SEPT. 1948

AEROMODELLER

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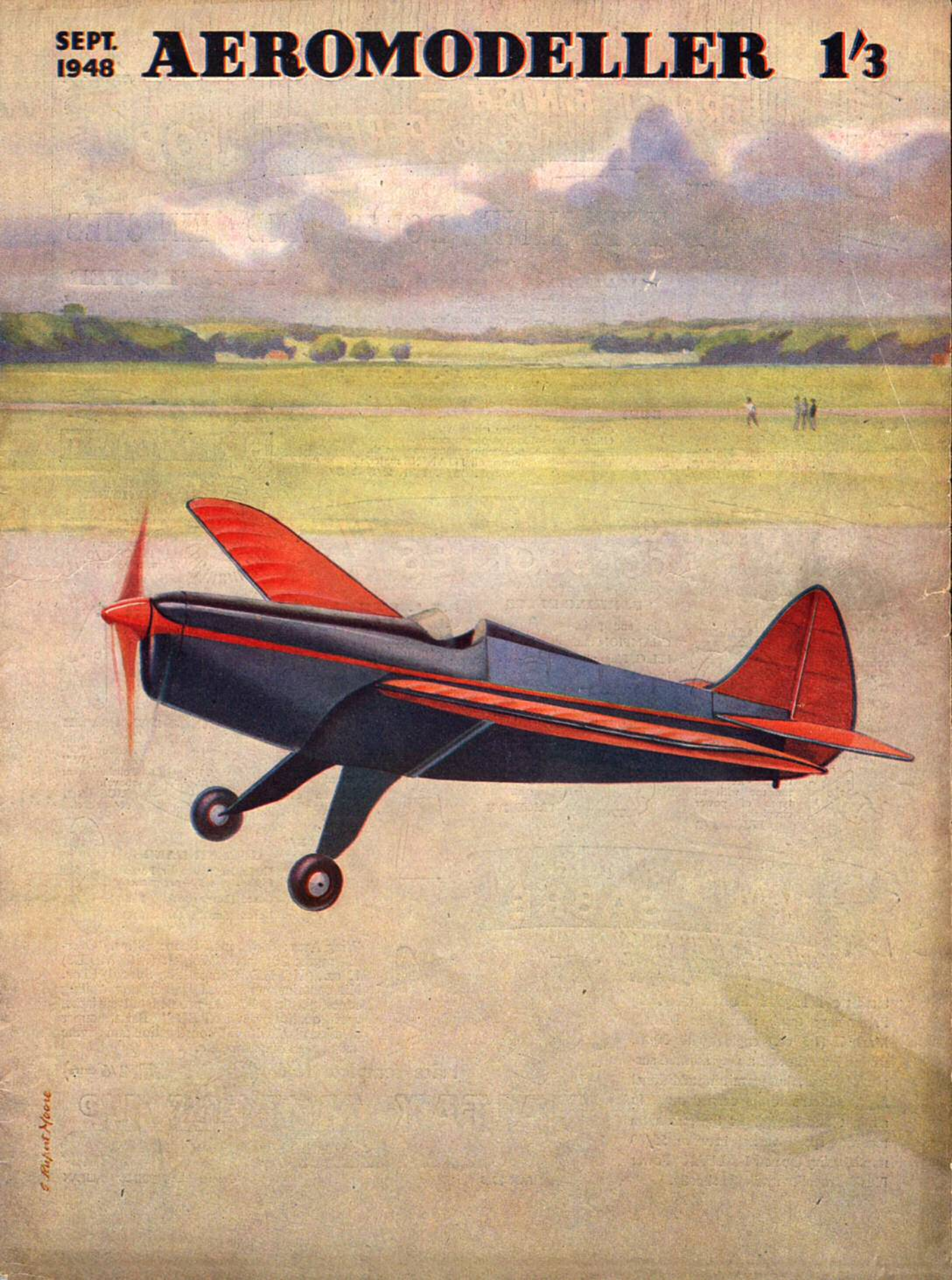

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THE MODEL AERONAUTICAL JOURNAL OF THE BRITISH EMPIRE

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AEROMODELLER

INCORPORATING "THE MODEL AEROPLANE CONSTRUCTOR"

(Aeromodeller Photo).

Action is personified by this French competitor as he launches a compatriot's model during the recent International events at Eaton Bray.

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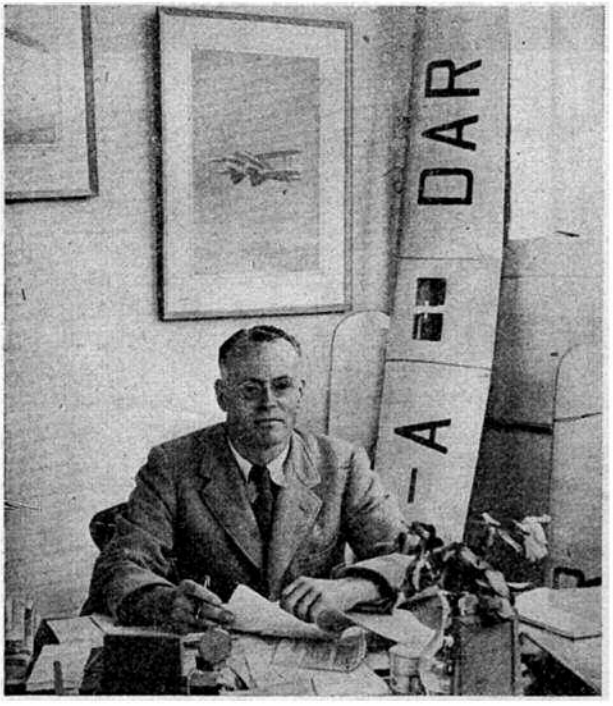


CHAIRBORNE

THAT " sitting on the fence " and poking fun at the world around you " à la Nathaniel Gubbins ", can be good fun is undoubtedly true as no doubt also is the saying that the " onlooker sees most of the game ".

But sitting in the Editorial Chair and conducting therefrom the policy of this Journal (while certainly more comfortable than sitting on a fence !) enables one to see not only most of the game, but what is far more interesting—take part in it !

The most interesting—and certainly the most exciting part of my work is attending to " letters to the Editor ". Interesting, because of the extremely varied nature of this correspondence : exciting, because one never knows whether a letter may contain " a kick or ha'pence—brickbat or bouquet !"

Certainly it may be recorded here and now that not only are letters to the Editor welcomed, but that all of them do receive very careful consideration, and to each is sent a reply. However, when the postbag is unduly large, or there arises the no less exciting though more exacting and essential requirement of getting each issue of the AEROMODELLER to press on the right date ; these replies may be sent off somewhat belatedly. It has always been my policy to endeavour to see that all letters are answered.

Of late, the Editorial postbag has been considerably enlarged, mainly on two accounts :—

Firstly, quite a number of readers have sent in to me information as to the intended, or actual banning, of the flying of power-driven model aircraft in parks or in other " public " spaces controlled by official bodies. Secondly, there has been a large amount of interest created by the staff-produced article published in the July issue " Everything Under Control Line ".

These two subjects are of course really one : as it is the rapid extension and development of control-line flying which has aroused the attention of various " official bodies ". From Mr. H. Boshford of Edgbaston has come news of the banning of the flying of " power-driven aircraft " in the Birmingham City's parks by the Birmingham Park Committee, " after taking legal advice ".

From Mr. J. A. Leggett, Secretary of the Grays Power Club has come the news that :—

" The Thurrock Urban District Council has banned entirely ALL free-flying models. This includes paper darts and chuck gliders. The Chairman of the Parks and Highways Committee informs me that a power job buried itself in the ground for a depth of not less than 4 ins. This by the way was on a day when a hefty mallet was required to drive cricket stumps on the same field. However, Control-line is still allowed, but only on a piece of ground by the river, but the surface is useless ; it's an old disused rugby pitch, so it's not a lot of good. It seems to me to be most unfair to say the least, that flying is to stop though cricket is still allowed, which I consider equally dangerous to the general public ".

From Mr. B. E. Warner of Cheam has come a report that :—

" Two other councils in this area besides Croydon have banned these aircraft. They are Mitcham, Surrey and my local council Sutton and Cheam. There is also a lot of talk that Epsom are endeavouring to ban these ' dangerous objects ' from Epsom Downs. Although I am not a Control-line enthusiast (I prefer Radio controlled free flight models), I am 100% against this ban as it means I am not even allowed to test glide my models let alone fly them."

Mr. Warner adds :—

"I cannot see what these councils have to fear, as most power modellers I have met seem to have sense enough to make sure their aircraft will not be dangerous to the public. Perhaps a simple solution to this business would be to make it law that all power models are insured for Third party. The small premium is almost negligible, compared with the amount one is covered for by the N.G.A., would not be a hardship to anybody ".

Then from Mr. Goodwin of London, N.W.8, comes a report that he has been banned from flying in Hyde Park and Regent's Park. This reader makes the suggestion that there should be :—

" a fenced-off flying circle in all parks, in the same way as tennis courts are now in use with a small charge for the use by flyers ; the general public to be kept out of the circle for their own protection. This would only use as much ground as is now in use for practice nets for cricket ".

In regard to Mr. Warner's suggestion that third party insurance should be made compulsory, I have pointed out to him that this would require legislation by Parliament. Apart from the time and expense which would be involved, it is my considered opinion that this would be quite unnecessary.

The very fact that the N.G.M. Policy can offer Third party insurance cover up to £5,000 any one claim for the quite nominal premium of 2/6 per annum, is surely sufficient proof that the " so-called danger " and " risks involved " are negligible. N.G.A., Ltd. has been operating for some ten years and in that time has insured many thousands of aeromodellers. The number of claims that have been made and paid in this period can be counted on the fingers and toes of one individual.

The obvious thing for all aeromodellers to do is to avail themselves of this Insurance, and I am gratified to see that since the publication of my last Editorial there has been a useful increase in membership. I hope that as a result of these further observations many more thousands of aeromodellers will avail themselves of this valuable insurance. Membership cards are issued to all members, and lapel badges and transfers for fixing to members' models are available for a few pence. All enquiries, subscriptions etc. should be addressed to our Leicester office in the charge of Mr. C. S. Rushbrooke.

May I suggest that when next any member of the N.G.A. is " challenged ", he should produce this N.G.A. membership card and point out that not only is he insured against Third party claims but, and this is much more to the point, he has promised to " fly with care ! "

As I close this part of my editorial, a letter has just come in from Mr. H. S. Barber of East Dulwich, who says that at Peckham Park, East Dulwich, the Superintendent has stated that a " permit must be obtained ". Apparently this is the Superintendent's own idea.

Thus it would seem that in a number of places, control-line and/or other kinds of flying of model aircraft are being

AEROMODELLING

BY D · A · RUSSELL *M. I. Mech. E.*
MANAGING EDITOR

banned. No doubt, the Council of the S.M.A.E. will be deliberating on this matter; and we hope that appropriate action will be taken to protect the aeromodeller of this country from unreasonable restrictions.

Under certain conditions, it may well be that restrictions *are* necessary, but so long as the playing of cricket and golf is allowed in many parks and on many " public open spaces ", I do not consider that control-line flying, or any other kind of model aircraft flying should be banned. At least one can see and hear a power driven model aircraft—but certainly the same cannot be said for a cricket or golf ball when in full flight ! !

* * *

NOTHING BUT THE TRUTH

Coming now to the article " Everything Under Control-line " I have received a considerable number of letters from readers, every one of which has praised this feature. A typical example is that received from R. F. Goodman of Chepstow, Mon., who says :—

" I am a school boy of sixteen years and feel that my views may represent those of the many modellers like myself. To a moderate extent my finances curb my urge for power modelling, but my ignorance of the quality of the expertly advertised engines and kits results in . . . no purchase.

My school work occupies a large unpredictable quota of my spare time, so that I cannot join a club and meet other modellers, at fixed times. Consequently my only source of information has been the AEROMODELLER, *which in the past three years has successfully ' educated ' me.*

The recent innovation, ' Engine Analysis ', is in my opinion, a welcome step in the right direction which has already made me more selective towards power units.

In the July issue of the AEROMODELLER *I see an article by the Aeromodeller Staff, impartially reviewing control-line products. The information so frankly presented, and the photographs are the answer to the prayer of the unenlightened; but I do hope that you will extend this very critical type of article to free-flight power 'planes. Such a review, I am sure, would of necessity take the form of a series. This would, I know be of inestimable value to all modellers; being received with open arms by fellows like myself; and exposure of inferior articles would raise the standard of manufactured goods."*

Then, from Mr. B. Walker of Northumberland, I received the following letter :

" I am just one of those many inexperienced unskilled but tremendously enthusiastic aeromodellers, for whom your Journal is guide, philospher and friend through thick and thin. Not being one of those who make a pastime of writing letters to Editors, I have hitherto been content to buy my AEROMODELLER, *read it through avidly from cover to cover, inwardly digest, and then to lay it regretfully aside and begin to look forward to the next number.*

But, having just read this month's issue, I feel impelled to write to you in praise of this admirable article ' Everything Under-Control-line '. It is not so much the subject matter (I have not yet attempted to delve into the mysteries of control-line), that I consider to be so commendable, as the general idea behind the article. Speaking not only for myself, but for the many others like me—novices with not too much money to throw away—one of the most soul destroying experiences it is possible to undergo, is that of wading through pages of highly attractive advertisements, trying to decide which is the best proposition. In such circumstances, an article such as the one in question is of immeasurable value.

But must it be limited to control-line ? Why not a regular series of articles (like Gadget Review) summing up the products on the whole range of the model market ?

Such a series would have a very wholesome effect on the Trade. No firm, no matter how strong its position, would dare to market a product of inferior quality if it knew that such a product might be subjected to the cold impartial scrutiny of the AEROMODELLER *and exposed as worthless. The firms would vie with each other to obtain the stamp of your approval, and the quality of their products would increase accordingly. And, speaking bluntly and from bitter experience, some of them need to do so !*

Then sooner or later, under the stern eye of the AEROMODELLER *there would arrive the happy day when no poor novice would have to undergo the bitter disappointment of laying out hard earned cash on an attractively advertised kit, only to find it to be useless.*

So I hope you will consider the idea, as I am firmly convinced that such a series of articles would benefit both the customer and the Trade immensely.

These two letters are fairly representative of a considerable number I have received, and it has given myself and the AEROMODELLER staff considerable pleasure to learn that our latest feature has been so well received. I would state here that all products reviewed were submitted freely by our Advertisers; and that the report " Everything Under Control-line " was the combined result of a considerable number of my staff, who devoted a large amount of their time to examining the kits and accessories submitted to us.

Certainly this feature will be repeated from time to time, and already work is in hand in regard to the compilation of another feature on similar lines.

* * *

" SHAMATEURS "

Finally, I quote from a letter received from T. F. Rowdy, aged 14½ years of Farnborough, Hants :

" I am writing this letter in order to bring out a couple of points which I don't think have been mentioned before in ' Readers' Letters ' etc. but which I think ought to be noted. First I wish to point out that at the major competitions, like the Nationals, or even in small competitions harm is being done to our sport in general. This is due, not only to careless and haphazard flying, but to those who least think they are offensive or harmful—the Manufacturers. In previous years, though I cannot remember, it was said and still is said by some, that they flew for the mere fun of it. But now it is all competitions, only to be faced by squads of experts with supertuned American motors, screaming off the board one after the other. Naturally the poor type is disappointed, and very often he is put off aeromodelling in general. The second point I wish to emphasize is that of the American motors. One buys a kit, which was supposedly designed for the Mills, for instance. But what about the competition ? Lo and behold, here we find the chief man himself, flying his design. But alas ! Not with a Mills, as we expected ! No. It turns out to be some Arden or Bantam, which only the élite or smugglers can obtain. Surely this is a bad advertisement for both the kit and the engine it was ' designed ' for ?

Well there it is. What do other aeromodellers think ? Maybe our young friend exaggerates the " Trade " influence . . . maybe not. The Trade " has to live ", and advertise its products, and where better to do this than at a large National Meeting ? Yet, I can see the other point of view that the " average aeromodeller " has a poor chance of winning, when up against the trade, or trade sponsored entry. Yet again, is it not " the Trade ", with its entree to contacts unavailable to the " average " aeromodeller, which pioneers, introduces and develops new ideas and is in the position best possible to introduce to our readers these latest developments ? I, and my staff, constantly in contact with all our advertisers *and* our readers, see " both sides of the penny " ; and, generally speaking, we feel that there is little that is *really* wrong, with the aeromodelling movement, both " amateur " and " trade " in this country at the present time.

THIRD

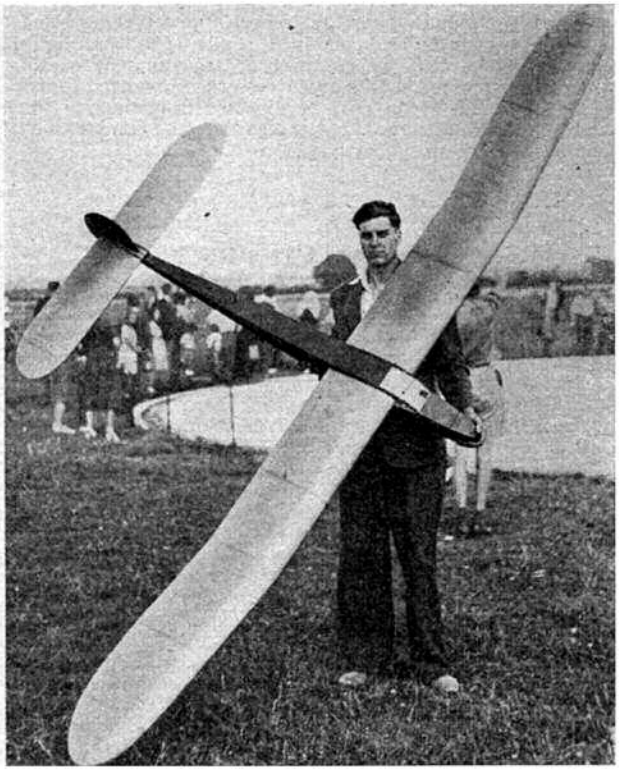
INTERNATIONAL WEEK

AT EATON BRAY

BY

D. J. LAIDLAW-DICKSON

A truly International scene is portrayed as Pepperell of England starts up with French, Belgian and Swiss competitors in the background.



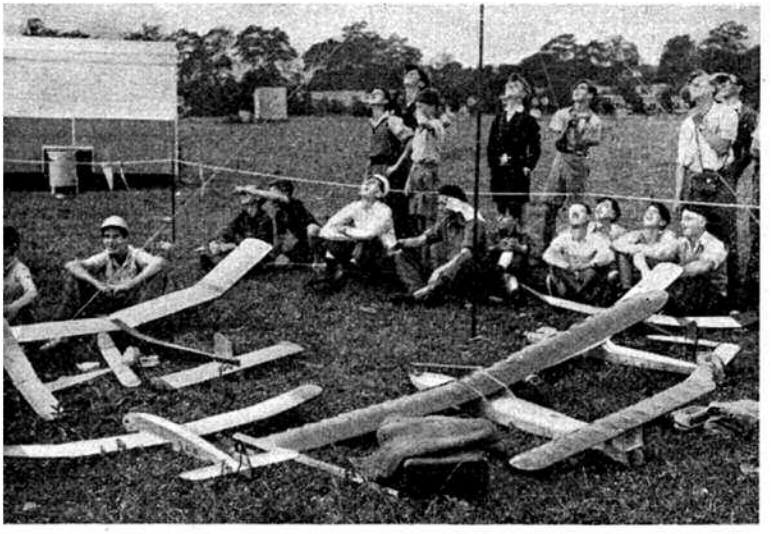
NEARLY sixty European visitors contributed to the success of Eaton Bray's Third International Week, including contingents from France, Belgium, Holland, Switzerland, Portugal and Italy. British visitors over a hundred strong formed a tented camp stretching round two sides of the airfield, and joined with the foreign visitors in making every conceivable form of model in the workshops in "off" periods. An exchange of the more exotic slang in several languages should enliven classrooms for many a term to come. As usual night was practically unknown, any time from 3 a.m. to dawn being considered suitable for retiring. One happy memory is of a late French arrival making up for lost time at 2.30 a.m. flying his control line model with the aid of a bicycle lamp strapped to his chest!

First contest of the week was for Sailplanes on Sunday August 1st, which attracted an entry of sixty-five. As an F.A.I. sanctioned event all competitors were required to hold F.A.I. competitors' licences, or their national equivalent, which served to keep numbers down to reasonable proportions in this and other events. The visitors drew low flying numbers in the main, and for this reason missed some of the later thermals in the first round. This did not, however, prevent Cheurlot of France getting away with a flight of over thirty minutes, which seemed likely to be best of the day. The model was lost, but even without another flight this proved good enough to take second place, some 550 seconds ahead of the third man, Pepperell of Gt. Britain. Luchetta of Switzerland made another good first round flight of 17½ minutes. Apart from three twelve minute odd flights by Hucklesby and Denyer of Gt. Britain and Tournadre flying proxy for Fillon—absent at the Bowden Trophy—other first flights were mainly around the two minute mark. Only thermal flight of the second round was achieved by Minney of Luton with best time of the day at 32½ minutes, which gave the first contest of the meeting to Gt. Britain.

Outstanding feature of the event was the usual high skill displayed by nearly every foreign visitor on the line—a launching technique to be found only with a few top class British modellers. Leading models were almost without exception large—practically up to "Sunspot" size, and mainly followed the continental practice of strength and simplicity rather than any particular beauty. Swiss entries were notable as the most elegantly finished.

Monday was devoted to power events, main interest attaching to the Ratio Duration event. Here the standard Belgian design which did so well last year appeared in the hands of nearly every Belgian entry, but somehow they lacked just the necessary urge to get them into top places, although the sensational climb, and automatic rudder controlled turn was still in evidence.

Best first ratio came from Robyn of Belgium with 12.5, but he was unable to follow this up with a second flight, finishing seventh. Best British time in the first round came from W. G. Johnson with 7.9. Luchetta of Switzerland was again



RESULTS

SAILPLANE CONTEST

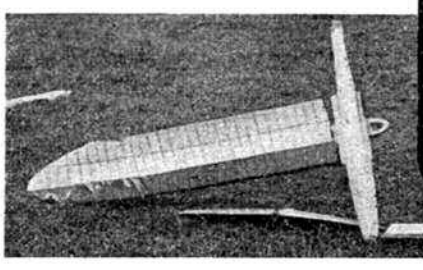
			Aggregate
1.	Minney, R.	Great Britain	2093·5 sec.
2.	Cheuriot, M.	France	1807·3 „
3.	Pepperell, D. F.	Great Britain	1241·6 „

POWER RATIO

			Ratio
1.	Schaffner	France	16·83 sec.
2.	Bernard	„	9·3 „
3.	Muller	„	8·09 „

PRECISION POWER

			Points error
1.	Fillon	France	7 sec.
2.	Jossien	„	13·5 „
3.	v. d. Linden	Holland	14 „



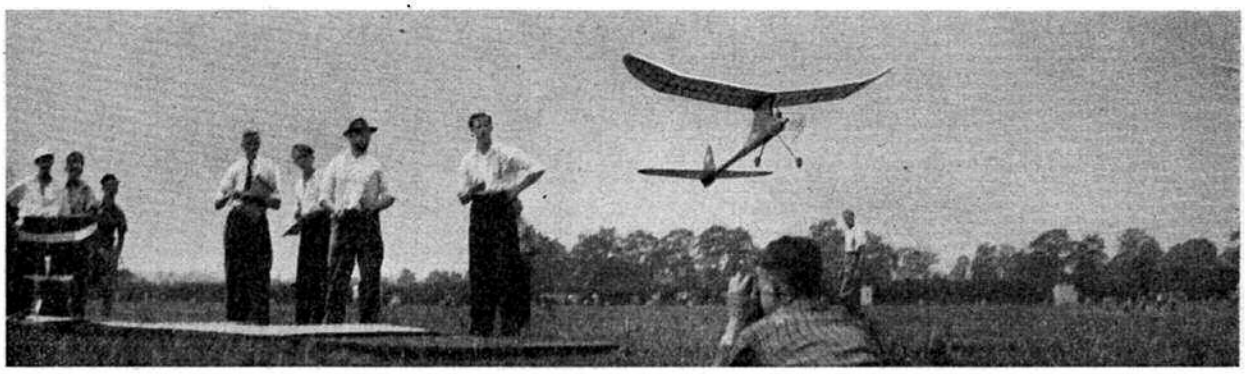
On the opposite page is Minney of Luton with an outsize in models that won him the sailplane event. At the bottom is left, Schaffner of France, who won the power duration contest, and Fillon, top man in the precision contest.

At the top of this page we have a general scene during the sailplane contest and centre, right, a group of Swiss models complete with "rubbernecks" in the background.

Centre, left, shows Picton of France with his model "La Mouette," a particularly graceful design.

Right shows a beautifully constructed Dutch model with its creator, v. d. Schenk, and below demonstrates the sad end of a Swiss sailplane that shifted its tailplane in flight.

"Aeromodeller" Photos.



"Aeromodeller" Photos.

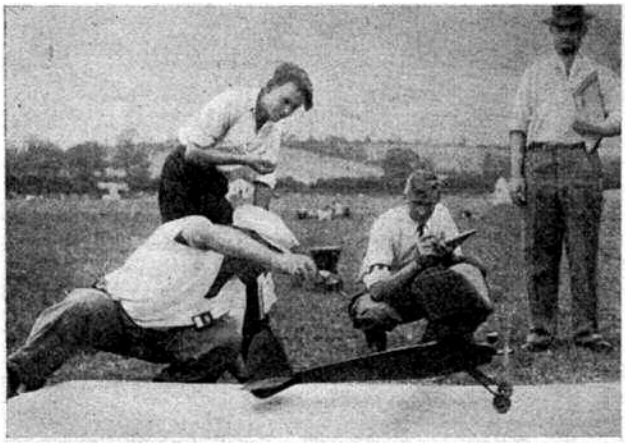
well up in the running with 7.16; which he improved to 8.4 in the second round, to take fourth place.

Intermittent showers disturbed second round flights, which makes the winner's fantastic effort of 25.2 all the more praiseworthy. With a 15.75 second engine run Schaffner of France put up a time of 397.1 seconds, giving an average over the two flights of 16.83. Second man Bernard, also of France, was a long way behind with only 9.3, after which the field followed at decimal intervals. Motor models followed very much the same lines as last year, with a certain decline in high pylon designs, and a tendency to copy the high wing layout on which the Belgians have relied for so long. On the whole, in spite of their lack of immediate success, British entries showed up well on looks and general performance. Mention should be made of elegant Swiss models with pod type fuselages containing built-in single landing wheels. Fillon was almost alone with spark ignition, the vast majority being diesel powered. A number of glow plug models were also in evidence, but seem confined to control line designs.

The precision event gave entrants the choice of any nominated time between forty-five and seventy-five seconds, with penalties for error, flight being made up of motor run and glide as entrants wished. Models were required to land in the airfield, having points deducted for bad take-off or landing qualities. Here Fillon came into his own with a specially designed precision flying model, with wing slots to delight the heart of Col. Bowden. Nominating 45 seconds in each flight he came within six seconds on the first round, and within one on the second, without losing any points for take-off or landing. This model, incidentally, he modified for a pick-a-back glider take-off in the experimental event at the end of the meeting. Jossien of France followed him home with 13.5 seconds error. V. d. Linden of Holland was an unlucky third with 14 seconds error—as he changed his time at the last moment and would have been spot on his original estimate. Best British entrants were Poile and Houghton who tied for sixth place with 18 points lost. Strangely enough this pair also tied in the ratio contest.

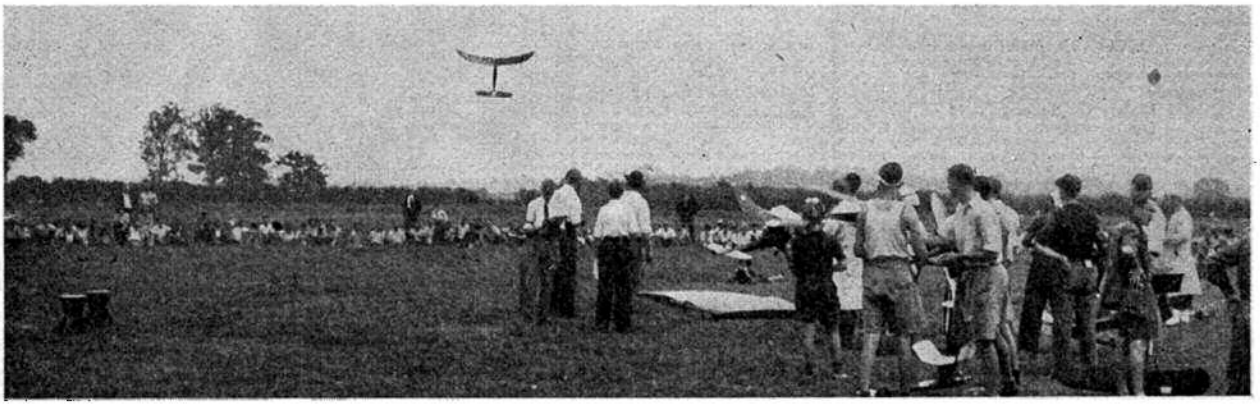
First two days flying therefore left the AEROMODELLER Trophy position still very open, with Luchetta leading, 38 points, Fillon next with 34, followed by Minney, Houghton and Poile of Gt. Britain and Schaffner of France each with 20. A word of condolence should be expressed to Morisset of France, last year's Champion, whose models went astray to put him out of the running—turning up ironically enough on Tuesday of the meeting, too late to be of practical value. We must also regret an Italian casualty as the main party coming by car, were unable to clear their models at the Italian frontier, leaving a lone entry to represent their country.

(To be continued.)



Top, we have a nice action shot featuring M. Bourthoumieux's French pylon model in the power ratio event.

Left, M. Labarde "lets go" in the same contest, and below, shows a general scene with competitors queuing up in the foreground.



THE FLYING SCALE MODEL. Part 6.

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

SURVIVAL is the greatest problem of the flying scale model. A duration model, being so simple, is usually quickly repaired after a crack-up, but a scale model being complicated takes a great deal of time. This vulnerability has been the reason for the majority of modellers abandoning the scale model at their first attempt. In most cases the model being crashed beyond repair before it has been rigged.

This problem can be approached in two parts: first, before the moment of impact, and secondly, after! By careful design, sufficient inherent stability, plus automatic control, should reduce the number of " impacts " to reasonable limits, and that has been dealt with in the past five articles. It is this second part of the problem I am going to deal with now.

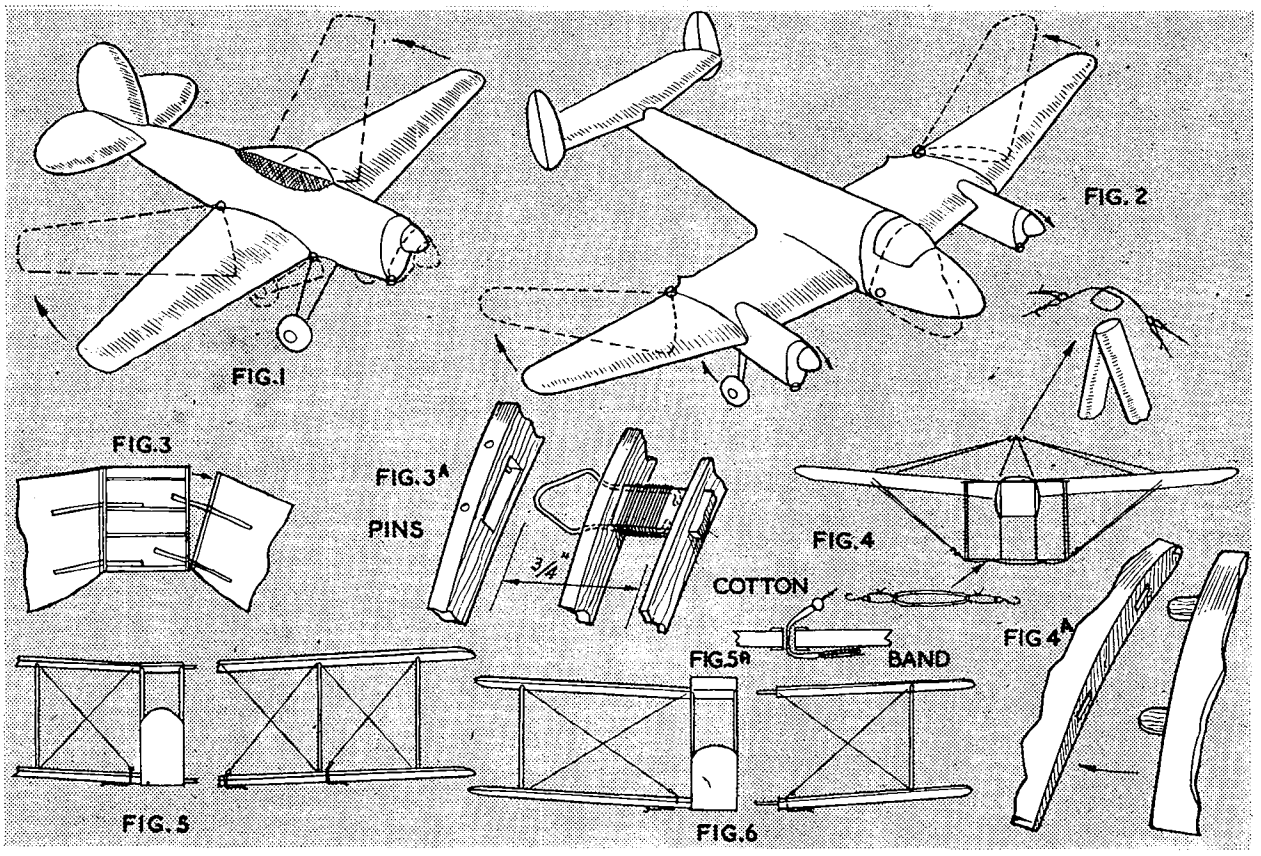
If a model is " broken down " into units of moderate size and weight, each component being held to its neighbour by rubber or a spring clip (what I call the " science of knock-off ability "), the model disintegrates in an orderly manner on impact. The greater the number of units, and therefore the lighter each separate unit becomes, the greater is the chance of the whole model's survival. This has been recognised in the past and the usual unimaginative solution applied, the model being reduced to one very small and light unit of a few inches span, too small to have any performance at all.

If the problem is examined (Fig. 1), it will be seen that the direction each portion must tend to shear off in case of collision is *backwards*, in the opposite direction to the flight path. This backward movement is transformed to a circular movement by the resistance of the attachment of the portion in question. It will be seen that the wings shear off in a circular motion with the axis at the root rib trailing edge, the undercarriage with the axis at the fuselage attachment and the airscrew with an axis at the base of the nose block. This of course is complicated by cross winds, and a certain amount of consideration should be given to this, but the main fact still remains, the main shock is *backwards*. I stress this point, as a model is never stalled on to the ground like a real aircraft but flies into it. Fig. 2 shows the same problem applied to a twin-engined model. This of course is far more complicated. Because it was necessary to keep the centre section, nacelles and undercarriage as a unit, the nose became very prone to damage, so, as it was simple to do, this was made to dislocate.

Wings, of course, are always " knock-offable " and this is accepted by everyone; consequently, much thought, and what is more important, much experience, has been gained on this problem. Because this is generally accepted I do not propose to discuss wing fixings for cantilever monoplanes beyond suggesting that provision should be made for backward movement, and I show in Fig. 3 the simple wide peg box used on my Tiger Moth. This relies on the wide box allowing the pegs to take their natural path, whereas if the boxes were the same width as the pegs, they would break. I prefer simple spring clips to rubber bands where they can be used, and show in Fig. 3a a simple and well tried " spearhead " clip made of 28 s.w.g. piano wire bound to some $\frac{1}{4}$ in. $\times$ 1/16 in. hardwood and cemented through the root rib. The other half of the clip is simply a slit in the centre section rib with two ordinary pins pushed vertically through to form the contact. This, used in conjunction with Fig. 3, makes any vibration harmless. I had better point out this spearhead is not used on the rubber-driven Tiger Moth.

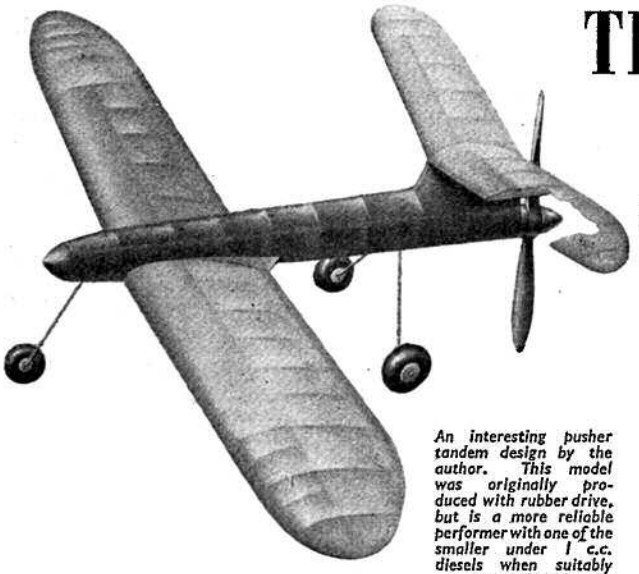
When building very early types of wire-braced monoplanes and biplanes I feel some more information is necessary. The wing section of very early types such as the Morane-Saulnier, Deperdussin or Bleriot monoplanes is far too thin to contain a spar of sufficient depth to give rigidity, the flying and landing loads are taken by piano wire. This can be done on the model

(*Continued on page 523.*)



TECHNICAL TOPICS

BY P · R · PAYNE



An interesting pusher tandem design by the author. This model was originally produced with rubber drive, but is a more reliable performer with one of the smaller under 1 c.c. diesels when suitably strengthened.

THE use of unsuitable launching gear was responsible for the fact that Langley's famous " Aerodrome " did not take off in 1903, and but for that one small fault it is probable that aviation would have been quite different—and much safer—today. This is old history, but although most people know that Langley's ill-fated aeroplane was a tandem-wing layout, it is not generally realised that the present orthodox layout of a small stabiliser some distance behind the wings owes its acceptance to the fact that the first really successful aircraft happened that way, coupled with the fact that " homo sapiens " is a conservative at heart. Now we have come to look upon the layout as a rut with very little future, if such a mixture of metaphors may be allowed, and to cast about us for alternatives. This is not a new attitude of course, particularly in aeromodelling, but the movement now seems on a much larger scale.

In this article we shall examine all the main types of layout which show some promise of an improvement in both performance and reliability.

Canards (Fig. 1).

This is simply a normal aircraft designed to fly backwards. Theoretically this should enable the performance to be improved somewhat, coupled with a very great increase in stability.

And here we must introduce a term known as " Tailplane Efficiency " in order to understand why some designs have more potential longitudinal (" fore and aft ") stability. A normal tailplane is never 100% efficient *as a stabiliser* for the following reasons :

(1) The air which flows over the wing loses some of its energy and forms a " wake " of slow moving air behind. If this flows over the tailplane its airspeed may be said to be less than that of the wing, and thus the correcting forces are correspondingly smaller. Even if it is set well out of the wake for normal flight, a violent upsetting of the model will often negate this, with a consequent loss in efficiency just when it is needed most (Fig. 2).

(2) If the Aspect Ratio of the tailplane is lower than that of the wing, it is obviously not such an efficient lifting surface. This fault could be cured, and the stability of a model improved, by using a very high Aspect Ratio tailplane ; this is usually impossible however, unless a twin-boom layout is used.

(3) Behind any wing we get a " downwards deflection of the air " (" downwash ") which is the penalty we have to pay for a lift (Fig. 3). The angle at which it strikes the tailplane increases as the wing angle of attack increases, thus reducing the size of the correcting force. This is by far the most important effect, and there is absolutely no means of avoiding it.

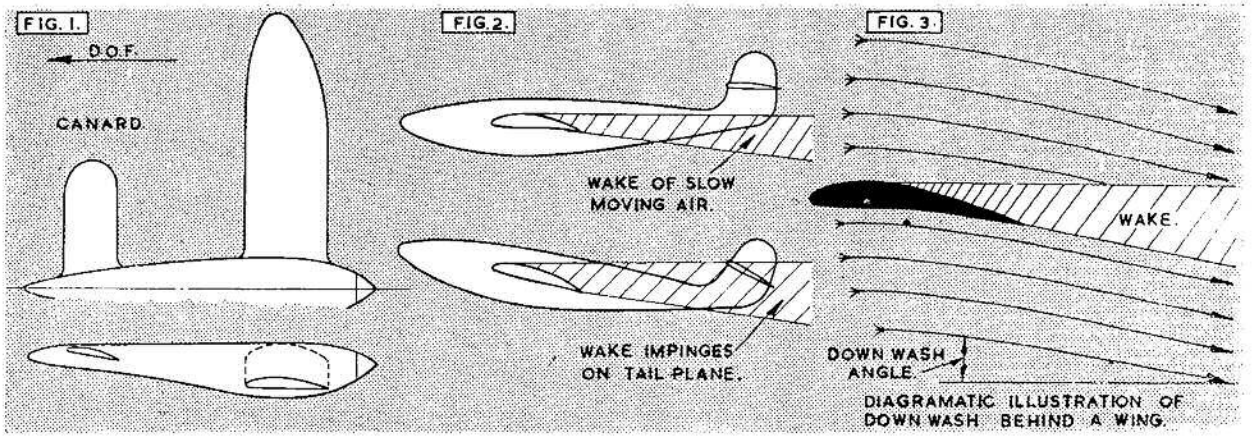
On a normal model these effects usually reduce the tailplane efficiency to about 65%. (A Nomogram for finding exact values was given in the March 1948 issue.) The ideal solution to our problem would be a stabiliser with a 100% efficiency, or better still no stabiliser at all.

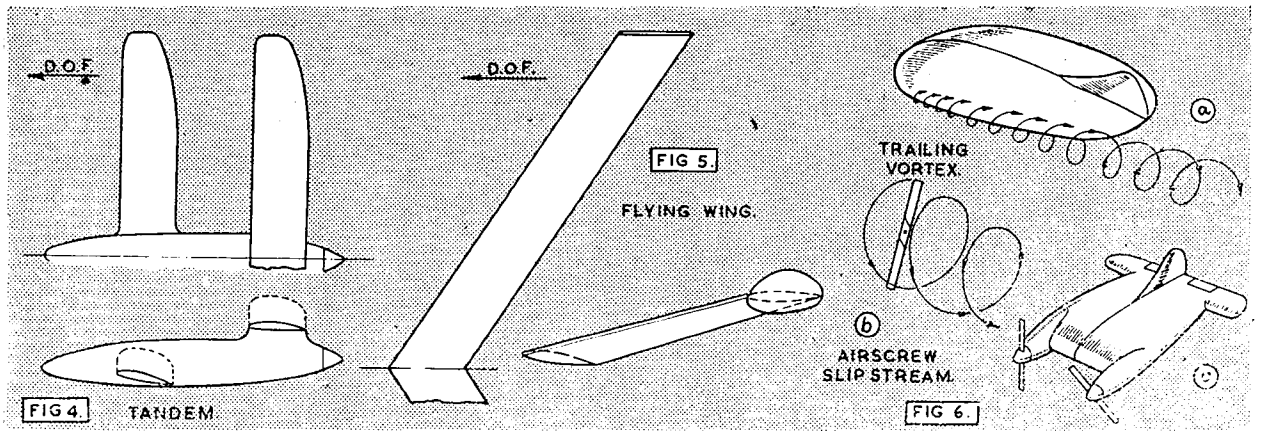
The remarkable point about the Canard layout is that it is possible to obtain a theoretical stabiliser efficiency of rather more than 100%. This is rather misleading, however, being due to its downwash reducing the efficiency of the mainplane. Nevertheless the layout *is* extremely stable, as anyone who has built and flown one will agree. And since the stabiliser is set as a greater angle than the wing, it is virtually impossible to stall.

Tandems (Fig. 4).

Another solution lies in the use of two wings, and although the rear wing is affected by the downwash from the leading one, its large area ensures excellent stability. Unfortunately, since the rear wing must be set at a smaller angle, its lift/drag ratio is rather poor in the normal model sizes. In fact whatever the size of the model the fault can never be fully cured, but to offset this the layout does away with parasite drag of tail unit.

At this point it might perhaps be appropriate to avoid any cry of " stinking fish " by pointing out that the writer has tried out all the layouts here described—with varying degrees





of success! A tandem glider from his stable held all the local club records for gliders for four years, whilst on the other hand some readers may remember that his entry in last year's experimental competition at Eaton Bray staggered in on 40 secs. This last model sustained a crash just before the contest and well illustrates the fact that with small models particularly the rigging angles must be " just right."

Tailless Models (Fig. 5).

At first sight this layout seems to approach the ideal, since the drag of both tailplane and fuselage is dispensed with, and the only essential constituents of an aerodyne—a propulsive unit and a wing to lift it—are retained. Consequently, the lift/drag ratio should be much higher.

On closer inspection we find a few snags present. In order to make the plane longitudinally stable, it is essential that the tips are " washed out " by about 5°, and whilst a constant chord wing with a reflexed trailing edge section is suitable for large models, it is advisable to use a symmetrical one at the tip for the smaller sizes. In addition, elevons should be used for final trimming. All this reduces the efficiency of the wing, and although much progress has been made in the last few years, it cannot be fairly said that this class is superior to the normal type at the moment. On the other hand a large number of modellers are designing and building them—the L.S.A.R.A. particularly is excelling in this respect—and it may well be that this is the " orthodox " layout of 1950.

Very Low Aspect Ratio Wings (Fig. 6).

This is really an extreme form of the flying wing, but in its normal form any virtues it may possess in lightness and rigidity are hopelessly offset by the extremely high induced drag: caused by the vortex or " whirlpool " which rolls off each tip (Fig. 6 (a)).

A method of overcoming this becomes apparent when we realise that the slipstream from an airscrew is also a vortex: Fig. 6 (b). If now we arrange matters such that the slipstream vortex is rotating in the opposite direction to the wing-tip vortex, as shown in Fig. 6 (c), it should be possible to reduce the induced drag to practically nothing. This would be of little value for free-flight purposes of course, but it shows great promise for control-line work.

Only one model has so far been built on these lines to the writer's knowledge, so there is here ample opportunity to experiment on new ground. Alternatively it may be possible to improve the performance of V.L.A.R. gliders by fitting elongated end plates or " tip fins " to reduce the vortex strength.

Summary.

The possible lines of investigation given above are the ones which seem to show most promise in the light of our present-day knowledge. There are of course others, and very many varients of the types given. Tandems, for instance, vary from the " Warren-Young ", which resembles two triangles stuck on to a stubby fuselage, to the butterfly type of monstrosity evolved by the writer. And potentially they have all great promise.

Finally, the writer will be glad to hear from experimenters who have tried out promising layouts, and equally glad to answer any cries for help.

[1] See L.S.A.R.A. Report No. 29 entitled, " The Estimation of the Position of the Neutral Point " by N. K. Walker, B.Sc., and P. R. Payne.

THE FLYING SCALE MODEL (*continued from page 521*)

most successfully. As on the real aircraft, piano wire should be used—the finest procurable, usually 28 s.w.g.—because piano wire is the *only* material which retains a constant length. Fig.[1] 4 shows this method applied to J. M. Greenland's Bleriot " Circuit " Monoplane. The wing is located on the fuselage by two " tongues " which fit into slots in the roots ribs (Fig. 4a). The " landing wires " are attached to a square loop which slips over the point of the cabane, the " flying " wires finish in a loop and are ¼ in. too short. Two " S " hooks attached to a rubber band by means of thread located on the track rod by appropriate loops complete the bracing and put the wires in tension.

In the biplane the centre section should be considered as the primary unit of the whole model and the longerons cut to allow the centre section struts to pass right to the bottom of the fuselage if necessary.

The simplest form of biplane to deal with is the two-bay type—that is two sets of interplane struts on each side. Here each pair of wings can be assembled as one rigid unit cross braced with piano wire. In order to keep the bracing tight the bottom ends of the " flying wires " should be rubber loaded. A simple method used on the Tiger Moth is to make a hole through the bottom wing and reinforce it with celluloid washers (Fig. 5a). The " flying wires " finish in a loop and are ⅛ in. too short. Thread is attached to this loop and is passed through the hole to a rubber band which is stretched on to a small hook under the wing. Tongue and slot root fixings are used, the wings held in place by rubber bands passing through the fuselage and centre section.

The single bay biplane is not so simple and Fig. 6 shows the solution applied to my Tiger Moth. The wings cannot be built as rigid units, so the struts are attached to hinges or flexible sockets. The " landing wires " are made *true* length and are rubber loaded simply by attaching rubber bands to their ends by means of thread. This thread passes through a metal eye under the top root rib and the rubber band is stretched on to a small hook. The " flying wires " are cut ⅛ in. too short and tensioned as shown in Fig. 5a. The rubber band under the top wing should be stronger than that under the bottom so that all the slack is taken up in the " flying wires." This makes sure the rigging is always true. The wing pegs are described in Fig. 3.

With later types of biplanes such as the " Hart " series, using moderately thick wing sections, top and bottom pairs of wings can simply be considered as separate cantilever wings, struts and wires being of secondary importance, though the spar strength should be reduced and the wires made to take load if only to reduce weight.

Ariel

by H. E. Hervey

Aeromodeller Photos

THE Ariel was one of two rather similar mid-wing monoplanes built during 1935 and early 1936 as a freelance design for a fast single-seater light plane of that period. Ariel was the second of these two models and after more than twelve years of active flying is still going strong. The model was completely stripped and re-covered for the first time last year after a collision with a car, but apart from new tissue and a section of the mainplane the model is flying with all the original components intact including the airscrew.

Fuselage Construction.

First cut out the fuselage sides from medium weight 1/16 in. sheet balsa, sandpaper smooth and mark the position of all cross struts and the holes for the front and rear wire wing fittings, mark the hole positions very carefully so that they are exactly the same on both fuselage sides, otherwise there will be a difference of incidence of the left and right wing when the model is assembled.

In order to have a rigid framework when building the fuselage, cut temporary bulkheads from 1/8 in. sheet balsa. One the exact depth of the fuselage sides at the third cross strut from the nose and the exact width between the fuselage sides at this point and a similar bulkhead for the sixth cross strut position. Pin these bulkheads in position between the fuselage sides. Next fit the tail block and No. 1 bulkhead at the nose. When these four pieces are fitted in position the fuselage sides will take a natural curve from nose to tail and the remaining cross struts and formers can be cemented in place. Note that 1/8 by 1/16 cross struts are fitted at all the former positions and the formers cemented on top of them, finally these cross struts are partly cut away to give clearance for the rubber motor.

The engine cowling and fuselage deck fairing from the nose to the rear of the cockpit is cut from one piece of stiff cartridge paper and the undercarriage leg fairings are made from the same material.

The undercarriage is shaped from one piece of 18 gauge steel wire and is held in position by two pieces of celluloid tubing cemented between two fuselage cross struts, the rubber band shock absorbers are hooked in place with a piece of wire through the open cockpit. Before covering the fuselage sides cement celluloid washers at the points where the wire wing fittings pass through the fuselage.

The nose block is shaped from 1 in. block balsa and is located by two pieces of celluloid tube reinforced with wire cemented into the rear of the block. These projecting tubes fit tightly into corresponding holes in the ply and balsa front bulkhead of the fuselage.

The Mainplane.

The whole of the framework of the left and right sections of the mainplane is cut from 1/16 in. sheet balsa, hard balsa being used for spars and trailing edges. Pin the leading and trailing edges on a flat board and complete the framework before removing from the board. Celluloid tubes to take the 20 gauge steel wire wing fittings are cemented and bound with tissue to cut away portions of the main spars and trailing edges. The 20 gauge wire fitting for the wing struts are cemented and bound to the front face of the spars.

Shape the wing struts from hard balsa with a reinforcing strip of half-round celluloid cemented to the leading edge. If half-round celluloid is not available use 22 gauge steel wire cemented and lapped with tissue to the struts. The struts are anchored to the mainplane by ½ lengths of celluloid tubing cemented to the projected ends of the wire fittings.

Tailplane, Fin and Rudder.

The tailplane, fin and rudder are simple to construct and should be built up on the plan. The fin and rudder are joined by hinges of thin sheet aluminium pushed through the trailing edge of the fin and leading edge of the rudder and cemented in place. The rudder post is of 1/16 in. celluloid tube reinforced with 20 gauge steel wire lightly cemented into the tube, the tube itself being cemented and bound with tissue to the front face of the fin trailing edge. The rudder post fits into 3/32 in. celluloid cemented and bound to the tail block.

The Airscrew.

The airscrew is carved from 1 in. hard block balsa and requires downthrust and off setting. In order to keep the undercarriage legs short and still have a large diameter airscrew, the airscrew touches the ground when the model is in flying position: this does not affect R.O.G. flights with the model as it has a rapid take-off with the tail down.

Full-sized plans of this ¼ scale reproduction are available, price 3/–, from the Aeromodeller Plans Service, The Aerodrome, Stanbridge, Nr. Leighton Buzzard, Beds.

Squadron Leader "Tim" Hervey displays the graceful lines of Ariel which is also featured on our front cover this month. As a point of interest we would also mention that the model has performed satisfactorily fitted with a "Jetex" 200 unit.

A 34½" WINGSPAN RUBBER DRIVEN SEMI-SCALE MODEL

ARIEL.

DESIGNED BY

H.E. HERVEY.

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THE AEROMODELLER PLANS SERVICE.

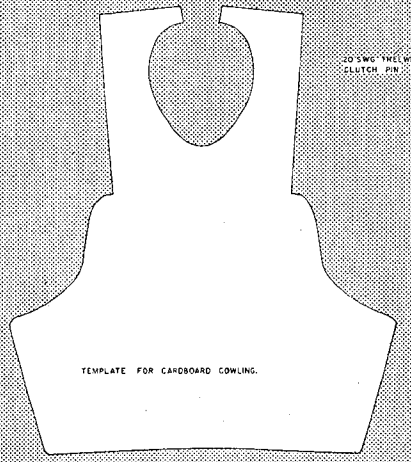
THE AERODROME STANBRIDGE BEDS

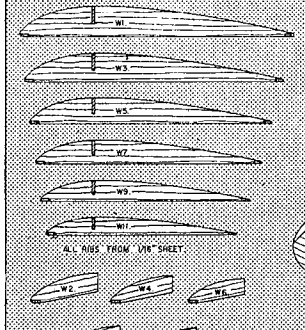
3/-

STRIP				MISC	
1	STRIP OF	1/16" X 1/8" X 36"	BALSA	1	PIECE OF CARDBOARD 9½" X 8¼"
2	" "	1/16" X 3/16" X 36"	"	1	" " 1MM PLY 6" X 6"
1	" "	1/16" X 1/4" X 36"	"	20"	OF 16 S.W.G. PIANO WIRE
1	" "	1/8" X 1/8" X 36"	"	22"	18 "
SHEET				6	" 20 "
3	SHEETS OF	1/16" X 3" X 36"	"	1	HARD BALSA BLOCK 1" X 1⅞" X 1½"
1	" "	1/8" X 3" X 36"	"		CELLULOID TUBING

ALL WOODS UNLESS OTHERWISE STATED ARE BALSA

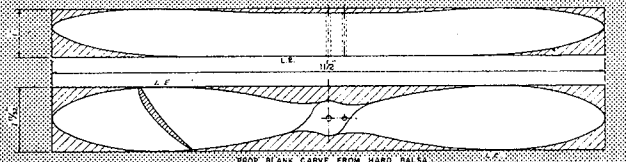
POWER MODEL WITH 3 STRANDS OF 1/4" X 1/32" X 16" LONG

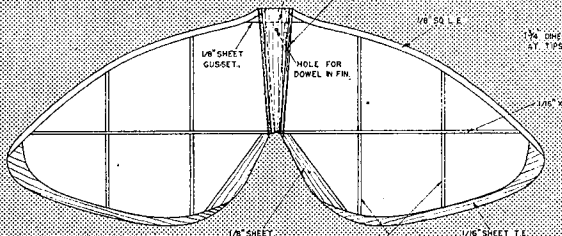


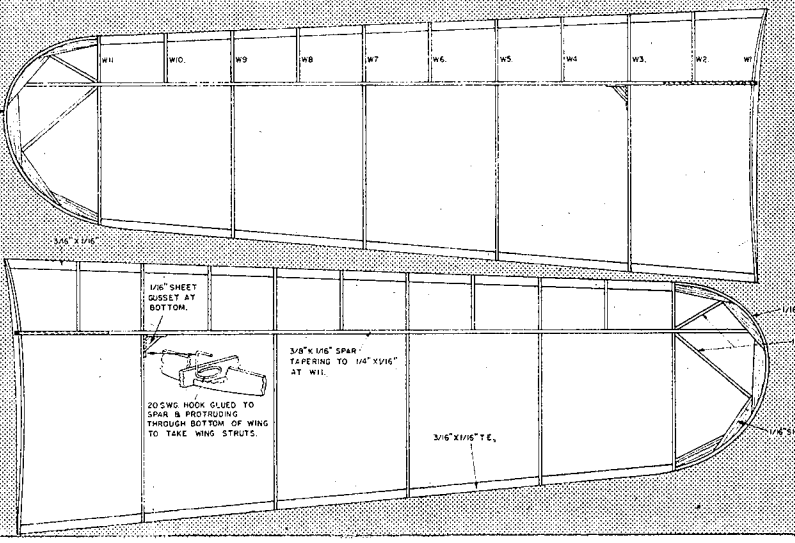


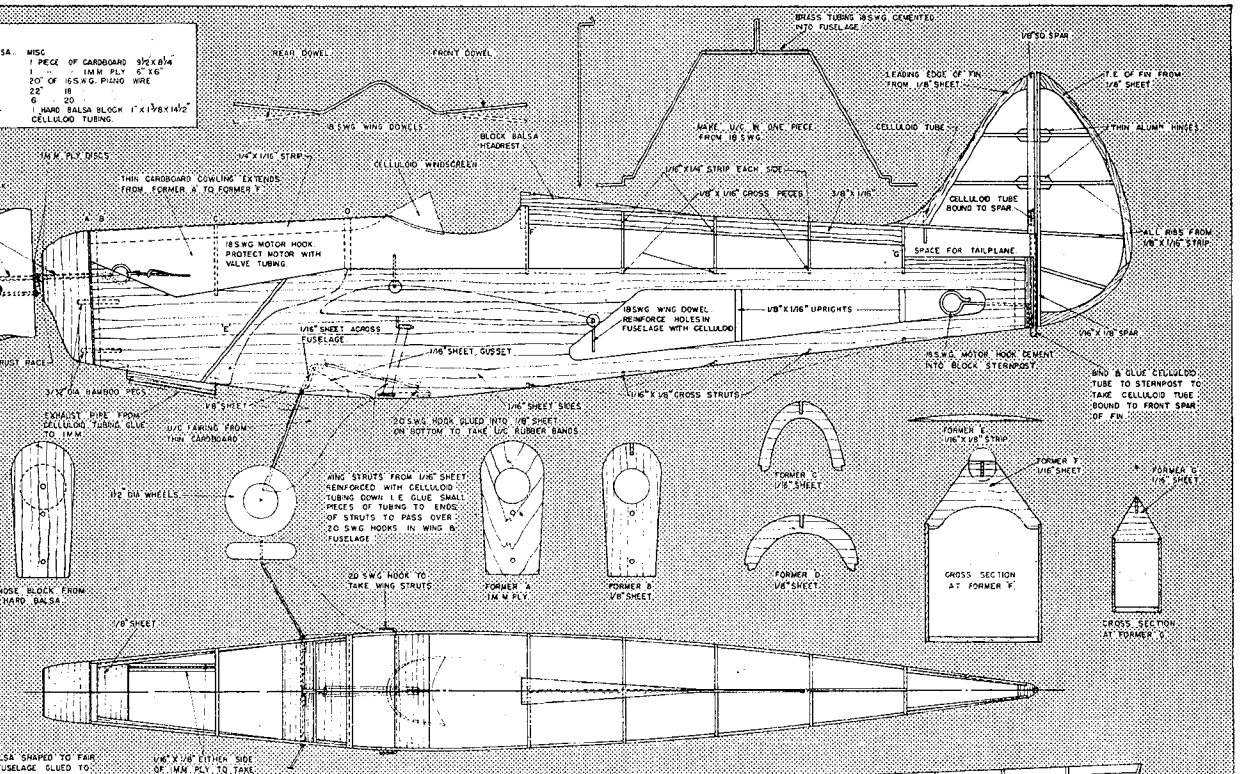
ALL RIBS FROM 1/16" SHEET.

ALL RIBLETS FROM 1/16" SHEET.





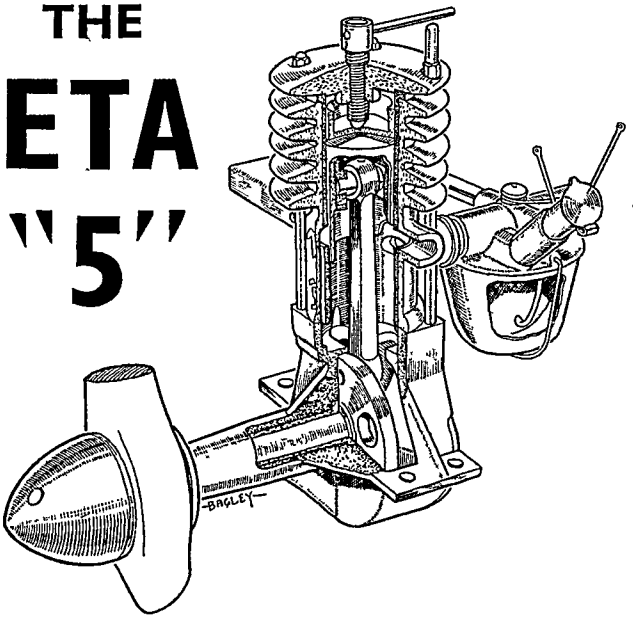




RSS 301

Engine Analysis

THE ETA "5"



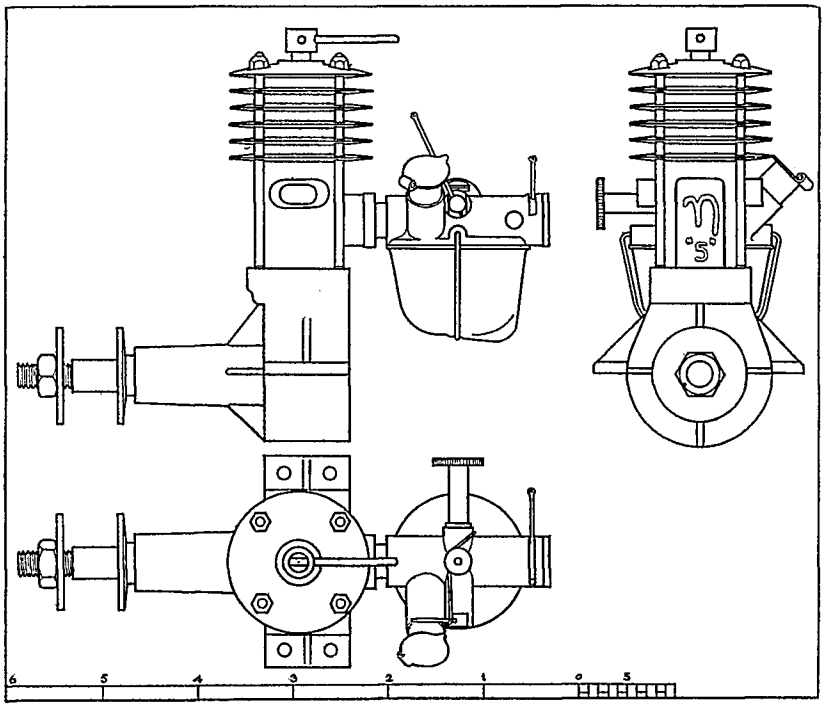
NUMBER FIVE · BY LAWRENCE H. SPAREY

WE must preface our report this month with a short note of apology. Readers will notice the absence of the AEROMODELLER airscrew especially designed for each engine by P. R. Payne who is unfortunately in hospital at the time of writing, and consequently unable to oblige. We shall therefore publish the drawings for this airscrew at a later date and would also mention that in the very near future equipment will be ready that will enable us to give dynamic thrust figures in place of the static thrust given at the moment, which will of course be of far more practical value to aeromodellers.

TEST

Engine : " ETA " 5 c.c.
Fuel : Maker's recommended.
Starting : Hand starting was used throughout, and no difficulty was experienced with the engine either hot or cold. The special air control device on the intake pipe helped starting considerably. The cut-out is efficient, at all reasonable speeds, but is inclined to be unreliable at the very high speed ranges.
Running : The speed range is somewhat limited for even running, but this seems to be a characteristic of the larger sizes of diesel engines. Flexibility is not, in any event, of great importance for model aircraft work. In one respect the ETA would seem to be well designed, in so far as the engine seemed most happy when running at speeds around that at which the maximum B.H.P. was delivered.
B.H.P. : Readers will by now be familiar with the characteristic graph curves of model diesel engines ; that is, the steep rise to maximum output, followed by an equally steep drop. Tests seem to show that the curves of the larger sizes of engines are steeper than those obtained from the small engines of 1 or 2 c.c. capacity. Another marked point of difference is that the maximum B.H.P. usually lies at a lower R.P.M. reading with the larger engines.

In the case of the ETA, maximum B.H.P. was discovered at 6,250 R.P.M. when a reading of ·1805 B.H.P. was taken. This output may be considered good, and compares favourably with the published B.H.P. figures for other makes of engines of this capacity. Makers' figures are, usually, unreliable, and tend to err on the generous side. The ETA does, however, deliver the power claimed for it.



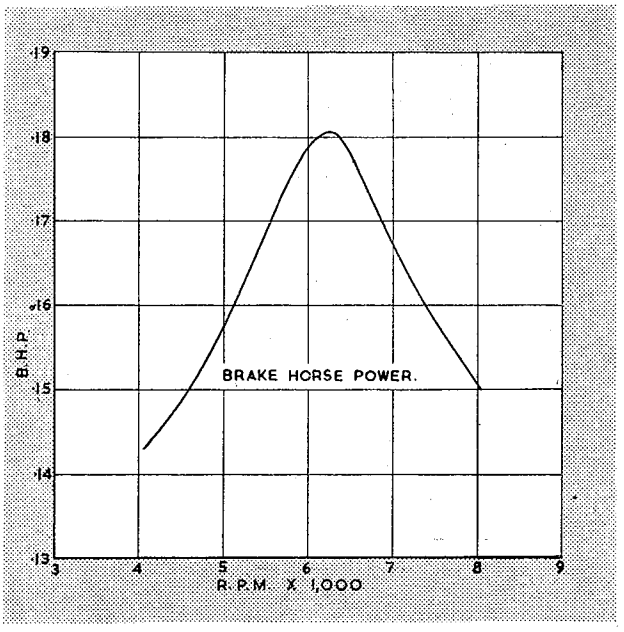
It will be seen that the limits of test extended over a range of only 4,000 R.P.M., as the engine would not perform consistently enough outside this range for reliable test results. At 4,050 R.P.M. the output was ·1428 B.H.P., while at 8,000 R.P.M. the output was ·1505 B.H.P. The difference between the highest and lowest reading is, therefore, approximately ·0400 B.H.P.
Power Weight Ratio : ·304 B.H.P./lb.
Static Thrust : For reasons previously explained tests were conducted only with an airscrew conforming to the recommendations of the engine makers, and an orthodox, symmetrical airscrew of 14 ins. diameter and 8 in. pitch was used.

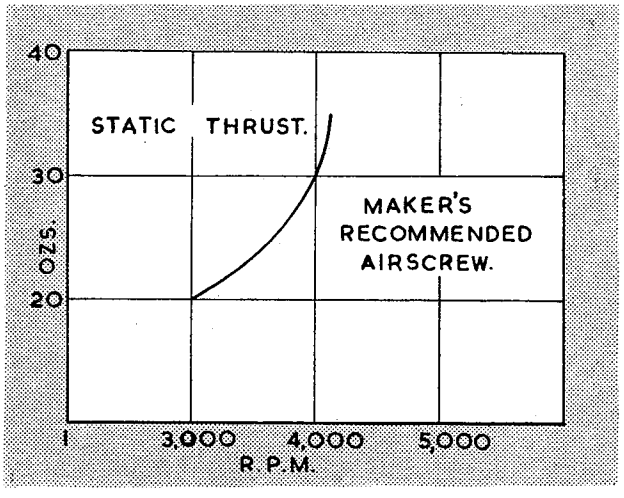
The considerable figure of 35 ozs. was recorded at 4,100 R.P.M. and the engine ran steadily under this load. A reduction in engine speed to 3,000 R.P.M. resulted in a static thrust of only 20 ozs., but uneven running at this low speed made tests difficult.
General Observations : The ETA engine seems to be particularly well made, and capable of standing up to hard conditions of usage. Control is good both for carburetter and compression settings.

Name: ETA " 5 " C.I. Engine. Silver series. Reference 5.CI. Two-stroke compression ignition pattern. Full written guarantee.
Manufacturers: Eta Instruments Ltd., Otterspool Way, Watford By-Pass, Watford, Herts. Tel.: Watford 3440/2725.
Price: £7. 19s. 6d.
Delivery: Ex works—obtained from retail traders only—no direct sales of units.
Spares. All spares available ex works—special repair and overhaul schemes are also offered. (See spares leaflets for full details.)
General Specification: Bore ·6718 ins./17·07 mm. Capacity ·305 cu. in./4·99 c.c. Stroke ·8593 ins./21·83 mm. Weight 9½ ozs./295 grs. Overall Height 4¼ ins./108 mm. Overall Length 66 ins./152·4 mm. Height above C/L 3½ ins./88·7 mm. Max. recommended speed 12,000 r.p.m. Nominal output ·2 H.P. Compression ratio 12/1 to infinity. Rotation either clockwise or anti-clockwise. Airscrews—Free flight 14×7 ins.—13×8 ins. Airscrews—Control line 12×10 ins.—11×10 ins.—10×12 ins.
Flywheel—2 ins. dia.×⅝ ins. (9/16 min.). Available from manufacturer.
Fuel: Recommended—3 parts Ether, 2 parts Gas Oil, 1 part Castrol XL. (2½% Amyl Nitrate may be added if available.)
Mounting: Reinforced beam lugs, faces machined. For upright or inverted installations. Hole centres ½ in. by 1·27/32 ins. for No. 6 woodscrews or 4 BA machine screws.
Material Specification: Crankcase, cylinder casing, and rear cover—precision die-cast hiduminium alloy. Cylinder head, rear cover, spinner—high grade duralumin alloy. Con-rod and piston insert—special high duty alloy. Piston, contra-piston, and main bearing sleeve—heat treated meehanite. Cylinder liner, crankshaft, and gudgeon pin—heat treated nickel chrome molybdenum steel. Pressure screw, clamping washers—heat treated nickel alloy steel. All other parts of first grade high tensile steel, light alloy, or brass.

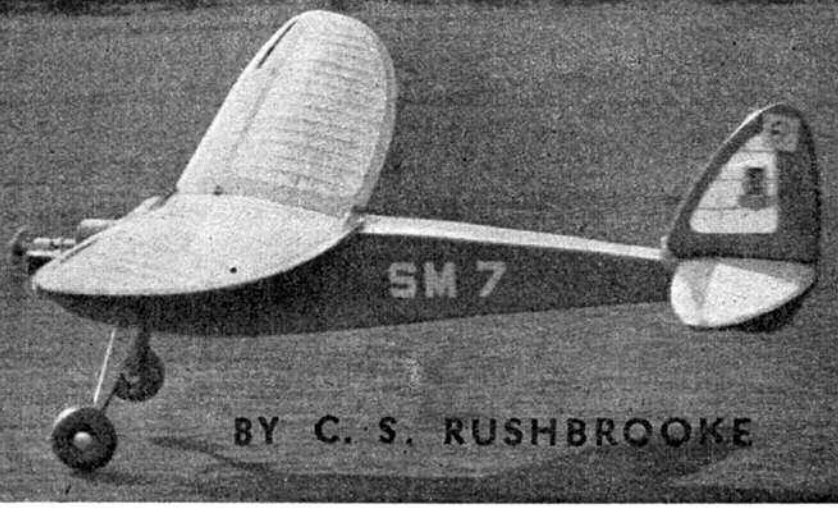
CONSTRUCTIONAL DATA

Crankcase: Fully machined for maximum crankcase compression, assisting both starting and performance. Thread in crankcase and rear cover threadmilled to ensure accuracy of fitting. Main bearing sleeve, ground externally, oil shrunk into housing, bore honed. All joints faces metal-to-metal, no gaskets.
Cylinder: Machined on all location faces: all portways machined. Fins tapered for maximum heat dissipation. Liner, ground externally, oil shrunk into casing, bore ground, honed and polished. Cylinder spigotted to crankcase to ensure correct alignment, and retained by four high tensile steel tension rods between head and crankcases.
Crankshaft: Machined from solid bar. Fully counterbalanced. Ground and lapped on main bearing and crankpin. Extension ground for concentric location of airscrews, flywheels, etc. Selectively fitted to main bearing. Bearing section 1½ ins. long by ⅜ in. dia. Drive to airscrew through friction connection, allowing slippage in cases of emergency.
Piston and Con-rod: Special design ensures maximum compression seal, as no gudgeon pin holes pass through piston. Gudgeon pin scoring and trapping are also eliminated. Finishing operations on the piston are performed *after* sub-assembly, obviating risk of subsequent distortion. Pistons are ground, lapped and individually polished to their cylinder sizes. Tubular gudgeon pin is ground. Con-rod machined from solid. Eyes burnished to size. Eyes are furnished with lubrication ducts.
Contra-piston: Ground and lapped. Adjusted by fine pitch hardened screw, with setting stop.
Induction: A machined alloy die casting forms the basis of the induction head, with a special form " last drop " drawn container. Fuel capacity from 2–4 mins. according to load. Being retained on taper anti-leak seating by a spring clip, the container is immediately removable for cleaning. Extended angular filler is closed by a snap top. Air intake has an integral spring loaded, self locking, sleeve choke. This may also be used to achieve a measure of speed control. The cut-out operates on the fuel cut-off system, *not* air bleed: the valve rotates in an anti-wear sleeve, and is lightly spring biased to the " ON " position. Both the choke and cut-out are fitted with extended levers for remote control fittings. A finely tapered needle, friction locked, is fitted to a special type of overfeed diffuser. The needle is so arranged that neither the taper section nor the jet aperture foul one another. The induction assembly is screwed into a boss on the cylinder, and locked by a milled-edge ring. Inversion may be performed in 15 seconds, no tools being required.
Finish: Crankcase, cylinder, head and induction assembly—special matt surface, corrosion resisting, easily cleaned to " as new " condition. Other components bright machined or polished.
General: Every unit is independently tested by *two* inspectors, the compression and jet settings being recorded. Twelve pages of literature are enclosed with each boxed unit, giving all necessary information on construction, installation, operation, performance, etc. A range of alternative fuels is quoted, with a comprehensive list of possible faults and cures which may occur through incorrect operation or use.
Accessories: Alternative 2½ in. Exhaust Extension Tubes, 4/6 per pair. 1 in. Filler Extension Tubes, 2/– each. Fully machined Flywheels, 12/6 each. Short venturi intakes for control line or special applications, 14/8 complete.

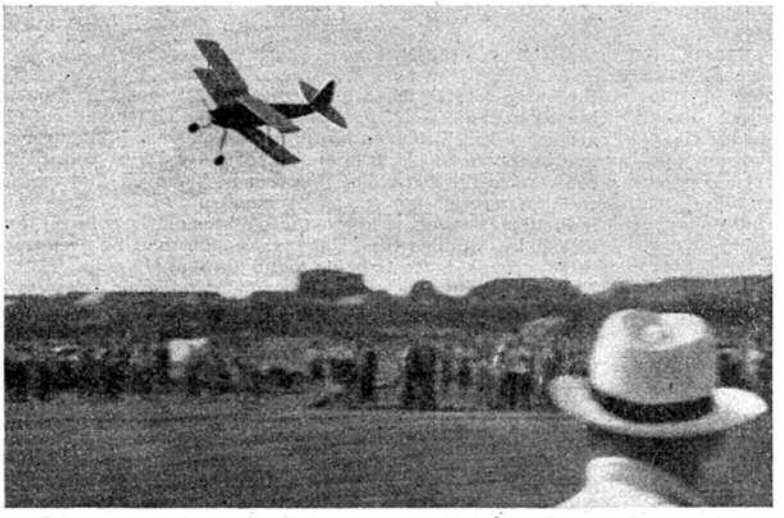




THE 1948 BOWDEN CONTEST



BY C. S. RUSHBROOKE



IN perfect weather conditions, the 1948 "Bowden" was flown off at Fairlop on August 1st, and proved a most enjoyable affair in spite of the uneducated crowd, cycles, cars, prams and dogs that seem to completely dominate this popular London venue.

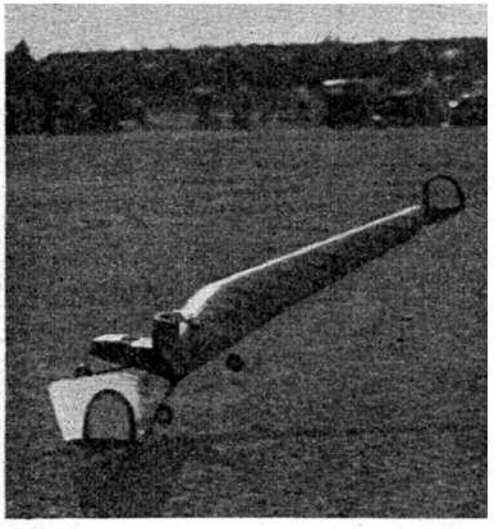
My last experience of Fairlop was the occasion of the Wakefield Trials, and conditions had gone from the ridiculous to the absolute sublime. It is surprising therefore to find that, in spite of weather perfectly suited to our brand of activity, the percentage of prangs and poor flying witnessed was that to be expected when the wind is howling down the runways. This rather confirms my personal opinion that at least 50% of current competitors would do far better to stick to their club grounds and gain some useful experience before entering a National contest and displaying their poor technique.

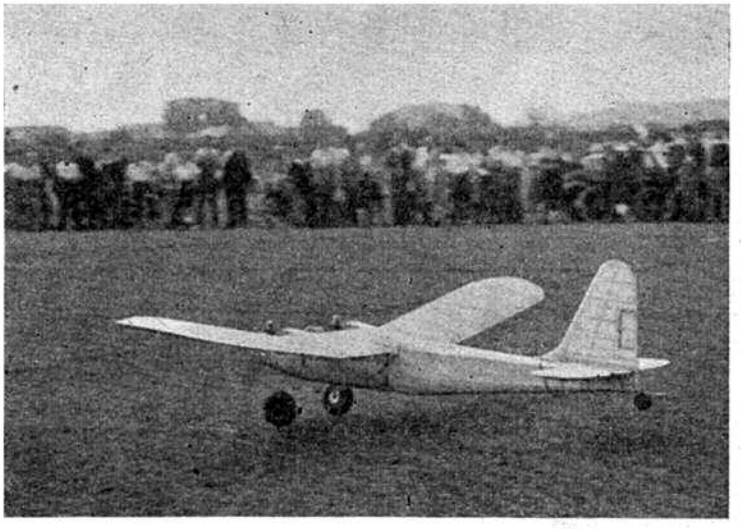
An entry of 72 models were lined up in the judging enclosure for the awarding of points for design and construction, and some exceptional examples of aeromodelling craftsmanship were on show. Amongst half a dozen machines "out of the rut" were a twin-engined job by Taplin, in which two E.D's are geared together by means of an idler shaft, a good looking biplane by Brooks of Blackheath, a couple of very interesting tailless models by Boys and Wilson and Fillon's sturdy monocoque job, with full span slots.

A very welcome surprise was the appearance of old timer Pavely with a large compressed air driven model. Of real vintage type—even to the well known skid undercart—this model proved remarkably stable in flight, and was a welcome change from the noise of diesel and petrol engines!

Outstanding for finish was Miller's "Bowden Contest", which later in the day showed that

Heading photograph shows most appropriately a "Bowden Contest" flown by Miller of Luton. Centre, a nice looking 'bipe' flies happily around the judges. Left, D. Pavely well known compressed air exponent nobly assisted by an enthusiastic "pumper-upper."





Photos: by E. Stoffel

it could fly as well as it looked, but undoubtedly the machine that caught the public fancy was a small scale " Typhoon " entered by our old friend P. Norman. This little job was—as near as I could judge—a true flying scale model, and employed a most ingenious system of pendulum operated ailerons and elevators that worked like a charm. The model took quite an extended take-off run, coming " unstuck " in a graceful and gradual climb, then continued a fairly steep circling climb to a high altitude. It is a pity that the timing of motor run was not on the top line, the model well exceeding the 45 seconds duration required in this precision type of contest.

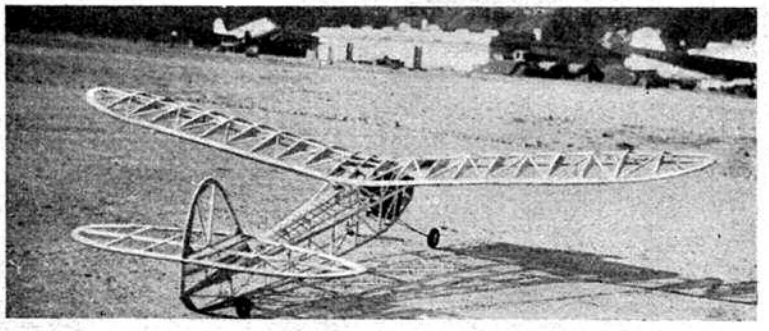
Acting with S.M.A.E. Chairman Mr. Houlberg as " flight pattern judge ", my job was to deduct points for various faults in take-off, general flight, approach and landing.

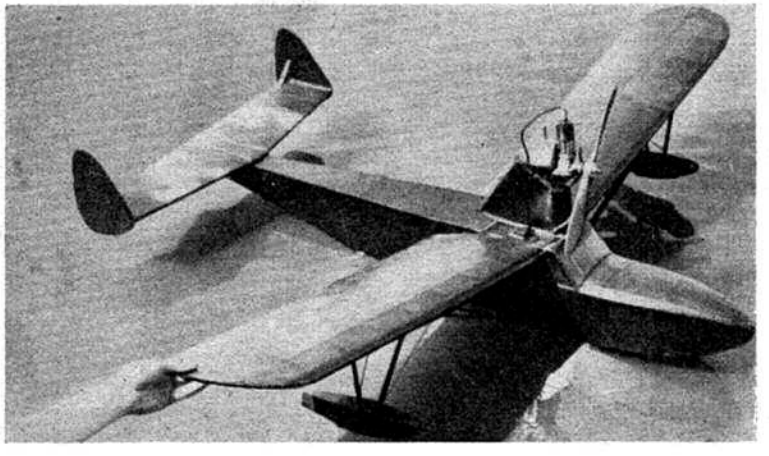
Many models, trimmed for steady precision rather than rocket-like climbing, only just cleared the circle of spectators, and quite a few flights were spoilt by folk getting in the way. Fortunately, no serious damage arose, but most of the officials and contestants would have been pleased to put a land-mine under the car that twice drove into (and once even stopped in) the contest area.

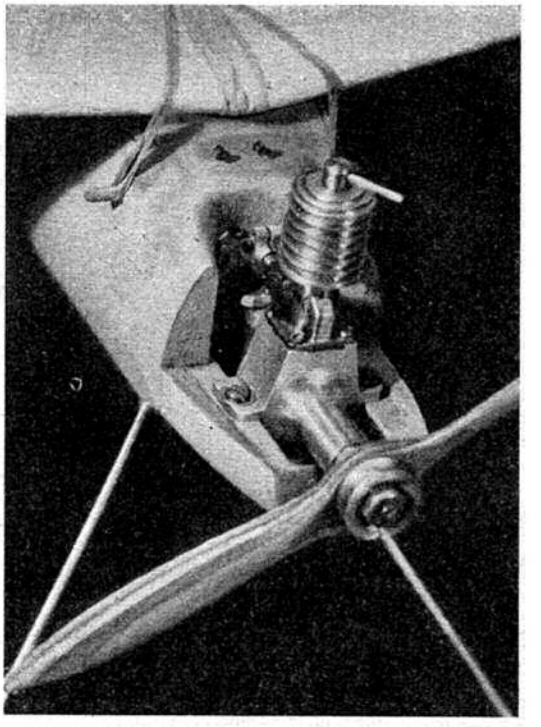
Faulty engine starting eliminated far too many fliers, and the ease with which some chaps got the engine going with just one flick was a lesson to the others. However, the majority were eliminated through flights of over or under the 30/60 second limits.

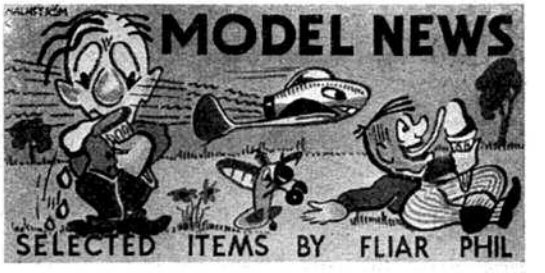
And so, with the heat still beating up from the tarmac, and a nose that will for weeks bring envious looks from the frequenters of my " local ", the 1948 Bowden ambled to a close. A most enjoyable day, some good flying, and what is more—not a grouse. What a pleasant change from some events we could all mention.

Top left, Howard Boys' powered wing gets away nicely. Top right, Col. Taplin's twin motored job which unfortunately crashed. Centre, Fillon with his model designed especially for precision contests. Right, a close-up of the biplane built by Mr. Brooks, shown in flight on the opposite page.









ALL is not sorrow for Fliar Phil, for even if he lost his ice-cream at Eaton Bray in International Week, he managed to keep his trousers—no mean accomplishment in the face of concerted "borrowing" by British and continentals . . . will the gentleman who "borrowed" his false teeth one night, please return them as he is still having to be gravity fed with 'hot' soup through a piece of neoprene tubing from a wedge tank . . .

From the sublime to the corblimey—and from last month's 'Model of the Month' to this! 575 hours went into the construction of "Hardrada" 16 ft. monster sailplane by B. Springall and D. Illsley of Burton-on-Trent. It weighs 516 ozs. all up, being made of spruce and balsa construction covered with silk. All credit to these two lads for their titanic effort—the laugh at the end of the line is the wing tongues which are made from best floor boarding—Fliar Phil hopes they nailed the carpet back securely over the hole . . .

Smothering the old rhyme about the China Station, Fliar Phil turns top centre left, to Cpl. Davies' 7 ft. 4 in. power job built over in Hong Kong while Raffing it. Nice bit of construction even if handicapped by balsa being cut only in 18 in. lengths out there—which disadvantage is however, off-set by

Ohlson 60's in plentiful supply at £5 apiece.

Lower centre, left, is G. Moss's 48 in. span Phoenix Mill's powered job designed for the Bowden. Developed from a prototype this is now a very successful model, but a Mark II is being produced with a redesigned layout to give more scalish lines in answer to the ever-ready critics.

Successful experiment is J. M. Fullerton's eight year old Brown Junior powered 52 ft. span flying boat shown bottom left. Still flying in its native Australia, it is now sponson-equipped—a unique feature being airscoops (visible on the fuselage) leading to the steps on the V-bottomed hull.

Model engineers took wholeheartedly to the well-known AEROMODELLER (Sparey) diesel designs and W. C. Cox of Carshalton has had excellent results from his ·8 c.c. The neat installation of the little engine in a 3 ft. span model of his is illustrated top centre.

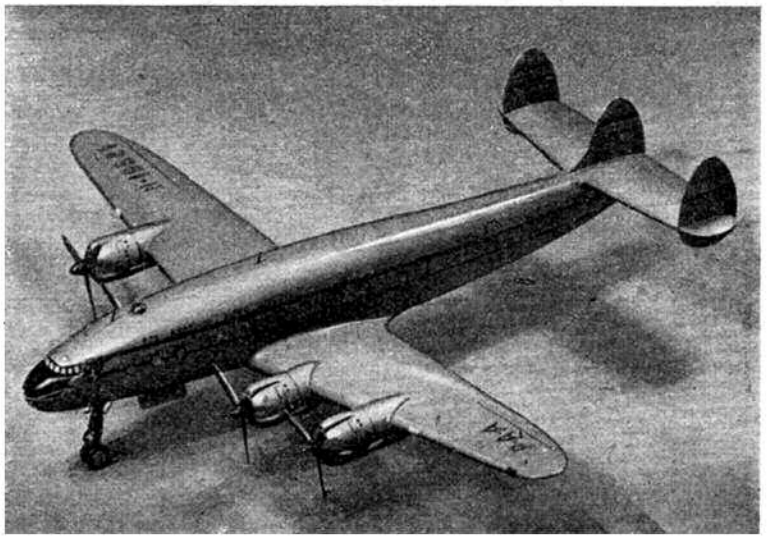
The turn of the solidifieds comes top right, the model being R. Dodds 25 in. span Constellation. Six months of spare time have produced a first class model entirely of his own construction, with such details as sprung undercarriage legs included. Nice work Mr. Dodd.

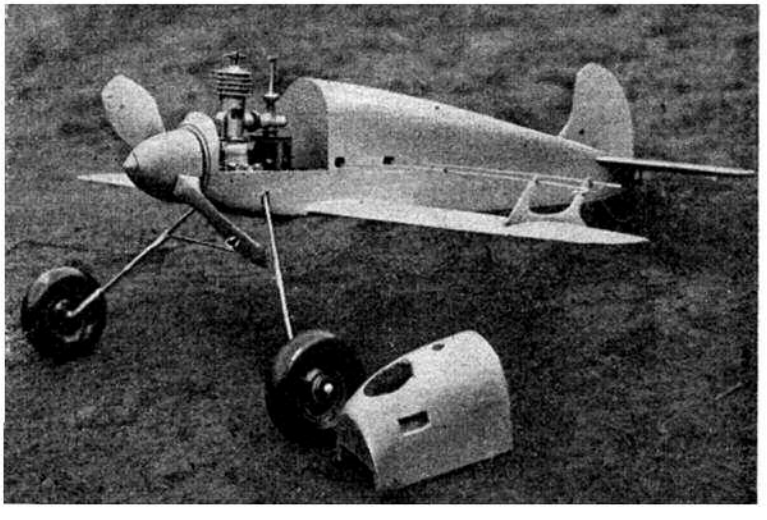
Model with the big 'boots' in photo centre, right, is 'Figaro'—control line design by C. G. Baker of Coventry. Powered by a comp E. D. the model was clocked at 55 mp.h. on its first flight.

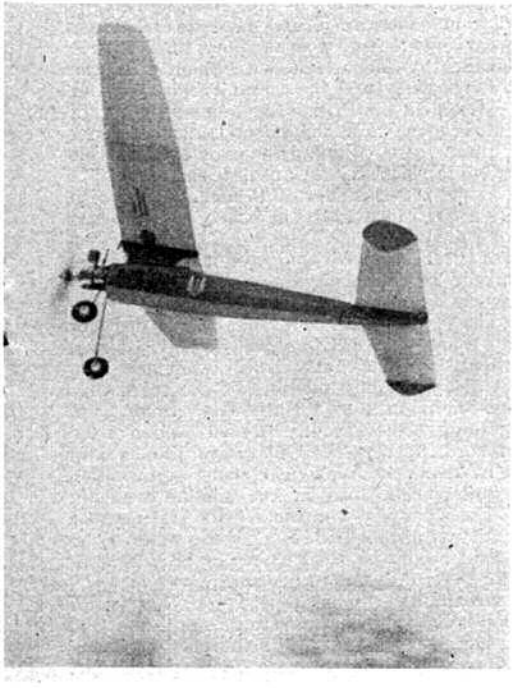
No-one can better the British at streamlined Wakefields and bottom right is a very pretty specimen by E. T. Watts of Yeovil. Its performance is good too—5 : 42 one day last April, though it's no lightweight—all up weight 12½ ozs.! Span is 51½ in. and area 209 sq. ins.

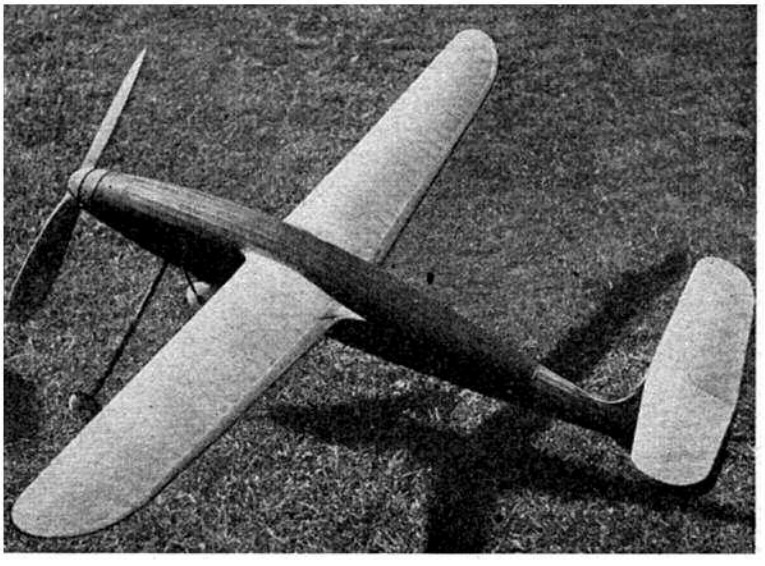
Last on the list, below, is a cracking shot of P. Cock's 'Hell's Angel' belting skyward, taken by V. S. Lodge also of Southampton. Oh, for more photos like this . . .

FLIAR PHIL.









Roy B. Chesterton—top man at the British Wakefield trials will be flying the notorious "Jaguar"—a design which has incidentally just won the Eaton Bray International Week Wakefield event against strong foreign competition.

F/Lt. A. D. Piggott—next on the trials list—a very steady performer noted for his ability to get in vast quantities of rubber and still keep the weight within bounds.

Bob Copland is shown here in characteristic pose at the Irish Nationals where once again he proved the winner—happy augury for Cleveland.

1948 WAKEFIELD

A PERSONALITY PARADE

As this issue appears our team will be landing at La Guardia Airport on the first stage of their aerial invasion to win back the coveted Wakefield Trophy, where it has resided unchallenged during the long war years and the difficult post-war years that have followed. Thanks to the enterprise of the S.M.A.E. and the generosity of those who have the movement at heart, it has been possible to fly a full team for what is the most important international aeromodelling event in the world. Once the aircraft touches down in the States our American hosts have made themselves responsible for the entertainment

THE revival of the Wakefield Trophy Contest after so many years " in abeyance " has created a great deal of interest in this premier event of the aeromodelling world, and naturally our readers will be interested in the capabilities and qualifications of the chaps who will carry the flag to the States in August in their effort to regain for this country the " Blue Riband " of model aeronautics.

The team comprises two " old hands " in Bob Copland and Len Stott, both of whom figured in British teams that visited America in previous years, and four newcomers to the status of Team Members.

Top man at the Trials was Roy B. Chesterton of the Northampton M.A.C., who flew one of the notorious " Jaguar " machines designed by fellow club member E. W. Evans. This model, with its deep under-belly protuberance, employs a diamond fuselage with a midwing mainplane location, and is well known for its duration possibilities under rough weather conditions.

" R. B." is 23 years of age, and at present a student of Aeronautical Engineering at Loughborough College. Taking up aeromodelling in 1936, the war and service as a pilot in the R.A.F. seriously curtailed his activities, but he returned to the hobby seriously in 1947. With main interests centred on Wakefields and free flight power, a number of local successes have come his way, but placing in the 1948 Team is his first National honour.

26 year old F/Lt. A. D. Piggott joined the R.A.F. in 1942, and now holds a Short Service commission. Commencing with " solids " in 1933, he graduated into the flying " racket " about 1935, and pioneered some of the first lightweight models developed from American ideas. Had several minor successes in pre-war events whilst a member of T.M.A.C. Later joined Blackheath, and whilst with them won the K. & M.A.A. Cup for biplanes and the Caton Trophy with an 18 minute flight. Also held the British seaplane record for an hour or so one afternoon—and the hand launched glider record for two or three years. Joining the Croydon club this year, he placed 2nd in the M.E. No. 2 Cup contest.

His Wakefield model is a slabsider of 45 inches span, with two-bladed folding prop., retractable undercart, and powered with 16 strands of $\frac{1}{4}$ in strip.

Third member of the Team needs no introduction from me, his past and current record being known wherever aeromodelling is discussed. Bob Copland, aeronautical draughtsman at Hawkers, is 30 years of age, but looks very little older today than when we first " clashed " some twelve years ago.

Member of the British Teams that went to America in 1936 and 1939, he was also a leading member of the team that journeyed to Jugo-Slavia in 1938 for the King Peter Cup, cleaning up everything before them. A past holder of the World duration record, he won the Gutteridge Trophy and M.E. No. 2 Cup in 1945, the Wakefield event at the 1946 Irish Nationals, and placed third in the similar event in 1947. At various times has also won the Weston, Pilcher and National Cups, and was until quite recently top man in the r.t.p. category. Still holds the British Indoor H.L. record, which has stood for over ten years to his credit.

The Copland streamlined model is too well known to warrant description here, but it is interesting to note that the majority of Bob's successes have been with this class of model. His 1948 version is very little different to standard, but

TEAM WHO'S WHO

BY C. S. RUSHBROOKE

and accommodation of their visitors so that no precious dollars will be spent in the effort to retrieve this " Blue Riband " of model aeronautics. No matter who wins, this is an event that merits the fullest possible account in our columns, and readers will be glad to know Editor Rushbrooke—" Rushy " to his legion of aeromodelling friends—will be there to provide a first-hand story of the epic struggle. Results and photos will be flown back immediately after August 27th, and our next number will feature the contest in words and pictures. Look out for the special " Wakefield cover " of the October issue.

employs an ingenious variable pitch prop, and of course a de-thermaliser.

Next in the list we find newcomer M. J. King of West Essex Aeromodellers, who, though dabbling with aeromodelling for some years, has only recently taken up competition flying seriously. 19 years of age, and for two years a student at Miles Aeronautical Technical School, he has concentrated on rubber driven models, and is current holder of the West Essex r.o.g. record with a time of 15 : 23, put up in the 1946 Gamage Cup contest in which he placed 9th.

King's model is of circular fuselage section, the wing being mounted on a faired-in pylon. Anhedral to the tailplane provides, with the single wire " undercart," the necessary three point stance. Wingspan is 38½ inches with 6 inch chord, and employs built up trailing edges and D box leading edge.

P. C. (" Chuck ") Doughty of Birmingham, 32 year old builder, though well known in the Midlands, is perhaps not so familiar to those who do not get around to meetings outside their own locality. Competition Secretary of the Birmingham M.A.C. for seven years, " Chuck " subjugated his flying activities in favour of keeping the club on its feet, particularly during the difficult war years. Looking after the younger element is his forte, his view being that " the Juniors of today are the champs. of tomorrow "—an opinion he has pursued to such good intent that he (and other old hands in the club) are now having to sit back and see the juniors put it across them!

Placing third in the Individual Championship in 1942, he was a member of the team which won the National Cup for Birmingham in 1943, and has a number of Midland Area successes on his scalp belt. Is now getting into his flying stride again, and is all set (maybe!) for swiping all the club cups this year.

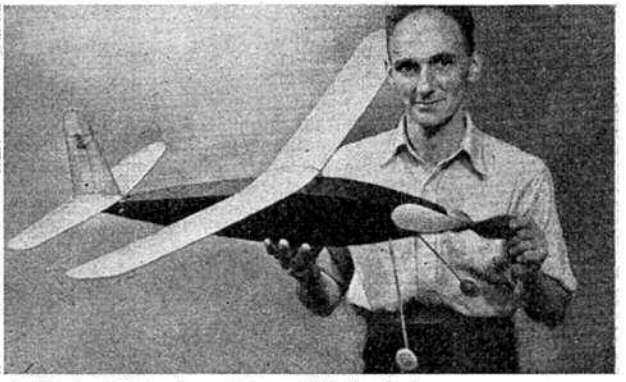
Doughty's model (an 8 year old design) is a good, straightforward job of simple, orthodox lines, but his success lies in a knack of trimming that few of us possess. Cutting his aeromodelling teeth on wind and rain, weather conditions as encountered at the Trials did not worry him (?), and should the Weather Clerk play dirty at the Finals, he should be well set.

" Tail-end Charlie " of the Team is Len Stott—fra Halifax tha knoaws. Member of the Team that competed in France in 1938, and again a member of the 1939 crew, Len (or as one American contemporary called him " Leon Stout ") at 43 is the oldest chap in the 1948 Team, and as such will have much responsibility on his shoulders. However, his previous experience at these meetings, coupled with his business experience as t'boss of Halfax Models Ltd. should make him fully proficient to deal with any items that crop up.

Well known all over the country, his broad accent is as much a hallmark as his model, the " Flying Minutes," of which it is truly said, " No-one can fly the job like Stott." This model, co-designed with the aid of that other tip-top Wakefielder Norman Lees, is the type of streamlined, shoulder wing machine that is typically English in its conception, as distinct from the utilitarian and purely functional design regarded as the American ideal.

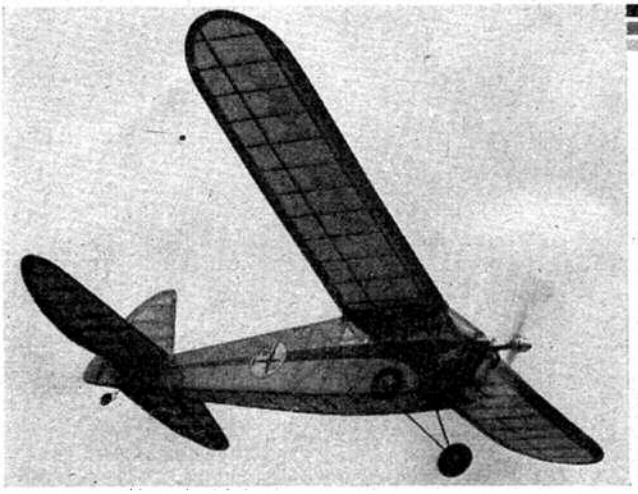
Well, there they are, old hands and new, and our best wishes will go with them to Ohio, to which all aeromodelling attention will be turned on August 26th and 27th. May the " old pot " find its way back to our shores through the good work of one of the " lucky six."

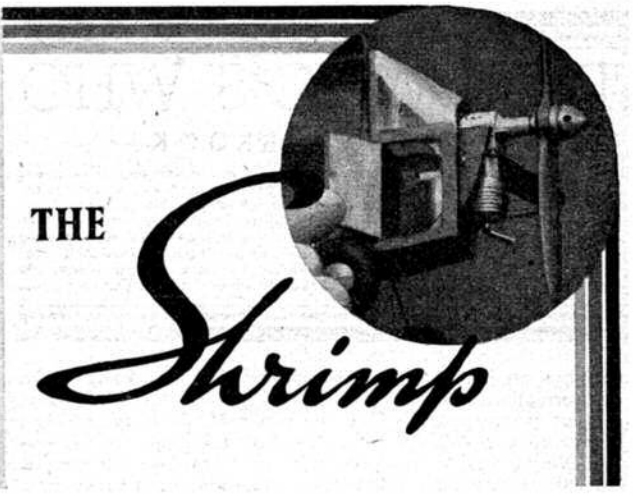
M. J. King, member of the progessive West Essex Aeromodellers, provides a very promising touch of new blood to the team, and may well be up with the leaders.



P.C. (" Chuck ") Doughty, well-known Midland enthusiast, brings many years of experience to his aid, and should know all the answers to the whims of his eight-year old design.

Last but not least—Len Stott, " Doyen " and third time member of the team, will be team captain, but we may be sure these duties will not prevent some cracking flights from his famous " Flying Minutes ".





THE Shrimp

A GOOD-LOOKING CABIN DESIGN FOR ·2 c.c. DIESELS BY G · A · PIKE

THE Shrimp was designed around the ·2 c.c. Kemp diesel, and while combining both pocket size dimensions and trim lines, she has the realistic flight characteristic of a model many times her size. Although the Shrimp is quite capable of holding her own against some of the larger models on the competition field, she is really " in her element " when it comes to precision flying from a restricted space on a calm evening. The Shrimp will take off unassisted with clockwork regularity after a run of about five or six feet, and is a joy to behold as she fairly buzzes overhead.

As the model is very easy to build and the plan is self-explanatory, only a few notes will be given on the construction and flying of the Shrimp.

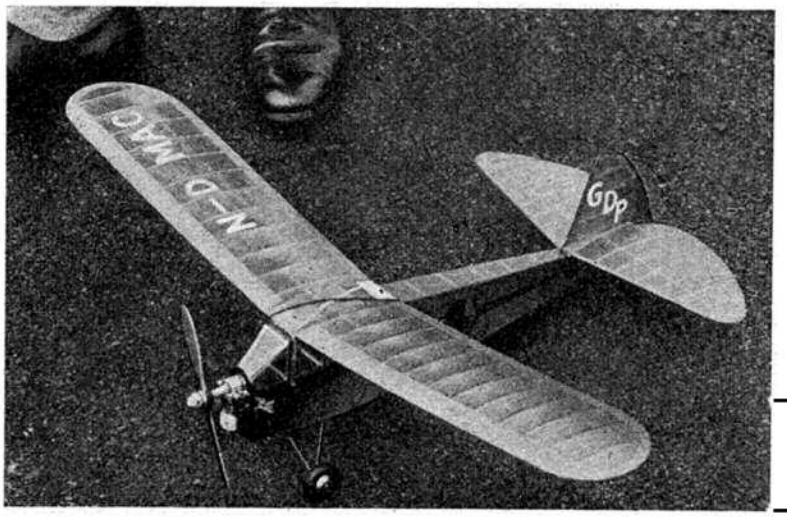
Build the two fuselage sides together using straight grain hard balsa for the longerons, testing them for equal strength beforehand. Note that a door is provided on the starboard side only, this allows access to the carburettor which protrudes through the firewall into the fuselage. The tail platform is carved from soft balsa. Note that the tail unit retaining rubber band hook is recessed into the top of the fuselage, this allows an unobstructed path through which the tailplane may shoot forward in the event of a collision. The wing is constructed directly over the plan in the usual way, the 1/16 in. medium soft leading edge sheet covering cum upper mainspar should be lightly cemented to the ribs along its rear edge first, then the sheet may be cemented along the leading edge of the ribs and to the leading edge itself where it may be held in place with pins until dry. Note that the dihedral is one inch only under each tip. The tailplane and fin are built on the " cap-strip " principle, which apart from its high strength/weight ratio qualities, also possesses an unusually high resistance to warping. The outlines are first constructed over the plan, and the spar positions are notched, they are then lifted from the plan and the spars are inserted. Cut the capstrip from 1/64 in. hard sheet balsa slightly longer than their correct length, then, starting in the middle and working to the tips, cement all the strips to the trailing edge and mainspar only, when dry, trim off the leading edge of each strip to form a butt joint at the leading edge. The elevators and rudder are sanded to a streamlined shape and fitted into position before covering.

The entire framework should now be carefully sanded smooth, using a sandpaper block. The original model was covered with salmon coloured Japanese tissue and given three coats of full strength clear dope, the trim on the fuselage was dark blue tissue doped into place. Mount the engine in position and push the carburettor in place through the door. Note, the needle valve extension was shortened on the original model, in order that it may be adjusted from the carburettor compartment, this adjustment, however, is only required occasionally on the flying field.

Choose a calm day when test flying the Shrimp. Have your model balance on the mainspar, and hand glide until a long flat descent is obtained, small adjustments may be made as required using the elevators and rudder. The author flies his model in both left and right hand circles of various diameters, this is easily accomplished thanks to the model's spiral stability.

The author prefers to use the starting jig shown on the plan, using a length of rubber-covered flex as a starting cord. A hypodermic syringe with the needle slightly bent towards the end is most useful for filling and emptying the tank, and may also be used for sucking excess fuel from the cylinder in the event of hydraulicing.

Start up the engine and launch the model into wind, or, if a smooth surface is available, let your Shrimp take off on her own, then—cast your eyes skyward and observe the prettiest little model that ever took the air.



Good looks and simple construction combine to make the Shrimp an unusually attractive miniature. Note the neat engine fitting, and access door to tank and carburettor adjustment.

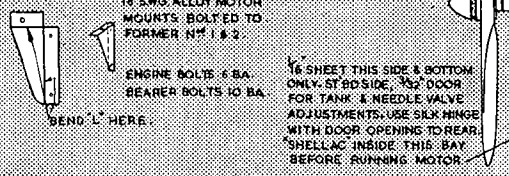
A 25½" WING SPAN BABY POWER MODEL.

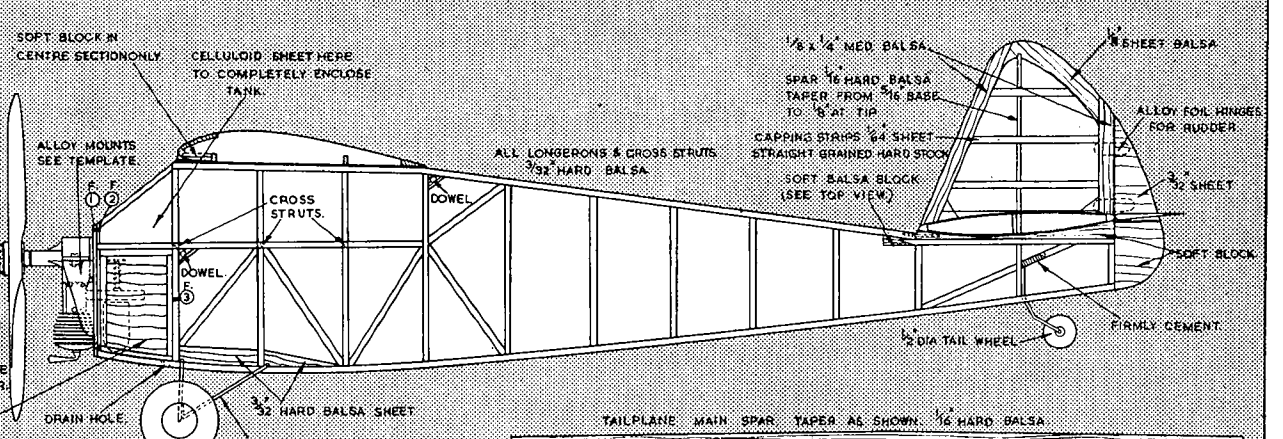
SHRIMP.

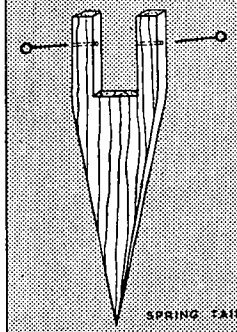
DESIGNED BY
G. D. PIKE.

2/-

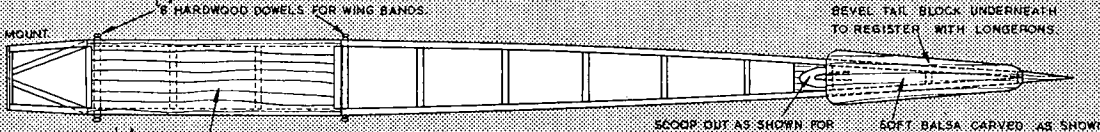
ALL WOODS EXCEPT WHERE OTHERWISE STATED ARE BALSA.
POWER WITH K.E.M.P. 2 CC. DIESEL.

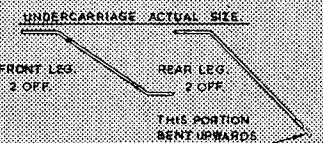


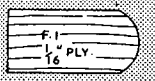


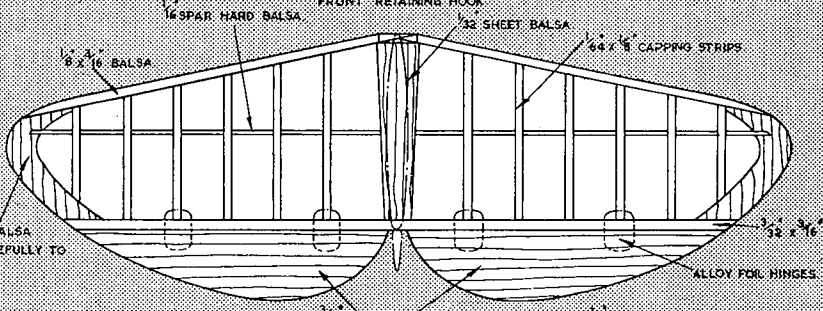


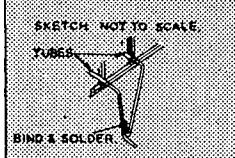
SKETCH ON LEFT SHOWS STARTING JIG AS USED BY DESIGNER. SHAPE FROM HARDWOOD TO FIT OVER ENGINE MOUNTS & FORM THE TWO LOCATING PINS FROM 16 S.W.G. PIANO WIRE, TO FIT IN SUITABLE HOLES DRILLED IN THE SIDES OF ENGINE MOUNT.

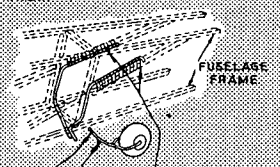


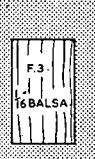


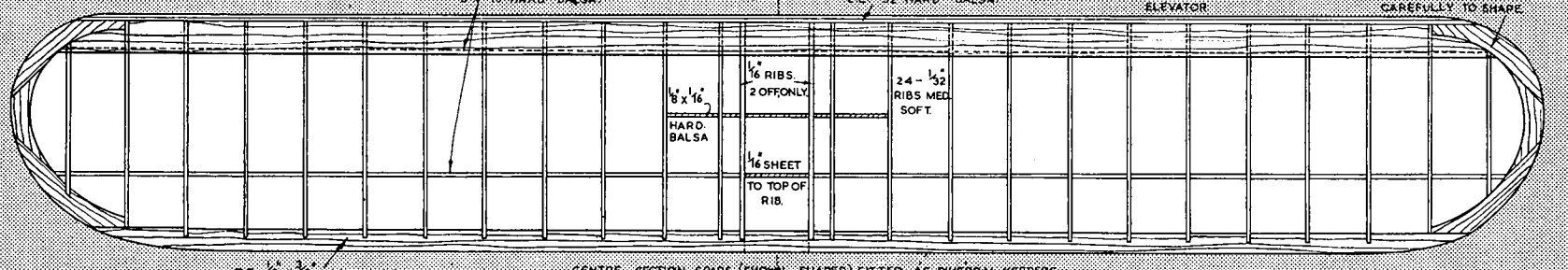




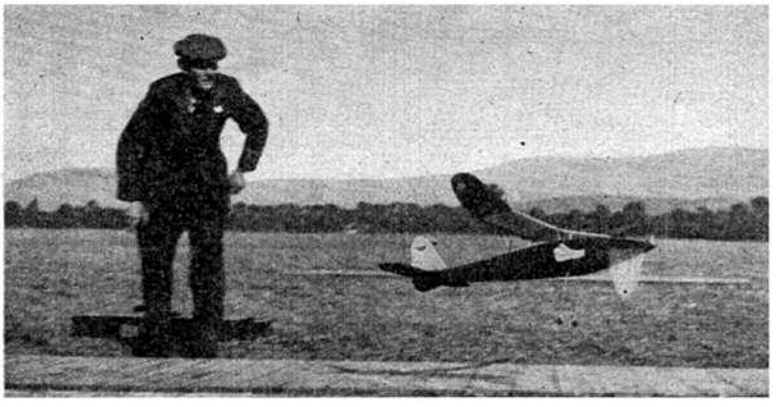


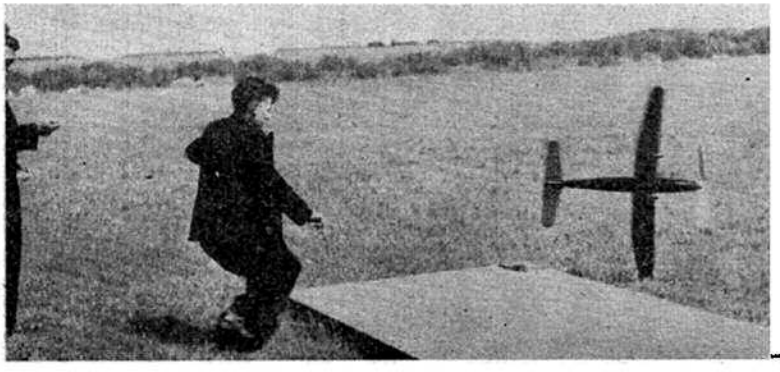






PET. 300.





THE 1948 IRISH NATIONALS

BY H · G · HUNDLEBY

WERE we to describe the Irish Nationals this year as a " blow out " most of our modelling friends would doubtlessly imagine we were referring to the event from a gastronomical viewpoint. This is, however, not strictly true, as " blown out " they were by a 40–60 m.p.h. gale that continued unabated throughout the day. By way of compensation King Sol kept the gale company and shone brightly, although undoubtedly any thermals he managed to produce lay nearer the horizontal than the vertical. Such was the strength of the wind that few competitors reached the take-off boards intact, whilst fewer still got away without mishap.

Pitcher of Croydon was one of the first to fly, his lightweight machine causing a deal of anxiety, but it very soon disappeared over the horizon in the usual Pitcher style. Bob Copland of course took the gale in his stride, and the famous Copland running shoes were soon twinkling into the distance. Readers will note the times of these top two men, which give a fair indication of the wind. Both Copland's and Pitcher's models were lost until very late in the day when they were returned, having been found within a stone's throw of one another. Pitcher then attempted another flight in view of Copland's four seconds lead, but the gale got the better of him and the contest was won on a single flight only.

One after another models continued to be smashed at the take-off boards or were hurled back to Mother Earth by the vicious air pockets that were very much in evidence. Kenny Young who did well the previous year found a beauty, as did also Harry Daulman, popular visitor from Belfast. Gordon Drew from the same city, managed a modest 27·5 seconds which even so gained him third place, yet another indication of the appalling weather conditions. In addition to the Belfast contingent the meeting was very well supported from all over Ireland; clubs from Ulster, Sligo, Shannon, Galway, and Londonderry competing, not forgetting the Dublin

From top to bottom, pictures are as follows :—Firstly we have a general modelling panorama with Trevor London and Monty Stewart in the foreground, then our old friend Pitcher of Croydon demonstrates how to take off, gale or no gale : Third picture shows Dublin's own Billy Brazier putting his Jaguar through its paces. Lastly we have a typical "gale incident" oft repeated during the event.
Extreme right is a group of Belfast enthusiasts bringing out a Wakefield, whilst immediate right shows G. Drew having fun and games at the take-off board.

RESULTS

CLASS " A " WAKEFIELD

1st	R. Copland	Northern Heights	54·2
2nd	J. T. Pitcher	Croydon	50·9
3rd	G. Drew	Belfast	27·5

POWER DURATION

1st	W. Dean	Zombies	187·4
2nd	S. Corrie	Sligo	126·4
3rd	S. Leet	Dublin	125·4

lads who did most of the spade work for the meeting. In particular we would mention Monty Stewart and D. Woods who were responsible for most of the organisation and undoubtedly suffered many grey hairs as a result. Control was as usual in the capable hands of Gilbert Rowe, whilst the dulcet tones of Chris Bruton were in evidence at the mike. His commentary, usually most entertaining, was of necessity a depressing sequence of announcements regarding competitors withdrawing owing to damage. With over 80 per cent. of the total entry either smashed, battered or otherwise wrecked, no one was sorry to see the end of the Wakefield event and still the gale flattened the grass on Baldonnel field !

The power contest although not such a "slaughter" as the Wakefield nevertheless had a goodly quota of prangs. The writer facilitated the packing of his model for its homeward journey by breaking the fuselage into several pieces. This apparently provided a bevy of photographers both amateur and professional with the photograph they had been waiting for !

Bill Dean demonstrated a typical "Slicker" climb that brought him into first place with a full minute's lead over his nearest rival Corrie of Sligo. Leet of Dublin flying a "Banshee" performed well and took third place only one second behind Corrie. It was gratifying to note that almost everyone "had a go" in spite of the gale and flying was on the average better than that in the Wakefield. The gale did of course spoil what would otherwise have been a first-class National meeting, but modellers being what they are everyone enjoyed a chat with old friends, and the opportunity of making new ones. This general get-together continued long into the evening when a dinner that defies description to we rationed Britons, was held in Dublin.

And so ended the 1948 Irish Nationals, an event that every modeller should attend at least once in his lifetime. For good flying amongst magnificent scenery, food that we dream about but very rarely see, and above all the outstanding hospitality of the Irish, the event has no equal.

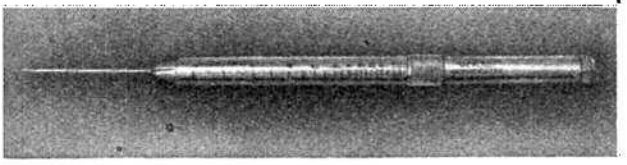
Top left and right show a similarity of launching style with Bill Dean and his Slicker featured on the left and D. W. Lee with his Frog powered pylon job on the right.
Centre shows the only flying scale model in the power contest, a Piper Cub owned by J. P. Evans of Dublin.

Aeromodeller Photos.

REED TYPE TACHOMETERS

By Ron. Warring.

Left shows the beautifully finished de luxe American "Rev-Tuner" and right the plain but equally effective British "Dekka".



ABOUT the middle of 1947, two very simple and highly ingenious rev. counters appeared on the American market, both based on the principle that a simple cantilever beam (of spring material) has a certain natural frequency of vibration and if this value is equal to that of any vibratory mechanism in contact with it the cantilever beam will vibrate with maximum amplitude in resonance with the "producer".

The natural frequency of a simple cantilever beam is a function of its length and mass per unit length and also moment or inertia of the beam section and modulus of elasticity of the material itself, all of which are known values or can be readily calculated. To make the instrument adjustable to cover a range of frequencies, one or other of these criterion must be variable. Obviously, the simplest case is to make the free length "l" variable.

For the reed itself, spring steel is an obvious choice, which immediately fixes the value of E, the modulus of elasticity, whilst the moment of inertia depends upon the section employed, i.e. circular or rectangular.

The basic formula for the natural frequency of a simple cantilever beam as considered above is :—

$$f_n = \frac{K}{l^2}\sqrt{\frac{EI}{\mu_1}} \quad \text{cycles per second}$$

where f_n = natural frequency
l = free length
E = modulus of elasticity
I = moment of inertia of beam section
μ_1 = mass per unit length
K = 99·10

A circular wire is the simplest to consider,

when $I = \frac{\pi d^4}{64}$

and $\mu_1 = \frac{\pi d^2 l}{4} \times \triangle \times \frac{1}{l} = \frac{\pi d^2 \triangle}{4}$ where $\triangle$ = density

Hence $f_n = \frac{K}{l^2}\sqrt{\frac{E.\pi d 4 \times 4}{64 \times \pi d^2 \triangle}}$

$= \frac{K}{l^2}\sqrt{\frac{Ed^2}{16\triangle}}$

$= \frac{K^1 d}{l^2}\sqrt{\frac{E}{\triangle}}$ cycles per second

For spring steel, $E = 29 \times 10^6$
and $\triangle = \cdot 283$ lbs. per cubic in.

Thus for circular spring steel reed :— $\sqrt{\frac{E}{\triangle}} = 10^3\sqrt{\frac{29}{\cdot 283}}$

or $f_n = \frac{K^{11} d}{l^2}$

and the instrument is variable if the free length, l, can be varied. The diameter d then determines the range, and a practical figure for model work (2,000 to 15,000 cycles per minute) is d = 0·036 or 20 s.w.g. With a fixed value of "d" we can arrive at the formula :—

$$f_n = \frac{K^{111}}{l^2}$$

K^{111} is found to be $9{\cdot}03 \times 10^3$ for 20 s.w.g. spring steel wire

i.e. $f_n = \frac{9{\cdot}03 \times 10^3}{l^2}$ cycles per sec.

$= \frac{54{\cdot}28 \times 10^3}{l^2}$ cycles per minute

or, $f_n = \frac{54{\cdot}28 \times 10^3}{l^2}$ r.p.m. .. .. .. 1.

Similarly, the solution for l is :—

$$l = \sqrt{\frac{54{\cdot}28 \times 10^3}{f_n}} \qquad f_n = \text{cycles per minute}$$

$$= \frac{233}{\sqrt{\text{r.p.m.}}} \text{ inches} \quad .. \quad .. \quad .. \quad .. \quad .. \quad 2.$$

Either of these formulas can be used to calibrate the instrument, No. 2 being more convenient since we can calculate "l" for given r.p.m. values.

The commercial reed-type counters on the market utilise metal bodies retaining the spring, the spring being slid in or out of the holder to vary the free length. A marker attached to the enclosed end of the spring gives corresponding r.p.m. reading on the scale inscribed on the body. The original American Vibra-Tak and its British counterpart, the Bat "Dekko" both use circular wire. The other American article is a more elaborate affair with a flat spring section.

Such instruments are highly portable. They are little bigger than a fountain pen and fit into the pocket just as easily, the wire spring pushing completely into the body.

They have the great advantage of not putting any load on the motor during measurement, measurement being taken of the impulse rate of the producer—not the speed of the crankshaft, but the result is the same. Hence they give a true speed reading under any condition. At the same time they are very accurate, given correct scale and uniform spring material with a known value of "E" and density.

Besides accuracy, the reed-type counter is also quite sensitive. A slight variation in length equivalent to 100 r.p.m. on the scale will usually make all the difference between maximum resonant vibration and no appreciable vibration at all. In use, the counter is simply laid firmly against the motor and the wire length adjusted by moving the slide up and down until a point is reached where the tip of the wire oscillates rapidly with considerable amplitude. With a little practice, this point is very easy to determine.

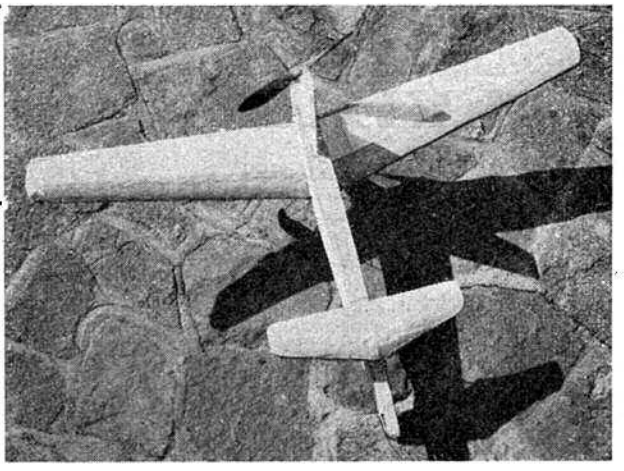
There is no reason why a similar counter should not be made of a length of 20 s.w.g. wire right-angled at one end and clamped between two pieces of wood wrapped round with rubber bands; and a scale calculated, drawn out on paper and stuck to one of the pieces of wood in the correct place. Provided the wire is to standard specification, the instrument will be reliable. The whole thing is as simple as that. It is the material specification which finally determines the accuracy, together with the correctness of the calculated scale.

(Table for 20 s.w.g. spring steel wire ($E = 29 \times 10^6$: $A = \cdot 283$)

r.p.m.	$\sqrt{\text{r.p.m.}}$	$l = \frac{233}{\sqrt{\text{r.p.m.}}}$ inches
1,000	31·62	7·36
2,000	44·72	5·20
3,000	54·77	4·25
4,000	63·25	3·68
5,000	70·71	3·30
6,000	77·46	3·01
7,000	83·67	2·79
8,000	89·44	2·60⁵
9,000	94·87	2·46
10,000	100	2·33

IN PRAISE OF THE PUSHER

By W. R. E. HARRISON



Right, is a successful rubber-driven canard, built by the author.

IN the year 1914 the pusher type of model aeroplane went off the air, and it has stayed off ever since—Why ?

Dare I suggest that fashion has played some part in this neglect ? Or that we have been hypnotised by the success of the tractor in full scale design from Bleriot to Spitfire ? Or just that we don't like the looks of the old canard with its long drooping undercarriage like a Chinaman's moustache ? Of one thing though, I am certain, namely, that in the matter of performance the much despised canard has two fundamental advantages which should give it pride of place with all those aeromodellers who like to see their creations fly more than once.

These advantages are—Inherent stability : and the habit of returning to Mother Earth at the end of each flight without busting things up. This last feature alone is, I submit, sufficient to convert our hobby from a martyrdom to a real pleasure.

Inherent Stability. The pusher, as I hope to show in a minute, is supreme in the matter of longitudinal stability (lateral and directional stability are easy to obtain on any machine, and do not therefore constitute a problem at all). But first a word on longitudinal stability in general ; because, strange to relate, the one principle upon which it depends is rarely, if ever, clearly visualised in the books on model aerodynamics. All we get is advice as to the relative location of the centre of gravity, centre of lift, centre of drag and centre of thrust. Now while all these factors must be taken into account, they do not of *themselves* constitute inherent stability. You may take infinite pains to balance a cone upon its point, but the moment you let go, it promptly falls over.

For the reason that a cone standing on its point is in unstable equilibrium, and so will be your model aeroplane unless you have incorporated in it the following principle:—The front aerofoil must be so arranged that, as the speed of the aircraft decreases, it will stall first, i.e. before the rear aerofoil. Thus when your aeroplane loses flying speed the front will lose its lift before the rear, and so the nose will go down. Whereupon the speed increases again, due to the increased pull of gravity, until lift is restored to the front aerofoil which pulls the nose up again : and there's your inherent longitudinal stability.

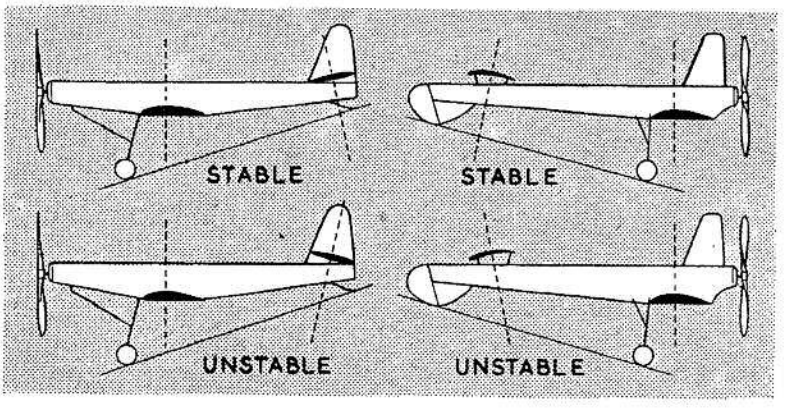
In practice, this principle is achieved in one of the two ways or in both ways together, viz :—A. the front aerofoil is fixed at an angle of incidence greater than the rear aerofoil. B. The front aerofoil is of thicker section. I personally prefer to use both these factors together on a tractor, and A. alone on a pusher.

The diagram will make my meaning clear.

The dotted lines are drawn at right angles to the chord of the aerofoil. If these lines meet above the machine she is longitudinally stable. If they are parallel all may still be well so long as the wing sections are right, but if the lines meet *below* the machine then she is inherently unstable and no juggling with C.G. downthrust or anything else will make her fly. Now apply this argument first to the tractor and then to the pusher. In the former, the main plane is in front, so this is the plane which must be made to stall first. So when this happens the machine is deprived of its main source of lift, and tends therefore to take an ugly plunge earthwards, to be followed if recovery does take place in time by an equally horrifying zoom. But in the case of the canard your small aerofoil in front is the one which stalls first, while the main plane behind is still quite happily producing its uplift. Therefore the change of direction of your aircraft first downwards and then upwards becomes nothing more alarming than a barely perceptible undulation.

Invulnerability. No aeroplane is immortal. That goes without saying. But you have only to take a glance at the difference in the general layout of the tractor and the pusher to realise that in the pusher all the components which are usually subject to damage on landing are out of harms way in the rear, the propellor, its shaft and bearings and the main plane. Moreover, the nose of the canard is hard, simple in design and easy to protect from contact with the ground by a simple wire spring.

Enthusiasts sometimes speak of their tractor models making a beautiful " three point " landing, an event which is impossible if the model is behaving itself well and gliding properly. But if you glance back at the illustrations you will observe that the normal mode of contacting the ground with a pusher is in fact the " three point " landing. The gliding angle and the position of the undercarriage make this inevitable. These few points, and there are others, should be enough to substantiate my claim for the ground worthiness of the pusher, or rather its ability to transfer itself from the air to the ground in a safe and dignified manner.



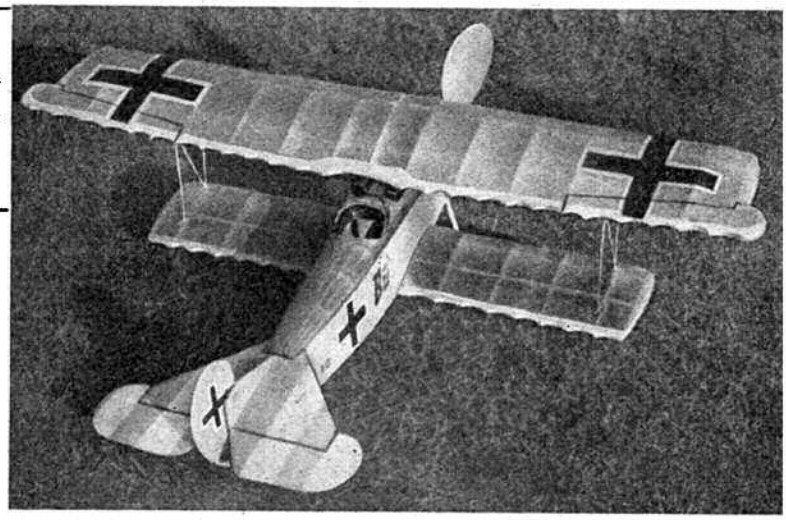
In a subsequent article I hope to be able to indicate some more points of advantage which the canard enjoys. The photos here reproduced show two models, a tractor and a pusher. The mainplanes and motive power are interchangeable and the fuselages are built on similar lines. Thus a comparison of performance is possible between them.

The pusher has the advantage every time as a flyer, and even as to looks, some of your readers may think that its new look is a good look, too.

A FLYING SCALE

FOKKER DVII

BY D · R · HUGHES



FUSELAGE. The basic framework, of good ⅛ in. square balsa, is built in the usual manner. Fit the rubber motor-anchorage and lower wing-fixing (1/16 in. sheet) while the sides are on the building board. When the box-structure is complete, fit the formers and commence sheeting the nose. The sheet will have to be cut, at the rear of the cockpit, and re-joined, leaving out about 1/16 in. so as to fit nicely round the cockpit. Rear stringers of hard 1/16 in. square may now be added. All wire parts —undercarriage and centre-section struts— should now be made up and bound and cemented to positions indicated (see separate note, below). Fit the paper tubes for lower wing-dowels and cement securely in position. Dope on the coloured tissue to the sheeted portion of the fuselage, before adding details—machine-guns, exhaust ring, cylinder heads and windshield.

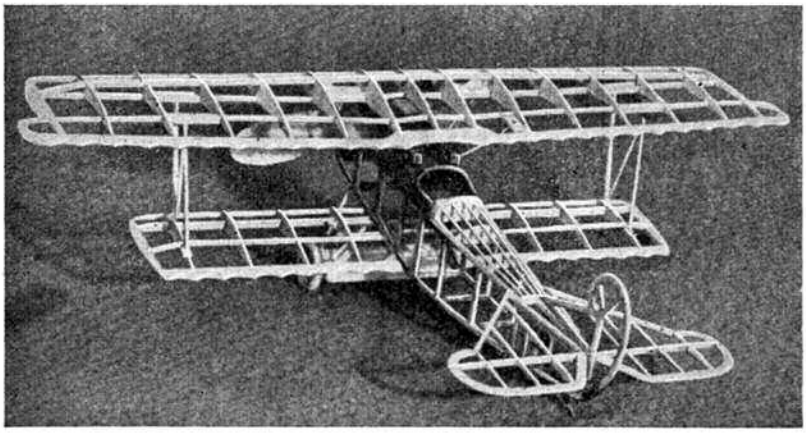
Undercarriage. Make up from 18g. wire to exact shape and size shown, and bind and cement to fuselage, together with forward (18g.) centre-section strut. Now solder the " spreader-bar " to the " V " legs. Bind and solder the axle to the spreader-bar, by its centre only, so as to let the ends spring freely up and down. The Axle-fairing is simply a balsa structure covered with stiff paper. Make slots for the U/c legs, and slide into place, squeezing cement into the slots to fill them up. The wheels may now be added, after painting.

Centre-Section Struts. The front strut is already in place, so it only remains to make up the " V " struts from 20g. wire. Bind and cement each pair to the upright indicated on plan, making sure that they are of adequate length. Now solder the front strut to the top of the first 20g. strut, on each side, making the " N " shaped struts. File off surplus solder and smooth off so as to slide freely into the 16g. ali tube in top plane. Another " spreader-bar " may be made to join the two rear 20g. struts and keep them in alignment. This should be made from 20g. wire and bent to follow the curve or hollow of the centre-section at this point. Make sure that the wing will be absolutely at right-angles to the fuselage as it is rather difficult to make adjustments afterwards.

Wings. The lower wings are very simple and need no special mention—the only fittings being the paper tubes for the fixing dowels, and the ali tubes for the interplane struts. Now the top wing is rather more complicated. Pin the lower mainspars in position, and cement the ribs in place, with the exception of the centre-rib, which is not fixed to lower spar until this is cracked (see note below). Now fit tips, leading and trailing edges in the usual manner. When dry, remove from board and fracture the lower spar in the centre. This break allows for the undersurface of the centre-section to be rounded (see front view). Now prop up the tips to ½ in. at the trailing edge only and fit centre-rib and top spar in position. Cement well and allow to dry out. When completed in this way the wings will be seen to have the required " washout " necessary for stability—since the model has no dihedral. Now, the 1/16 in. sheet gussets and strut fixing tubes are cemented in place. The scalloping on the T.E. should be " roughed out " with a razor blade : finish by wrapping some fine grade glasspaper into a scroll of about 1½ in. diameter, and use it to carefully trim each serration.

Noseblock and Gears. Shape the noseblock from balsa and cement the ply former to the back. Face the front also with thin ply. Now fit the ¼ in. sheet spigot (to fit nose former) in position, pre-coating for extra strength. When dry, mark positions of gears and shafts, and drill to take the 16g. brass bushes. Screw these into position, but do not glue yet. Now make up the two shafts and fit the gears loosely in position ; slide into the bushes to make sure that the gears are a snug working fit into each other. When satisfied, remove assembly and re-fit bushes, this time cementing in place. Make the usual card washers for soldering (to stop the flux spreading into the bushes). Solder the gears in place.

Covering and Finishing. Fuselage is covered in a medium-heavy grade of tissue, water-doped and given two coats of clear dope. Wings and tail are covered with light-weight tissue and given one coat of dope. Use very thin dope for tail surfaces if dope must be used, but it would be better not to dope the tail at all, as it rather prone to warp.



Flying. Power, with 4–6 strands of ¼ in. × 1/30 in. rubber, 30 ins. long. Balance model by adding weight to the noseblock which may be hollowed out for this purpose. Motor will have to be wound anti-clockwise unless noseblock is removed which is, incidentally, the best method. Start with about 50 turns and work up until model will R.O.G. and climb in a wide left-hand circle. Up to three degrees of downthrust may be needed for correct flying under full turns.

Full size plans (see quarter scale reproduction opposite) are available price 2/–, from the Aeromodeller Plans Service, Allen House, Newarke Street, Leicester.

A 21" WINGSPAN RUBBER DRIVEN FLYING SCALE MODEL.

FOKKER D.VII.

DESIGNED BY
D. R. HUGHES.

2/-

ALL WOODS UNLESS OTHERWISE STATED ARE BALSA

WING RETAINED BY RUBBER BAND. HOOK 20 SWG.

SPANDAUS FROM PAPER TUBE & BALSA

SEE NOSEBLOCK DETAILS

DUMMY STRUT 3/8 x 1/16

WING CONSTRUCTION. L.E. IS KEPT STRAIGHT & T.E. IS PROPPED UP WITH BLOCKS SO THAT TIPS ARE RAISED 1/2" FROM BUILDING BOARD. THIS FORMS DESIRED WASHOUT FOR STABILITY. TOP SPAR CAN BE KEPT STRAIGHT MAKING ALL TAPER ON LOWER SURFACE - ACTS AS DIHEDRAL.

INTERPLANE STRUTS 20 SWG. FAIRED WITH PAPER

ALL LONGERONS & SPACERS 1/8" SQ.

TAILPLANE STRUT.

1/8" SQ

1/16 SHEET OUTLINE

CENTRE RIB. 1 OFF.
R1. 2 OFF.
R.2 2 OFF.
R.3. 2 OFF.
R.4 2 OFF.
R.5. 2 OFF.
R.6 2 OFF.

LOWER PLANE RIBS. 10 OFF.
4 ONLY WITH HOLES FOR DOWELS (AS INDICATED) 2 ONLY WITH SLOTS (DOTTED)

AXLE PASSES THRO' HERE

L.E. 3/32" SQ.

3/32" SQ

2 OFF 1/8" SHEET.

COVER WITH STIFF PAPER.

T.E. 1/4" x 1/16"

1/32 SHEET.

STRINGERS 1/16" SQ.

F6

F7

1/16" SHEET BACKED WITH PLY

RUBBER BAND.

STOP

COTTON.

PIN THRO' LOOP.

1/8" SQ

1/8" SH.

BIND TO UPRIGHT 'V' STRUT 20 SWG

1/16" SHEET.

THRUST RACE.

THIS STRUT FROM 18 SWG SOLDER TOP END TO 'V' STRUT THUS FORMING C/S 'N STRUT TO WHICH DUMMY STRUT IS ADDED.

BIND TO SPACER.

WING FIXING 1/8" DOWEL.

BAMBOO STEP.

LOOP 22 SWG. BIND TO BAMBOO TAIL SKID.

MOTOR PEG 1/8" DOWEL.

1/2C 18 S.W.G

3/8 DIA WOODEN WHEEL.

FRONT FORMER

3 OFF 1/16" SHEET

F.6

F.7

FORMERS 5.6.7. 1 OFF. 1/16" SHEET.

F.5.

TAILPLANE STRUT. BAMBOO

ACTUAL SIZE. 2 OFF.

ALL STRUTS FROM WIRE FAIRED WITH PAPER.

GAP OF 1/2C VIEWS NOT TO SCALE.

SPREADER BAR

AXLE

1/8 RIB

FREE TO SPRING AXLE

BIND & SOLDER

SOLDER SPREADER TO 1/2C LEGS

PAPER AXLE FAIRING.

BRACING ON 1/2C ONLY WINGS ENTIRELY CANTILEVER

STOP (BAMBOO)

TAILPLANE FITS IN STEP.

PIN

SKID

GEARS.

BOTTOM ONLY

F.5

F.6

F.7

1/16" SHEET

16 G. SHAFT.

FORMERS CEMENTED ON TOP OF SPACERS.

SHAPE OF COCKPIT.

FUSELAGE IS SHEET COVERED WHERE GRAINED WITH 1/32 SHEET STEAMED TO CONFORM WITH SECTION.

1/8 SHEET TIPS

1/16" SHEET RIBS

1/16" SHEET

16 SWG 1/D ALUM TUBE.

PORT BOTTOM WING.

L.E. 1/8 SQ

BLANK

FINISHED BLADE.

COPPER TUBING 16 SWG 1/D. FREE WHEEL CATCH. 20 SWG

ALUM TUBING 20 SWG 1/D.

L.E. 1/8" SQ

1/8" SQ

1/16 x 1/4"

1/8" SQ

1/16" x 1/8"

STRUT FIXING.

EXHAUST PIPE 1/8" SHEET.

CELLULOID WINDSHIELD.

STRING TO REPRESENT PROTECTIVE PADDING.

SIGHTS

EXHAUST RINGS FROM 1/8" SHEET.

DUMMY CYLINDERS MAKE 1/8" DIA BALSA ROD & CUT SIX 1/8" DISCS.

GLUE 2 PINS TO EACH

NOSE FORMER A

20 S.W.G LOOP SOLDERED TO SHAFT. CATCHES THUS.

BRASS BUSH 16 SWG.

1MM PLY 'B'

1MM PLY 'A'

CARVE FROM BALSA.

VALVE TUBING TO RETAIN PROP.

SOLDER

WASHER

BALL RACE

1/8" SHT BALSA SPIGOT 'S'

SHAFT 16 S.W.G

FORMER 'B'

'S' GOES HERE

POSITION OF GEARS.

GEAR RATIO 1 1/2 : 1.

1/8" D. PAPER TUBE.

SPAR 3/16 x 1/16"

ST BD BOTTOM WING.

REAR TOP SPAR. 3/32 SQ.

T.E. 3/8 x 1/8

L.E. 1/8" SQ.

TIPS 1/8" SHEET.

TOP & BOTTOM 1/16" SHEET

1/8" SQ SPARS

STRUT FIXING

1/8" x 1/16" EACH SIDE ON LOWER SURFACE.

16 SWG 1/D

1/16 SHT. RIBS.

16 SWG 1/D ALUM TUBE

1/16" SHT.

1/8" SHT.

CENTRE RIB

16 SWG 1/D ALUM TUBE

1/16 SHT

PACKING 1/8 SHT AROUND TUBES.

REAR SPAR 1/8 x 1/16"

BOTTOM ONLY

16 SWG 1/D ALUM TUBE.

1. 2. 3. 4. 5. 6.

T.E. 3/8 x 1/8

1/8 SHEET TIPS

16 SWG 1/D ALUM TUBE

1/16" SHT.

COVER MODEL WITH LIGHT WEIGHT TISSUE. WITH EXCEPTION OF FUSELAGE WHICH SHOULD BE COVERED IN HEAVIER GRADE.

FUSELAGE. 2 COATS CLEAR DOPE.
WINGS. 1 COAT CLEAR DOPE.
DO NOT DOPE TAIL SURFACES

F.S.R 297

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FROG Strato 'D' 42"	15/-
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K.K. Slicker Mite 30"	10/6
K.K. Slicker 50"	32/6
*K.K. Outlaw 50"	27/6
Presn: Hammerhead 40"	14/6
Presn: Airflo Baby 44"	18/6
Presn: Airflo Mite 32"	8/6
Sthrn. Jnr. Dragon 42"	25/-
Skyleada Bantam 44"	25/-
Halfax Spartan 60"	45/-
Halfax Rapier 48"	22/6

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Mercury Magnette 26"	25/-
*Don Pusher-Pup	19/6
Frog Radius	17/6
*Halfax Sabre 18"	16/6
*K.K. Scout 20"	22/6
*J's Nancy 18"	14/6
*K.K. Phantom Mite 16"	11/6
K.K. Phantom 21"	18/6
K.K. Hornet 28"	45/-
Halfax Trainer 32"	20/-
Precision Goblin 24"	15/-
Precision Play-boy 30"	17/6

● RUBBER DRTN.

*Veron's High Climber	25/-
K.K. Contestor 45"	23/6
Drome Cabin 40"	12/6
Frog Stratosphere 42"	17/6
Frog Venus 38"	15/-
Halfax Flying Mins. 48"	21/-
Airyda Master 45"	22/6

● GLIDERS

Champ. Albatross 11, 94"	36/-
Halfax Albatross 66"	25/-
Frog Vanda 40"	9/6
K.K. Soarer 60"	11/6

ESSENTIAL ACCESSORIES THAT MAKE FOR PERFECTION

● ALL POWER MODELS

*Mercury Universal Plug-Prop. Spanner	1/6
Mercury Under-carriages 10 S.G.W.	2/3
12 S.G.W.	2/1
McCoy Hot-Point G-Plug	5/9
K.L.G. Mini-Glow G-Plug	6/-
K.K. Glo-Plug	6/-
Dekko Rev. Counter	10/-
Alton Valve Spout	3/9
Barker Coils	18/6
M.I. Coils	23/6
0·1 mfd. Condenser	1/9
Mercury Fuel Tubing, Plastic 12"	1/-
Mercury Aerowheels, per pair 2½"	4/6

Also Bat Spinners, Props. by K.K., Tekniflo, Hi-Thrust, as advertised. —AND— ***Mercury Blended Fuels***

● CONTROL-LINE

Mercury Ajustalyne Handle *A "must" for stunt and speed*	7/6
Mercury C/L Wire-steel-plated 200'	2/-
Laystrate 7-strand wire 70'	4/3
Ditto, 100'	6/-
Bat Tank, large	7/6
" " small	5/-
Mercury Bell-Crank, metal	9d.
Ditto, plastic	4½d. & 6½d.
Precision Tank, 7/6	(Kit 5/-)
Snip Speed Chart	2/6
Mercury Improved C/L Props.: 8", 5/-; 9", 5/3; 10", 5/6; 11" 5/9	

● ALL MODELS

Solarbo Balsa ... In parcels of Best Hand Picked Block, Strip and Sheet	10/- and 20/- Post Free.
Titanine Dopes—Clear, Glider, Banana, ¼ pt. Tin	3/6
Ditto, whole colour range, ¼ pt. Tin	4/6
Titanine Fuel Proofer	5/-
Dunlop Rubber, Quality 6,000 ¼" or ⅛" × ¼", per lb.	10/6
Dunlop R.T.P. Rubber, 100 yds.	2/6
Caton Lubricant	6d.
Emdee Sprayer	3/6
Brushes, various	9d. to 6/3
Rag Tissue, per sheet	2d.

● JAGGER JUGGERNAUT JET

Based on the same principle as the famous American Dynajet, it is the most powerful propulsion unit available to BritishModellers, and is a true miniature version of the flying-bomb unit. FROM STOCK, CASH OR C.O.D. Only **£6-10-0**

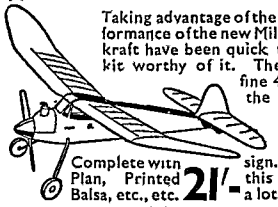
★ MERCURY No. 6 FUEL ALL-IN-ONE DIESEL (YELLOW LABEL)

An entirely new product, blended from six laboratory tested components, which is ready for immediate use, and needs no etherad'ng. THIS IS NOT SIMPLY A DIESEL FUEL WITH ETHER ALREADY MIXED.

Send 2½d. stamp for leaflet of all six fuels, and the engines they suit. Per 8 oz. Bottle **3/6**

H.J.N's. PICK OF THE MONTH

★ K.K. BANDIT



Taking advantage of the improved performance of the new Mills Mk. II., Keilkraft have been quick to bring out a kit worthy of it. The "Bandit" is a fine 44" job, high in the famous K.K. tradition for value, quality and sound design. Builders of this kit are in for a lot of good flying.

Complete with Plan, Printed Balsa, etc., etc. **21/-**

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As Britain's largest and foremost Mail Order Suppliers we can send you everything from a nut and bolt to a radio-controlled outfit by post. ALL ORDERS GUARANTEED. We ask you to pay postage on some items, because we would not risk disappointing customers with bad packing for the sake of a few pence. If your order is over £1, we send it post free. If under, send 6d. to cover postage on accessories; 1/- for kits unless otherwise stated.

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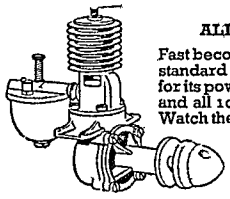
Our new scheme enabling you to buy engines for Cash or Easy Terms has given new impetus to British modelling by bringing powered flying within reach of all. All engines tested and guaranteed.



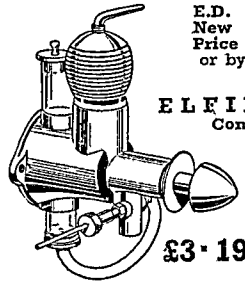
ALLBON 2·8 c.c.

Fast becoming one of Britain's standard engines; acclaimed for its power, good behaviour and all round dependability. Watch the fellow who has one.

£4 · 16 · 0 Cash, or by Easy Terms.

E.D. Mk. III, 2 c.c. G. Plug model. Another fine E.D. job. With compression & Glow-plug heads. New Price **£4 · 5 · 0** or by Easy Terms.

E.D. COMP. SPECIAL at the New Price. Holder of more records than any other in the 2 c.c. class. **£3 · 17 · 6** Cash, or by Terms.



E.D. Mk. II, 2 c.c. New Price **£3 · 10 · 0** or by Easy Terms.

ELFIN 1·8 c.c. Competition Model. This fine radial mounted job is a real hum-dinger that really means business. Try it yourself.

£3 · 19 · 6 Cash, or by Easy Terms.

AMCO ·87 c.c.	£4 4 0
ETA 5 c.c.	£7 19 6
FOURSOME 1·2 c.c.	£5 5 0
FROG 100	£2 9 6
FROG 160 Red Glow	£2 9 6
FROG 180	£2 15 0
K. EAGLE	£3 18 6
NORDEC 10 c.c. G. Plug	£12 0 0
MILLS Mk. II	£4 15 0
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ENGINES £3 . 10 . 0 AND OVER, AVAILABLE ON H.P., DETAILS ON REQUEST.

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"When H.J.N. advertises it you can depend on it" is what one modeller said, after accepting our invitation published last month to modellers to call and see our Engine Repair and Servicing Workroom. In addition to being officially appointed Service Agents by the makers of ALLBON, E.D., FROG and MILLS ENGINES, we service all good British and foreign engines at regulation prices and makers' standards, with minimum delay.

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AIRCRAFT DESCRIBED
No 11, BY E. J. RIDING.

The AIRSPEED AMBASSADOR

WITHOUT a doubt, the Airspeed Ambassador now entering the production stage at the firm's Christchurch factory is one of the most beautiful transport aircraft designs ever produced in this country.

Designed by A. E. Hagg, the Ambassador is the Industry's answer to the Brabazon Committee's specification No. 2A, calling for a medium range transport for use on the routes between Great Britain and the Continent.

The Ambassador incorporates several novel features such as Cabin Pressurisation (2nd machine onwards) and Integral fuel tanks—i.e. the fuel is contained within the wing structure itself in sealed compartments between the two main spars. The undercarriage is interesting in that four main landing wheels mounted in pairs on single oleo legs are used in conjunction with steerable nose-wheels which are independent of the ordinary flying controls.

With a two-wheeled undercarriage assembly, the risk of accident in the event of a tyre bursting is halved, and it is possible to reduce the size of the engine nacelle into which the component retracts.

A system of thermal de-icing distributes hot air from special combustion burners through ducts running the length of the leading edges of the wings and tail surfaces. Cabin pressurisation will keep conditions inside the machine equivalent to those experienced at 8,000 feet.

The Ambassador prototype G-AGUA made its first public appearance at the S.B.A.C. Display at Radlett last year, and since then it has been undergoing extensive development flying at the Christchurch aerodrome.

The second prototype, at the time of our visit in July, was more or less nearing completion and should be ready for flight towards the end of August. The 3rd prototype is as yet merely a collection of hoops and stringers in the assembly jig, but work is increasing in tempo now that the Powers that Be have given the project material blessing in the shape of an initial contract for twenty machines.

Construction.

All metal, the fuselage being a monocoque structure built up from light alloy hoops and stringers, the cross sectional shape of which is formed by the intersection of two circles of different diameter.

The high aspect ratio wing is also constructed throughout from light alloy, having two main spars and chordwise frames or ribs along which are laid an intricate system of spanwise stringers to which is riveted the light alloy skin.

Power is supplied by two 2,700 h.p. Bristol Centaurus 661 eighteen-cylinder, two row, sleeve valve, two speed, supercharged radial engines driving four bladed, fully feathering and braking, constant speed de Havilland metal airscrews each of sixteen feet diameter.

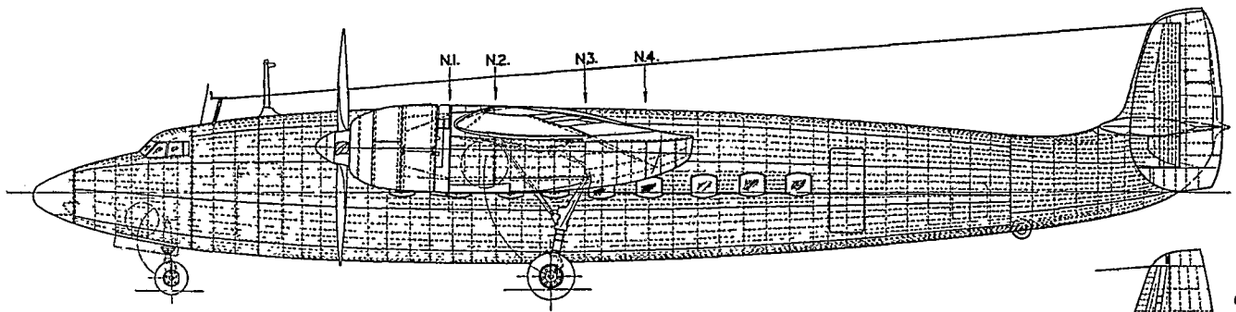
Colour.

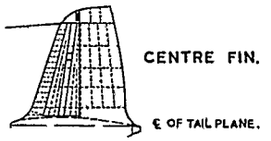
Natural metallic finish all over. Nose apron, letters and flashes pale blue outlined in white.

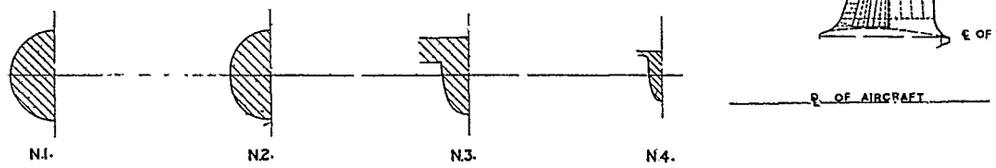
Specification.

(40-seater) Span: 115 ft. 0 ins. Length: 83 ft. 3 ins. Height: 18 ft. 9 ins. Wing Area: 1,200 sq. ft. Total Loaded Weight: 47,000 lbs. Tare Weight: 32,900 lbs. Cruising Speed: 255 m.p.h. Landing Speed: 105 m.p.h. Range: 825 miles.

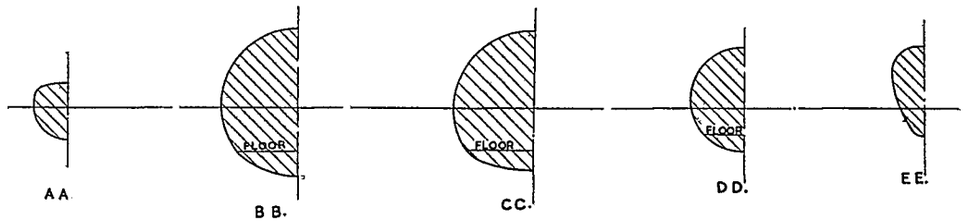
In order to save space, the accompanying G. A. drawing of the Ambassador has been reduced to a scale of 1/144. 1/4 in. to 1 ft. reproductions price 3/– and photographs size 6½ ins. by 4½ ins. flying and static views may be obtained singly at 2/– each, or 6/– per set of four from Eaton Bray Studios.

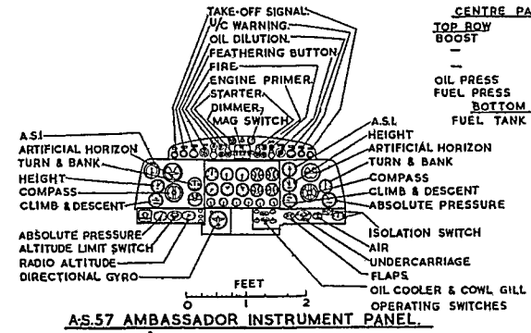






NACELLE SECTIONS.



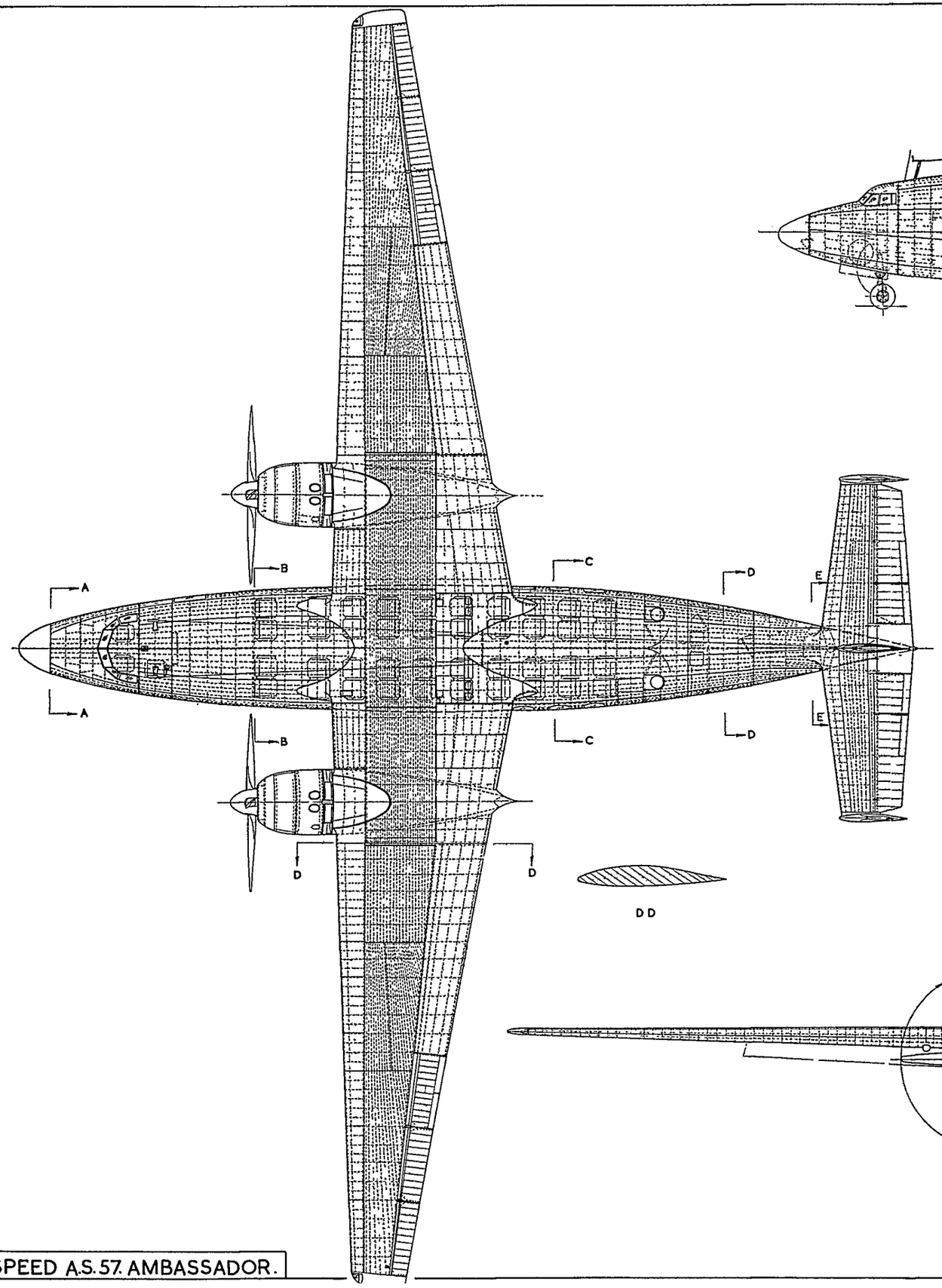


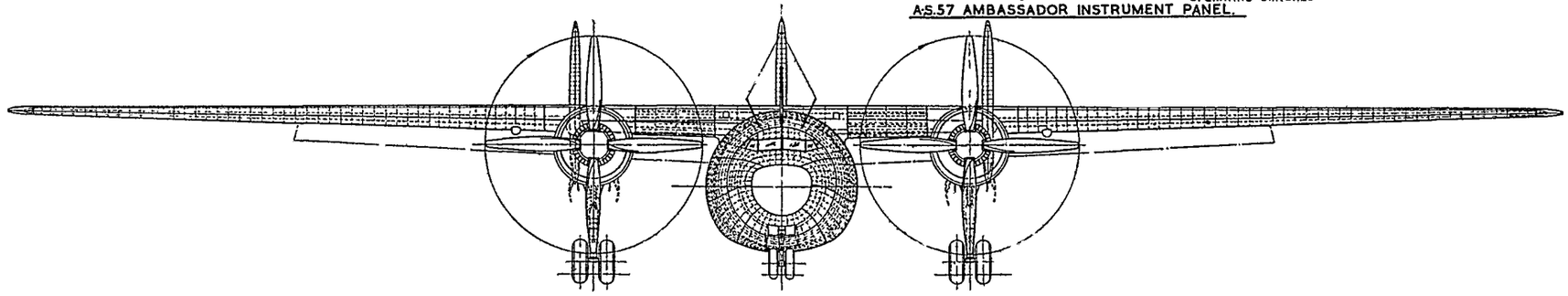
CENTRE PANEL.

TOP ROW	MIDDLE ROW
BOOST	R.P.M.
—	FUEL FLOW
—	FUEL FLOW.
OIL PRESS	OIL TEMP.
FUEL PRESS	CYLINDER TEMP.

BOTTOM ROW
FUEL TANK CONTENTS (6)

A.S.57 AMBASSADOR INSTRUMENT PANEL.

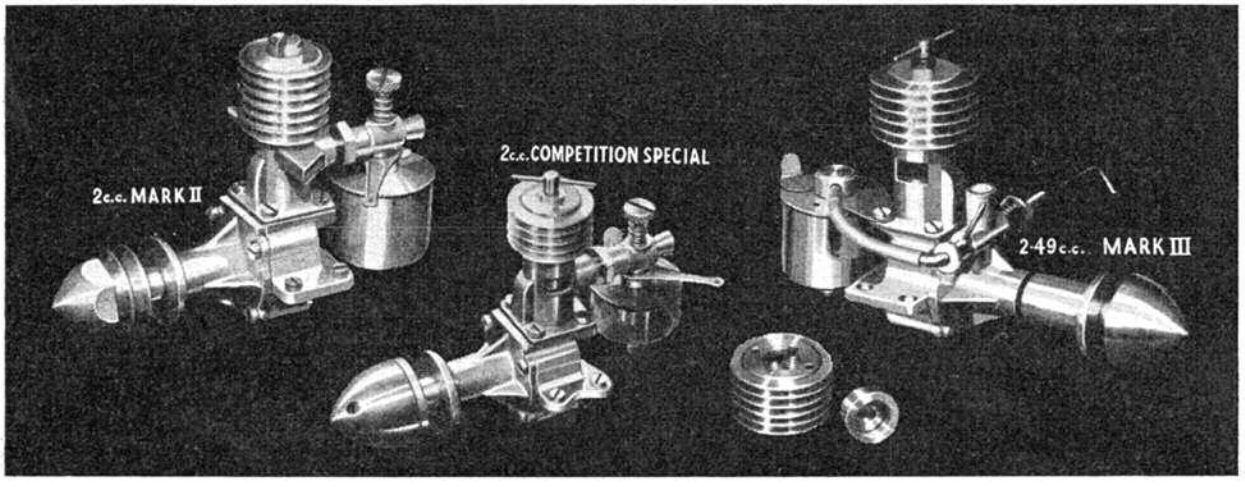




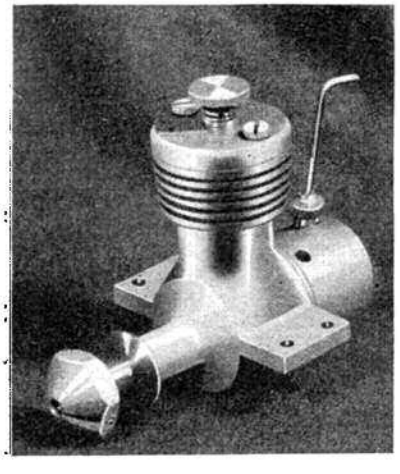
AIRSPEED A.S.57. AMBASSADOR.

FT.

E.D. DIESELS



WINNERS ALL THE WAY !



INTRODUCING THE E.D. (BEE) Mk. I
1 c.c. DIESEL ENGINE.

Bore ·437 ; Stroke ·400 ; Height 2¼" ; Weight 2¾ ozs. ; Engine Bearers 1⅞" × 7/16" ; Static Thrust 12 ozs. ; R.P.M. 7,000; Length 3".

£2 · 5 · 0

From your nearest model shop.

NEWS!! NEWS!! NEWS!!

In addition to the New E.D. (BEE) Mark I, 1 c.c. Diesel Engine @ £2 · 5 · 0, modellers will be pleased to note that the following Engines have been reduced in price :—

The E.D. 2 c.c. Mark II to ... ... **£3 · 10 · 0**

The E.D. 2 c.c. Competition Special (Record Holder 89·95 m.p.h.) to ... **£3 · 17 · 6**

The E.D. 2·49 c.c. Mark III (Record Holder 'C' Cars 41·7 m.p.h. **£4 · 5 · 0**

Proved Star Performers in their own right. Supreme under all tests and conditions whether for Model Aircraft, Marine Models or Race Cars. See the amazing E.D. Diesels at your nearest Model Shop.

Prop. 8" dia. **4/6** : 9" dia. (Control) **5/6** : 10" dia: **6/-** : 11" dia. **6/6** : Flywheels **10/6** each : E.D. Centrifugal Clutch **£2 · 2 · 0.**

WRITE FOR DETAILS OF THE E.D. RADIO CONTROL UNIT COMPRISING TRANSMITTER AND RECEIVER. BREAKING NEW RECORDS FOR RELIABILITY AND RANGE.

E.D. KINGSTON ON THAMES

ELECTRONIC DEVELOPMENTS (SURREY) LTD.

DEVELOPMENT ENGINEERS

1223. 18, VILLIERS ROAD, KINGSTON-ON-THAMES, SURREY, ENGLAND.

Bob Copland assisted by Ron Warring in action at the Hamley Trophy Contest at Fairlop.

Photo : E. Stoffel.

AS you are aware from previous Club News reports, arrangements for sending the British Wakefield team across to the States were in the capable hands of the American A.M.A. Unfortunately, cancellation of the F.A.I. Conference in Cleveland brought with it some pretty drastic alterations in the N.A.C.A. arrangements, which automatically affected the Academy of Model Aeronautics' plans. We were thus faced with a cable to the effect that, whilst any visiting competitors would be looked after and handsomely entertained during their stay in America, trans-atlantic transport could not be arranged.

Thus, only some five weeks before the Contest due to take place, the S.M.A.E. was faced with the problem of either getting the team out there on their own resources, or withdrawing from the Contest altogether. I am sure you would agree with me that the latter step would have been disastrous, and a last minute S.O.S. went round to a number of prominent people. I am pleased to say that as I write this we are at the stage of having collected nearly 75% of the money required to send the team over in an attempt to regain the cup for this country.

All clubs will have received a letter from the Chairman of the Society requesting financial assistance, and I am sure if every club in the country, both affiliated and unaffiliated, could see their way clear to denote even £1 apiece, they would help a lot towards overcoming the last minute difficulties we are faced with.

Conversations with several continental visitors at Fairlop and Eaton Bray over the August week-end confirm my opinion that a truly international Wakefield contest cannot really get underway until such time as the Trophy comes back to Europe, as the financial and currency difficulties encountered by the continentals, as well as ourselves, are too great a stumbling block under present world conditions.

As I write this it is contemplated that one or two continentals will be able to participate, but as far as I know Great Britain will be the only country to send a full team to compete against the Americans. Here's hoping the Trophy finds its way back to these shores, thus enabling a full international contest to be staged in 1949.

As intimated last month a terrific new glider record was set up by Mr. F. Best of Leeds, who flew his sailplane for a total of 63 mins. 46 secs. out of sight. This record, with three others, was homologated at the Council meeting on the 24th July and I surmise it will be some time before this record is broken.

During recent months a committee has been considering the standardisation of both the S.M.A.E. Area Constitution and the definition of Area boundaries. This work has just been finalised and circulated to the affiliated clubs, and we find that England and Wales are now divided into 14 Areas; the London Area has been reduced from a 60 to 30 mile radius, and a new group to be known as the South Midland (comprising the counties of Beds, Herts, Bucks, Berks and Oxfordshire) set up. It is hoped to publish in next month's AEROMODELLER a full résumé of this new scheme which should go a long way towards assisting those clubs who are not in any of the more fortunate centres where aeromodelling meetings are fairly easy to stage.

One very important matter now under consideration by the S.M.A.E. is contest regulations for competitive events in 1949. In order to assist the appropriate committee in their work all clubs are asked to forward their viewpoints so that these can be sifted and collated before final ratification, and thus save a great deal of time and unnecessary discussion. Therefore, if you have any views on additions or alterations to the 1948 programme, send these in at once so that the programme can be settled in plenty of time to allow distribution well ahead of the 1949 season.

The S.M.A.E. Power Contest day held at Fairlop on July 11th did not produce such a crowd as expected, and only 33 competed for the Astral Trophy, the best supported event of the day. The West Essex boys retrieved their reputation by putting Pete Cock back to fourth place in the aerobatic control-line contest, but only two came forward to try their hands at the Taplin controlled flight event. Seems that not many modellers like to do other than the very ordinary.

With two legs completed, competition for the Caton Trophy only requires the flying of the National Cup to elucidate the winner. Leader at the moment (subject to confirmation) is Revell of Northampton with a total of 1,259·6, followed by Dennis Lees (Bradford) 1,237·2, E. W. Evans, (Northampton) 1,203, B. V. Haisman (Liverpool) 1,126, R. B. Chesterton (Northampton) 1,089·4 and R. J. North (Croydon) 1,045·2. Should be some hectic flying in the National Cup event to see who will be able to tell the weather properly with the aid of the Caton barometer during 1949.

Remember the model that switched tow lines ? The same machine put up a flight of 9 : 18 o.o.s on the 13th June, when flown from the **SOUTHWICK M.A.C.** ground. On returning home, the owner was contacted by the local police who informed him that the model had circled the Clock Tower in Brighton, and finally crashed in West Street at 7.20 p.m.—giving a total flight time of approximately 1 hour 20 minutes. Distance, some six miles.

The **OLDHAM & D.M.A.C.** have secured a new flying ground, and some excellent times were recorded in the K. & M.A.A. Cup. R. Musgrove topped the club times with 8 : 28·3, K. Scott was second with 7 : 42·2 and F. Palmer made the best individual flight with 6 : 11. Musgrove took first place in the glider event at the Merseyside Rally with a fine flight of 5 : 16, and also holds the club rubber record with a time of 5 : 15. L. Gabriels recently raised the hand launched glider record to 56·4 secs.

With the Dunstable Downs on their doorstep, the **SOUTH BEDS JUNIOR M.F.C.** have some fine soaring flights, and it is no wonder that C. A. Bates has just pushed the tow-launched record up to 35 : 27. His " Sunnanvind " caught two thermals in succession and landed some 6 miles away.

The **HUDDERSFIELD AIR LEAGUE M.A.C.** announce the postponement of their Rally from August 29th to September 5th.

Members from the **LUTON & D.M.A.S.** cleaned up the events held at the Cambridge Gala, R. Clements, R. Minney and S. Millar winning the Rubber, Glider and Concours in

that order. Minney followed this up the following day by winning the Victory Trophy at Eaton Bray.

The **CUMULO CATCHERS** club has amalgamated with the West Essex boys, both groups being nuts on stunt controlining.

The third annual Rally of the **DARLINGTON M.A.C.** was cursed with a fairly strong wind which carried many models o.o.s. far too quickly. Ten clubs took part in the events which resulted as follows :

Open Glider	A. Wharrie	(York)	4 : 22
	J. S. Clowes	(Newcastle)	4 : 06
Open Rubber	J. S. Clowes	(Newcastle)	6 : 49·5
	J. H. Bell	(Blaydon)	4 : 08
Open Power	W. Skelton	(Darlington	3 : 02
	J. T. Walker	(,,)	1 : 50·8
Control Line	J. Earhart	(Durham)	121 pts.
Nomination	B. L. Howe	(Darlington)	15 secs. error.

A. Mackenzie of the **BUCKSBURN A.T.** put up his E.D. powered model with a 25 second engine run, and the job cleared off after being clocked for 4 : 30.

H. J. Richards of the **SOUTHAMPTON M.A.C.** put up a fine flight of 19 : 52 o.o.s. when winning the club F.A.I. contest for the " Dynan Cup ", and was lucky enough to have the model returned a few days later. (At the end of a long day in the field, a not-so-very-old senior member was hot, tired and very, very thirsty. He could do little about the first or second states, but having a little of the " ready " on him he called at a place where the third condition finds relief. Such relief did not come with the first draught, but then the modeller discovered that he was better off than he thought. When his thirst was well and truly satisfied he suddenly remembered . . . . earlier in the day he had been deputed to collect certain competition entrance fees.)

The first open meeting staged by the **ROTHERHAM & D.M.F.C.** was another to suffer from the weather, but this did not stop seven clubs from doing their best. Results were :

Glider	J. Wharam	(Barnsley)	1 : 40·5
	R. Cooke	(Rotherham)	1 : 19·6
Rubber	M. Hetherington	(Doncaster)	3 : 52
	P. Brown	(Barnsley)	2 : 52·5
Power	P. Hollis	(Sheffield)	6·05 ratio
	R. Gillespie	(Barnsley)	5·9 ,,
Control Line	P. Russell	(Worksop)	

The **LEAMINGTON & D.M.A.C.** will be pleased to welcome old friends and new at the Centre of England Rally to be staged on the Lockheed Sports Ground on September 19th. Full details from C. Surridge, 1 Scotland Place, Leamington Spa.

Another club to open up trans-atlantic contacts is the **WORCESTER M.A.C.** During a couple of contests staged in grand weather on June 13th, G. A. Ryder raised the club glider record to 14 : 07·6, the model landing almost back at the take-off spot. R. T. Parham won the rubber event with an aggregate of 5 : 45.

There was much competition in the **BLACKHEATH M.F.C.'s** " Norman Dixon Trophy " for gliders, and many good flights were recorded. J. Homes was the winner with 11 : 08 aggregate, followed by R. Thomas 9 : 15 and R. Galbreath (flying his famous canard model) 8 : 50.

Despite a high wind, times in the " Bud Morgan Sailplane Cup " event held by the **CARDIFF M.A.C.** were good. A flight of 5 mins. o.o.s. helped P. Person to win, closely followed by junior L. Jones, who clocked one flight of 4 minutes.

After a lapse of several years, the **WEST YORKSHIRE M.A.S.** has been reformed, and includes members of the old Batley & D.M.A.C. At a recent meeting blessed with almost perfect weather, J. Hagan's E.D. powered " Banshee " clocked 7 : 30 in a really solid thermal. C. Westerby's Mills powered " Slicker " did 3 : 50 in the same thermal, both models landing within 200 feet of each other.

Sunday, June 18th brought perfect condition to the **SOUTH BIRMINGHAM M.F.C.** for their " Taplin Tyro's Cup ", won by A. J. Hewitt with an aggregate of 11 : 38·4, his third flight being a beauty of 8 : 49 o.o.s. The model, a heavyweight " Vigilant " glider proved that a heavy wing loading does not affect thermal flying. A scale model of a Kirby Cadet totalled a very gallant 2 : 32 in the same contest, but it needed a really good flyaway to catch the winner.

PARK M.A.L. have put both Croydon and North Kent out of the running for the London Area Inter-club Challenge Cup, scoring 1,358·9 and 2,185·4 against their opponent's respective 1,093·7 and 1,557·4. H. Latham put up the best aggregate at Gravesend with an ultra-lightweight rubber job, time 11 ; 39.

The open power championship of Scotland was staged by the **SCOTTISH AEROMODELLERS' ASSOCIATION** at Budden, near Dundee, on July 11th. With a maximum 20 sec. engine run, the short take-off boards and a strong wind did not make things easy for the competitors, top men being R. Hill (H.M.S. Condor) with an aggregate for three flights of 2 : 10·2, A. Lamb (Stirling) 1 : 37·6 and M. Stark (Monifieth) 1 : 13·2.

The **BEVERLEY & D.M.A.C.** had their usual quota of poor weather for their Rally, rain in the morning giving way to high winds. In spite of this, good flights were witnessed and six power models were lost—only two having been recovered to date. Results :

Power	H. J. Beer	(Hull & D.)	4 : 59·8
	J. M. Holbrook	(Leconfield)	3 : 33
	A. C. Brown	(Beverley)	2 : 27
Rubber	H. J. Tubbs	(Leeds)	5 : 57·5
	J. Harrison	(Hull Pegasus)	4 : 05
	A. C. Brown	(Beverley)	3 : 19·5
Glider	J. Headley	(Beverley)	4 : 33·6
	E. A. Day	(Hull & D.)	3 : 56·5
	S. Tyler	(Doncaster)	3 : 35

Best junior in both rubber and glider events was J. K. Cartwright who totalled 2 mins. and 59·1 secs. in the two events.

Membership in the newly formed **MALTON, NORTON & D.M.A.C.** is creeping up, and a fine flying field is a big asset. Club records to date are a power ratio of 5·5 for R. Pattison, 1 : 29 by G. Cockerill in the rubber class, and 3 : 25 in the glider section to junior M. Scales.

The **CHESTER M.F.C.** is organising a " Grand Open Control Line Contest " for stunt and speed jobs in conjunction with the Upton (Chester) Fete on September 11th. Full details from H. F. Wilde, 22, Overleigh Road, Handbridge, Chester.

J. Collier of the **EAST LIVERPOOL M.A.C.** must be getting fed up with buying engines, building " Slickers " and losing 'em. His first cleared off following an o.o.s. flight of 5 : 00 on a 20 sec. motor run, and after feverishly building another within a week, he lost that on a test flight. Expensive isn't it !

Twenty-two Lancs. and Cheshire clubs took part in the Open Rally Staged by the **MERSEYSIDE REGIONAL COUNCIL OF M.A.C.'s.** at Woodvale Aerodrome, with a total of 183 competitors. Blackpool and Fylde carried off the honours in most classes, though top time of the day went to R. Musgrove of Oldham. Results were :

Power	C. Davey	(Blackpool)	2 : 55
Rubber	C. B. Jackson	(Ashton)	4 : 48·4
Glider	R. Musgrove	(Oldham)	5 : 00
C/L Stunt	M. Booth	(Blackpool)	
Rally Champion	J. Owens	(Blackpool)	

A gala day staged by the **LEICESTER M.A.C.** was blessed with perfect weather, and high times were common. Visitors from Birmingham had their share of the spoils, but the highlight was Ken Stothers' power flight with his Amco powered job. This model went up on an 8 second engine run, and clocked 6 : 10·8—which gives a ratio of 46·36. Other results were :

Concours	J. Marsh	
Power Ratio	D. Gamble	14·27
	Mrs. Stothers	6·1
	G. Dunmore	4·85
Glider	A. Wade	2 : 31·5
	D. Gamble	2 : 18·2
	K. Stothers	2 : 12·9
Rubber	D. Hall	3 : 11·8
	Mrs. Stothers	2 : 54·3
	K. Stothers	2 : 45

An inter-club affair resulted in " Chuck " Doughty winning the rubber event with a total of 4 : 19, and T. Brown of North Leicester took the glider section with 7 : 00·2.

Club records in the **FIVE TOWNS M.A.C.** are gradually creeping up, present honours going to E. Gater (Wakefield class) 3 : 03, and G. Roberts who holds both the glider with 9 : 25 and the power ratio at 6·25. These lads would like to spread the news that eating balsa cement is not at all a good thing for the inner works. One lad accidentally swallowed some, and nearly passed out. Anyone know of a good antidote !

If anyone is interested in helping start a club in the Chorley

(Lancs) district, will they get in touch with A. Swarbrick of 5, Harrison Road, Chorley, Lancs.

And so, here I go off to pack my bags for that long awaited trip to Akron, and to cheer our lads along in their struggle for the good old Wakefield Trophy. By the time you read this the contest will be just under way, so keep your fingers crossed for us—and pray that your scribe doesn't have to swim back.

And to finish on a note of pained enquiry—where do all those lost power models go, and particularly the engines that seem to be missing from so many that are found ? Makes you think doesn't it

The CLUBMAN.

NEW CLUBS

CREWE & D.M.F.C.
John F. Wallen, 57, Flixton Drive, Wistaston, Crewe.
DORMERS WELLS (Control Line) M.A.C.
C. Bonsey, 1, Livingstone Road, Southall, Middlesex.
WEST YORKSHIRE M.A.S.
C. Westerby, 4, Colbeck Terrace, Healey, Batley.
BECONTREE POWER M.F.C.
68, Cartwright Road, Becontree, Dagenham, Essex.
VICKERS-ARMSTRONG LTD. (WEYBRIDGE) M.A.C.
A. J. Comber, " Rosemary," Queen's Ave., Byfleet, Surrey.
SLOUGH M.A.C.
E. Smith, 53, Northampton Ave., Slough, Bucks.
R.A.F. COMPTON BASSETT A.M.C.
F/Sgt. Baxter, Sgts. Mess, R.A.F. Station, Compton Bassett, Nr. Calne, Wilts.
YEADON & D.M.F.C.
H. Berry, 146, High Street, Yeadon, Leeds.
HILLINGDON & D.M.F.C.
F. Gurney, " Downleigh," Warren Road, Uxbridge, Middlesex.
NORTHANTS M.A.E.
J. Humphrey, 102, Baker Street, Semilong, Northampton.
SOUTHPORT M. & E.C.
R. B. Petrie, 13, Chambres Road, Southport, Lancs.

SECRETARIAL CHANGES

TORBAY M.C.
Mrs. R. Head, " Marrox ", Parkhurst Road, Torquay.
SOUTH BRISTOL M.A.C.
M. L. O'Keefe, 1 Swiss Drive, Ashton, Bristol 3.
WORKSOP AEROMODELLERS.
P. G. Russell, 26, Gateford Road, Worksop, Notts.
NORTH NOTTINGHAM M.A.S.
F. I. Lowe, 11, Wallet Ave, Beeston, Nottingham.
KINGS LYNN & D.M.F.C.
A. Langridge, 92, Saddlebrow Road, Kings Lynn.
NORTH BIRMINGHAM M.A.C.
A. E. Bolton, 55, Bleak Hill Road, Erdington, Birmingham 23.
DERBY M.A.C.
I. W. Moore. 3, Friary Close, 2, Bridge Street, Derby.
THREE BEES POWER CLUB.
A. E. Donovan, 186, Leander Road, Brixton, S.W.2.
UPLANDS M.F.C.
W. Aggleton, " Berland Farm," Caterham Drive, Old Coulsdon, Surrey.
DAGENHAM & D.M.A.C.
J. W. Bell, 255, Dagenham Road, Romford, Essex.

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Readers will have noticed that this issue is a few days late in appearing and we would mention that it was deliberately delayed in order to accommodate last minute reports on International Week, The Bowden Contest and The Irish Nationals. All of these contests took place only a few days before our normal press date and it was felt that readers would appreciate their appearance in this issue. We would also point out that copies of all photographs taken at National meetings by our staff are available to readers who require them. Details of where to send, etc., can be found on our Contents page.

NATIONAL CONTEST RESULTS

ASTRAL TROPHY

1	Warring, R. H.	Zombies	182·2
2	Dean, W.	"	175·1
3	Smith, J.	Hackney	153·8
4	Gunter, B.	Bushy Park	148·3
5	Chester, P.	Hackney	112·5
6	Kimberley, C. V.	Birmingham	100·6
7	Field, P.	Belfairs	99·7
8	Dewell, F.	Middlesbrough	99·2
9	Hemsley, O. E.	Bushy Park	95
10	Rawlings, G. R.	Coventry	91·2
11	Cox, J.	Northern Heights.	87·4
12	Dallaway, W.	Birmingham	85·9

(33 competitors)

HAMLEY TROPHY

1	Judge, A. A.	Barnes	26·6 error
2	Taplin, D.	Isle of Thanet	37·8 "
3	Johnson, D. E.	Warwick	42·4 "
4	Johnson, W. G.	"	55·8 "
5	Field, P.	Belfairs	79·2 "
6	Valentine, S.	Ilford	85·3 "

(31 competitors)

TAPLIN TROPHY

1	King, D.	Isle of Thanet	40 pts.
2	Taplin, D.	" "	30 "

AEROBATIC CONTROL LINE

1	Norris, R. J.	West Essex	512 pts.
2	Allen, D. J.	" "	472 "
3	Steward, L.	" "	413 "
4	Cock, P.	Southampton	284·5 pts.
5	Marsh, K. F.	West Essex	214·5 "
6	Morley, W. A.	" "	187 pts.
7	Reece, D.	" "	169·5 pts.
8	Butcher, N. J.	Hastings	157 pts.
9	Nicholls, H. J.	Northern Heights.	122 "
10	Peck, N.	St. Albans	50 "
11	Taylor, W. H. C.	West Essex	35 "
12	Jones, J. W.	Birmingham	15 "

(15 competitors)

LADY SHELLEY CUP

1	Piggot, A. D.	Croydon	496·4
2	Marden, S.	B & Chiswick	444·9
3	Hall, J.	Croydon	430
4	Perilli, K.	Brighton	418·8
5	Dowsett, I.	B & Chiswick	404·6
6	Hemsley, F.	Southern Cross	370·6
7	Higgins, J. B.	B & Chiswick	338
8	Millington, J. R.	Park M.A.L.	313
9	McKenna, J. C.	Park M.A.L.	297
10	Lewis.	Southern Cross	273·5
11	Knight, J. B.	North Kent	261
12	Lucas, I.	Brighton	217

(23 competitors)

OPEN DURATION POWER

1	Collins, S.	Northern Heights	10·72 ratio
2	Kimberley, G. B.	Birmingham	10·25 "
3	Chatwin, F.	"	9·64 "
4	Mussell, A.	Brighton	7·91 "
5	Knight, H. J.	North Kent	7·4 "
6	Panteney, M.	Eastbourne	6·74 "
7	Collinson, A.	Bradford	6·66 "
8	Craggs, D.	Southend	6·51 "
9	Knight, J. B.	North Kent	6·5 "
10	North, D.	Cardiff	6·06 "
11	Welch, P.	Southampton	6·05 "
12	Howard, J. A.	North Kent	5·68 "

(56 competitors)

BOWDEN TROPHY

1	Scott, R.	St. Helens	17·3 error
2	Bowen, J.	Southgate	18·3 "
3	Kell, E.	West Essex	21·9 "
4	Ranson, L.	Essex Power	26·3 "
5	Duke, R.	" "	26·5 "
6	Lawrence, L. V.	Isle of Thanet	27·5 "
7	Twiddy, R. E.	Ilford	34 "
8	Reynolds, S.	Upton	35 "
9	Kennedy, J.	"	59·7 "
10	Dyball, R.	Blackheath	60·1 "
11	Mallett, F. R.	Regents Park	78·8 "
12	Miller, S. A.	Luton	79 "

POWER RATIO

1	Marcus, N.	Croydon	13·7 ratio
2	Johnson, W. G.	Warwick	11·4 "
3	Pullen, R. F.	Park M.A.L.	10·06 "
4	Amor, R. C.	Ilford	8·8 "
5	Watson, R.	Northern Heights	8·1 "
6	Kell, E.	West Essex	7·4 "
7	Russell, A. G.	North Kent	6·7 "
8	Howard, J. A.	" "	6·1 "
9	Smith, J.	Hackney	5·1 "
10	Chester, H.	"	4·9 "
11	Bates, F.	"	4·7 "
	Knight, H. J.	North Kent	4·7 "
12	Wingate, J. E.	Streatham	4·4 "

CLASSIFIED ADVERTISEMENTS

PRESS DATE for November issue—October 1st.
ADVERTISEMENT RATES:
Private Minimum 18 words 6s., and 4d. per word for each subsequent word.
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TRADE.

AEROMODELLER back issues can be obtained from W. H. Forway, Elizabeth Villa, Coventry Corner, Hockley, Essex. Early copies bought.

8, 4 c.c. petrol engines "H.P." Mark II unused, £3 15s. 0d. each. 150 ¼ in. Pacy plugs at 2/- each. For particulars apply to Morborne Requisites Ltd., 204, High Street, Barnet, Herts.

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70 copies AEROMODELLER, March, 1940–January, 1946. 32 copies "Air Stories" January 1937–February, 1940. 70 copies "Flying" 1936/39. Good quantity Balsa Wood. Plans, numerous 1/72nd scale accessories worth £10, the lot £7. Horne, Meddins Lane, Kinver, Staffs.

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62 "Aeromodellers" 1942-1948 £2. 103 Meccano Magazines 1937-1946 £2 38 "Practical Mechanics" 1938-1948 £1. Moss, Coaley Junction, Gloucestershire.

Continued on page 549

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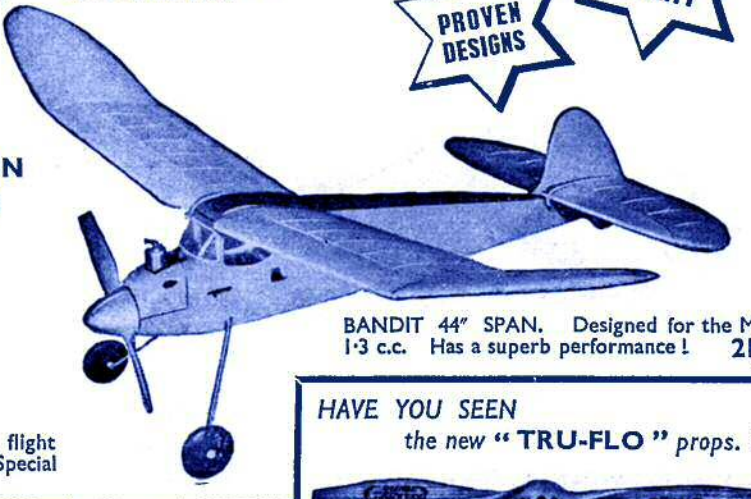

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