhaust, rear disc valve induction, short crankcase with separate cylinder fins and detachable front and rear housings.

In 1968 it was decided, as a result of interest shown in the engine by speed and free-flight enthusiasts, to put the K.15 on the market and it was, therefore, redesigned to make it more suitable for production at an acceptable price. A pre-production version of this new model appeared at the 1969 Nurnberg Fair and was illustrated in the June 1969 issue of *Aero Modeller*. This still

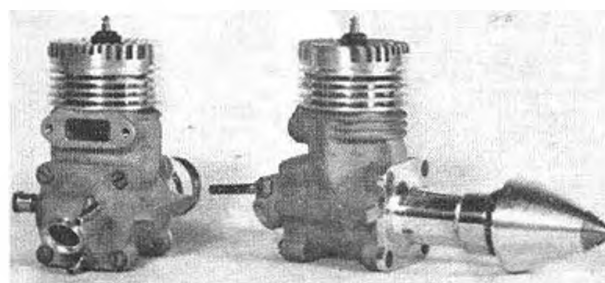
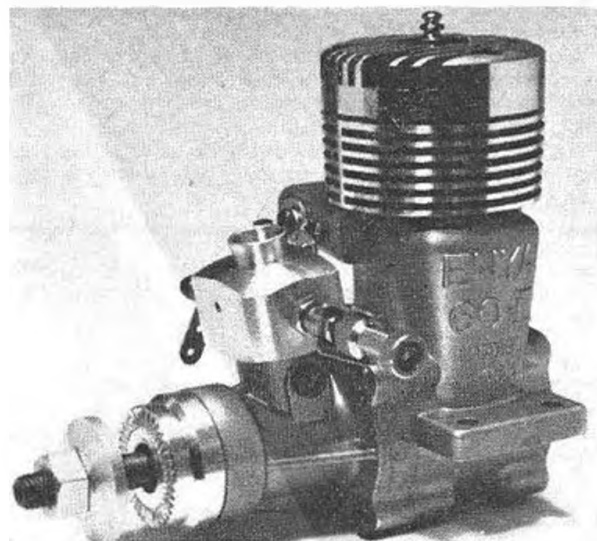
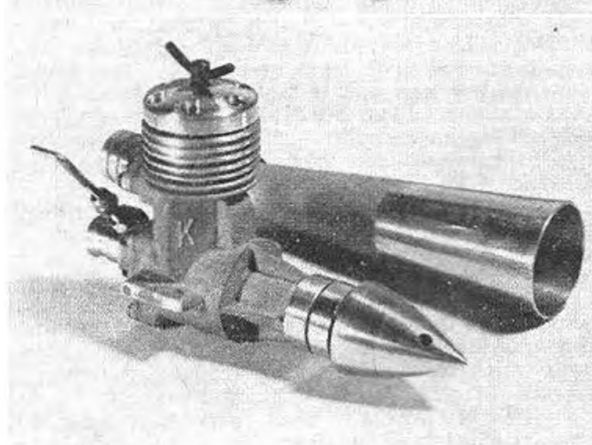
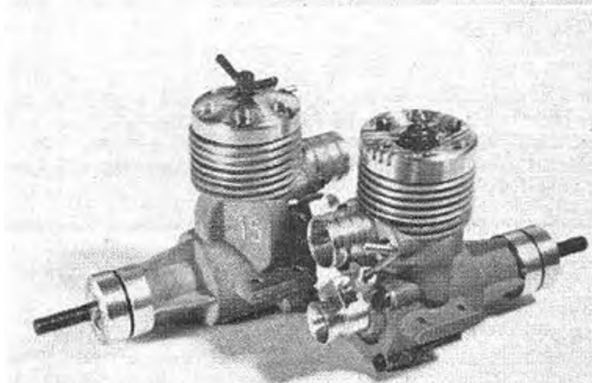
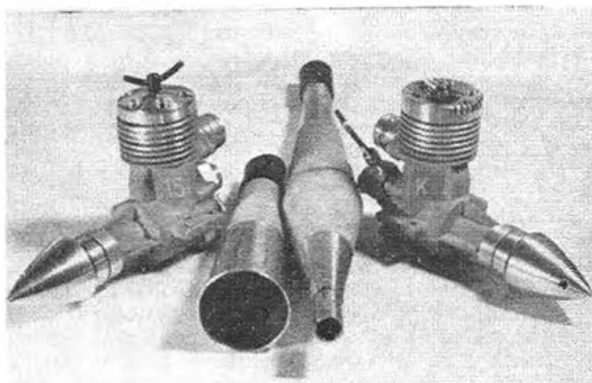
Below, successor to the 1967 R/C World Championship winning Enya 60, the new Series III version has increased power and better throttling. Bottom: Italo Maggrotti's prototype Komet 15 engine made in co-operation with Ing. Bossaglia and from which the production model was developed. Right: the very neat looking Komet K.15 now in production in Italy will shortly be joined by the diesel version also shown, together with a choice of tuned expansion chamber or megaphone type exhaust systems

The author's O.S.-Graupner Wankel engine was airborne for the first time on 21st November in this Apprentice with 3-channel proportional equipment. Believed to be first flight in U.K. by rotary piston engined aircraft.

had a sandcast crankcase and separate front end but, during the next few months, further development work was carried out.

The final production model has the following specification. Pressure die-cast aluminium alloy crankcase/cylinder/main bearing housing with drop-in hardened steel cylinder-liner. Internally counterbalanced crankshaft running in two ball journal bearings. Lapped cast-iron piston with hardened steel gudgeon-pin retained by wire circlips in piston bosses. Forged aluminium alloy connecting-rod. Machined aluminium alloy cylinder-head secured to cylinder casting with six screws.

LATEST ENGINE NEWS by Peter Chinn



Pressure diecast aluminium alloy crankcase backplate secured with four screws. Ultra lightweight non-metallic valve rotor, bronze bushed and rotating on hardened steel pin locked in backplate by single screw. Machined aluminium alloy carburettor intake with tangent spraybar assembly. (This may be rotated for most convenient installation position and locked with set-screw.) Flange fitting exhaust manifold for connection to tuned pipe.

We have no details, at the moment, of the Komet's performance, weight, bore and stroke, or port timing. The K.15 is intended, however, for use with tuned pipes (either megaphone or double cone) and will, presumably, need retimed cylinder ports to meet the new F.A.I. free-flight regulations banning exhaust extensions from 1971.

A diesel version of the K.15 is also planned and, as the photographs show, these new Komet motors are attractive and very professional looking units.

Enya 60 Series III

The Japanese Enya 60-III, best known for its success in radio-control championships (both U.S. Nationals and World Championship) in the hands of Phil Kraft, has now been superseded by the 60-III model. As before, it is available in both R/C and standard versions, respective claimed outputs, by the Enya Metal Products Co. Ltd., being 1.30 b.h.p. (we got within 10 per cent of this figure on test) for the R/C version and 1.45 b.h.p. for the standard model.

Although the 60-III looks very similar to the 60-II (introduced nearly five years ago) it is an entirely new model, a trifle more squat in appearance - it has a shorter con-rod and larger cylinder o.d. - and with a little more overhang. New castings are used throughout, together with redesigned shaft, piston, cylinder-liner and, in the case of the R/C version, a new carburettor with automatic mixture control.

On test, we found the 60-III TV ('Throttle Valve' or R/C version) to have a good deal more power than the previous model and to have much better throttle control. The extra power is the result, mainly, of modifications to improve the engine's breathing. The new carburettor has a larger effective choke area and while the induction passages and rotary-valve timing have not been significantly altered, the cylinder porting has been improved to aid scavenging. The transfer passage in the main casting has been enlarged and large skirt ports are now used to vent stagnant gas from within the piston into the transfer passage. (This, of course, is also used by Merco, O.S. and several other makes.) The transfer ports have been increased in depth, as have the exhaust ports, to extend their timing and an extra port has been added to the exhaust to further increase area.

The carburettor uses tapered grooves on the surface of the throttle barrel to meter fuel according to engine r.p.m. and, in so doing, reverts to a principle first used by Enya back in 1961-62, but the new carburettor is much easier to adjust than the original Enya type and gives better results.

The engine's bore and stroke remain at the widely accepted 24 x 22 mm. combination, giving a swept volume of 9.95 c.c. or .607 cu.in. The R/C version weighs just over 15 oz. less silencer - about 1½ oz. more than the 60-II TV.

Fox Sales and Service

Control-line fans, in particular, will be glad to know that the model products of the

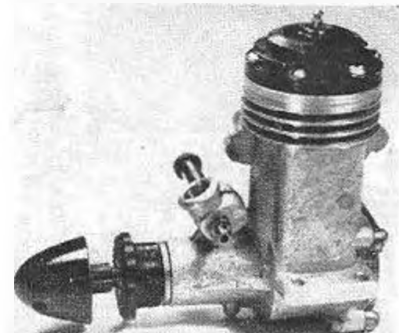
Fox Manufacturing Company of Arkansas are now available in the U.K. again. Ron Irvine, who, of course, also handles K&B and Veco engines, has lately obtained the sole distributorship for Fox motors for the United Kingdom and the first consignment of R/C type engines, of which the new 36 R/C illustrated, is an example, is already in the country.

The best-known of all Fox engines is, undoubtedly, the Stunt 35 which, for almost 20 years, has been the automatic choice for most American and many European C/L stunt exponents. An 'Engine Test' report on this famous motor appeared in the December 1967 issue. We shall be dealing with other Fox motors in these columns as they become available.

New Taipan 15 R/C

From Australia, we have just received a sample of Gordon Burford's latest; the Taipan 15 R/C. This is a very neat little 2.5 c.c. glow engine, somewhat reminiscent of the O.S.15 in appearance and should find a ready sale in the U.K., especially as the demand for good R/C engines in the .15-.19 cu.in. class so often seems to exceed supply.

The engine is a plain bearing unit with the usual high quality Burford casting, an



Russia's Stunt 35, the Poljot 5.6. Has some Fox features but is rather roughly made.

integrally-finned steel cylinder and machined alloy head. A barrel-type throttle with airbleed is fitted. As supplied, the engine is equipped with a coupled, pivoted plate-type exhaust baffle, but this can be replaced by a diecast expansion chamber attached to the exhaust duct with a single screw.

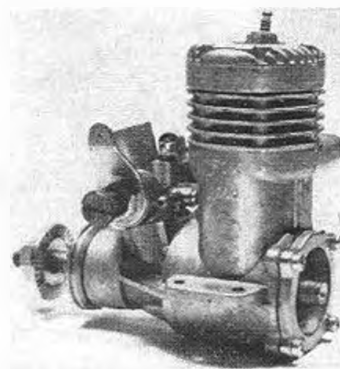
The Taipan 15 R/C weighs 5.88 oz. in standard trim or 7.06 oz. complete with silencer.

OPS v. G.60 ABC

In the December issue of the German magazine *Modell*, Peter Demuth gives the results of some tests he has made on Italian 10 c.c. racing engines, specifically the OPS 60 and Super-Tigre G.60R ABC. Very briefly, the OPS is rated at 2.05 b.h.p. (continental) at 21,000 r.p.m. on its tuned pipe and 1.7 b.h.p. at 18,000 r.p.m. without pipe, both tests on straight 75/25 methanol/castor-oil, while the G.60R (unpiped) is rated at 1.63 b.h.p. at 19,000 r.p.m. on the same fuel. For comparison, an additional curve shows the unpiped Rossi 60 as delivering 1.7 b.h.p. at 22,000 r.p.m.

The figures are, perhaps, slightly unflattering to the G.60R as the OPS, with pipe, is set up for use on straight fuel (as required under Italian C/L speed rules)

One for the Vintage brigade. The London-made M.E.C. 2 c.c. diesel of 1949



Fox engines are now coming into the U.K. This model, the 36 R/C is fully described in the February issue of R.C.M.&E.

whereas the G.60R (no doubt to suit American and other markets where nitromethane is widely used outside the F.A.I. 2.5 c.c. class) is at its best on high nitro fuels.

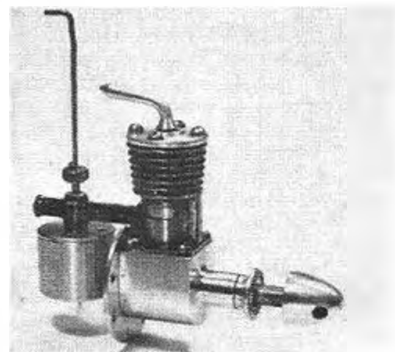
Just for the record, the standard unpiped G.60R is rated by the manufacturer, fuel unspecified, at 2.15 b.h.p. at 20,500 r.p.m., while the OPS is claimed to deliver 2.4 b.h.p. at 22,000 r.p.m.

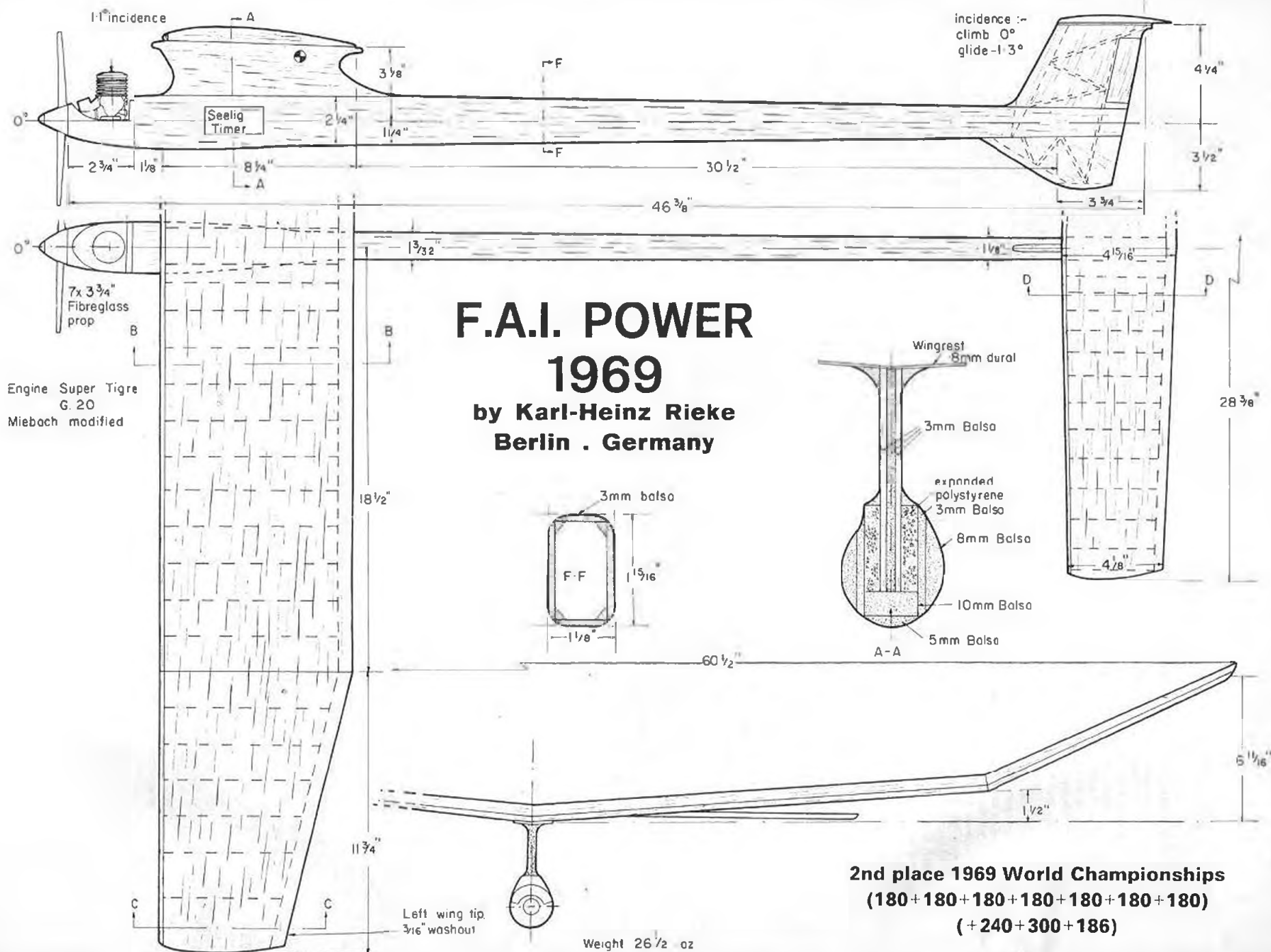
OLD Engine News . . .

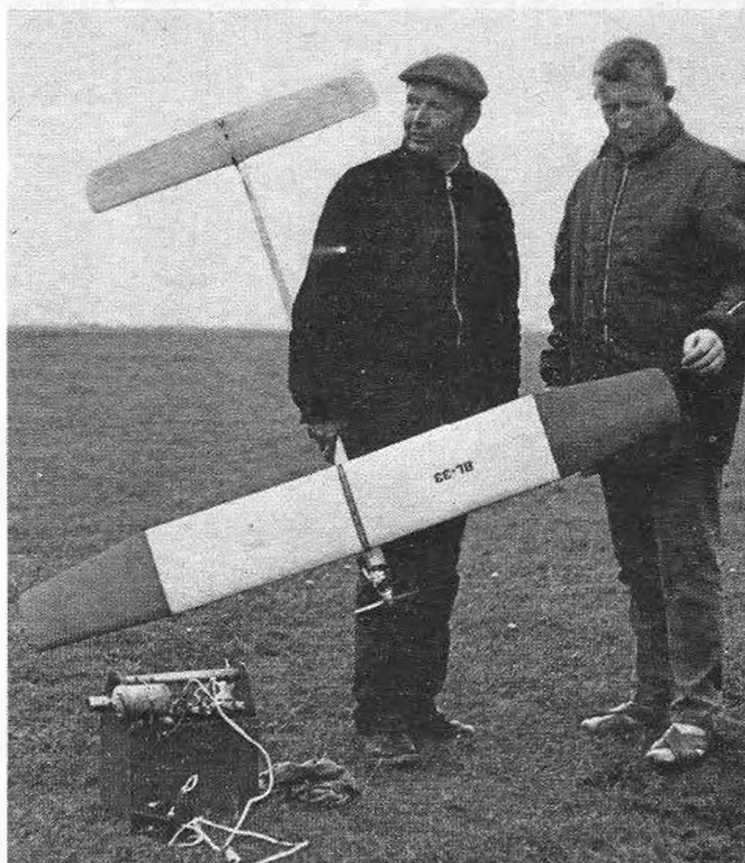
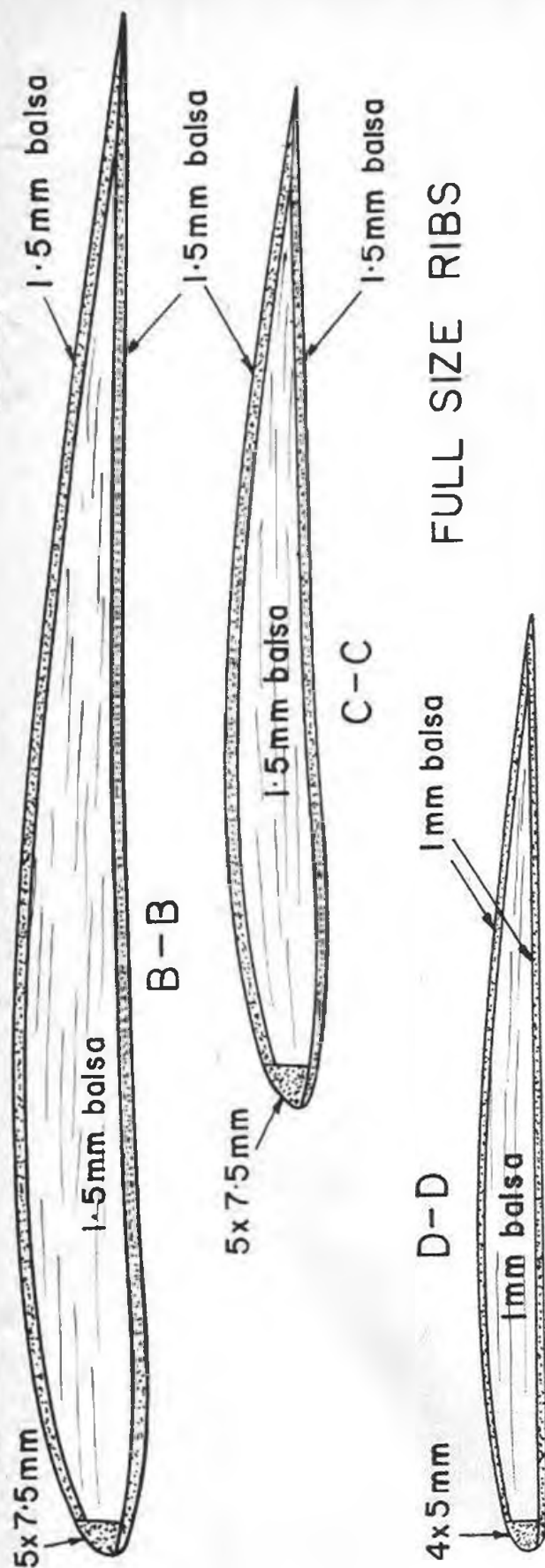
From time to time we are asked to identify old engines and sometimes even manage to do so. One such was the M.E.C. diesel sent to us recently by a reader. This is a 2 c.c. British engine that was made twenty years ago, i.e., at a time when numerous small firms were offering diesels both here and on the Continent.

The M.E.C. had a machined aluminium crankcase without lugs. Mounting was via a flanged screw-in backplate, ready drilled with eight mounting holes, the periphery of the flange then being slotted, when the engine was assembled, to clear the induction pipe brazed onto the back of the cylinder. The engine was of the 3-port type, i.e., piston controlled induction, like the Mills and many other early engines. The one-piece steel cylinder had a brazed-on transfer passage and was flanged at its base for attachment to the crankcase. The piston was of bi-metal construction; alloy crown and steel skirt and the crankshaft ran in a steel bushing. The engine had a nominal bore and stroke of .450 in. x .460 in., giving a swept volume of 1.199 c.c. It weighed 1.7 oz. complete with machined alloy tank.

An interesting point is that the manufacturer claimed to run-in each M.E.C. for six hours with special polishing compounds on an external power source . . . a process that would be futile nowadays.



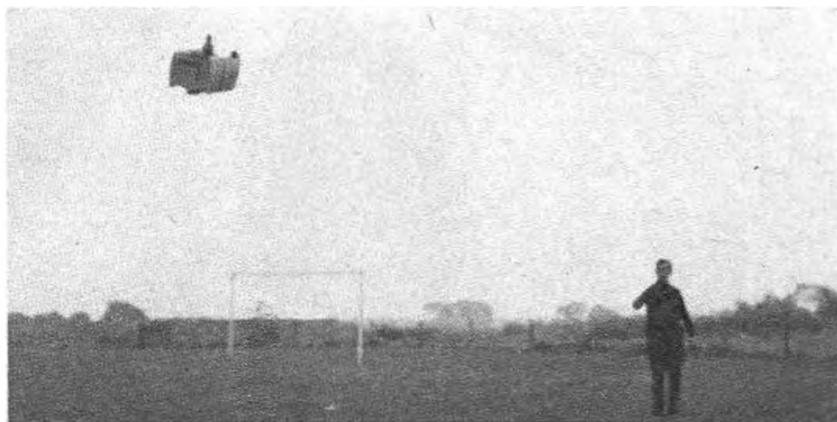




Karl-Heinz Rieke's F.A.I. Power Model

TEE-TAIL power models are normally of the power-assisted glider category, but as those who have been fortunate enough to witness its rate of climb will confirm, this design is way above the 'motomodel' class. Placing second only to his team-mate, Franz Baumann, in the 1969 World Championships, Karl Heinz Rieke reached the *tenth* round in this marathon event. His model became a centre of attraction, for its performance as much as its appearance. Many likened it to Baumann's winner; but as comparison with the details in September 1969 *Free Flight News* will show, the resemblance is limited to the wing structure; and since Herbert Schmidt is to be seen in all our photographs of these modellers he appears to be the common denominator!

Powered by a Rolf Miebach prepared Super Tigre G.15 with tuned pipe, which revs to 22,000 r.p.m. prior to launch on a narrow blade fibre 7 x 3½ in. pitch prop, the height achieved in 10 seconds is said to be remarkable even by World Champs standards. Variable incidence tail control and auto-rudder are essential features, so too is rigidity of construction. The all-sheet surfaces of the German models have now dominated two Championships for good reason. Only limitation would appear to be that of selecting suitable grades of Balsa to remain close to the F.A.I. specification for 26½ oz. minimum weight. Karl Heinz relies entirely upon the sheet surfaces for vertical stresses, unlike previous Champion, Hans Seelig, whose *Gambrinus* (June 69 A/M) wing is almost identical except for spar. Intending builders are referred to Tom Cheesley's findings in that issue.



Development of a vertical take-off control line model by Ian Barrett

TRUE VERTICAL take-off and transition to normal flight has not been explored in any detail in the amateur model world, although enthusiasts for the competition free-flight power model might say that the principle has been in use for some time! Some experiments by the writer with normal control-line models on very short lines showed that, providing the thrust exceeded the weight, hovering flight could be achieved with reasonable control. It was obvious that a powerful elevator was required, the only airflow over it was provided by the slipstream from the propeller.

After sketching out various possible configurations, the design shown in the photographs was evolved. This was a squat, box-like biplane, symmetrical about the centre line, with the controlling elevator set directly between the trailing edges of the wings. The wings were supported by the centre section 'fins' and wing endplates, the latter also providing support for the tailplane tips. Offset was applied to the bottom fin only, to give a rolling moment in an opposite sense to that applied by the engine torque. A three point support at the rear, and a single wheel under the nose, comprised the undercarriage. Although small wheels were fitted to the rear supports, they were subsequently removed to reduce weight. (There was no ground roll with the model pointing up, anyway!)

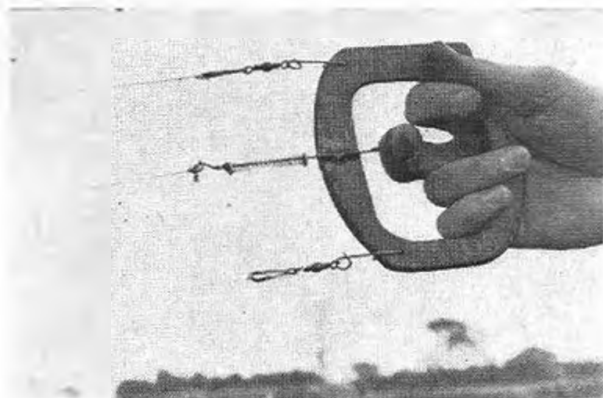
The motor used for the model was an old E.D. 2.46 c.c. Racer, for which the R/C throttle unit was purchased. Although diesels are not as satisfactory as glow motors for low speed throttled running, the Racer has proved completely satisfactory, the control and pick-up being adequate for the model. The fuel system needed some thought - the tank would have to provide fuel with the model both vertical and horizontal, and while stationary and at full flying speed. The tank needed to be as close to the engine as possible to reduce suction head effects, and the space available was restricted by the control mechanism. A 15 c.c. team race tank just fitted, and the vents had neoprene tubing raked forward, to prevent spillage and to give a slight pressure feed from the slipstream.

Third-line throttle control could have been operated in one of two senses; either opening or closing the throttle when the line was pulled. As it was not certain how much line tension would be available at the hover, it was thought wiser to allow the throttle to open, should the lines go slack. As it turned out, this had some unfortunate side-effects, as will be described later. Because of the long stroke of the throttle arm, a straight tension or compression spring

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Proof of the pudding is in the enjoyment thereof! Ian Barrett demonstrates Mark I in no uncertain manner. The late Jim Walker, prime mover of control line in the U.S.A. used to perform a 'Sabre Dance' with his 'Fireball' models using two speed control on Ohlsson engines - could pop a balloon with a pin in the tail!





Control handle has a speed control line with spring return in the centre, as text explains, throttle was arranged to remain open when elevator lines went slack.

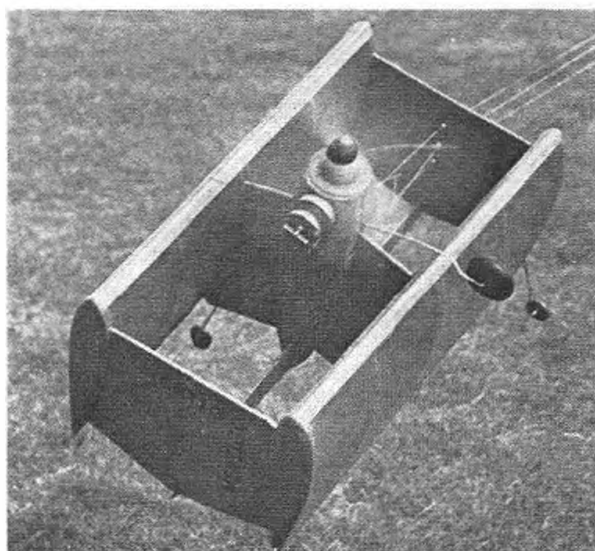
in the system would have given too great a load change, so an eight-turn torsion spring was wound from 20 s.w.g. piano wire, then fitted to the fuselage mounted operating crank to return it to the 'throttle open' position.

The model was covered in heavyweight Modelspan, the all-up weight coming out at 22 oz. The propeller was a K.K. nylon 10 x 4, which, although on the large size for the engine, was expected to supply sufficient thrust.

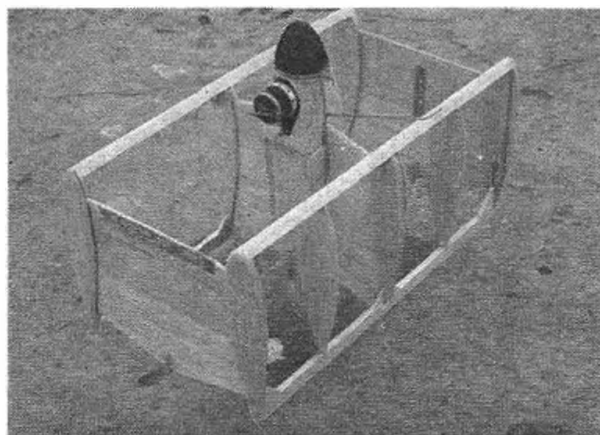
3-lines

The handle used to control the model was that shown on the plan for *Dusty* (CL944, Oct. 1967), the top line being the 'up elevator' line to prevent crossing in vertical flight. Short (30 ft.) thread lines were used for the initial flights because of their lightness and cheapness. The major drawback was the high drag at maximum speed, which applied a load to the throttle mechanism, closing it slightly and thus reducing the airspeed. This was not serious, however, and could be overcome by fitting a weight to the operating crank, such that as the speed increased, centrifugal force on the weight increased, thus balancing the inward pull on the line caused by air drag.

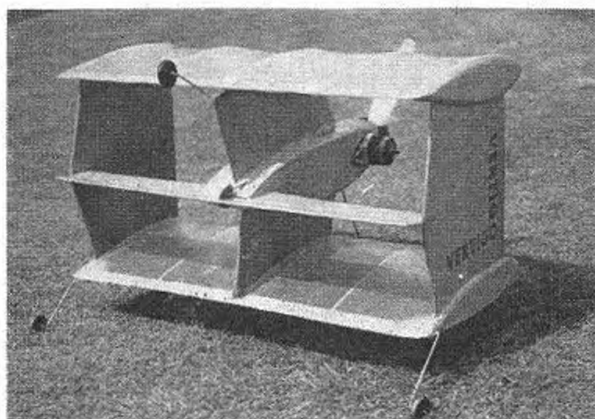
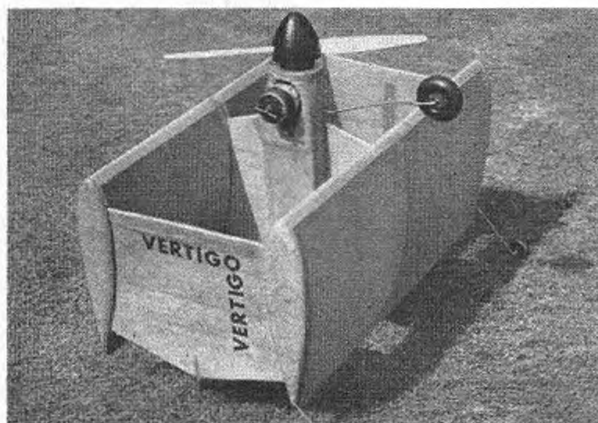
A fairly substantial amount of tip weight had been added to the leading edge of the outboard end plate.

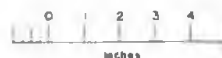
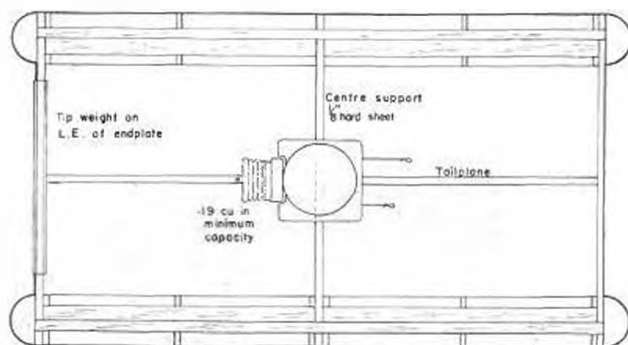
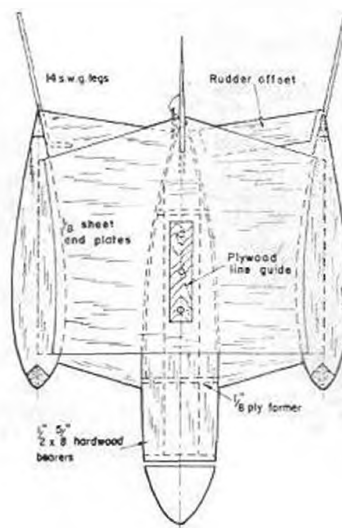
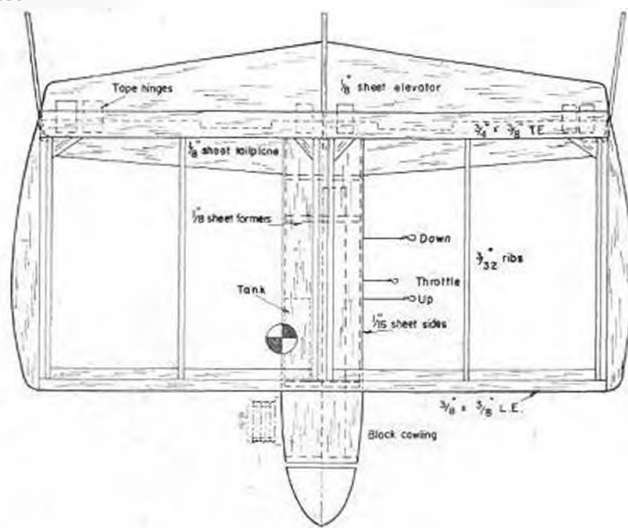


Moment of truth above, Vertigo Mark I takes off. The compact tailless biplane is a slow flyer due to drag, but adequately controllable with a large enough elevator.



Structure above is simple enough. No spars needed, and the three sheet fins hold surfaces rigid. Below, the Vertigo biplane in its two attitudes, VTO and HTO if you see what we mean! This is the first stage model, with smaller flipper.





VERTIGO I

to give a safe amount of line tension at all times. The drawback was that the model wanted to fly with its nose pointing out of the circle, and tail first landings could not be achieved on all three points simultaneously. This was rather untidy to say the least, and usually resulted in the model turning over.

The approach to vertical flight was made cautiously. First flights were made as a normal control-line model from hand launches. The fine pitch propeller, together with the high drag of the design, gave a low airspeed. The model had indications of being tail heavy, so the rear wheels were removed; this, combined with the increased confidence of the pilot, resulted in steadier circuits. The next step was obviously a vertical take-off. Here it was found that the thrust from the engine was insufficiently in excess of the weight to give a reasonable acceleration up-

wards. An upward push was needed from the launcher, and unless the launch was close to the vertical, the model would topple. Inadequate elevator control was available to right the model, so flying was suspended while modifications took place.

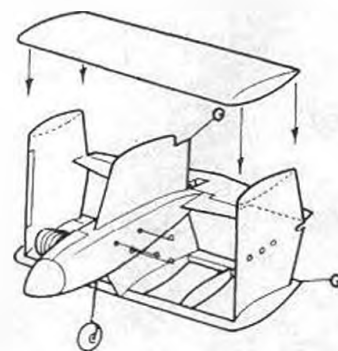
The elevator area was doubled, and some balancing area forward of the hinge line, in the slipstream, was added. With a selection of propeller sizes, we were ready to continue.

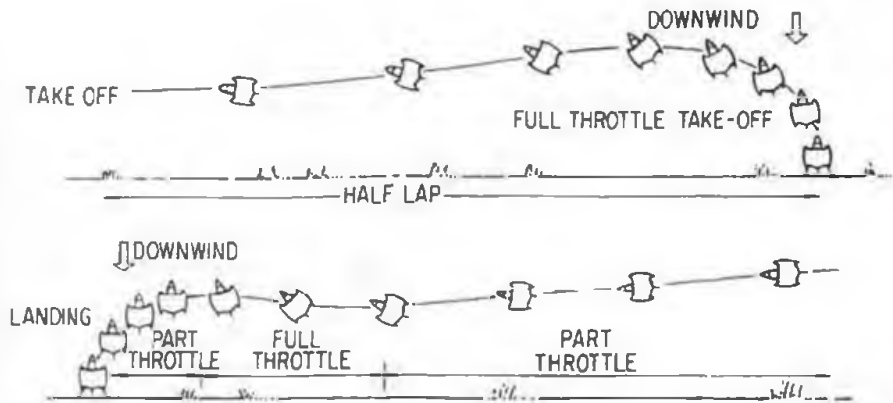
Experiments showed that the engine had to be operated at peak revs. and a nylon 8 x 4 propeller gave sufficient thrust to allow a slow climb. This was the best we could do, and the full size practice of having thrust in excess of weight by about 20 per cent would also seem to be necessary for models.

Elevator control was considerably improved. Control-line flying techniques had to be 'un-learned', as



Enlarged elevator at left, needed to improve control at the ridiculously slow speeds, note also the areas ahead of hinge line to increase effectiveness. Right, assembly diagram of the Mark I.

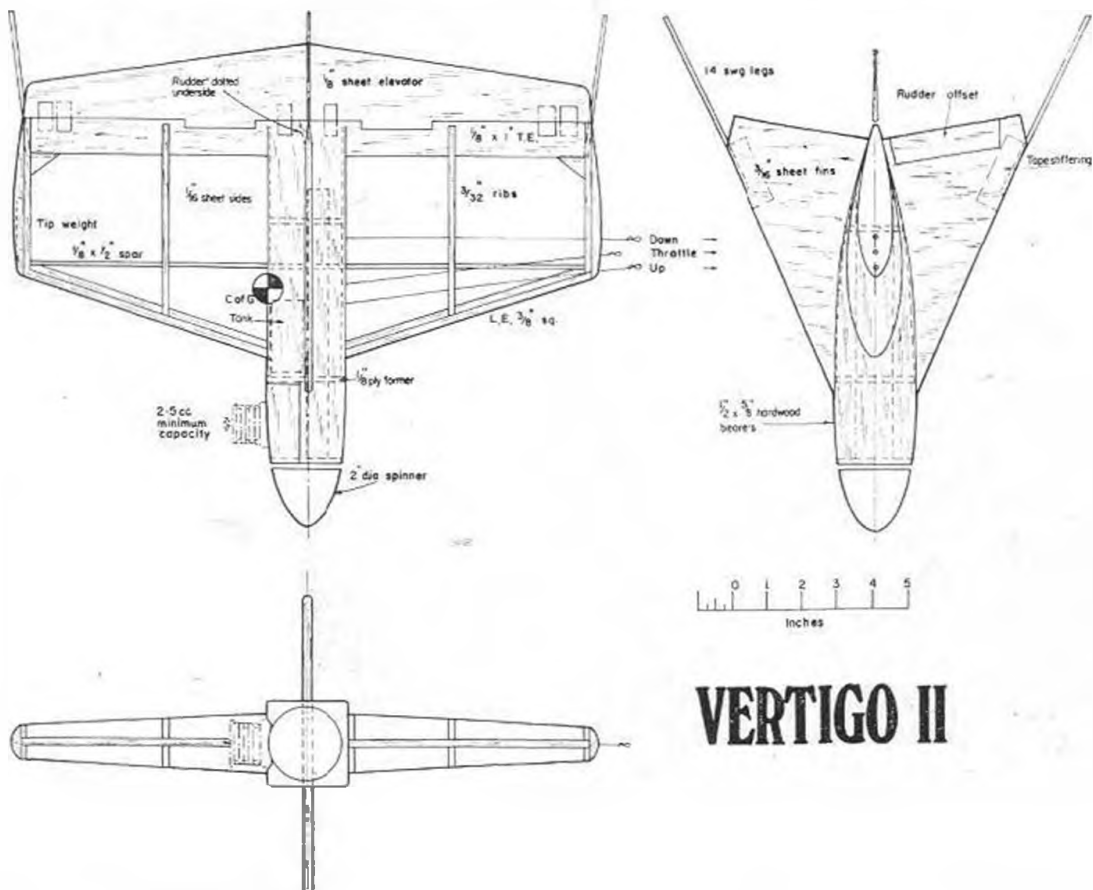




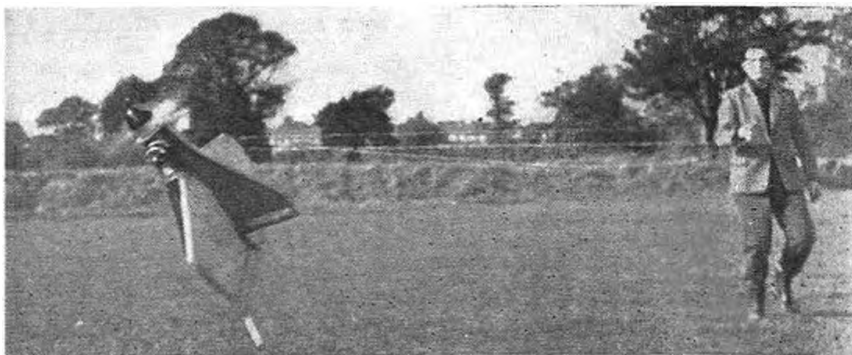
Flight diagram, and the Mark 2 Delta poised for take off at left. Care to try it? Could be a spectacular club display item.

the model was flying in conditions quite different from normal practice. The normal reaction, with a model apparently about to stall, was to get the nose down. Here the model was hanging on the propeller, and a rapid turn to the horizontal would deprive it of lift. A gradual transition had to be made. A few degrees forward rotation from the vertical gave a horizontal thrust component sufficient to start moving the model around the circle. As the speed increased, the angle of attack was reduced, and wing lift began to supplement the upward thrust component. About half a lap was required to reach normal flight, although this distance could be extended at will.

Landing was the reverse of the take-off procedure. Closing the throttle slowed the model, and to maintain height, the angle of attack was increased. As the nose came up, the drag was overcome by application of extra power, until the model was once again hanging on its propeller. A slow descent could then be made on the throttle, quick blips being easier than trying to balance the thrust against the weight. It was the touchdown which caused the biggest problem. As mentioned earlier, the model leaned out of the circle, and could not be set down squarely. When contact was made with the ground, the natural reaction of the pilot was to let the lines go slack to allow the model to sit down securely. This, of course, allowed the throttle to open, and off we went again. On the few occasions when the throttle was kept closed, there was still enough thrust to form a ground cushion, and the model tended to skate about like a hovercraft. The answer is to fit a cut-out device that



Here we go! VTO and climbing into transition, control lines in full tension and all set for a spot of unorthodox manoeuvring on the down wind side of the circuit.



would operate on contact with the ground, but the present model cannot stand the extra weight.

The original model was becoming slightly the worse for wear, so the opportunity was taken to carry out extensive modifications. The wings were removed, and the centre wing supports cut to give swept fins. A hardwood spar was slipped through the fuselage, fortunately without fouling the control mechanism, and around it was built a slightly swept wing, using the original tailplane as the trailing edge.

Tip weight was added to the outboard wing, and long wire supports trailed back from the extremities of the flying surfaces. Heavy weight tissue was again used for covering. The weight came out at 16 oz., and as previous flights had shown the engine thrust to be a little in excess of 22 oz., prospects looked good.

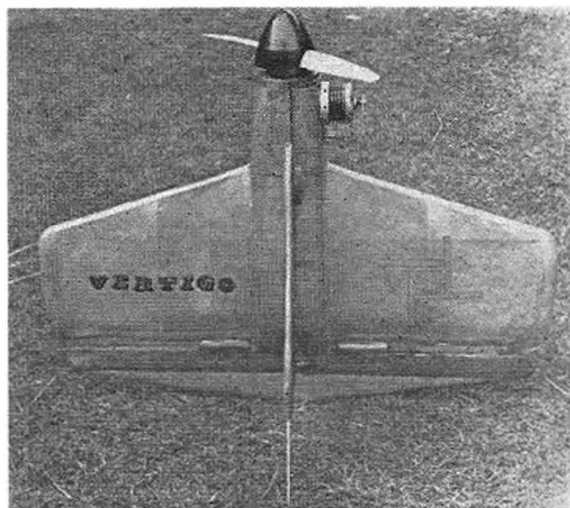
Flight tests confirmed this optimism by showing the model to be capable of a good vertical acceleration. It was obvious, though, that the model was excessively nose heavy, so wheels were added to the landing legs to move the centre of gravity rearwards. This improved the handling of the model, without adding unduly to the weight.

The experiments outlined above have shown the practicability of control-line V.T.O.L. The general arrangement drawings can be used as a guide by anyone interested in pursuing this field. Details of the throttle linkages have not been shown, as these would vary with the types of engines being used, but it must be remembered to keep the operation light and free. The addition of a little weight to the throttle control line overcame the early problem of the motor slowing at higher airspeeds.

The biplane version should be powered by at least a good .19 motor, but the monoplane is quite suitable for 2.5 c.c. throttle equipped engines.

Build the models light but strong, and check carefully the centre of gravity position. A nose-heavy model is reluctant to go through the transition from vertical to horizontal flight, while a tail-heavy model becomes tricky to control at low airspeeds.

I hope that these notes will encourage others to try their hand at V.T.O.L. and will be glad to answer any queries regarding the models described.



Static, the Mark 2 is poised on its tail end, silenced ED 2.46 Racer diesel at the ready, and lines attached for the VTO as at left. Robust, and compact, this single layout should appeal to anyone having a yen for experiments with control line models. No one would deny that the photos provide excellent inspiration - and proof that this is no idle claim of achievement.

Club NEWS



Don Baxter, proprietor of Watford Model Exchange organised a demonstration of radio control to a group of very interested schoolboys during a show specially arranged by their Master - lucky lads. Nothing like catching 'em young! NO - this is not one of those puzzle pics - the model is on its way to a perfect landing before the lads, on that rough grass, piloted by Ron Stanton.

1969 MUST surely have given us a longer spell of fine flying weather than we have enjoyed for years, and human memory being conveniently short, it is all too easy to forget just what our normal weather is really like. For this somewhat pessimistic reason it is a sensible provision against those less balmy days to keep the odd rugged model or two in your model locker. There is nothing more disheartening to club and rally contest organisers than to find all their good efforts blown away by a spot of above average breeze. It may be because our models have become so specialised that there is a tendency these days to keep those model box lids firmly clamped down if the weather shows the slightest sign of mischief. Personally I don't think it much of a model life if you become just a fair weather flyer, living more in hope than action. These winter evenings are just the time for the club boffins to get to work on designing those all weather models which, on so many occasions you often wish you had.

From 'Scimitar', the bulletin of the Buckaneers Model Club we learn with regret that the Editor, Mr. Charles Browning, is fading, old soldier fashion, from the model scene, feeling that he has now reached that age of discretion when he should part company with that very demanding control line handle. There are, of course, all the sedentary delights of Radio in which he might find quiet consolation, but having already blipped the button, states quite bluntly that, in spite of all the versatility in the extra dimension offered by Radio, he cannot get from it that real feeling of flying the model that comes via the C/L handle. A very interesting point of view this; one that I've not heard before. It certainly gives emphasis to the fact that, in spite of the current attraction of Radio, model flying is a many sided, many splendoured thing. Having made that point, may I wish Mr. Browning a long retirement upon which to browse upon all his happy flying field memories. And, on the subject of that scarce commodity, airfield space, this is, perhaps, the one obstacle to putting into effect secretary Derek Giles's suggestion to increase the number of S.M.A.E. Centralised R/C events. Such a move, he feels, would help to raise the standard of our international competitiveness. The semi-relaxed schedule which is so understandably popular at the average meeting does not offer a really testing work-out to the F.A.I. schedule standard. When it comes to getting the 'gate' we modellers are on familiar ground - or off it, but the 'gate' referred to in this newsletter is a more joyous affair, or can be if you can squeeze your model, limbo fashion, under its crossbar. The contest idea is to fly through two gates, each 30 feet wide by ten feet high - not so easy to judge on the circuit as you might think. But, be warned, don't try it Parrott fashion, for Mike Parrott's humorous thesis of model trimming, using the Beaufort Scale and Ohm's Law, could well lead you into another sort of limbo.

Ever since Icarus came unstuck, Man, in some way or another, has tried to emulate the flight of the dicky bird, and a few model essays in the art of wing flappery were to be seen at the Shuttleworth Veteran Aeroplane Society's Ornithopter event. Trouble is, the bird is a funny sort of animal, many of whom shouldn't be able to fly, according to all the best theory, so it's not surprising that only one entrant, John Jackson, flapped up and down to any convincing purpose. The design he used, we are told, was inspired by R. H. Parham's model featured in the 1953 *Aeromodeller Annual*. The Shuttleworth Society is to be commended on encouraging the experimental and unorthodox in this way; the model scene is apt to get too conformist.

We referred a couple of issues back to the possibility of obtaining contest merchandise from the Trade; so it's nice to see from the Crookham Club report that the good old practice still remains. Benefactors in this case were Messrs. Solarbo, who kindly donated a £2 voucher to the top scoring entrant in the Open Rubber event in their last summer's Gala. A Gala which, incidentally, came in for quite a

few complimentary remarks so perhaps this is as good a time as any to ask those keen, all weather contesters to keep a weather eye open for the club's Winter Rally, details of which we shall be pleased to publish on receipt of same. I should have said that the club is known as the *Crookham Contest Modellers*, and is just as contest minded as the name suggests. No tears have been shed over the departure of a non-active member surplus since the last report, and the operative nucleus of six hopes to give a good account of itself in the coming season, particularly as the Rubber section has been strengthened by the addition of that youthful veteran, John Lorrimer. A source of Power strength is to be found in Fred Chilton and Pete Stewart, both of whom have recently graduated into F.A.I. Power - and to good effect, too, since Fred took 4th place in F.A.I. at Watton, beaten only by three international team members.

An indoor exhibition was organised by the Richmond Club, who displayed a whole range of flying models, with an expert in attendance each evening to answer questions. And talking of exhibition models, the apple of the club's eye, at the moment, is Bernard Sexton's superb *Curtis Hawk P.1.B.* Biplane. Though certainly not made from matchsticks, it has no less than 1,332 separate parts in its construction, and, unlike many scale models, the closer you look the more ecstatic the detail.

It isn't that the Cork M.A.C. haven't heard of balsa, rather is the keynote of this Irish club very much a progressive one, if such is the term to apply to a strong swing over to Radio. Mention is made of two A.P.S. *Stringalongs* in fully airborne state, and we are told that most members are using Grundig Proportional Gear - none of that old hat S/C stuff here. Radio wise, the club hasn't yet got into its contest stride, although a good showing has been made at all the C/L Comps, with at least two firsts in Combat to its credit. A suggestion here that the Nationals should rotate around the principal areas. Seem to remember the idea being tried out over here some years ago. All very fair minded and democratic, but suitable airfield dispositions don't appear to take that sort of thing into account.

Still in the Emerald Isle, but of slightly less brilliant hue last October, when the Ulster Nationals were held at a mist blackened Bishops Court. News comes from Belfast M.F.C.'s *Nitro*. The poor upward visibility tended to clobber the high climbing models, particularly the power jobs, which were all but O.O.S.'ing on engine run. Even the Rubber jobs had to be kept on half turns, and only the gliders were relatively unaffected. Nevertheless, a two minute max was fixed for all classes. A wise move, too, since in Power only, Fred Jackson, a junior, was able to muster a full house. There was, however, a fly off in Glider, where yet another Junior, T. Poots, notched up a further max to clinch the event. No fly off times given for Rubber, even though three entrants managed a full score. Low ceiling flying, too, for

CONTEST CALENDAR

- April 1970 THIRD HALIFAX INT. POSTAL CHALLENGE CONTEST. Rules and entry forms from J. Pool, of 51 Northfield, Barbby, Nr. Selby, Yorkshire, E.R.
 - May 3 EASTBOURNE M.F.C. SLOPE SOARING RALLY at the Long Man, Wilmington.
 - June 7 SOUTH MIDLAND AREA THERMAL SOARING CHAMPS. Venue to be announced.
 - June 14 AEROMODELLER/R.C.M.&E./SCALE MODELS - ALL SCALE RALLY, at Old Warden, Bedfordshire.
 - September 20 SOUTH MIDLAND AREA RALLY. All classes of R/C, C/L and F/F at Cranfield, Bedfordshire.
- SECRETARIES - BOOK YOUR DATES NOW TO AVOID CLASHES DURING THE 1970 SEASON.

the club indoor programme. A good article included on the delicate art of producing those fascinating, near weightless microfilms. Though requiring a delicate touch, these models are not quite so difficult to produce as they might appear. Quite within the capabilities of any competent modeller, but the know-how is most essential. Latest issue of *Nitro* just to hand, includes a most interesting item on monthly wind speeds recorded over a large airfield. This suggests that there is a distinct drop in wind velocity from May to September, with June, July and August the balmy months. It also calculates that, given a 4,000 ft. airstrip length you should just about land inside with a 12 m.p.h. wind. Speeds given are surface speeds, and from what I remember of my old Artillery days, the velocity increases with altitude.

In *Seadog*, newsletter of the South East Area, Chris Foss writes of a pleasant trip to the Mendip Hills in company with John Dumble. Occasion was a Soar In atop the 600 ft. crest of Crookes Peak, organised by the West Mendip Club. Having made the leaden legged ascent up the mini-mountain myself, I can personally vouch for this eminence as the perfect soaring site. Events were for Aerobatics, Pylon and Limbo. And this was real Limbo flying, with models belly scraping their way under three foot minus bars. But it was the tricky Pylon course that brought most casualties. Flown off mostly in threes there was some dicey flick rolling around the poles that led to much spectator agility and a few grounded models. John Dumble came second to John Marden in Pylon, with Chris Foss in fourth place. Same order of merit for Limbo. The following week Chris Foss was at Wilmington for the 'Long Man' Trophy, where he pulled off a first in this S/C event. Further Slope news in *Seadog* is of BARCS, otherwise the British Association of R/C soars, which Dave Hughes is attempting to form.

From *Satellite*, the voice of the San Valeers of California, we learn that the Mini contest at the famous basin was, to use a paradoxical phrase, a huge success. Events were for 7 second $\frac{1}{2}$ A, Coupe D'Hiver and Chuck, all to two minute max limits. Such small field events are ideal for areas where a three minute flight lands the models into irretrievable woodlands or housing estates. Incidentally, these Californian king ezed thermals make chuck glider D/T's an essential rather than a bit of swank. And just to prove the point, at the meet in question, each of the top three men scored four two minute maxes out of six flights.

Question raised in the well-produced *Canadian Model Aircraft Magazine*, issued by the M.A.A. of Canada, is whether model flying has graduated from a Hobby into a Sport. Some say its a bit of one and a bit of t'other, but to my way of thinking neither term quite fits the nature of our odd obsession: Hobby is a shade too musty and old-fashioned, whilst the term Sport seems to belie the still essential constructional side of things. Perhaps we would be wiser to avoid using any of these generic terms and stick to aeromodelling as something rather unique. There's just a hint that the Canadian modellers are thinking of introducing a Silencer rule, but are all too conscious of the difficulties of enforcement, basis of measurement etc.

Sin is the very original title of a Contesters newsletter from far off New Zealand; short, we presume, for *South Island News*. Distant, yes, but no strangers to the European contest scene, for, in spite of a way off geographical location, they have been competing in International events, albeit mostly by proxy, since pre-war days. Now they are boldly thinking of participating at a more personal level by sending their own teams to future world meets. In those days of fast, relatively cheap global commuting, they have every encouragement. Naturally, it will be an expensive endeavour, but then, shipping models half way across the world is no penny post thing either. Good though the proxy results they have achieved, there is nothing like the integration of man and machine for best results. The newsletter includes a report of the World F/F Champs as seen from the New Zealand proxy angle.

The Elliott Model Eng. Club shows some concern over the poor support given to their club events. 'T'was ever thus. All manner of excuses are trotted out for non-appearance at the poor old club event: model unfinished, too windy, got up late, in-laws dropped in, etc., etc. Trouble is, though, the series of club events was mounted with the idea of giving members a chance of a good work-out for the major outside contests. Even so, the club still managed to hold its own in the contest arena with a good turn out for Part One of the S.E. Area C/L Champs at Westerham. In Combat, the Horsham and Elliott Clubs were evenly matched, five to five. Elliott, however, won all the bouts to leave John Langridge and Steve Andrews to fight out the final - winner, John. Stunt was poorly supported, or would have been had not the Combat boys decided to have a bash. Winner was G. Kendrick. Elliott seem to think 'A' Rat Racing to be a simple, attractive form of contest, not requiring the costs and advanced techniques of F.A.I. Racing. A belief reinforced by news from the Western Area, which is also fostering 'A' Rat as a popular event. Current rule trends: 52 ft. 3 in. lines, centre to centre, 100 lap heats, 200 lap final. One stop per heat, two in final, Le Mans start. Engines up to 3.5 c.c., though 2.5's predominate.

Stan Siebert, member of the Mashonaland Model Club of Rhodesia paid a visit to Britain, and took a look-see at that notorious piece of terrain known as Chobham Common. If he wasn't exactly appalled at our cherished piece of wilderness, it did make him realise just how idyllic was his own flying patch in his less encumbered part of the world. But at least we don't have to worry about snakes, only the adders ('I make two maxes and two minutes thirty, eight and a half not seven and a half'). What surprised our visitor most, though, was the phlegmatic British attitude to those blasting 30 m.p.h. gusts which are such a familiar feature of our well combed landscape. And what impressed him was the careful and methodical way the top boys prepared their models for flight. The models may appear to have been patched and otherwise Chobhamised, but all tried up and systematically flight processed. He admired, too, the ordent way the Chobhamites went all out for a max in spite of the hazards that lay beyond the 3 minute horizon.

Newest chicken game comes from the Durban M.A.C. Object of the exercise is to get your R/C model as high as possible then hand control over to the lady of your choice. On goes the stopwatch and up goes your heartbeat, and when either your nerve or your model is on the break you grab back the transmitter. Obvious title for the event is *Coupe d'Hen*.

W.M.C. Patter, the Newsletter of the Willamette Modellers Club of Oregon shows some concern over the way vintage models are performing with modern hot engines - much like watching an F.A.I. fly-off. Suggest, therefore, that all powered vintage models be of the pre-1939 dateline.

Good news hot from the pen of Mr. L. A. Rogers, Hon. Sec. of the Western Area. He reports a swinging year for the Area with coffers at a healthy level and a busy and buzzing season on the flying field. And kudo of all kudo's, Elton Drew, the Area's Golden Boy, did you know what for an England that doesn't expect all that much these days. And just by way of proving his World Champ win was no flash in the pan, he has been demonstrating just that kind of top form in all the Area Glider events, coming number one on each occasion. No resting on his laurels, though; he is already girding his lines for yet another dazzling season. We are told that Clive Hadland, or 'Butch' as he is known to his intimates, has had the misfortune to undergo a spell of hospitalisation, and, consequently, has been absent from his usual haunts. Happily he is now on the mend, and building like mad in his little cot (all sheet jobs?). Let's hope the nurse doesn't take away his jar of dope as a specimen!

Notice to all model flyers - and would be ditto - living in the Bristol Area: The Bristol Phoenix M.F.C. offers you all the delights and facilities of a highly organised, progressive club. There is provision for all sorts and conditions of model life; sport flying for all and contest opportunities for those with a competitive urge. The club has a permanent week end flying site at its disposal, and there are facilities for C/L, Radio and Free Flight. Further information can be obtained from the Club Sec., Mr. C. Hunt, 12 Edgcombe Road, Redland, Bristol 6. Or you can drop in on the club ground at Whitchurch any Sunday afternoon.

Since we last heard from the Tees-side M.F.C., this now largely Radio Club has been steadily going over to multi superhet, and as there is much flying activity going on, S/C would not get much of a look in anyway. Membership now stands at an affluent 60, and the club is in a very healthy state financially. No mention of contesting, but this year the Goodall Trophy, donated some years ago by the Hartlepool Model Shop, was awarded to Club Treasurer Ron Morgan for outstanding services to the club - this being no reflection on the efforts of Club Sec. Tony Oliver, who has also put in an arduous stint. Highly to be commended, too, are the activities of Jim Osborne on the Social side. Club nights are every third Tuesday of the month at the Settlement House, Nauport Road, Middlesbrough.

Interest in the Wharfedale & D.M.A.C. has recently centred on the subject of Class B Team Racing; feeling being that this class should be revived as a main contest event. Club suggestion is that this journal should revive earlier articles and plans for this type of racing. Suggestion also that the Rufforth 1000 Race should be brought forward to an earlier date, but opinion was against risking models over such a lappage early in the season; people would be more inclined to have a go after the main season was over. Applications are already coming in for summer club displays - very encouraging to club morale.

The F.A.C.C.T. group claim to have done well in Combat this past season; John Shaw winning the club shield with six firsts and many placings, including a second at the Nationals. Others, including G. Johnson, also featured well up in the lists. John Shaw has not done badly in Rat Race, either, but he and Den Coleman have a few plans in mind for making the finals in the coming season. Interest is also being shown in $\frac{1}{2}$ A T/R and Goodyear. The latter class should give opportunity to people without specialised engine knowledge and techniques. What is needed is the availability of more suitable outline plans.

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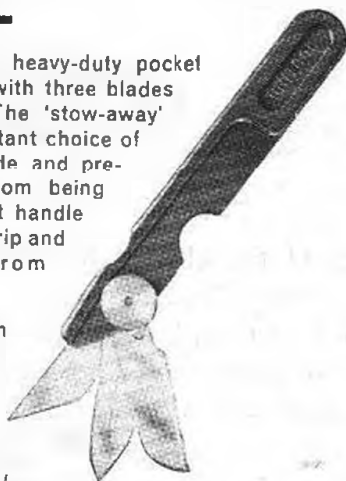


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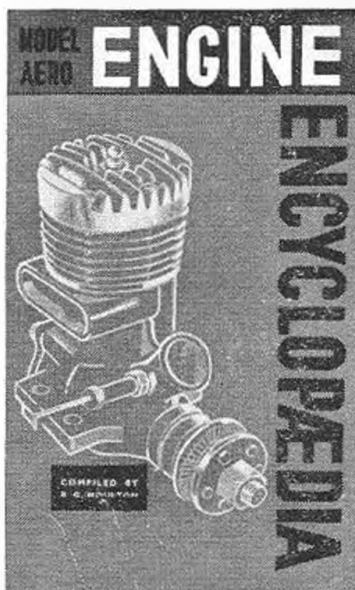
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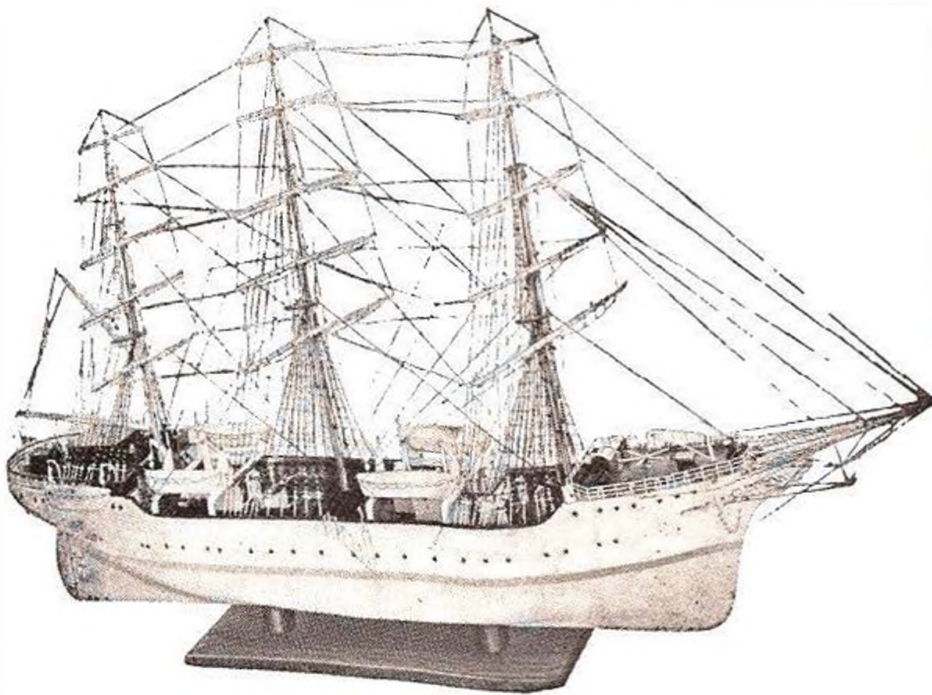
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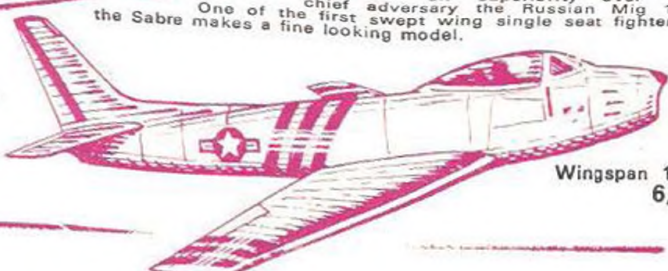
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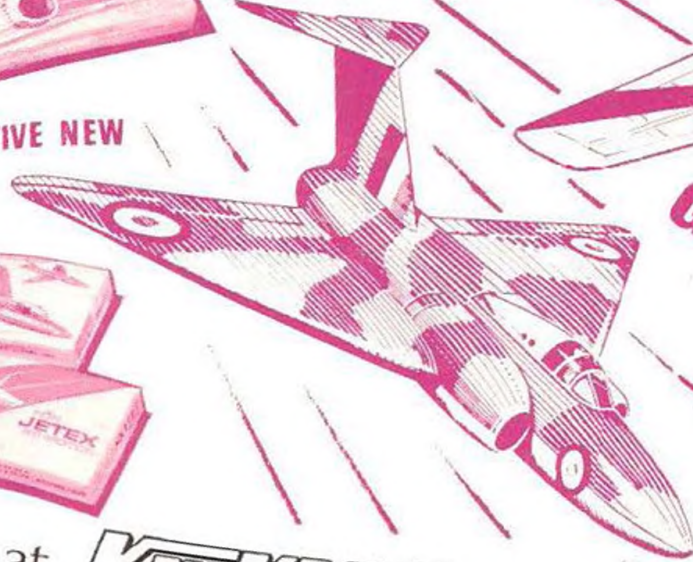
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