

# AERO MODELLER

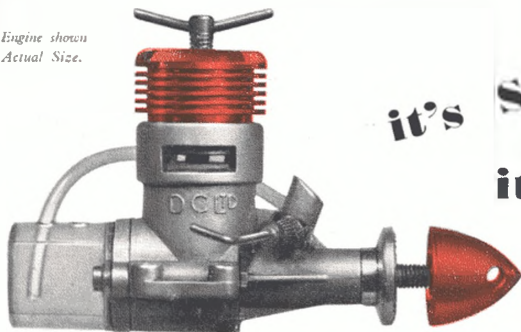
NOVEMBER 1955



Illustrated Report of  
World Championships

**1'6**

Engine shown  
Actual Size.



it's

**SUPERB!**

it's the **NEW**

**SABRE**

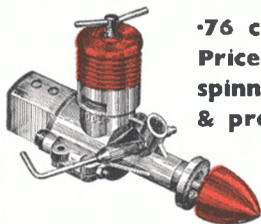
- **1.49 c.c. .09 cu.ins.**
- **Beam or Radial mount**
- **Weight 3½ ounces**
- **Bore .525 ins. Stroke .420 ins.**
- **Price including tank, spinner, tommy bar & propeller **65/4****

You liked the "Javelin", now famous in the 1.5 c.c. class. You will simply rave over the "Sabre", its very worthy successor. The experience of many years engine design and production culminate in the introduction of this outstanding addition to the famous Allbon Series.

The terrific finish both internal and external has to be seen to be appreciated, and the power delivered by the "Sabre" is all one expects from a "one-and-a-half", plus that bit extra which the others have not got! The angle needle valve protects your fingers, and has the new Allbon positive action clip as fitted to the "Super Merlin", which ensures micrometer adjustment of the fuel supply.

Tank, spinner, tommy bar, propeller, etc., are all provided in a new style luxury box, and we sincerely believe the "Sabre" is the finest value for money on the motor market.

## **Allbon SUPER MERLIN**

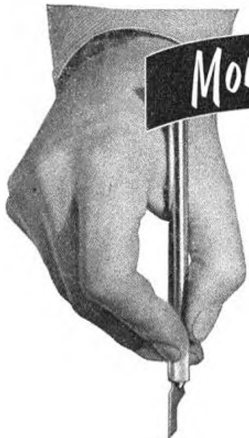


**.76 c.c.—.046 cu. ins.**  
**Price including tank, spinner, tommy bar & propeller **55/-****

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to last a  
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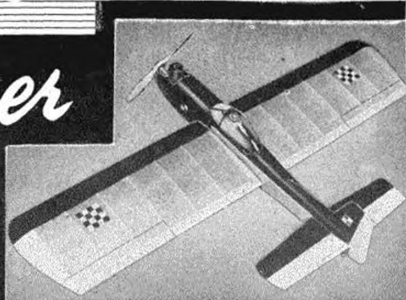
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## SEVEN NEW ADDITIONS TO OUR RANGE ! !

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Combateer



THE "COMBATEER" is Veron's newest and latest 38" Span control-line kit which may be flown either as a basic trainer or advanced Stunt and Combat model. Simple practical design and excellent stunt performance with maximum stability. Suitable for motors of 2 c.c. to 5 c.c. Not a kit for the absolute novice.

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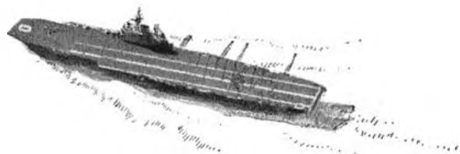
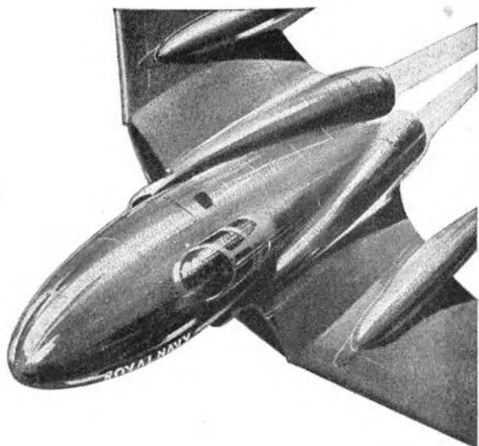
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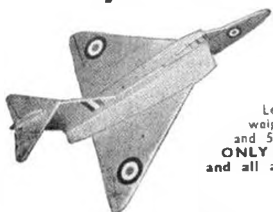
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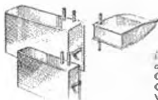
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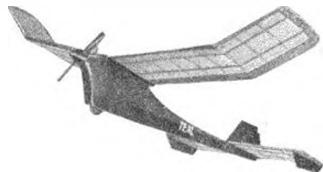
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**28/3**



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**17/6**



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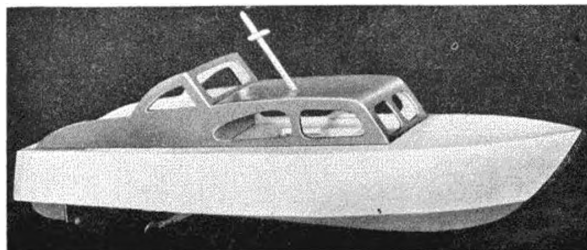
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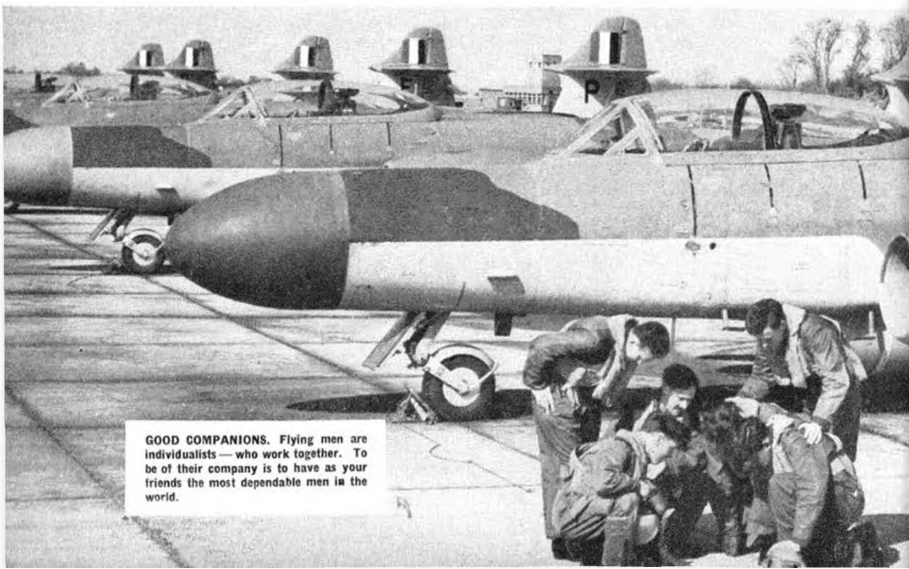
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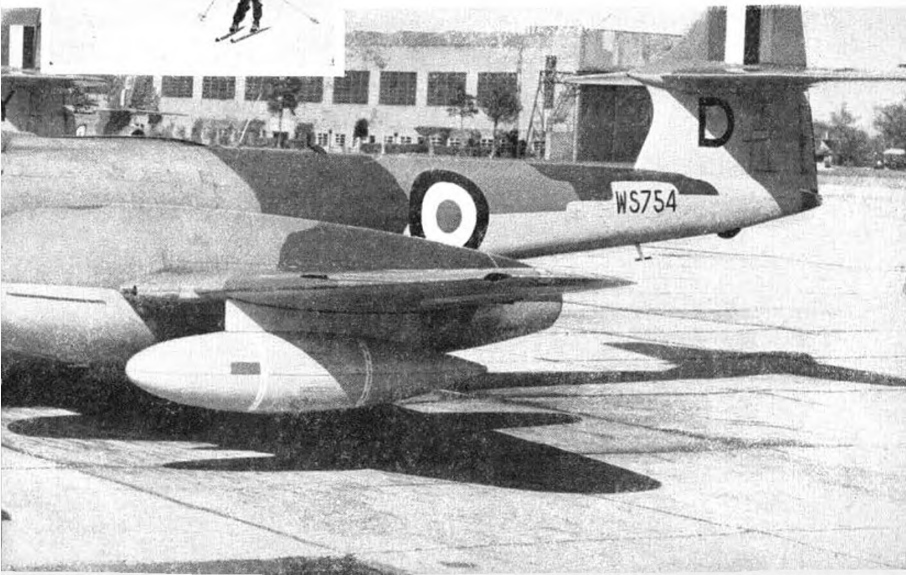


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VOLUME XX  
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NOVEMBER 1955

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Editor - - - H. G. HUNDLEBY  
Assistant Editor - - R. G. MOULTON



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## FOUR MEMORABLE CONTESTS

1955 WILL NO DOUBT be recorded as having the finest summer weather that these islands have experienced for many, many years, and the Met. boys must have got rather tired of saving the same things night after night on the T.V. screens. However, their lack of variety was our joy, and it will definitely be recorded in aeromodelling annals that contest flying had a grand season.

The three-event World Championships held in Germany came in for its fair share of the Clerk of the Weuther's dispensation—but only just! As competitors sat down to the closing banquet at Wiesbaden air base, after three days of perfect model flying conditions, the heavens opened and it rained cats and dogs.

This important and memorable series is fully described elsewhere in this issue, and we confine our editorial to congratulating sincerely the winning nations and individuals, and handing a big bouquet to officials and helpers from the Academy of Model Aeronautics and the Deutscher Aero Club, joint organisers of the meeting. Divided responsibility brought about its difficulties, but these were overcome with typical aeromodellers' aplomb, and a delightful meeting was the result.

We foresee a considerable amount of discussion on the rules for future World Championships in view of the terrific standards reached at Finthen. Ideally, the top limit for a contest should always be just out of reach of the competitors, assuming the event takes place in perfect weather conditions, but this year's Championships demonstrated that both power and Wakefield models can exceed the maximum duration required with considerable regularity under the right conditions, calling for the rather unsatisfactory requirement of a fly-off.

One suggestion heard was for the maximum flight time to be raised to four minutes, but the best supported recommendation is for motor run and rubber weight to be still further reduced, thus making it more difficult to reach a three-minute flight whilst retaining the undoubted retrieving advantages obtaining with the lower flight maximum. Opinion seems to be hardening also on the subject of a definite specification for the power model, introducing area limitations as applied to the A/2 and Wakefield. Readers' views will be welcomed on this vital subject.

A most gratifying feature of the meeting was the number of nations represented by their own fliers, though countries as far away as New Zealand and Japan still had to rely on the proxy system. In all, twenty-three countries were represented by 195 competitors, some of whom flew in more than one contest during this somewhat gruelling series.

To single out individuals for mention is perhaps invidious, but we cannot miss the opportunity of expressing our appreciation of Carl Wheeler of A.M.A., self-effacing "back room boy" who dealt with so many of the pre-contest details; Marjorie Miller of Special Services who coped admirably with the thousand and one details of hosting; and Pete Sotich, whose deft yet firm handling of the keyed-up enthusiasts from many nations was a model of iron-fisted diplomacy.

Great Britain can be well satisfied with the successes of the teams sent, Michael Gaster's individual power win being backed up by the Team award in the same event, and a 2nd in the A/2 event through Bob Gilroy of Croydon. Fine performances were put up by all members, and the aeromodellers of this country owe them a debt of gratitude.

No less important from our viewpoint was the highly successful finals to the GOLDEN WINGS CONTEST, organised by this magazine for the encouragement of junior modellers throughout the country. Twelve lads were selected on a de-centralised eliminator to battle it out amongst themselves at Hulton, and John Fellows of West Bromwich proved himself a worthy winner, capable of holding his own in any contest against chaps much older than himself. May we hope that some of these lads will have graduated to the World Championship class before many years have passed.

# Heard at the HANGAR DOORS



## Farnborough—'55

THIS YEAR'S annual display organised by the Society of British Aircraft Constructors at Farnborough was, as ever, abounding with aeronautical interest. The needle-nosed Fairley F.D.2 research delta, appealed to us with its near flatplate wing and almost undetectable fin/rudder joint. The aerobatics of Zurkowski in the Avro Canada CF.100 defied description, and the Olympus Canberra displayed a vertical climb that would be the envy of all power modellers. Most of all, we were impressed by the effectiveness of slots and flaps as fitted to the Scottish Aviation Ltd., Twin-Pioneer. The way this 16-seater passenger transport left the ground in 80 yards and landed back in much the same distance, was truly marvelous, and we were particularly pleased to find the company's display model exhibited with all slow speed aids "fully out".

As will be seen in the heading photo, this was a particularly fine effort at the semi-transparent form of display model, and it was finished most accurately in the same colours as the real aircraft out on the runway. Made by Westway Models, the Twin-Pioneer model was one of many used in the vast exhibitors tent to illustrate existing and future products of the various aircraft manufacturers.

We are told that Westway produced 68 special models for this year's display, among them being the magnificent Bristol 171 Helicopter, which was our "Model of the Month" in September issue, and which was probably the finest piece of model-making in the whole show.

## Our "Model" Cover

Centre of (photographic) attraction at the recent World Championships were two extremely chic ladies who accompanied the Swedish contingent to Weisbaden. Mrs. Maud Larssen, seen on our cover this month holding one of the Gamen (Norkopping) club entries, was accompanied by a younger compatriot who revelled in the intriguing name of Nono,

and their presence certainly enlivened the scene. To those readers who have been asking for a "model cover" once in a while, here is our answer in double measure!

We recall with amusement the handsome and ardent young aeromodeller who shadowed Miss Nono diligently, presumably with the earnest intention of making her change her mind.

## Official debates

The following items of interest are culled from recent meetings of the S.M.A.E., and should be carefully noted, particularly by contest men.

- (a) *S.M.A.E. Rule Book page 8, Rule 30(b)* — clarified to read, "the model must be capable of standing on three points unassisted in still air; and held when launching in such a manner that its natural position on the ground is in no way affected."
- (b) *Speed Record Claims.*—In future the engine and/or complete model shall be impounded immediately after the flight by the timekeepers, who shall submit same to the Technical Secretary for check purposes.
- (c) A resolution from the Northern Area that future International Teams be selected from duplicate Trials meetings held in both North and South was defeated by 9 votes to 2.
- (d) It is stressed that the 2.5 c.c. engine limit for F.A.I. events applies only to *World Championship events*, of which there are at present only two, the annual Free-flight and Speed Championships. Radio control enthusiasts who have had qualms on this point may rest assured that the limit does not apply to them.

## Where's that Tiger?

The overwhelming superiority of the British Oliver Tiger engine was amply demonstrated at the 1955 Championships, a very large number of competitors using this popular make. In fact, two of the

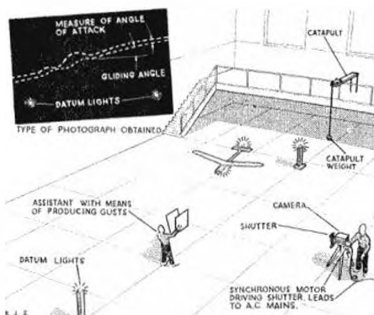
top three men employed 'Tigers', and it is interesting to record that before they left for home, the entire American contingent had put in orders for the Championship winner. We hope that this firm lead over the 'Torp 15, which swept the board in 1953/4, will be further consolidated in other events, and congratulate John Oliver on the excellence of his hand-made products which has brought such prestige to Great Britain. Those modellers who have yet to place firm orders for this engine need to be even more patient, for we can visualise that the flood of orders resulting from the current success will exercise the Oliver production line to the limit.

### Photographing rate of sink

On page 245 of our May issue, we illustrated a method of measuring glide angle and rate of sink as employed in Germany, by use of small lights on the fuselage and fin of a glider. D. W. Allen, Director of Research for the Low Speed Aerodynamics Association, gives further information on the subject.

The technique has been used very successfully in the United States by Prof. Auguste Rasper of State College, Miss., and consists of photographing the model from the flank with a camera having a rotating shutter in front of its lens. In addition to the two lights on the model, there are two fixed lights forming a base line and providing the scale. The arrangements is as shown in the sketch below. From the resulting photograph and a knowledge of the shutter speed, it is possible to obtain measures of the forward speed, rate of sink, gliding angle and angle of attack of the model, also, if the model is disturbed by an artificially produced gust (an assistant clapping two large sheets of card together for instance) it is possible to measure the frequency and damping of the resulting weathercock oscillation.

L.S.A.R.A. will be interested in hearing from anyone considering developing this testing method. Little equipment is required, the main drawback being the need for a large hall.



Watch  
for  
this  
Colour  
Cover



### Aeromodelleur Christmas Issue

This annual feast of succulent model material is recognisable as always by a full colour cover by modelling artist C. Rupert Moore. A.R.C.A. We believe it is one of his most outstanding paintings, showing that wonderful old aeroplane the Hannibal coming in for a landing at Croydon airport in the early 'thirties. The Hannibal also features within the book as a flying scale model, both free flight and control line! (anyone lend me a motor?). Other designs include "Duckfoot" the nifty little amphibian that won this year's Bowden Trophy, and "Monsieur Valentin" a flying scale model of the famous French Birdman. You will never guess who designed the latter? Or will you! It could be nobody else other than Ray Malmstrom.

Two free plans size 23 x 36 are included with every copy, and this year we feature power models. Firstly, a flying scale model of that delightful ultra lightplane the Turbulent. This for .5 c.c. to .8 c.c. diesels, cooked up by our Assistant Editor Ron Moulton. Secondly, we have a typical Vic Smeed Sport Power model with very pleasing lines, and consequently known as "Mam'selle". They are both top rate performers, and will, we are sure, provide thousands of readers with many happy flying hours.

Other features include G.A. drawings of the free flight World Championship models, including full descriptions of both models and their fliers. There is also an interesting report of the East European Championships, again with G.A. drawings. Humour and even fiction are catered for by first class articles, and the popular regular features such as "Gadget Review", "World News", "Especially for the Beginner", etc., are there for your enjoyment.

Full scale fans will find a 1/36th scale drawing of the Turbulent and 1/72nd scale drawings of the sensational Fairey Delta with descriptions by George Cull and John Enoch to match.

All in all we reckon to give our readers one of the finest "two and sixpence worth" yet.



# WORLD CHAMPIONSHIPS

Reported with Pen and Camera by  
C. S. RUSHBROOKE and H. G. HUNDLEBY

WEISBADEN, scheduled location of the 1955 World Model Championships for Wakefield, A/2 Glider, and Power free-flight classes, is world famous for the natural hot mineral springs that feed its numerous stately bath houses, and is situated in the heart of the Rhineland with vineyards stretching in all directions.

In addition, Weisbaden is the headquarters of U.S.A.F.E. and an enormous air base, and it was here that many contestants were housed and fed during the period of the three-event meeting. Unfortunately, it appears that many countries have yet to learn that an official team of twelve plus team manager does not include numerous hangers-on, irrespective of what fictitious "official" titles may have been hunted up for them, and our American hosts were hard pressed to find accommodation for nearly double the numbers expected.

In our opinion, American hospitality was "taken for a ride", and we feel that it is time the F.A.I. took a hand in officially regularising these matters. Full marks must go to the indefatigable officials who coped so splendidly with the invasion of unexpected guests, particularly at the closing banquet where some 350 people wriggled into accommodation originally planned for 200!

1955 has been famous for its fine weather, but nowhere was this more evident - or welcome - than at Linthun airfield, where the actual flying took place through the co-operation of the French authorities. Three days of near-perfect model flying conditions made the 1955 series unique, matched possibly only by the two-event meeting held at Cranfield in 1953. Flying was conducted from the middle of the airfield, and drift went virtually right round the compass during the course of the contests, and it was possible at one stage to witness models landing back on the take-off platforms!

Such ideal conditions did not, of course, prevail throughout the three days, but nevertheless retrieving was generally simple, and very few models were lost.

In only one contest was a fly-off not required, and the seven-man decider for the Wakefield Cup was the culminating point of a series of hard fought events that were a joy to watch. Varied opinions were voiced regarding modification of the rules in future years, for it cannot be disputed that a high percentage of World Championship fliers can return a perfect score if the conditions are kind enough. Many feel that a further reduction in



Action heading shot shows Henry Cole's long-nosed A/2 being launched by team mate during opening stages of the glider event. Centre, large crowd of quencing competitors and officials was in constant attendance around the bus which served as control point. Below, the 1955 Free Flight World Champions, Germany (Wakefield), Gustav Saemann of Germany (Wakefield), and are: Gustav Saemann of Germany (Power), and Rudolf Lindner of Germany (A/2 Glider).



weight of rubber for Wakefield class models, and a 10 instead of 15 second motor run for power models will bring these models more on a par with A/2 gliders, for which the 50 metre line seems adequate at present.

Honours went around the world very well, and the British contingent can be well pleased with their individual and team win in Power, plus second individual placing in Glider.

Statistically, 22 countries provided over 200 entrants for the three events, many being present in person. In the glider event, 79 competitors made 389 flights out of a possible 395, of which 115 were maximums (approximately 30%), the unluckiest modeller being Malcolm (Australia) whose model missed a first round, then scored a maximum in the second only to be lost.

For the Power event, 74 competitors clocked in 321 flights, though here the number of missed rounds was greater, obviously due to various take-off and other troubles. Again 115 maximum flights were recorded, this representing 36% of the flights made, a most extraordinary state of affairs. Wakefield models once again proved their outstanding ability when 70 competitors racked up no less than 182 maxes out of 335 flights, making the staggering total of over 54%. Can one wonder that no fewer than seven men had to cope with a fly-off in the gathering dusk!

Mention must be made of the spectacular high speed stunt display put on by the American Skyblazers Jet Aerobatic Team, and the breathtaking low altitude tricks displayed by a daredevil French pilot whose deck level stunt brought gasps from the crowd.

Taken all round, Italy made the best general performance in the three events, having two men in the top dozen of each event, and taking a 1st, 2nd, and 4th team placings. Great Britain ran them closest with four men in the top individual placings, and a 1st, 5th, and 6th in team positions. However, statistics apart, this meeting will go down in history as a grand, if somewhat hectic series of Championship events, the forerunner we hope of many similar affairs. To the joint organisers, our sincere congratulations on a job well done (though we retain our doubts on the advisability of split responsibility) and look forward to 1956 with keen anticipation.

## A/2 Glider

First of the three World Championship events to be held was that for A/2 gliders, which gave competitors their first glimpse of the airfield at Finthen. Some 15 kilometres from Weisbaden air base, Finthen lies in the midst of extensive market gardens, and the surrounding country is quite reasonable from a model recovery viewpoint. The ground itself rises gently to a high point almost central to the field, and it was from here that all three contests took place.

Flying throughout was scheduled from 8 a.m. to 6 p.m. daily, the five rounds of two hours each being conducted on the "Cranfield system" of half an hour for each team member to fly. This permitted ample time for each competitor, smoothed the conduct of the contests evenly over the official round periods, and, furthermore, eased the burden on timekeepers who had their work cut out due to the remarkable number of maximum scores recorded during the meeting.

After the normal settling down period, which brought about a fifteen minute delay to the commencement of activities, competitors started to roll out to the take-off area and flying got under way with increasing tempo.

It was soon evident that Round 1 was going to have a marked effect on the results, for the rather dead conditions experienced through the first periods of this

round put many a man out of the running despite perfect scores in the later rounds. It is fair to say that the luck of the draw put Bob Gilroy of Great Britain into second place, for he missed a maximum by 20 seconds when flying in the very early hours, whereas the man who finally beat him to the Individual prize got a maximum flight very near the closing time of Round 1.

Many old friends were met during this event, having taken part in previous A/2 contests in places as far apart as Sweden, Austria, Denmark and Yugoslavia. New-comers were also seen, and it was a pleasure to welcome particularly the cheery entrant from Mexico, Carlos de Cossio, making his first appearance in an international glider event. His happy manner is infectious, and he proved a popular favourite with everybody, as well as displaying ability in both glider and power contests.

Models were extremely varied, but followed the general pattern that has come to be expected from various nationalities. Some were perfect marvels of ingenuity and constructive excellence, whilst others had all the appearance of having just finished a hard season of club flying—which is probably what they had! Obviously, domestic competition for international team places is not so keen in some countries as others, to the extent that one sees the same names year after year with little improvement in their standard of performance.

One Swiss model caught our attention, for this had the whole of the upper surface of the mainplane sheeted with ply and highly polished, the wing alone weighing some 11 ounces. Turbulators were sported by approximately half the entries, and it still seems impossible to determine whether or not these gadgets make any real difference to performance. Certainly those models so fitted were no more efficient than those flying without the addition of strings on or in front of the leading edge.

Geoff. Lefever and Des Yeasley were way down the list at the end of the first round, and Johnny O'Donnell only scored just over half marks, so British hopes were not too rosy at this stage. Of the six maximums scored during Round 1, not one had come the way of our contingent, but it was too early in the proceedings to make any forecast of the possible result.

The effect of weather soon made itself felt during the next three rounds, for the number of maximum scores returned were 37, 29 and 25 respectively. Lindner (the 1954 winner) continued to collect maximums, and entered Round 5 with a perfect score, whilst Giusti of Italy followed his loss of 24 seconds in the first round by a run of perfect scores.

Meanwhile, the team positions were being hotly disputed, though Italy held her lead in this event from start to finish. The scoreboard, whilst very ingenious, gave only total scores, and it was not easy at times to determine the state of events or how many flights an individual had made. Lack of a leader board was a handicap, and with no break between rounds it was not always possible to be on hand when the round totals had been recorded.

Gilroy, flying his very short nosed model, plugged away getting maximum flights, and went ahead of Rolf Hagel (Sweden) in the fourth round when the Swede made his worst flight of 2:44, though Thomann (Switzerland) was still ahead of them both until the final round.

O'Donnell showed his true form by recording three maximums, but was never able to recover from his disastrous first round, and topped off his score with a 1:54. Lefever and Yeasley could not repeat their Trials performances, and struggled along gamely, but well out of the running.

Naturally, British attention was on Gilroy's chances, and interest finally focused on Rudolph Lindner, who, with four maximums to his credit, had to score at least



2:41 in the final round to edge out the English competitor. Most expected Lindner to make his flight early in the fifth round, but he was held back until last to make his final attempt between 5:30 and 6 p.m.

Controversy now reared its ugly head, for with all attention riveted on him, Lindner, together with a large German contingent, ranged up and down the field putting up "pilot" models in order to assess the lift. Whatever the rights or wrongs of such a practice, no protest was made to the officials, and he finally launched into the gathering dusk when most of us thought he had left it too late.

Great was the excitement as the model swung away over falling territory, and the seconds were counted off until the model touched down at 2:46, to place him ahead of Gilroy by a scant 6 seconds. Thus, for the second year in succession, Lindner won the coveted A/2 Championships, using a model very little different to that employed in Denmark last year, in fact the wing was the identical component used on that occasion.

Hagl, with only two maximum scores to his credit, finished only 3 seconds behind Gilroy, with Giusti a further second behind him, thus making only 10 seconds difference between first and fourth placemen. A glance at the full list of results indicates the extremely high standard of flying achieved by the majority of contestants, and full credit goes to Rudolph Lindner for his ability in the face of such strong opposition.

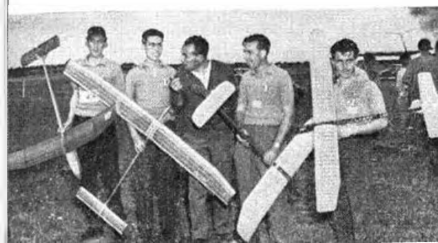
Italy took top honours in the team scoring, with Sweden and France runners-up, and Great Britain had to be content with 6th place to bolster up their 2nd in the individual awards.

## Power

Whilst the weather for the A/2 event had been marred by two very slight showers, the day allocated to the Power Championships was well nigh perfect and at times the sun heat was too high for comfort. This day was remarkable for the huge numbers of general public who turned up at Finthen in and on all manner of vehicles.

The higher mortality rate of power jobs compared with their glider counterparts of the previous day was soon evident, and many of the less experienced power men had troubles right at the start of the event. Hakansson (Sweden) and Gerny (Czechoslovakia) did not get started, and Skalla (Austria) and Aubertin (Monaco)

Winning Italian Glider team with Giusti on right holding his reserve model. Anxious gent in the middle is Team Manager Carlo Tinti.



Top A/2 men show a diversity of shape between their flying surfaces. Left is Hagl Gilroy, centre Rudolf Lindner and right, Nolf Hagel of Sweden. Photos on opposite page: (1) Lepport, German team manager, launches Lindner's winning model. Note the generous dihedral and closely spaced ribs. (2) Enzo Giloi of Italy, was unfortunate in flying early in the first round with this unusual and striking all black machine. (3) Subsequent flights he clocked maximums and the early down-draughts certainly prevented him being higher placed than 4th. (4) Herby Kothe was top placing American, used orthodox layout and multi-spar wing. (5) Bob Gilroy "tunes up" before flying. (6) Arnold Bergen, Swiss Team Manager, launching for Hans Thomann. This model featured all sheet upper wing surface and a turbulator in front of the leading edge. (7) The two Hansens from Denmark, Borge on left with model, and Hans carrying watch. Hans, who placed ninth in this event, was the world glider champion in 1953. (8) Max Harklinger flew proxy for Mackenzie of Canada and is here assisted by Bill Ethington, who together with Bryant Jones, came over for the event. (9) Bill Ethington returns from downwind with his very angular model. (10) Archard's model came all the way from New Zealand and was flown by Karl Bannin, standing just beyond the wing tip. (11) Bob Gilroy was not too busy placing second to launch for team mate Ben Yarbaley, who was by no means up to his usual form. (12) Argentine Team Manager, Aldo Garavito launches for competitor, Juan Carlos Esquivelli. (13) Julius Bader, Swiss, flew for garb, complete with beret. (14) A. Tognissen of Holland chats with Team Manager van Hattum, centre, and Eddie Cook, who was acting as official timekeeper. (15) This well finished German entry was flown by Rudolf Muler. (16) Another German entry bearing a close resemblance to Lindner's winning model. (17) Vladimir Pracek, Yugoslav, with model flown by Alexander Cacerowski. (18) Russian Clerk, before launching for Czech team mate Josef Havelan. (19) Emile Garlaud of France, and compatriot light D.T. Juss on model flown by Jacques Loock.

gave up the ghost after first round scores of 9 and 8 seconds respectively. The much-fancied Alan King (last year's Wakefield winner) went out of the contest following an initial score of 69 seconds, and no less than eight contestants failed to score right at the beginning.

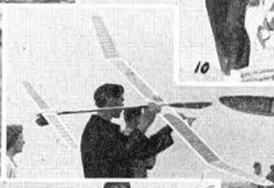
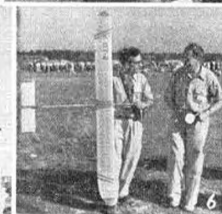
Launching took place from enormous take-off platforms raised some nine inches from the ground, though even these generous areas were not enough for some to get away cleanly. Naturally, such expenses were not required for v.t.o. jobs, and in fact some scorned to use the platforms, notably the eventual winner Mike Gaster.

The better conditions soon made themselves felt in the number of maximum scores returned, there being 20, 25, 22, 34 and 14 in the respective rounds. All four of the British team came through Round 1 without loss of points, but with the next round Alan Mussell started to have worries. Things were not too well with his take-off, and next time nut troubles of all kinds beset him. Starting difficulty revealed that the Webra's cylinder was unscrewing! Fortunately, the German designer was on the field, and a repair was soon effected, but by now time was running short. Taking advantage of the "delayed flight" rule, Mussell went out to try for his second attempt, but the motor cut each time the timer was touched. Despite frantic efforts, the model could not be got away, and the round finished with a nil score for the Brighton man. Trouble was eventually traced to the whole timing mechanism having worked loose, and Mussell finished the contest with two maxima when the faults had been rectified.

George Zigic (Yugoslavia) went out of the contest at

## A/2 RESULTS

| No. | Name            | Country        | 1   | 2   | 3   | 4   | 5   | Total |
|-----|-----------------|----------------|-----|-----|-----|-----|-----|-------|
| 1   | Lindner, R.     | Germany        | 180 | 180 | 180 | 180 | 166 | 886   |
| 2   | Gilroy, R.      | Gt Britain     | 160 | 180 | 180 | 180 | 180 | 877   |
| 3   | Hagl, R.        | Sweden         | 176 | 180 | 180 | 164 | 177 | 877   |
| 4   | Giusti, E.      | Italy          | 156 | 180 | 180 | 180 | 180 | 876   |
| 5   | Evell, J. C. D. | Netherlands    | 163 | 180 | 117 | 180 | 180 | 840   |
| 6   | Thomann, H.W.   | Switzerland    | 166 | 180 | 180 | 180 | 130 | 836   |
| 7   | Kothe, H.       | Utd States     | 143 | 180 | 145 | 180 | 180 | 828   |
| 8   | Horyna, V.      | Czechoslovakia | 180 | 180 | 131 | 180 | 152 | 825   |
| 9   | Hanssen, H.     | Denmark        | 180 | 180 | 118 | 180 | 106 | 804   |
| 10  | Ylchair, M.     | France         | 118 | 180 | 180 | 180 | 146 | 804   |
| 11  | Ege, H.         | Switzerland    | 174 | 116 | 180 | 144 | 180 | 794   |
| 12  | Varetto, C.     | Italy          | 130 | 180 | 180 | 180 | 114 | 784   |





Top place *Power men* in after-camp, line-up, *Gaster* in centre with *Jones* on left, and *Stajcer* of Argentina on right. *Jones* used *Oliver Tiger*, *Gaster* likewise and *Stajcer* a *Torp 15*. Photos opposite: (1) *Jorma Partinen* of Finland performs a real vertical take-off, closely watched by officials and timekeepers. (2) *Olla Goss* of the U.S.A. releases his *Torp 15* powered pylon model. Note team-mate with wind indicator in background, which merely proved there wasn't any! (3) *Pete Huskell* demonstrates the perfect V.T.O. technique with subsequent climb that never failed to produce gasps of admiration from the onlookers. Engine is an E.D. Rover. (4) *Ruberto Bianchi* with very beautiful *Super Tiger*, Italian entry. (5) *World Power Champion*, *Michael Gaster*, presents his back to our camera as he releases "*Gastown*" aka V.T.O. (6) *Bryant Jones* and *Bill Esherington* of Canada, note the A140 shirazi! (7) *Benkert* and *Berk* of Germany made a grand job of flying Canadian entry for *John McMillan*. (8) *Vladimir Hajek* of Czechoslovakia gained fourth place with this pylon job, where *Jim* is placed forward of tailplane. Motor used is the Czech National engine A1425 (9) *Only woman competitor in power* was *Marin Rudolf* of Germany, who did very well to place eighth amongst so many international experts. Her husband is tuning *Werra* motor in this picture. (10) *Carlos de Goss* of Mexico's "*Cheerful Charlie*". (11) *William Harrell* with high aspect ratio flier that was *Torp 15* powered. (12) *Tony Maselli* from the *Everett Isle*, flew this *Mallard* with an *Oliver Tiger* up front. (13) *Ernst Blecher* of Austria with unusual forward fin model. This like many of the Austrian entries, suffered from lack of power, and when launched by V.T.O. method adopted horizontal attitude immediately after release! (14) *Johannes Neale* of Yugoslavia, adjusts his motor whilst team-mate *Frank* lights B.T. (15) *Paul Schmitt* of Switzerland, used a *Werra* diesel in this shoulder wing job. (16) *Franquelli* of Argentina standing, watches compatriot *Marcelino Zito* starting the *Torp 15* on his orthodox pylon layout.

the end of the second round after setting up two maxima, and competitors were to be seen all around the enclosures frantically working away at models that were not giving of their best. In general, few had motor troubles, most difficulties seeming to be take-off gremlins due to excessive torque. To the casual observer it appeared that far too many competitors were not experienced enough with r.o.g. requirements, but notable exceptions were the Americans, British and Italians whose separate techniques were impeccable.

One model that took the eye was the high aspect/ratio job of *Bill Harthill* (U.S.A.) the floating glide being really amazing. Despite this, *Harthill* could not quite reach top scoring, and the contest ground along with many favourites coming unstuck.

*Gaster* and *Huskell* continued to turn in maximum scores with satisfactory regularity, and *John Parrot* of Whitefield, taking part in his first international contest, again hit top points in the fourth round after dropping nearly half marks in the third. *Jorma Partinen* of Finland, lone entrant from his country, demonstrated good v.t.o. technique and finished 12th, whilst the team positions were continually under anxious scrutiny, particularly by the British contingent, already bucked by their second place the day before. In fact, the British team held the lead from start to finish, though there were some anxious moments.

Motor overruns were surprisingly few, though some ran it very, very close. In such perfect conditions it was not necessary to risk a disqualification on engine run, for many maxima were scored from power runs much less than the allowed limits.

Round 5 brought tragedy for *Pete Huskell*, his timer letting him down in this decisive flight to give a motor run of only 8 seconds and a flight total of 2:31. It is a toss-up which of the British lads would have won had both been in the eventual fly-off, for both demonstrated excellent technique, though *Huskell* had perhaps a slight edge on the glide.

Once again we had the exciting spectacle of a fly-off for a World Championship, and tension was great as *Michael Gaster* (G.B.), *Francisco Stajcer* (Argentina) and *Bryant Jones* (Canada) filed out for the flight which would decide the holder of the Individual trophy. With the light getting steadily poorer, the word "go" sounded, and all three models became airborne within seconds of each other.

You could have heard a pin drop as the seconds were counted off, and a crowd gathered round the Recorder's table to learn the decision. *Stajcer's* time was in first, and the watches showed another near-maximum at 2:55, but it was obvious that he could not touch *Gaster*, whose model floated away from the field at a great height. *Jones* had the hardest luck when both motor-run timers' watches showed 15.2 seconds, and he had to be content with a final score of five maxima, and zero for the fly-off.

Now *Gaster's* timers came in, and the word spread that he had clocked 5:13, thus bringing the Individual as well as the Team trophies to Great Britain. Team mates careered off down wind to welcome his return with

the glad news, and the three finalists were chaired and cheered in an exciting finale to a grand day's flying.

## Wakefield

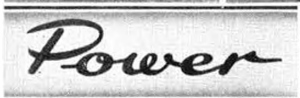
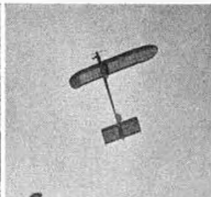
What is there about the Wakefield class of model that appeals to the imagination so? With general interest these days dominated by the engine driven model, the sustained popularity of the "Wake" takes a little understanding until one remembers the long development of this class of machine, for in spite of specification modifications made in an effort to contain the ability of the rubber driven model within bounds, each restriction seems to have further stimulated endeavour on the part of serious designers, and the Wakefield model continues to beat the limits set by various rules committees.

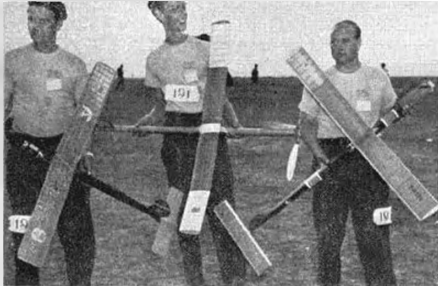
The 1955 contest for the famed Wakefield Trophy once again demonstrated the superiority of this class of model, for in very similar conditions to those operating the day before, this contest produced no less than 54% of perfect scores, and a seven-man fly-off that brought the most exciting series yet held to a fitting climax. Seventy competitors made 335 flights during the five rounds, and of these 182 were maximum scores, with a considerable number only slightly below the top marks.

Following their previous successes, the British party was somewhat sure of itself in the event which has come to be regarded as "right up our street", and the first two rounds certainly confirmed their confidence when the best three had perfect scores. *Phil Reid* of Birmingham, ably assisted by clubmate *Ray Monks*, did not hit top form until the 4th and 5th rounds, but the O'Donnell brothers plus *Frank Holland* seemed all set to make the

## POWER RESULTS

| No. | Name          | Country        | 1   | 2   | 3   | 4   | 5   | Total |
|-----|---------------|----------------|-----|-----|-----|-----|-----|-------|
| 1   | Gaster, M.    | Gt. Britain    | 180 | 180 | 180 | 180 | 180 | 900   |
| 2   | Stajcer, F.   | Argentina      | 180 | 180 | 180 | 180 | 180 | 900   |
| 3   | Jones, B.     | Canada         | 180 | 180 | 180 | 180 | 180 | 900   |
| 4   | Hajek, V.     | Czechoslovakia | 180 | 180 | 180 | 180 | 166 | 886   |
| 5   | Mangino, L.   | Mexico         | 164 | 180 | 180 | 180 | 180 | 884   |
| 6   | Buskell, P.   | Gt. Britain    | 180 | 180 | 180 | 180 | 151 | 871   |
| 7   | Vidosich, G.  | Italy          | 180 | 180 | 180 | 180 | 150 | 870   |
| 8   | Rudolph, M.   | Germany        | 179 | 180 | 166 | 180 | 164 | 869   |
| 9   | Goss, C.      | Utd. States    | 180 | 180 | 168 | 180 | 178 | 866   |
| 10  | Buchan, L. F. | Netherlands    | 169 | 180 | 180 | 180 | 127 | 837   |
| 11  | Podde, A.     | Italy          | 170 | 142 | 180 | 180 | 155 | 827   |
| 12  | Partinen, J.  | Finland        | 132 | 180 | 158 | 180 | 167 | 817   |





contest one of the keenest matches to date, and the scoreboard showed team after team with maximum scores until quite late in the day.

Despite secret hopes, it was not to be Hugh O'D's day, for in the third round he dropped 24 seconds and this single failure put him back to 15th position in the final lists. Brother John also found round 3 his Nemesis, the downdraft that brought about his downfall losing him over a minute. Some indication of the standard of durations can be deduced from the fact that whilst the top three Britishers scored maxima in four of the five rounds, their finishing positions were no better than 11th, 15th and 29th.

American stock was high for much of the day, for at the end of the 3rd round every team member had full marks and it began to look a foregone conclusion that they would carry all before them. However, round 4 saw Champane drop one second, and both Manny Andrade and Herb Kothe made their worst flights in this disastrous period.

The Italians were plugging away with commendable skill, and it was only Prandini's 4th round flight that prevented a perfect team score for this formidable equipoise. Germany had the same misfortune when Maibaum scored only 2:27 in the fourth, and the excellence of the Swedish competitors is demonstrated by the fact that they won the Team Championship by only dropping 18 seconds through their top three men.

Rubber breakages there were, also the occasional prang, but the percentage was extremely low, and all day long the fliers exhibited great skill and reliability. Proxy flown models were at a distinct disadvantage against such hot competition, though those flying for Japan, New Zealand, Canada and other countries battled it out with unfamiliar models in a commendable struggle against odds. Our warmest appreciation goes out to those stalwarts who year after year send their models many thousands of miles to participate in the World Championships, knowing full well that the best can rarely be got out of their entries.

Frank Holland was the sole British hope by the time Round 5 came along. With four maxima to his credit, this experienced Championship contender had been troubled more and more as the contest wore on with a tightly turning take-off, and he admitted that his high position at that stage was somewhat fluky. Actually, his fifth take-off was an improvement, but his luck was out, and he could not better 2:40 to bring the final team score to 2,590 points and 5th position in the list of nations. The O'Donnells finished the contest as they had started, with maxima, and Phil Reid emulated their efforts with a double max.

With the final flights chalked up, Sweden found herself with top team position, and Hakansson in the fly-off. To keep him company there were two Italians, two Germans, Frel (Yugoslavia) and Muzny (Czechoslovakia). Memories of the three-man occasion at Cranfield in 1953 flooded back, and the tension was tremendous as preparations were made to deal with this unusual situation.

Left: Sweden has always placed well in the Wakefield and this year was no exception as they won the team event. From left to right: Åsger Hakansson, Mattie Hansquist and Regna Ahlman.

Photos opposite: (1) Guido Fea of Italy used a forward fin design that was superbly constructed. (2) His team mate Virena Scardicchio was also in the fly-off. (3) Frank Holland makes a copybook take-off closely watched by the "three-point" judges. (4) Phil Reid's D.T. is lit by Ray Manks before winding. (5) Wakefield Champion for 1955 Gustav Saemann complete with model. Note the end plates on tailplane, pylon mounted wing, and simple rectangular fuselage. A full description of this model together with the other winning machines will appear next month. (6) Bril Frel of Yugoslavia also featured in the fly-off, and flew a model that was a constructional masterpiece. (7) Dr. Virena of Holland gets away in fine style. (8) Pete Satich on right did a grand job as Check Director and here check weighs models between rounds. (9) The O'Donnells pilot the turns on Hughie's cross ribbed model. (10) Bob Champane utilized his low and arched tree recovery device to assist Bill Etherington of Canada retrieve his Wake. (11) Josef Altmann of Germany was yet another who achieved five maxima to feature in the seven man fly-off. (12) Radoslav Clark, assisted by Hajek, reaches the crucial stage of winding and eases the knots through his fuselage. (13) Second place man Anders Hakansson used an all-sheet fuselage like the Saemanns, but differed from most by using a free-wheeling prop. (14) German proxy flier with unusual Japanese entry makes a fine take-off picture as model climbs steeply from the board. (15) Longest winding stretch of the meet was that performed by Fea of Italy. Here Riechli strains anxiously at the reeling end using straps peg through rear motor tube. (16) Well-known to old International Contest followers is Edgar Balazs ably assisted by well-tried assistant, Oloffe de Haro, who also flew as a Belgian team member.

Unfortunately, much time was lost in getting the men away on this decisive flight, and the light got steadily worse. Furthermore, drift had shifted to take the models away over a thick belt of trees, and a dark bank of cloud on the horizon made timekeeping extremely difficult. Eventually, seven models took the air in close company, and we settled down to sympathise with the watch holders. There can be no doubt that eyesight won this event, plus a little luck in keeping within a light patch of sky.

Times were read off in the midst of an excited crowd, and the British timekeeping pair eventually brought their watches in to confirm that Gustav Saemann would take charge of the coveted Trophy, his time being 5:15 out of sight. Hakansson got 4:49, Scardicchio 4:46, Altmann 4:44, Frel 4:30, Fea 3:33 and unlucky Muzny 2:49.

Thus ended the last event of a Championship series that will live in the memory of all those who were fortunate enough to witness them.

Proceedings wound up with a banquet and prize-giving that proved a fitting end to the first—and we trust not the last—of a collective free-flight Championships that amply demonstrated the many advantages of bringing all enthusiasts together at the same place and the same time.

|     |                 | WAKEFIELD RESULTS |     |     |     |     |     |       |
|-----|-----------------|-------------------|-----|-----|-----|-----|-----|-------|
| No. | Name            | Country           | 1   | 2   | 3   | 4   | 5   | Total |
| 1   | Saemann, G.     | Germany           | 180 | 180 | 180 | 180 | 180 | 900   |
|     |                 |                   |     |     |     |     |     | +315  |
|     | Hakansson, A.   | Sweden            | 180 | 180 | 180 | 180 | 180 | 900   |
|     |                 |                   |     |     |     |     |     | +289  |
|     | Scardicchio, V. | Italy             | 180 | 180 | 180 | 180 | 180 | 900   |
|     |                 |                   |     |     |     |     |     | +286  |
|     | Altmann, J.     | Germany           | 180 | 180 | 180 | 180 | 180 | 900   |
|     |                 |                   |     |     |     |     |     | +284  |
|     | Frel, E.        | Yugoslavia        | 180 | 180 | 180 | 180 | 180 | 900   |
|     |                 |                   |     |     |     |     |     | +270  |
|     | Fea, G.         | Italy             | 180 | 180 | 180 | 180 | 180 | 900   |
|     |                 |                   |     |     |     |     |     | +211  |
|     | Muzny, L.       | Czechoslovakia    | 180 | 180 | 180 | 180 | 180 | 900   |
|     |                 |                   |     |     |     |     |     | +169  |
| 8   | Bompoint, M.U.  | Sweden            | 180 | 180 | 180 | 172 | 180 | 892   |
| 9   | Widell, K. E.   | Denmark           | 180 | 180 | 180 | 180 | 172 | 890   |
|     | Ahman, R. G.    | Sweden            | 180 | 170 | 180 | 180 | 180 | 890   |
|     |                 | U.S. States       | 180 | 180 | 180 | 180 | 180 | 900   |
| 11  | Holland, F.     | Gt. Britain       | 180 | 180 | 180 | 179 | 161 | 880   |
| 12  | Champane, R.A.  | U.S. States       | 180 | 180 | 180 | 178 | 180 | 878   |
| 13  | Kothe, H. H.    | Utd. States       | 180 | 180 | 180 | 178 | 180 | 878   |



Wakefield





*All stability problems are neatly solved by incorporated engine offset and a cambered rudder on this perfect replica of the famous Vickers-Supermarine fighter*

**By P. L. WHITTAKER**

THIS MODEL IS STRONG — virtually crashproof, a realistic performer, and stable enough to fly on a windy day. Pete Whittaker had in mind a scale model which would withstand all early misadventures and prangs to reach maturity without perpetual repairs and patchwork quilt appearance. This was achieved, and after many flights the prototype bears only the small scar of a grid power line 120 ft. above *terra firma*—yes, it will climb! Clean lines enable an Alibon Merlin to haul the 19 ounce gross weight off the ground in 6 yards in still air, or less with a breeze.

In the hope that the propeller should point more to the front, and not out of a starboard exhaust pipe, torque is partly cancelled by the "one-sided" fin section. Even so, engine bearers have built-in offset and downthrust, matched by former No. 1, thus preserving the smooth profile of the nose.

A word of warning—use the timbers specified, and put them where specified, the C of G has to be squeezed as low as possible.

### Fuselage

Trace a spare sideview and build left and right handed fuselage halves, using balsa 1.1-ply for formers, 2, 3 and 4, together with the two wing root ribs on each side.

Cement the halves together, ensuring accuracy of line. Set the engine bearers into former No. 1, persuade the bearers through the offset holes in formers 2 and 3 and cement into place. Next fit former 9 (also rudder post). Curve lower nose from soft block, cement horn and sand to shape. Sheet the entire fuselage with 1/32 medium sheet—performing with steam, water and persuasion—using one sheet for the entire top from formers 2 and 9. Now apply sheeting from wing T.E. rearwards—then fill in the sides. The large wing fillets, a feature of the Spit, are steamed 1/32 sheet mated on the T.E. to a length of cane cemented round from the wing to the fuselage.

Fit the 1.1-ply tailplane at this stage, cementing only at the rudderpost joint—thus allowing incidence settings to be finalised later.

Before sheeting the belly, fit both u/c legs (14 s.w.g. piano wire) sewing them to the appropriate wing tongues. The legs are connected by a 14 s.w.g. wire crossing the fuselage interior, bent downwards and soldered to the top of each leg—thus shock loads are spread over the airframe and lateral stability is achieved.

Cover the entire structure with nylon—attached with

glider dope, then fit the intake and radiators—finally covering these with nylon too. Due to the long nose, no fuel drain holes are drilled in the engine compartment. As the tank is emptied, splash is retained and trim is not affected. The detachable engine cowling is  $\frac{1}{8}$  in. planked covered with nylon inside and out, the exhaust stubs being strictly functional—cut from cartridge paper.

### Wings

Utilise  $\frac{1}{8}$  in. spruce spars top and bottom, plus a basket cane, crashproof L.E. 1/32 in. sheet is employed round the L.E.—while the "boxes" are  $\frac{1}{8}$  in. balsa sheet, bound with nylon tape.

Make a solid job of the root rib T/E join—this is loaded heavily when pranging. "Cartwheeling" protection is attained by coaxing the L.E. round the wingtips to the trailing edge.

Matt black dope the cockpit interior and fit the canopy over the nylon covering. Form the windscreen panel from cane, cement in place and apply camouflage—dark green and dark grey to all upper surfaces, using "Sky" below. Apply a white band round the rear fuselage, squadron letters, serial number, etc., and finish with two coats of fuel proofers.

Remember that the model is fast, so do your test gliding with some vigour. The scale tail surfaces need extra airflow to take full effect, a "mislaunch" can be very misleading.

Cement the tailplane to its final setting and try a flight on reduced power. The writer uses a Truxell 6 x 4 prop giving 12,000 r.p.m. Such power can only be used when the offset and downthrust have been adjusted to a nicety.

Talking of power, a 1.5 c.c. motor has been flown in the first prototype, not unsuccessfully—using 2½ inches dihedral and a pendulum rudder limited to  $\frac{1}{4}$  inch movement each way, with a 7 inch pendulum arm carrying 1½ inches flex cored solder. In this case the prop was a fibre five-blader, as shown on the plan for scale fanatics.

Don't hurry the job, follow the plans and you'll have a model which can be taken straight from flying field to any exhibition.

Engine note, and the behaviour of the model, especially on take off, are strongly reminiscent of the real thing. The prototype climbs in wide left turns, giving a final burst straight ahead before weathercocking into an upwind glide, often landing within yards of its release point.





# WORLD NEWS

Above: The Haarlem circuit at Zandvoort. Note the use of latest F41 markings, including the eight segment divisions for starting. At right: Four Weber 1.5 diesels power this detailed Bristol Britannia by Hubert Wegmann of Wattenscheid, Germany. Cockpit includes the pilots, and the undercarriage is fully retractable.



Above: Kirsti Oinonen is the fiancée of Finnish modeller Carl Gustav Schlucking, and it seems that Carl is getting her used to the idea of aeromodelling. Below: Monty Malborough of Pretoria built this Mercury Mammoch after his return from Europe and has been demonstrating it in the Transvaal.



WHEN A CLUB manages to organise a special control-line circuit with a perfect surface and nearby facilities for pits, etc., then it becomes a major news item. This month we have no less than three such circuits to announce!

Foremost is that in **Czechoslovakia**, where countless tons of hardcore were deposited to level a site at Vrchlabi airfield, scene of the Soviet International contest in August. (A full report of this meeting will appear in December issue.) Surfaced with asphalt, the circuit was outlined with a transportable wire mesh safety barrier and the total cost to the State must have been phenomenal. Second circuit is that at Algiers, **French North Africa**, there they apparently welcome the sound of a howling McCoy, for the site is immediately alongside a 15-storey block of flats! Similar sites have been in service in Paris, but the Prefecture of Police had strong words to say concerning the noise problem in that city. The Algiers circuit has a distinct difference. It specially caters for waterplanes, either speed or aerobatic, and as such it also comes in handy for the model racing boat fans. Remembering that some model world speed records were established in these parts, we can expect to hear more of the Algiers hydro speed fliers in future.

Third, and probably the most used of the circuits, is that in **Holland** and shown in the heading photograph. Built by the members of the Haarlem club, with the aid of local authorities, it was specially created with 2.5 c.c. speed and team racing in mind. The outer diameter of the asphalt is 53 ft., and inner radius is 42 ft., with a 10 ft. centre pilot's disc. In cross-section, the brick foundations were laid so that there is a steady slope from the centre to the edges and this will aid drainage and make landings easier with two wheels touching at the same time. In the immediate locality are undulating hills to provide a windbreak and natural grandstand, while the noise problem does not exist as the circuit is away from densely populated areas at Zandvoort. Excluding labour costs, the fifteen club lads giving their services free, the total cost of this admirable venue was only £40.

Still on the subject of Holland, we read in the *Hutt Valley Bulletin* (New Zealand) that a Dutch Typhoon R.250 has been doing well for itself, a team race time of ten miles in 9:56 with Shell Power-Plus fuel, 7x9 prop and lappage at 40 for each 15 c.c. tankful, confirms the potentialities of this engine which the lads in Europe seem to have overlooked.

Finally, request from **Ceylon S.M.A.E.**, appeals for overseas entries in their solid scale contest. Entry forms are available from the Secretary, c/o Students Digest, Bowala, Kandy.



**AERO  
MODELLER**

## Aeroplanes in Outline

No. 39 by J. R. ENOCH

# CONVAIR F.102A

FOR A NUMBER of years Convair have pioneered the design and development in the U.S.A. of delta-winged aircraft, the latest of which, the F.102-A, is now entering service with the U.S.A.F.

Basic design of the YF-102, a single seat all-weather interceptor, was effected in eighteen months and, despite its size and complexity, the first prototype, serial 27994, was completed by September, 1953, having been under construction for only five months, production jigs being utilised. The aircraft was first flown on October 24th by Richard Johnson, the company's chief project Test Pilot, from Edwards A.F.B., Muroc, California. Powered by a Pratt & Whitney J.57-P-11 axial flow turbo-jet of 9,500 lb. static thrust (15,000 lb. approx., using the variable iris type after-burner), the YF-102 was estimated to have a speed of Mach 1.5. Due to various aerodynamic troubles that speed was not attained since during the test flying that ensued M.98 was the limiting factor. A setback to the test programme occurred on November 2nd, 1953, when, following power failure on take-off, the aircraft crashed and was totally destroyed, fortunately with no loss of life. A second prototype, YF-120, serial 27995, was completed on December 14th, 1953, and first flew on January 11th, 1954. Several modifications, designed to solve various control and stability troubles, were embodied in this machine.

The first production machine of the initial batch of thirty-seven ordered was first flown in March, 1954, serial numbers of two being 31781 and 31782.

Continued development of the basic design with regard to handling characteristics at both ends of the wide speed range, resulted in the appearance of the latest version, the YF-102A in December, 1954. Closely resembling its forerunners, the YF-102A has undergone a great deal of structural re-design, with results which have to date proved highly satisfactory. Principle of the major modifications incorporated are the revised fuselage nose, cockpit canopy and rear fuselage, and the wing which has a cambered leading-edge. The first YF-102A was built in 117 days, and on its second test flight on December 21st, 1954, achieved Mach 1 whilst in a climb.

*Left: The prototype YF-102.1 shows its reflex tips and revised rear fuselage as it climbs away from take-off. Nose is red, white and anti-static black, remainder being natural metal.*

*Below left: First of the YF-102 series had a shorter fuselage and comparatively flat wings. At right: Early production batch F-102 with similar plain wing and straight tapered fuselage.*

The conception of the YF-102A is quite radical since it is intended that later variants will be pilotless, remotely controlled interceptors. For the present, however, a human pilot is employed, his responsibility being the take-off and landing, and in flight monitoring the complex Hughes automatic guidance and fire control system. Contained within the large di-electric nose fairing, this electronic system locates and locks on to the target, then when within range, fires the Hughes GAR-98 Falcon missiles which comprise the sole armament of the aircraft. Normally housed in a retractable weapon bay in the lower fuselage, these self-homing air to air missiles can be supplemented by similar missiles carried under wing or pick-a-back. So equipped the aircraft is referred to as the D.F.-102, DF signifying director fighter.

Versions of the F-102A so far flown have been fitted with a Pratt & Whitney J.57-P-11 turbo-jet, but later production aircraft will have the J.57-P-35 of increased power, 17,200 lb. thrust with afterburning. Ultimately, a PW-J.75 of 15,000 lb. thrust, boosted to 21,000 lb. with afterburning, will be fitted in preference to the Wright J.67 which was originally specified.

The razor edged cockpit canopy, hinged upwards from its rear edge, can be jettisoned in the event of emergency; an ejector seat being provided for the pilot. The canopy rear fairing now extends along the fuselage, forming a spine to join the base of fin, this no doubt results in undisturbed airflow around the fin and rudder, and consequently an improvement in rudder effectiveness. New to the YF-102-A are the blister fairings either side of the rear fuselage, introduced as a measure to maintain smooth airflow and reduce fuselage drag. It is likely that the afterburner controls are located within these fairings. Single high pressure tyres are fitted to each of the tricycle undercarriage units. The nose wheel retracts forward into the nose whilst the relatively wide track main units which extend on retraction are contained in the lower fuselage.

With a thickness/chord ratio of approximately 5%, and area of some 660 sq. ft., the wing affords no space for internal stowage, and in consequence the actuators of the powered elevons are externally faired under the wing.

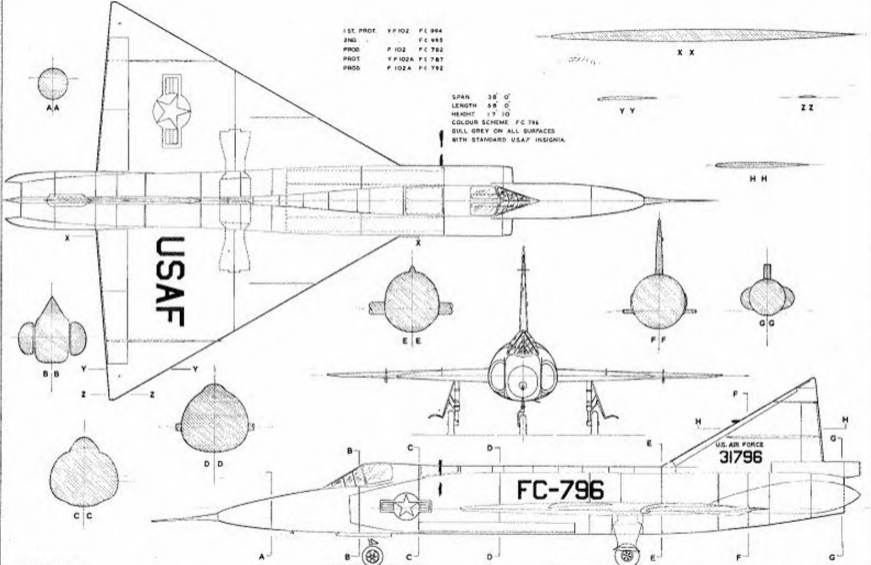
Specific details regarding performance have not been revealed, but a level flight speed of Mach 2 is expected with a high rate of climb to an operating ceiling of 60,000 feet approximately.

Complementary to the production of the F-102A, now in full swing at the Convair San Diego plant, is the production of twenty TF-102As, the order for which was made known in July, 1954. A side-by-side dual controlled Trainer, the TF-102A, will have the same fire control system as the fighter variant.



1ST. PROT. YF102 FC 994  
 2ND. PROTO. FC 443  
 PROD. F 102 FC 782  
 PROT. YF102A FC 787  
 PROD. F 102A FC 792

SPAN 38' 0"  
 LENGTH 88' 0"  
 HEIGHT 17' 10"  
 COLOUR SCHEME FC 796  
 DULL GREY ON ALL SURFACES  
 WITH STANDARD USAF INSIGNIA.



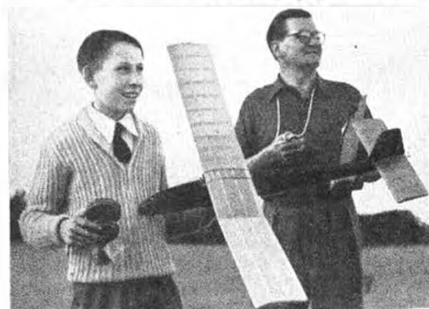
CONVAIR F 102 A

ET 100

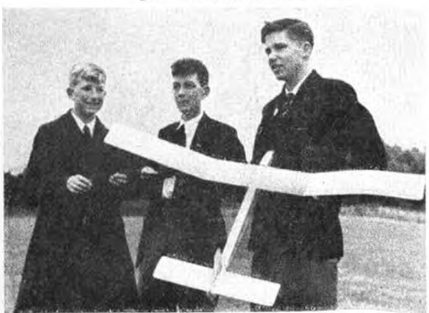
1/72ND SCALE REPRINTS OF THIS "L" TYPE PLAN OF THE PROTOTYPE AND 1/48TH SCALE "B" TYPE PRINTS OF THE F102A PRODUCTION AIRCRAFT ARE AVAILABLE PRICE 1/- AND 1/6 RESPECTIVELY FROM THE AIRCRAFT MODEL PLANS SERVICE E.



An assortment of sizes and shapes is evident among the twelve "under-sixteen" competitors, but each holds the same "Golden Wings" 1/3 glider, built from the Accumodelle plan and flown in the qualifying flights for durations of up to seven minutes.



John Fellows of West Bromwich was a deserving winner of the first prize, a B.S.A. "Golden Crest" Sports Cycle, £10 model shop voucher, and a Mills .75 diesel. Here he sportingly admires another flight, being timed by Managing Editor, "Rushy" David Reed, John Cook and Bob Gatehouse discuss their chances as they await their turn to fly. Good sportsmanship among the youngsters created a very happy atmosphere throughout the contest. Gatehouse placed third and won a Newmark "Water-guard" watch, E.D. Bee and £5 voucher.



Twelve youthful finalists came to R.A.F. Halton from all parts of Britain to fly in the last stage of our . . .

## Golden Wings contest

EACH SEASON sees us in attendance at many top-line model meetings, where expert—and not so expert—modellers battle it out for high placings in both National and local contests. As a result, one can expect to become somewhat blasé and hypercritical of the aeromodelling game, and it came as a welcome change to gather a round dozen under-16's on the airfield at R.A.F. Halton to decide how the attractive prize list offered in the "AEROMODELLER" Golden Wings Contest would be distributed.

Activities started in earnest with lunch at a local hotel, and it was quickly demonstrated that the old tale regarding boys' appetites was no myth, and the high standard of gormandism was maintained throughout the week-end to the delight of guests and hosts alike.

### Good weather

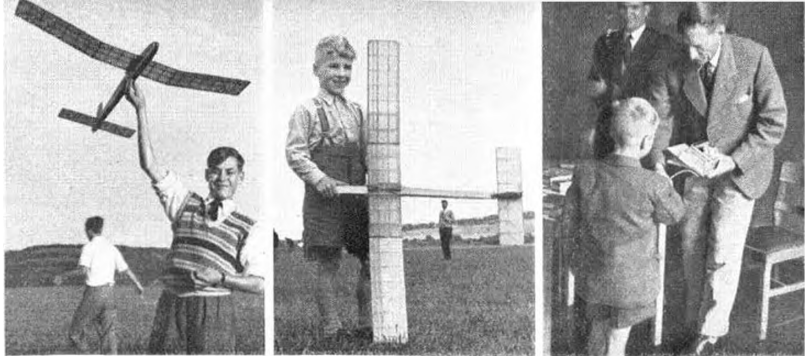
Weather conditions on the afternoon of September 10th at Halton were almost ideal for model flying, though most lads would have preferred a little more breeze in order to take full advantage of the towline length. However, flying soon got under way, and it was most interesting to witness the varying degrees of ability displayed when playing the Golden Wings gliders on the end of a line. Many lads could obviously benefit from more practice, but in general the standard of both building and flying was surprisingly high.

Quite early in the proceedings John Fellows of West Bromwich showed that he had plenty of experience at his fingertips, and every launch he made was a delight to watch. His first round flight proved to be the highest time returned throughout the contest, though this flight of 1:58 was much lower than many times submitted during the qualifying period. Obviously, the extraordinary weather conditions prevalent this year produced the very high times recorded in the preliminary stages, and the somewhat unhelpful weather at Halton did not produce anything out of the way in durations.

Surprise of the meeting was young John Shember of Oxford. Just nine years old, this lad had all the self-confidence of a much older boy, and had little to learn about towing up a model glider. This diminutive cheery youngster became the mascot of the meeting, and he fully deserved his 4th prize.

In view of the fine conditions (and the rather doubtful forecast for the following day) the programme was modified to accommodate four rounds on the Saturday, with a final round on the Sunday morning prior to a tour of the Halton workshops.

Fellows maintained his top placing throughout, but after the third round, Simmons had displaced Gatehouse for second position, and young Shember with the best



duration in Round 4 climbed into third place before flying was postponed for the enjoyment of demonstration flying. Ted Sills put on some fine radio control exhibitions, and many other types of model were displayed to the competitors for their enlightenment.

Sleep that night was a doubtful quantity, but the boys were out bright and early the next day for the final round of flying, only to find that conditions had sadly deteriorated, and a gusty wind and drizzle faced them on the airfield. This really proved the ability of the all-rounders, and Fellows again showed his prowess by best duration of the round, his model travelling the full length of Halton for a flight time of 49 seconds.

Meanwhile, the other lads struggled on in the attempt to get in a fifth flight, the rules being relaxed enough to ensure that no one lost the opportunity to add to their overnight score. Gatehouse was able to pull a few more seconds out of the bag to jump ahead of Shember, and Donovan (ably assisted throughout by Fellows) plugged away until he got in an official flight, using three sets of wings in the process.

### Workshop tour

A conducted tour of the magnificent Halton workshops thoroughly engrossed the competitors until lunch-time, following which the prizegiving took place. Before presenting the awards to the winners, Air Commodore Tindal-Carrill-Worsley complimented the competitors on the fine sportsmanship that had been shown throughout the event, and expressed his pleasure at a hobby that could bring together lads from all over the country in such a spirit of goodwill and co-operation.

Thus, with pockets bulging with prizes, and tummies well filled for the trip home, the competitors for the 1955 "AEROMODELLER" Golden Wings contest dispersed to all parts of the country, well satisfied we trust with their excursion into organised competition, and imbued with the determination to do even better next time.

### Results

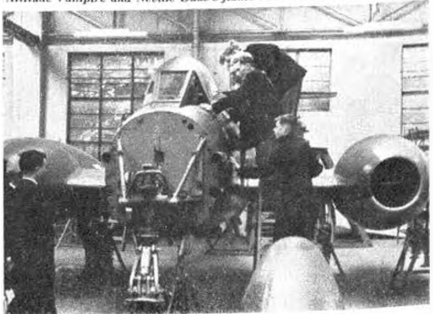
| Name             | Town               | Flt. Ht. Flt. Ht. Flt. Ht. |     |    |    |    | Total |
|------------------|--------------------|----------------------------|-----|----|----|----|-------|
|                  |                    | 1                          | 2   | 3  | 4  | 5  |       |
| Fellows, J.      | West Bromwich      | 118                        | 112 | 59 | 63 | 49 | 401   |
| Simmons, M. D.   | Newport, Salop     | 65                         | 86  | 84 | 48 | 24 | 307   |
| Gatehouse, R. A. | Mere, Wilts        | 99                         | 76  | 32 | 14 | 46 | 287   |
| Shember, J.      | Oxford             | 42                         | 80  | 50 | 79 | 32 | 283   |
| Hall, P.         | Croft, Leicester   | 55                         | 53  | 70 | 54 | 36 | 268   |
| Cooke, J.        | Spennymoor         | 35                         | 80  | 43 | 44 | 40 | 248   |
| Rosen, G. A.     | Sandbach, Chas     | 27½                        | 65  | 61 | 63 | 28 | 244½  |
| Donovan, T. K.   | London             | 52                         | 50  | 61 | 57 | 24 | 244   |
| Black, Y.        | Lanark             | 27                         | 54  | 54 | 88 | 25 | 218   |
| Ramsay, I. A.    | Shrewsbury         | 49                         | 23  | 25 | 53 | 43 | 193   |
| Reed, D. R.      | Cheadle, Cheshire  | 50½                        | 53  | 41 | 34 | 23 | 190½  |
| Newman, M.       | Kingston-on-Thames | 21                         | 10  | 43 | 44 | 25 | 163   |

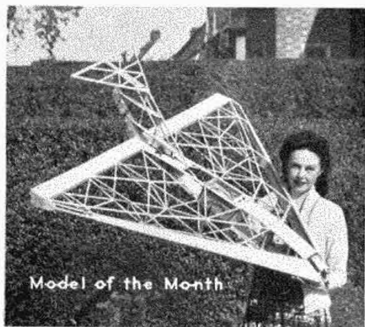
Left: M. D. Simmons who placed second through his consistent flying. Centre: 48-inch Johnny Shember—we measured him by the span of the model—knew all about trimming and tuning despite his tender years. At right: He collects his Multicraft Toot Chest, Albon Super Merlin and Elf-vaucher and applause, and kind words from Air Commodore Tindal-Carrill-Worsley.



Down from Scotland, Alan Black made many friends and returned with plenty of new experience in model flying.

Tour of the Halton Workshops was a highlight of the meeting. Here, the lads examine an early Meteor. Also closely scrutinised were actual prototypes of the Swift, Vickers 510, Sea Hawk, High Altitude Vampire and Neville Duke's flame red Hawker Hunter.





Model of the Month



## Model News

THANKS LARGELY to the noble efforts of Sqdn.-Ldr. Laurie Ellis, of "Vultur" fame, the free flight delta model is no longer the novelty it was a few seasons ago. But when we have a radio-controlled example, and one that is made in the main of  $\frac{1}{8}$ -in. square balsa, we certainly do find something that is different—and deserving the title of "Model of the Month". N. R. Allen of Golders Green in London is the builder, and he reports that leading edge sweep is 60 degrees, the airfoil is symmetrical and the total weight of the now covered frame is 3 lb. 4 oz. All of which adds up to some rather hard work for the Ellin up front.

Though many hundreds of modellers attended the Northern Heights Gala at R.A.F. Halton, all too few of them were able to see the actual model which won the coveted Queen Elizabeth Cup. Don Aldridge of the Letchworth Club was the lucky man and the view above shows him holding "Omega", his constant chord A/2 which put up such a good performance. Full size drawings are soon to appear in our columns and APS.

At left is another successful contest flier caught in action; and as the photo came from the County Police Station, Great Barr, Birmingham, we trust that C. A. Petty was not having his picture taken "as evidence against" him for trespass, etc. Mr. Petty has been the winner of the Astral trophy for the past two years, and as will be seen he is a devotee of the Annenburg/Smith cult for small high-powered designs with swept forward wings and rapid rate of climb.

Young master A. Baker, of Cookham, Berkshire, is now eleven years old and claims to have started his aeromodelling at the tender age of three. The photo at left shows that he has not been wasting his time, for this E.D. 46 Baby powered canard with unusual wing planform is a fine flier by all accounts. Span is 31 in. and length 29  $\frac{1}{2}$  in., while the engine is mounted up on a pylon above the main wing to give it a most protected position in the event of a crash. Incidentally, young Baker junior also took the picture, which shows his friend Douglas Byway with the model.

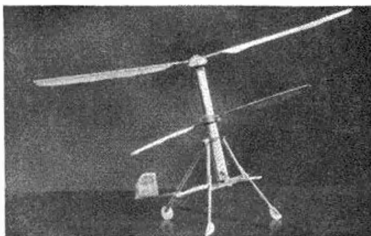
# HOPPICOPTER

Make this indoor helicopter in an evening for a novel contest in the clubroom, suggests  
F. G. BOREHAM

TAKING ITS name from a tiny single-seater co-axial American helicopter the "Hoppicopter" is a tiny framework of fun that calls for a few strips of balsa, some cane or reed, two beads, 20 swg wire, a scrap of tinplate and some writing paper. All set? Lets start with the 5 in. long paper tube, which we make by wrapping cement coated writing bond around a suitable  $\frac{1}{8}$  in. dia. dowel. Noseblock and plug, and the two rotor hubs are shaped from  $\frac{1}{16}$  in. sheet, then the writing paper rotor blades are attached to cane leading edges.

Now we can assemble the working parts, fitting a dowel motor peg in the tube and making up the 20-gauge top rotor shaft. Plug the blades into their respective hubs, making each droop at the trailing edge to get a pitch angle, and slip four strands of  $\frac{1}{8}$  in. rubber between shaft and peg for power. We can now experiment with the basic helicopter, adding the "fuselage" frame later.

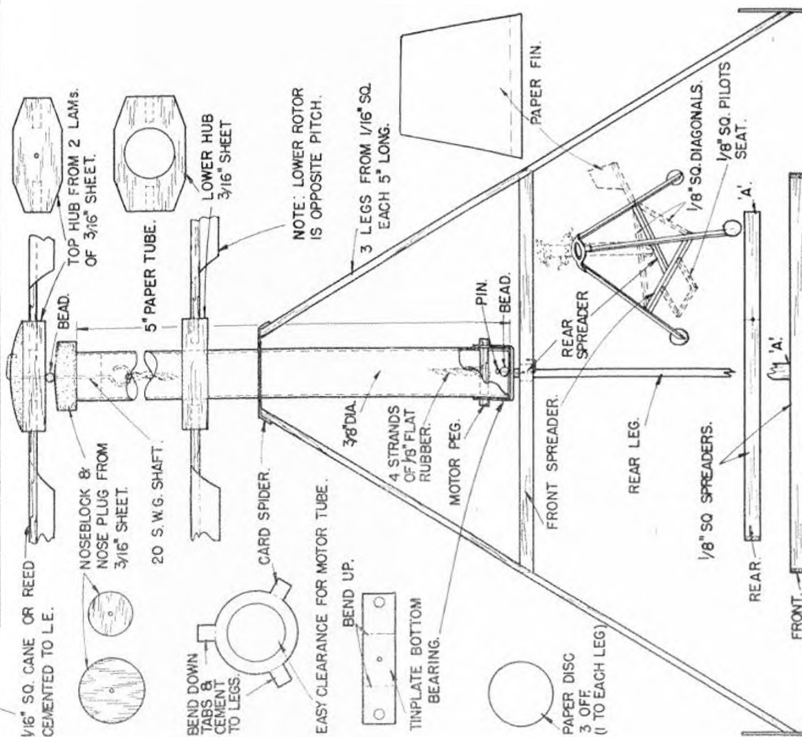
Wind up the motor and release, pointing vertically.



If the 'copter has a wavy, unstable flightpath, slide the lower rotor down the tube and try again. If you slide it too far down, the reaction might be to make the whirly-bird go head first into the ground. The medium position gives a true vertical ascent. This little demonstration illustrates the importance of the C.G. position relative to the centre of pressure, and when the fuselage is added, the lower C.G. acts as a stabiliser, enabling the rotors to go closer together.

Why not have a "Race to the ceiling" contest on your next club night?

WRITING PAPER BLADES 4 OFF.





● The model that is winning everything in the North

# CREEP

by Brian Eggleston

TO FOLLOWERS of our regular Club News columns, the somewhat unusual nomenclature for this high performance contest design will be familiar reading. "Creep" has been a regular contest winner since it took first place for its then junior designer, in the Hanley event in 1953. From its many versions and with power units ranging from 1.5 to 3.5 c.c. it finally emerges in this, the latest Mk. 17 for an Oliver Tiger.

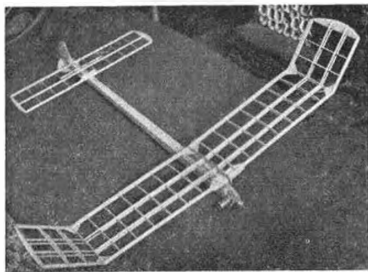
Consider the list of successes:—

|     |                                   |      |
|-----|-----------------------------------|------|
| 1st | Hanley Junior ...                 | 1953 |
| 1st | Daily Despatch Rally (Junior) ... | 1954 |
| 4th | Frog Senior (9 : 54) ...          | 1954 |
| 2nd | Keil Trophy (9 : 22) ...          | 1954 |
| 1st | Northern Area (11 : 34) ...       | 1955 |
| 3rd | " (9 : 27) ...                    | 1955 |
| 1st | Daily Despatch Rally (Junior) ... | 1955 |
| 4th | Frog Senior (11 : 40) ...         | 1955 |
| 5th | " (11 : 19) ...                   | 1955 |
| 1st | Scottish Festival (11:08) 1955.   |      |

So far this season, the contest average for Brian's model is 2 : 53, while Arthur Collinson's Torp 15 version has maintained a figure of 2 : 55. As this includes many flights made over the undulating hazards of Baildon Moor, where Bradford and Leeds men usually fly, the average is a good one and indicative of the high performance of the model.

There are really two versions to be built. A 14-ounce lightweight with a Torpedo 15, Webra Mach 1 or an Elin 2.49 is perfect for open events, whilst with an Oliver Tiger, the weight comes in the region of 16 ozs., and a little ballast or extra heavy structure here and there brings this up to the required 17.5 ozs. for F.A.I. It is best to decide whether yours is to be F.A.I. or "open" before

Simple framework shows an earlier version. Plan includes all latest modifications.



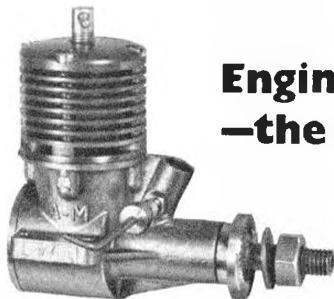
selecting your balsa, so that any excess weight can be utilised for strengthening the structure.

Construction is purposely kept as simple as possible, both to save weight and also to keep building time to a minimum. The fuselage is all-sheet with "doublers" at the pylon area to strengthen, and a wide platform for the wing leading edge prevents wing-rocking and keeps the weight forward. Unique feature is the Vee underfin arrangement which are for the 3-point take-off rule and also to save loads on the tailplane which occur if tail subins are used.

Wing and tail are easy, the tail having the current vogue in anti-warp rib positioning. Keep the tail and wing-tip panels light as possible, and make sure that the advised wash-in (leading edge lifted) is applied to the starboard (right side) inboard panel of the wing.

The short nose, low pylon and long tail moment are well in keeping with the latest fashion and make this a most docile model to fly in spite of its very fast rate of climb. (Arthur Collinson's was acknowledged to be fastest of all at the '55 trials.)

Built according to the plan, the model should glide in fairly wide right hand circles. If from the hand glide it appears that some incidence is necessary, add it to the wing and not the tailplane. First power flight should be made with very low power and the model ought to climb in wide right hand circles. Any tendency to turn left should be counteracted, as this would be fatal under full power, and can be cured by using right sidethrust or increasing right rudder fractionally. Gradually increase revs., using about 8-10 secs. motor run so that the model does not stall into the ground. Proceed carefully until on full power; the model climbs in a near vertical spiral to the right. When the motor cuts, the model should roll into the glide without loss of height. With the layout used, the model has slow stall recovery so use lengthy motor runs to give the model plenty of altitude in case it stalls off the top of the climb during early test flights. Average duration is about 4½ mins. from 15 secs. engine run, but this could certainly be increased. The model will handle up to 3.5 c.c. engines, the only noticeable difference being a slightly faster climb.



## Engine Analysis No. 15 —the ALLEN-MERCURY '35'

reviewed by R. H. WARRING

SECOND PRODUCTION engine to appear in the Allen-Mercury range, the A-M "35", is essentially a re-worked version of the "25". Capacity has been stepped up by approximately 40 per cent. by increasing the bore from .57 to .89 inches and, externally at least, the only difference between the two models is in the cylinder jacket.

The fact that so many common parts could be adapted for the larger "35" is responsible both for its early appearance on the market and its similar low price. Proof that the design has not been "upset" by the drastic change in one major feature is given by the fact that the power output is almost exactly *pro rata*, c.c. for c.c. In actual fact the power rating is slightly superior, which one would expect from considerations of "scale effect".

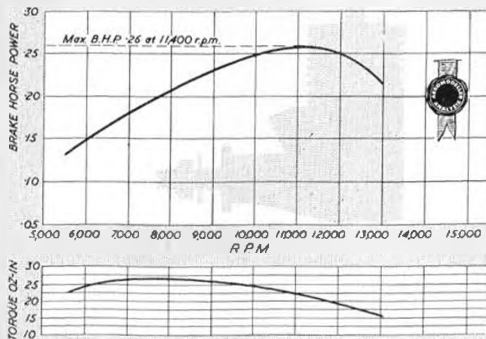
This similar performance standard was not achieved without some initial troubles. Quite a considerable amount of experimental work was conducted with regard to port timing to achieve optimum performance without sacrifice of good starting qualities and whilst perhaps the initial production batch of "35"s were a little down on performance this has now been remedied. And since the modifications necessary to "bore out" the "25" add only half-an-ounce of extra weight, the power/

weight ratio of the "35" is considerably enhanced.

The test "35" was quite definitely one "straight off the shelf" and previously subject only to the manufacturer's check run before boxing. We found it distressingly tight on the initial runs, overheating quite rapidly and being reluctant to run for any length of time. Quite prolonged running in is essential to reduce internal friction to a working minimum.

We do not advance these comments as a criticism, but simply to stress that the "35" does appear to want a lot of running-in and if you expect it to give a consistent performance straight out of the box you will probably be disappointed. Give it a proper run-in and you should have an engine which is about as perfect a running fit as you could want, so time spent here will pay in the long run.

The main area of tightness appears to be at the top of the cylinder which, in conformity with modern practice, has a convergent bore (slightly larger for generous clearance at the bottom of the stroke). The main bearing appears to run in well before the piston is a really easy running fit at the top of its stroke, with the result that considerable heating is produced initially in this region through friction.



### DATA

Displacement: 3.44 c.c. (210 cu. in.).  
Bore: .89 in.  
Stroke: .562 in.  
Bore/Stroke ratio: 1.59.  
Hose weight: 4.7/16 ounces.  
Max. B.H.P.: 26 at 11,400 r.p.m.  
Max. torque: 27 oz. in. at 8,000 r.p.m.  
Power rating: .076 B.H.P. per c.c.  
Power/weight ratio: .058 B.H.P. per oz.

### Material Specification

Crankcase: light alloy (L.M2) diecasting.  
Cylinder: mechatite.  
Cylinder jacket: duralumin.  
Piston: mechatite.  
Contra-piston: mechatite.  
Connecting rod: duralumin.  
Crankshaft: case hardened steel (S.14).  
Crankshaft bearing: mechatite bush.

### Manufacturers

Allen Engineering, Edmonton, London.  
N.O. Retail price: 69/6.

Starting is quite viceless and flexible. If the fuel line is full of fuel to the needle valve a single choked turn will draw in enough mixture for starting (two turns to be on the "sure" side), after which the "35" should start within a few flicks if the compression setting is anywhere near right. It will start with the compression turned way back from the running position, but will rapidly start missing and then die out if the compression setting is more than half a turn out. Starting over rich (e.g., by excessive choking or over-generous exhaust prime) requires the compression to be slackened off by as much as one-half to three-quarters of a turn, picking up the right setting as the engine begins to settle down to steady running. The needle valve can safely be left alone at two-and-a-half turns to three turns open. It is essentially non-critical, but for maximum performance, of course, it requires turning down to give the leanest possible mixture consistent with steady running. For general use, half a turn open from this maximum lean position is advisable to take care of possible variations in fuel flow during flight.

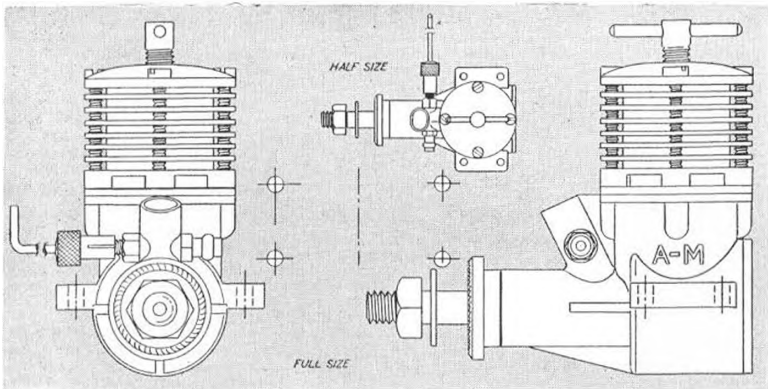
The "35" quite definitely has good starting characteristics and is also quite docile in this respect for a large engine. Hand starting with small diameter propellers is far less hazardous than with many smaller engines of the racing type. It is advisable to start slightly rich with small propellers so that the "35" four- or eight-strokes initially, leaving ample time for fine adjustment of compression and needle setting. The fact that the engine does get remarkably hot means, however, that the compression setting cannot be finalised until it has completely warmed up. Left alone, the loss in r.p.m. is quite noticeable on warming up, this effect being more noticeable on Mercury No. 8 than on Mercury RD. It is virtually useless, however, to use RD fuel straightaway with a new engine and expect consistent performance. The whole of the running in

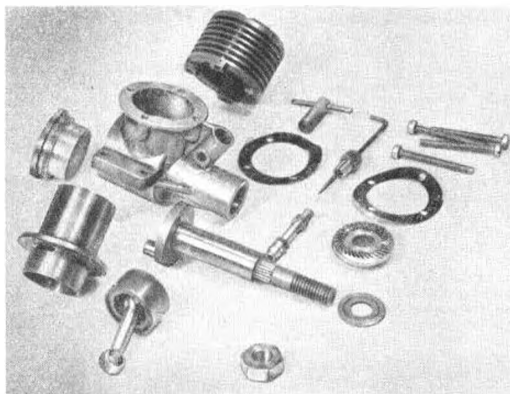
period should be conducted with Mercury No. 8 or similar.

The performance curve derived from tests show that the "35" is essentially a moderate speed engine. The example used actually peaked at the quite low figure of 11,400 r.p.m. and it is felt that this was possibly due to some remaining piston friction. Nevertheless, the B.H.P. figure up to this peak is consistent with highest standards. Operating the engine at faster speeds brings about a noticeable falling off in torque. In other words, it will only run faster with quite small propeller sizes. It should give its maximum power output with a propeller load equivalent to about 10,000 r.p.m. static.

Down at the lower speeds we found that the "35" ran "rough" in the region of 6,000 r.p.m., with noticeable vibration. Again there was a marked falling off in torque, though whether part, at least, of this could be accounted for by vibration losses (and possibly recoverable with offset-balance propellers) is problematical. Our general impression, however, was that 9,000 to 10,000 r.p.m. was about the best range of speeds for static running. The "35" was quite happy running at higher speeds, but would not drive usable sizes of propellers beyond 12,000 r.p.m.

The makers recommend 9×5, 10×5, 10×4, 11×9 and 11×5 propeller sizes for free flight. The 11-inch diameter propellers, we feel, represent an overload as far as the operating point on the B.H.P. curve is concerned. But practice has shown that a slower revving large diameter propeller will often give better results on a free flight model, even if the engine is apparently operating well below its peak power point. This must be put down to the increasing efficiency of propellers with increasing diameter size. We agree, however, that 4-inch pitch is about the lowest suitable for free flight work with the "35".





| PROPELLER-R.P.M. FIGURES  |        |  |
|---------------------------|--------|--|
| Propeller<br>dia. x pitch | r.p.m. |  |
| 9 x 4 (Stunt)             | 11,200 |  |
| 9 x 6 (Stunt)             | 10,500 |  |
| 11 x 6 (Trucut)           | 6,100  |  |
| 10 x 6 (Trucut)           | 9,000  |  |
| 11 x 5 (Stunt)            | 7,800  |  |
| 8 x 6 (Trucut)            | 11,500 |  |

#### Fuel used

Mercury No. 8 for running-in

Mercury RD for test.

Note: After running-in, RD fuel showed a consistent 300-400 r.p.m. increase for similar propellers.

*Dismantled, the 1M-35 shows its shallow piston and short lower cylinder with mounting flange incorporated. The "35" is rapidly becoming a favorite for combat flying, in which it can be said to excel in its class.*

Slightly higher pitches—5 or 6 inches—should give best results on control line models, the "35" being suited for stunt and combat work rather than speed.

Dismantling the "35" is to be discouraged. Having carefully run-in the piston-cylinder there are four separate ways of replacing the symmetrical cylinder and two ways of reassembling the piston and connecting rod. So leave well alone, otherwise you may have to start worrying about "running fits" all over again. If you *must* take the engine apart, mark the original alignment first and be sure to put everything back in exactly the same way as it was before.

The steel cylinder of the "35" is roughly the same overall diameter as that of the "25", but bored out to thinner walls to give the required increase in capacity. Thus it is actually lighter than the "25" cylinder, although this is almost exactly offset by the larger diameter contra piston. The other difference is that the barrel of the cylinder above the flange is parallel with the exhaust ports cut into the sides instead of stepped with the ports in the step, as on the "25". The transfer ports are formed below the flange, the transfer passage being the annular space between the bottom cylinder wall and the bore of the crankcase casting.

The dural cylinder jacket is cylindrical throughout its length, machined for cooling fins and a generous head section. It is a slip fit over the cylinder, cylinder and jacket being held down by four 6 BA screws passing down through the head—and is again different from the "25" cylinder fixing. The same (improved) fine-thread contra-piston screw is used which, together with the other initial improvement introduced on the "25" of slightly lengthening the cylinder internally, permits a smooth fitting contra-piston to be used for easy

adjustment and positive setting.

The piston is rather top-heavy in appearance with a (parallel) depth of only just over one-half of its diameter. It is machined and ground from mechanite and incorporates a shallow conical head. The piston walls are relatively thin and the gudgeon pin is hushed in a separate turned ring which is (presumably) force-fitted into the piston proper. Thus the gudgeon pin is locked and its ends are completely hidden, the outer piston walls being completely unbroken.

Although the cylinder layout is symmetrical with equivalent 360 degrees transfer and exhaust porting there is a preferred direction of gas flow, to judge by the asymmetry of the carbon deposit on the piston after prolonged running. Also maximum wear on the piston is restricted to a relatively narrow band around the crown, which, when the engine is properly run in, should have a polished rather than a streaky appearance. Much of the other general description given for the "25" (October, 1954, issue) then applies.

The "35" will not give you racing performance, but it will turn any size of propeller with the best of them up to 10,000 r.p.m. Within this speed limit range, which is the normal requirement for sports type flying (free flight or control line) it will give you all you want, a long life, consistent performance once properly run in, and a light, compact power unit which you can buy for a very reasonable price. A worthy companion model to the "25", in fact, and one which we feel sure will enjoy considerable popularity. Really nothing at all to criticize, except that we thought a larger diameter prop. washer would have been more in keeping with the sizes of propellers suitable for use. Full marks, however, for the essentially practical nature of the design and the first-class workmanship throughout.

# MOTOR MART

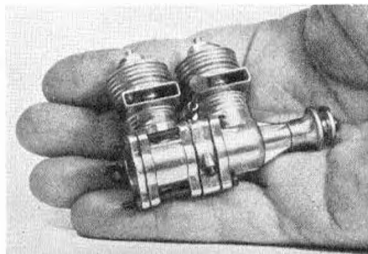
## FOUR NEW ENGINES ANNOUNCED

THREE new engines now on current sale in the U.S.A. are likely prototypes of a new surge in model engine design, both in the U.S.A. and other countries. Each introduces a new gimmick in endeavour to exploit the sales market in a country where competition is stiff, and each in its own way would have some appeal if adapted to diesel for European use. They are the K & B Allyn twin, the Jim Walker Firecracker and the O & R Midjet.

The **K & B Allyn Twin** comes in two sizes, '099 (1.6 c.c.) and '15 (2.5 c.c.). When one opens the box of the larger engine, the first reaction is that a mistake has been made—so small is this remarkable two-cylinder unit. Our sample is still a trifle stiff for early comment, and the fact that it is for radial mount with a large overhang has held up tests pending arrival of the proper beam mount adaptor. That a 7-in. x 4-in. prop is the recommended size and that high r.p.m. is needed for peak power are first indications that the sound of the twin will be music to the ears of all engine collectors. Special "Wonder Element" glowplugs with a vertical ignition bar are introduced with this new product of the K & B, Allyn merger.

Next on the list is the **Jim Walker Firecracker**, a '065 (1.06 c.c.) glow engine bearing family resemblance to the Royal Spitfire of earlier years. Constructionally, this engine stands out among other U.S. "Miniatures" for its very good piston/cylinder fit which enabled a start to be made almost first flick. Where the real novelty comes in is that like most Jim Walker ideas—it has a control device. On the rear of the engine a bracket holds the end of a neoprene tube to which is attached a latex bellows actuator. This in turn is connected to a bar in the side exhaust port, and a choke plate on the carburettor.

Now when air is forced through the neoprene, by means of a pressure bulb, the actuator expands, opens the silencer bar, and the choke. That this works satisfactorily is one accomplishment; but in our opinion, the greatest advantage is the degree of control that can be obtained at any intermediate actuator position. The bulb pressure can be relaxed fractionally to obtain any engine output in a range as wide as from 2,000 up to 14,000 r.p.m., and at the lower figure, the degree of silencing is such that the con-rod can be heard knocking its way



*Diminutive 2.5 c.c. twin has central two-throw crankshaft, with prop driver connected to front con-rod. Runs best on very small props, and uses new type glowplugs which are also combustion chambers.*

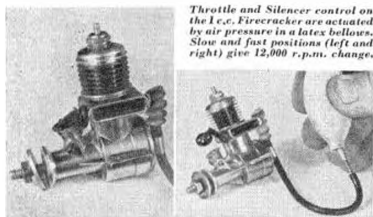
about the big end, and sundry other mechanical noises become more apparent than the actual exhaust. To prove that this bench check was no fluke, we fitted the Firecracker in a KK Champ beginner's C.L. model, and with the bulb at the control handle, used 18-in. of neoprene for a short line flying test.

With the bulb relaxed, the engine was running just enough to taxi around the circuit. A squeeze on the bulb and full revs came up straight away for the take-off. Landings and take-offs could be repeated as often and where and when desired.

We should point out that the prop used was a 6-in. x 4-in.—and that the engine appears to pull no better than a diesel of half its capacity; but for all that, it is a remarkable product.

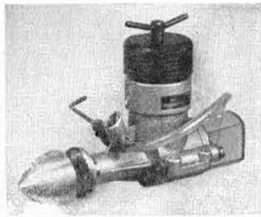
Third of the U.S. engines is the **Midjet**. This is a .8 c.c. flutter valve engine with integral tank mount, huge exhaust ports and a rapidly increasing reputation for high power and easy starting. With veteran Harry Rice as its designer, and all the skill of the large Cheminol Corporation behind its manufacture, the Midjet is destined for a rosy future in the dollar countries.

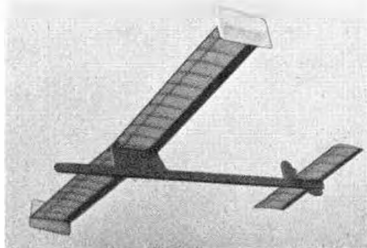
Last it be thought that British manufacturers are marking time, announcement of the new **Allbon Sabre 1.5** last month is followed by availability of the engine this month. As the photo shows, it utilises many of the attractive design features of the Super Merlin, with radial or beam mounting, incorporated transparent tank, angled needle valve and the same method of assembly. Improved production techniques will make the Sabre a fine replacement for the Javelin at the same price of 65s. 4d.



*Throttle and Silencer control on the 1 c.c. Firecracker are actuated by air pressure in a latex bellows. Slow and fast positions (left and right) give 12,000 r.p.m. change.*

*Latest from the A.L.B.O.Y. stable is the Sabre, a neat 1.5 c.c. diesel with radial or beam mount, integral tank, and angled needle valve. Cylinder head is anodised red, and crankcase die-casting is particularly clean with matt grey effect.*





**Follow the A/I leaders  
with this high performance  
contest design**

# KHAMSEEN

**by Derek Illsley**

THE ENTHUSIASM with which the model clubs have received the A/I glider class, after mention in our June issue and subsequent publication of the "Golden Wings" in July, has made it evident that this size of model is becoming very popular. In the main, the class has been adopted for local events, and for the encouragement of novices. The model is of handy size for transport, can be built for only a few shillings expenditure on wood, tissue, cement and dope, and is most rewarding with a good flight average of up to 1 min. 45 secs. duration.

Our own "Golden Wings" contest (see pages 590/591) has already introduced more than a thousand young enthusiasts to the delights of flying one of these easy-to-build small gliders, and now we introduce a somewhat contrasting design as its stable companion.

A stick type fuselage, pylon mounted, almost flat wing, large endplates and undercambered tailplane, will immediately label the Khamseen as a strictly "performance" design. Yet it is still simple enough for any beginner to tackle, providing patience is exercised when covering the undercambered surfaces—the only item likely to offer any difficulty.

Corporal Illsley has been stationed in Germany with the army and had the good fortune to be able to fly on Essen-Mulheim airfield each weekend. The local lads there have been flying A/I's for some years, so it was only natural that Cpl. Illsley should try the class for himself. Choosing the name of a warm wind of the Middle East for his effort, Khamseen was soon created, and the

first two models disappeared with uncomfortable rapidity when launches were made without lighting the dethermaliser fuse! There's a moral there somewhere.

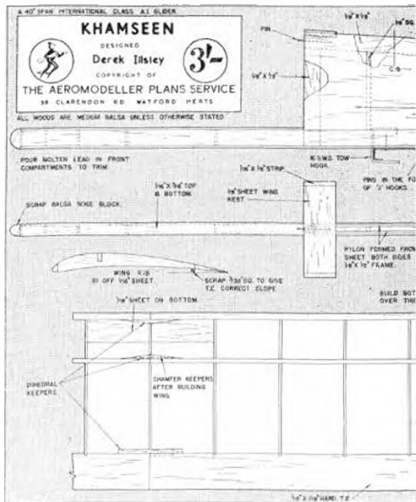
The third of the series includes all the detail improvements shown necessary in the first two prototypes, and is as drawn on the reduced scale plans show.

Construction should start with the pylon outline, which is from  $\frac{1}{2}$  in. by  $\frac{1}{4}$  in., stripped down from hard balsa sheet. Whilst this is drying, cut out the  $\frac{1}{8}$  in. sides and sundry fuselage spacers from  $\frac{1}{8}$  in. by  $\frac{1}{4}$  in. strip.

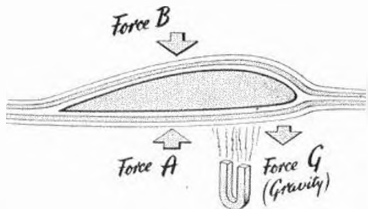
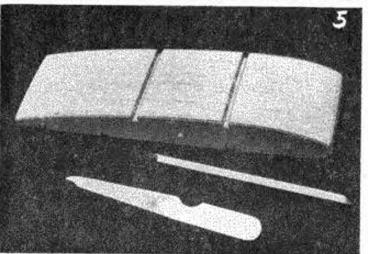
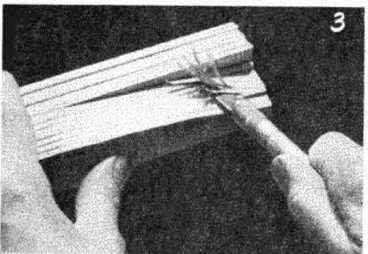
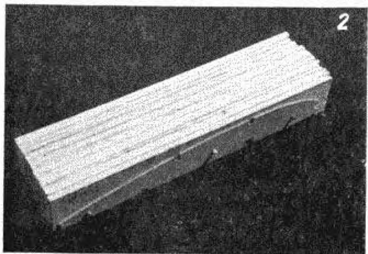
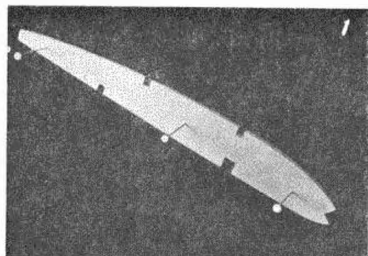
The towhook is bent and threaded through the pylon frame base, and cemented firmly in position before the  $\frac{1}{2}$  in. square uprights and  $\frac{1}{4}$  in. pylon sides are added. Now cement one of the fuselage sides to the pylon base, and add the spacers. The other side is fitted after the first has had time to dry, and all joints securely pinned whilst the fuselage is lined-up by eye when viewed from front and rear. Fit the fin at the same stage, also noting that it is in line fore and aft, then finally cure any tendency to whip sideways by slabbing the fuselage top and bottom.

Wing and tail platforms, the subfin, with auto-rudder fittings and the block at the extreme nose now complete the fuselage until required again for balance.

The wings and tailplane are simple constant chord structures, but care should be taken in





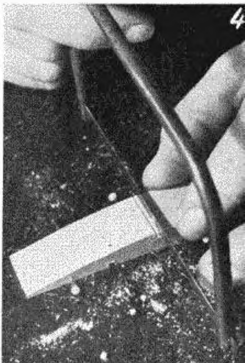


## Especially for the how the wing gives lift, the

SINCE IT IS the wing that makes a plane fly, it is pretty obvious that a badly made wing will mean poor performance in the air, while conversely, if the wing is made neatly and accurately your model will almost certainly fly well. You will understand this better if we have a brief recap on what makes a plane stay in the air.

Have a good look at the heading diagram to this article. It shows an aerofoil section, or the cross-section of an average wing, with a stream of air approaching the leading edge, splitting to pass over and under the section, and meeting again behind the trailing edge. Forces A and B (atmospheric pressure up and down) balance each other out to start with, and force G (the weight of the wing) tips the balance and tends to bring the model down. You will notice that as the airstream parts to pass across the aerofoil, it has further to go over the top (a curved path) than underneath, which is pretty well a straight line. But the air travelling over the top has to meet up on time with the underneath air at the T.E., and having further to go it has to move faster in order not to

be late; and in so doing it very conveniently loses some of its downward pressure. Which means that force B (downwards) becomes less than force A (upwards). And the faster the airstream moves across the aerofoil, the less force B becomes and the wing tends to lift. As soon as force B starts to lessen, the pull of gravity is reduced, since it still has force A pushing up full strength against it, and the model sinks more gently than would be expected from its weight. And as soon as the difference between forces A and B—



the lift of the wing—becomes greater than the pull of gravity, then the model will actually start to rise. (That's why a model swoops up into the air when you hand-launch it too fast.) Naturally, this point is reached sooner if the pull of gravity is reduced, and we do this to a certain extent by building models as light as possible. Whereas if a model is on the heavy side, it has to create the extra "lift" by flying faster. And that is why light models can glide very slowly and heavy ones have a fast flying speed.

## Beginner

By Rev. F. Callon

### 'sandwich' method and wing assembly

All the same, we shouldn't be too hard on Old Man Gravity, for if it were not for him we would have no hobby. Just as the carefully positioned downward pull of the string on a kite keeps it steady in the air (and you know what happens when the string breaks!), so it is the downward pull of gravity, also carefully positioned, which guides the model in stable flight.

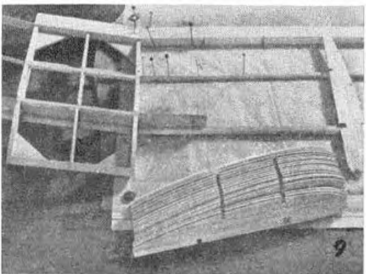
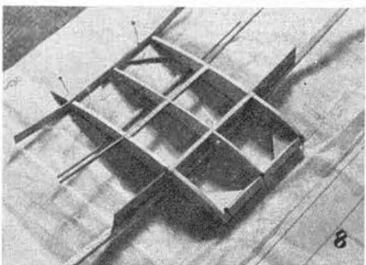
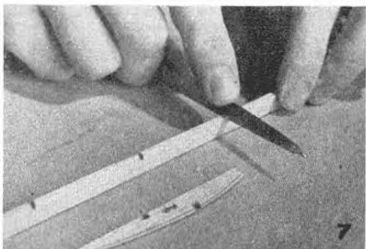
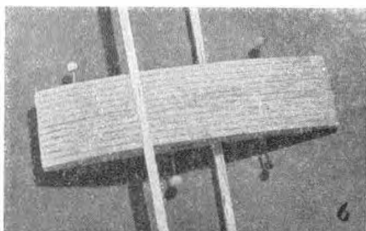
Well, all this started off an explanation of why it is especially necessary to build wings accurately, and now it looks as though the explanation needs explaining! The point is that if the aerofoil is not accurate all the way along the wing—if some ribs bulge on the top more than others, if part of the wing is warped or twisted, or if odd little bumps stick out here and there to spoil the smooth flow of air over the wing—then the amount of lift exerted will vary from place to place, and the resultant flight will be unstable. So we make the ribs by the "Sandwich" method.

Trace two rib outlines from the plan on to  $\frac{1}{8}$  in. plywood, marking in the spar positions, cut round the outline with a heavy balsa knife, pin the two templates together, sand to a smooth contour, and cut out the spar notches. These latter can be squared up with a nail file so that the appropriate size of spar is a snug fit. Fig. 1 shows the two plywood templates at this stage; if they look like one, that's as it should be!

In Fig. 2 a number of balsa rectangles, one for each rib, is pinned sandwich-wise between the templates. These are first roughly carved (Fig. 3), and then carefully sanded to the exact shape of the templates. Use rough sandpaper first, then smooth, and always work with the sandpaper pinned tightly round a flat sanding block.

Next, pencil lines across the set of ribs joining up the spar notches, and use a small hacksaw to cut out "trenches" as shown in Fig. 4. The slots should be squared up with a nail file until the correct spar can be pushed into place—see Figs. 5 and 6.

Having had my fair share of prangs, and having taken the trouble to study the various wreckagees, I can assure you that to notch the ribs into the T.E. does give quite a lot of extra strength.





## Trade Notes



IT HAS BEEN SAID, and not always without justification, that enterprise is a thing of the past in the British model trade. Such is obviously not the case with the comparatively new firm of **Contest Kits Ltd.**, 156 Marine Parade, Leigh-on-Sea, Essex, where proprietors Mick and Pat King are fully aware of the value of publicity. For example, the float seen at top right was their entry in the famous Southend Carnival. A large (non-flying!) scale version of the NC-4 delta wing catapult model was mounted above the firm's van and some 4,000 leaflets distributed, telling the onlookers where they could buy a kit. Result was increased business for the local retailer, and Messrs. Contest Kits. The float is available for any other events, and

book" twice over in the course of a tankful. It is the first commercial design we have found capable of aerial "chain-mail" or double vertical eights, and the combination



6 colour Britfix dope set

we have mentioned, of engine, line length, prop (yes—the fine pitch is perfect) coupled with the Mercury pressure feed, square tank, is just about the acme of perfection in control-line stunt kits of today.

Among the prizes at the South Midland Area Rally we noted some very smart blue boxes, each containing six jars of assorted **Britfix** glossy dopes, and two high quality paint brushes. Enquiries revealed that these were a presentation line; but could be retailed at 6s. per box if demand was sufficient. Our opinion, and that of the prize-winners, was that it made a most attractive pack—and if extended to include a range of six camouflage tones, it would make a good accessory line for the solid market. Interested retailers should make their requests for a supply to Messrs. Humber Oil Company at Hull.

*Lyndoe's Auster Arcus in printed sheet*



All-sheet, and ready printed, the **Lyndoe** line of 5s. 6d. flying scale models is now distributed by **A. A. Hales Ltd.** For the youngster, this range of 20-in. designs, opening with the **Auster Arrow**, is virtually a perfect introduction to the hobby. Parts go together as easily as fitting up a jig-saw puzzle, and the final result is an extremely robust scale replica capable of flights of 150 feet or more.

Another fine kit introduced this month marks the entry of Messrs. **Davies-Charlton** into the kit market with "Ballerina", a 38-in. design from Vic Smeed's drawing board, specially created for the Merlin and Super Merlin or Allbon Dart. Constant chord surfaces, simple fuselage construction and top-line quality wood go together to provide excellent value at 16s. and we expect that this will soon become a firm favourite with all sport fliers.

The A.P.S. range of accurate drawings to 1/48th scale need little emphasis, as their popularity is so well established; but few people realise that a helpful range of accessories can be obtained from any retailer stocking **Minikscale Ltd.** products. Cockpit covers for eight types can also be employed for other aircraft of similar profile, transfers for types like the Hurricane can be used for planes of similar size and vintage, while plastic props and pilots also have a fairly universal application. Requests and sugges-



tions for special 1/48th scale accessories would be welcomed for possible inclusion in the **Minikscale** range in future, if sent to the company at Clifton Street, Liverpool 19.

Latest developments in dope pigments has resulted in a new range of **Cellon** colours, distributed by **Model Fuels and Finishes**, Parsons Mead, Croydon. Among the colours are unusual tones like Mid Brunswick Green and Imperial Brown. We tried Dark Red and Light Grey as a colour scheme for a model to appear in December issue, and the first coat was quite sufficient to give a solid covering with excellent gloss.



shops interested are asked to write to the Leigh address.

The **Mercury Monarch** is now a well established seller at 34s. 6d., and we may be rather late in reviewing this excellent Mercury product. Reason for this delay was that the die-cutting went adrift on the sheets of the early batch of kits, and we preferred to wait until H.J.N. sorted out this minor fault. An Allen-Mercury 2.5 was fitted, and first flight made on 52-ft. lines using an 8 x 4 prop.

Anticipating good performance, we were more than pleased to find the Monarch capable of "doing the

# CLUB NEWS

*Minster and District M.C. in Somerset display an unusual interest in the hobby with models ranging from team-race to 412 and flying scale*



ONE NOTWORTHY feature of 1955 is that A1 gliders have very definitely caught on, and not only with junior modellers. Clubs are finding that their handy size is a big advantage in transport and flying from smaller fields, although with performances already tapping the two minute mark (still air, 164 ft. line) further development will soon bring fly-way headaches back again. At the moment, the time to concentrate on seems to be towline stability—it is a recognised fact that the smaller a glider, the more critical it is on tow. Many clubs have run well-spread contests for the class, and this experience will put Britain in a good position when the F.A.I. finally decide on a small model for novice competition, a matter which has been under discussion since 1953.

## London

Stunt and combat are primary interests in FULHAM M.C., due to lack of flying space. Old pram recently was the motor of B. Kenchington's *Tantrum* flying out, leaving its legs in the undamaged airframe! R/C experts Blake and Haves worked through two models and three radio installations, finally got a signal response in flight. Result was a spiral dive to 0 feet! New members are always welcome—make for the cluster of small motor-bikes on Hounslow Heath, any Sunday.

Some of the ST. ALBANS M.C. fliers have been getting around to contests: P. Wright almost scored a double with first in combat at Croft and second in solo at the Chester C/L. Radoe H. Rowe collected second in rubber at the Croydon Gala, and a fourth at the South Midland Rally.

Also on the contest rounds, SIDCUP A.S. have collected first and second in Class B racing at Enfield (P. R. Denyer and M. Templeman). At the London Area Rally, third and fourth in "A" were filled by Templeman and J. Harding, with A. Greenland coming second in combat.

## North Eastern

An enjoyable time was spent by STOCKTON D.M.S.C. at Croft, where A. M. Robson created a new club record for rubber with a flight of 21 : 40 O.S. The model was seen to land five miles away approximately two hours later. Winners of the club all rounder competition was A. W. Spurr, who aggregated 8 : 14 for first place.

## Western

An interesting selection of unusual competitions is being organised by

BRISTOL AND WEST M.A.C. for an attempt to popularise sport flying at Durdham Downs, following the loss of Larkgate. These contests include steering, glider towing, spot landing, and even F/F formation flying!

## East Midland

FORESTERS (NOTTINGHAM) M.E.C. had their first taste of F.A.I. team racing at Croft, where J. Howard won in 5 : 20 for 10 kms. and J. Thompson was three laps behind for second. At Chester, club members occupied all three places in the final of Class A and M. Ulyett reached the semi in combat. Some members visited the East Midland Rally and collected 1st and 2nd in "A", and 1st in combat, while a second contingent collected 1st and 2nd in "A" and 1st in "B" at the Hyde Rally.

## Southern

The annual match with Portsmouth was won by SOUTHAMPTON M.A.C., who thus hold the Hobart Trophy for one year. Notable feature, well in the forefront of all the flying activity, was the recently acquired lady member, Miss M. Pepper.

PORTSMOUTH D.M.A.C. recovered their self esteem with a control line display at Thorney Island during an R.A.F. "at home" day.

Over 2,000 people passed through the ISLE OF WIGHT M.E.S. annual exhibition this year. In addition to the static show, displays of C/L flying were put on by the SOLENT HEIGHTS M.E.C. One outstanding model, highly commended in the exhibition, was a Focke Wulf Condor by K. Thumber, 6 ft. span with four E.D. 2,46's; this made a successful maiden flight during one of the display periods.

## East Anglian

The brightest display by CRITALL (BRAintree) M.A.C. was given at a local horticultural show, and went off very successfully. Two C/L sites and three cups have been acquired, and it is hoped that these will add to the attractions for new members, who are recruited at every opportunity.

Another "best" was the WITHAM D.M.A.C. maiden contest, a glider event. Winner was junior T. Rogers, flying a *Golden Wings* An intriguing model is an o.d. Freg 500 F.F. built by C. Andrews and featuring a timer-released door which shows parachutes!

Good move by CAMBRIDGE M.A.C. is the wangling of the secretaryship on to

G. Parker, a young farmer. Such a person obviously is extremely useful in such a capacity. The new sec. is mainly interested in R.C. wonder how he has time for both!

The limitations of flying a team race in an empty hangar was soon realised by NORWICH M.A.C. members who fell foul of roof gutters. Only two models survived for the final. Latest monthly cup was won by D. Nickleburgh with his o.d. radio job. A static display at Horsham St. Faith put the club before the eyes of many hordes of British visitors, and of season trend seems to be towards sport models, of which vast numbers are turned out.

## North Western

A Nedgepeer's rubber model raised 5 : 59 to win a SHARSTON D.M.S. "all classes" comp. (three flight 2 min. max) and a club stunt event was won by A. Roberts with an o.d. Amco H.B. 3.5 model. A championship shield has been presented to the club, intensifying the competitive spirit more than somewhat.

A small field decided a 2 min. max. for WALLASEY M.A.C. open day with the result that there were fly-offs in all three events. J. O'Donnell (Whitefield) collected power and rubber with fly-offs of 2 : 14 and 2 : 29; glider went to J. Hannay of Wallasey with a two minute fly-off.

## Midland

Their first full contest programme has gone down well with HEANOR D.M.A.C., and although no first places in big events have come their way, members hope to alter this next year. A winter meeting mainly C.L., is proposed for January 8, 1956, and any clubs likely to send anyone alone are asked to contact M. Booth, 21 Dalton Close, Molecrat, Derbyshire. Food and drink will be laid on.

## South Eastern

THE HASTINGS AND BEXHILL A. glider competition was held in poor conditions on September 4th. P. Smiths 4 : 46 being sufficient to win. The gradual swing to control line is evident.

A small contingent of BRIGHTON D.M.A.C. travelled to the Croydon Gala, where F. and R. Hoxall, both placed in slope soaring, and reached the rubber fly-off. At home, F. Hoxall turned in three maximums to win the Arthur Mullett (Rosebowl). The club are naturally pleased that their secretary, A. Mussel was able

to help to bring back the power team award at Wembley.

A postal contest was recently run between LEWES M.F.C. and SARNIA M.F.C. in Gloucestershire. There were two events, rubber and glider, and each club won one, so that a further match is being arranged to settle the issue. Both clubs raised their glider records, Lewes to 8.34 (O.G.S.) and Sarnia to 6.30 (I.T.S.). (In 'The Seal'. Interesting models include 'T. Davis' scale *Hedrian*, which is intended for towing behind a *Junior 60*, and has been the cause of much speculation and argument for some time.

### South Western

Winner of HILMSTER D.M.A.C. annual A2 contest was this year R. Peppitt with his *o.d. Gook I*, followed by K. Priest flying a *Quicker*. A duplicate *Gook I* was lost 5 min. O.G.S. by G. Morris, creating a record for the first model to disappear upwards fully *o.d.* in Devon. A new rubber record of 6.30 has been set by I. Johnson with his *o.d. Ephor*, and R. Sutton has upped the 1955 power record to 4.30 with a Tiger powered *Stim Mini*. That's all for another month.

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International P.A.A. Load (2.5 c.c.)  
1. Parsons, R. Prestwick 1.40

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1. Muller, P. London 3.37

Rubber P.A.A. Load  
1. O'Donnell, J. Salford 2.36

Jetix Radio  
1. Armstrong, R. Bellis 19.1

Class A Combat  
1. Jones, R. Maybole

Class B Combat  
1. Dunn, I. Perth

Class B Team Race  
1. Barclay, A. Perth

P.A.A. Team Race  
1. Howard, J. Nottingham

Planes  
1. Collinson, A. R. Bradford 11.08  
2. Gaster, M. London 10.43  
3. Ford, G. Newcastle 9.32

Glider  
1. Gilroy, I. Galston 10.03  
2. Hinds, S. Wallasey 8.26  
3. Nicholson, P. Wallasey 8.20

Rubber  
1. O'Donnell, H. Salford 12.00  
2. Bennett, E. London 10.16  
3. Hoppe, Bellis 10.13

Radio Control  
1. Breeze, V. 176 points

Scale  
1. Haist, R. Irvine 123 points

Best Placed Juniors  
Bryan, C. Wallasey

### NORTHERN GALA RESULTS

#### Croft, July 31st, 1955

Flight cup. 27 Entries  
1. Cartwright, J. Hull Pegasus 12:00  
2. O'Donnell, J. Whitefield 11:52  
3. Farlaney, J. Glasgow S.A. 11:30  
4. O'Donnell, H. Whitefield 11:13  
5. Bennett, E. Croydon 11:12  
6. Fairless, S. Novocastria 10:23

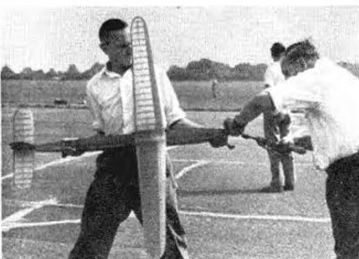
Frog Senior. 40 Entries  
1. Upson, G. Northwick Pk. 12:00  
2. Javis, V. C.M. 11:26  
3. Archer, W. Cheshire 12:00  
4. Spurr, A. Stockton 11:59  
5. Howarth, R. Whitefield 11:54  
6. Baggleston, B. Leeds 11:40

C.M.A. Cup. 44 Entries  
1. Harris, B. Prestwick 12:00  
2. Simlock, J. Prestwick Pk. 11:19  
3. Farrar, A. Pontefract 12:00  
4. Chadwick, J. Ashton 10:50  
5. Clay, C. York 10:52  
6. Morley, Creswell 10:42

Pan American Cup. 6 Entries  
1. Faulkner, B. Cheshire 3:49  
2. Firth, R. York 2:57  
3. Morgan, D. Wigan 2:27

Team Race International Class  
1. Rhodes, A. Foresters 5:20  
2. Team Race Class "B"  
1. McNess, G. West Essex 8:07

Speed  
Class I R. Giblin East London  
Class II R. Giblin East London



The successful South Midland Area Rally which attracted more competitors than a good many other 'Festivals' and 'Galas' was particularly enjoyable for the lack of burden of inquisitive spectators. Seen left, H. Rosell unhooks the window from his winning rubber job, held by champion Ted Evans. Below, in the AERO MODELLER R.C. trophy, the Northern Heights boys, Bob Copland at the helm puzzle out a spot of radio uncontrol. Meeting is held annually in August at Cranfield and is a "must" for all Home Counties Clubs.

### AEROMODELLER R.C. Contest

1. O. E. Hensley Bushey Park 265 pts  
2. A. McDonald West Essex 212 pts  
3. J. Fox Hatfield 205 pts  
4. G. Honeest-Redlich Bushey Park 177 pts  
5. R. Blunt Coventry Member 140 pts  
6. I. Robertson West Herts 118 pts

### SOUTH MIDLAND AREA RALLY RESULTS

Team Race "A" Cranfield, August 21st 9:45  
Team Race "B" K. Marsh (W. Essex) 9:45  
Combat Grimmett (W. Bromwich) 4 cuts  
Chuck Glider R. Monks (Birmingham) 2:12

Rubber  
1. H. W. Revell (Northampton) 12:00  
2. A. E. Jones (Birmingham) 11:26  
3. R. Monks (Birmingham) 11:05

Glider  
1. A. Barr (Coventry) 12:00  
2. R. Adamson (Derby) 10:18  
3. D. Morley (Croydon) 9:57

Power  
1. J. Bickerstaffe (Rugby) 11:11  
2. R. Marsh (Coventry Member) 11:10  
3. R. C. Draper (Coventry) 11:10

R. Control  
1. E. Ardron (Ely) 111 pts  
2. H. Boys (Northampton) 37 pts  
3. G. H. Redlich (Bushey Pk.) 52 pts



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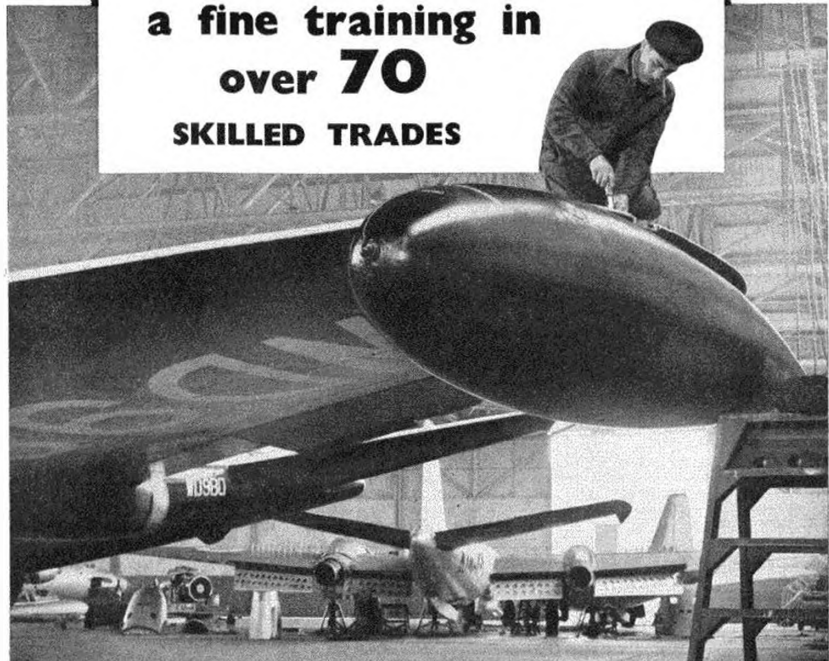
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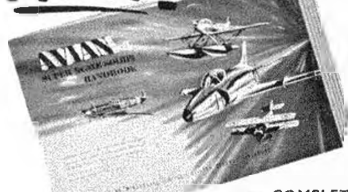
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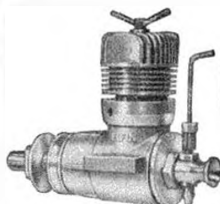
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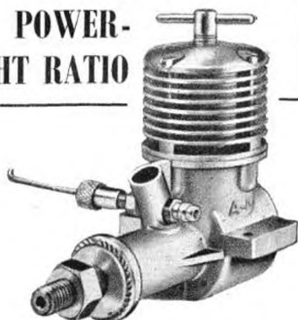
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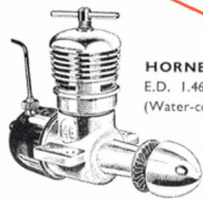
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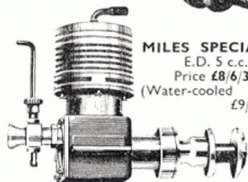
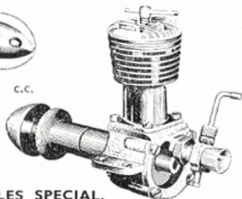
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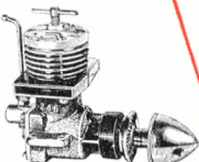
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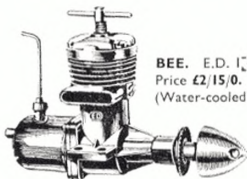


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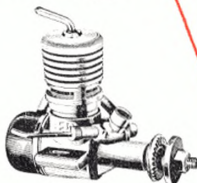
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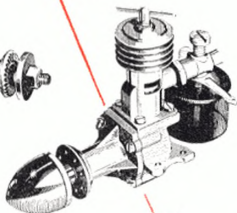


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